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Handbook of Proto-Tibeto-Burman: System and Philosophy of Sino-Tibetan Reconstruction

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System and Philosophy of Sino-Tibetan Reconstruction

by
James A. Matisoff

The paper used in this publication meets the minimum requirements of ANSI/NISO Z39.48-1992
(R 1997) (*Permanence of Paper*).{∞}

To the memory of

Paul K. Benedict (1912-1997)

Grant Support

Acknowledgments

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1. See *Grant Support* in the front matter.

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2. Names with asteriks belong to students who have received their doctorates since their STEDT stint.

Ruffin, Keith Sanders, Marina Shawver, Elizabeth Shriberg, Helen Singmaster, Tanya Smith, Gabriella Solomon, Silvia Sotomayor, *Jackson Tianshin Sun, Laurel Sutton, *Prashanta Tripura, Nancy Urban, Kenneth VanBik, Blong Xiong, *Liansheng Zhang.

It is a pleasure to single out several "Stedtniki" whose contributions to this project and the present volume have been particularly outstanding, and all of whose computorial expertise infinitely outstrips my own:

• John B. ("J.B.") Lowe, the only researcher who has been continuously working at STEDT since its inception in 1987, designed our initial computer environment and has been fine-tuning it ever since, creating original database software adapted to the highly specialized needs of the project and breaking new conceptual ground in the use of the computer for etymological research.[3]

• Randy J. LaPolla, now teaching at the City University of Hongkong, has also been affiliated with STEDT since the beginning. Until receiving his doctorate in 1990, he played a vital part in our activities, including the preparation of STEDT Monographs and the processing of fieldworkers' questionnaires. His superb knowledge of Chinese has been a prime asset to the project.

• Zev J. Handel ("Z as in *zebra*, V as in *violin*", as he explains over the telephone), is a specialist in Chinese historical phonology, now teaching at the University of Washington. He was active at STEDT in the 1990's, and had a major role in the formatting of our prototype "fascicle" on the *Reproductive System* for our projected *Bodyparts* volume, adding bells and whistles like the program to insert notes at various points in the etymologies, and transforming my hand-scrawled semantic diagrams into elegant computer graphics. I am especially grateful to him for producing the concise comparison of three of the most influential systems for reconstructing Old Chinese that appears as an Appendix to this *Handbook*.

When I went off on sabbatical to Taiwan during 1995-96, I left the day-to-day running of STEDT in the capable hands of J.B. and Zev. One day I e-mailed them from Taipei, referring to them as the "duumvirate". Back came an aggrieved message from J.B., protesting that they really would rather be called the "smart-virate". No argument there.

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3. J.B.'s work at STEDT has already spun off into several other etymological projects on which he has consulted here and abroad: M. Mazaudon and Boyd Michailovsky's *Reconstruction Engine* (Paris) for testing putative cognate sets in Himalayan languages; L. M. Hyman's *Comparative Bantu On-line Dictionary* (CBOLD, Berkeley); Sjors van Driem and K. B. Kepping's *Tangut Dictionary Project* (Leiden),.and Sharon Inkelas's *Turkish Electronic Living Lexicon* (TELL, Berkeley).

We usually have a pretty good time at STEDT, sometimes wearing our project T-shirts, and communicating in a strange polysyllabic jargon composed of items like *semcat*, *pan-allofamic formulas*, *extra-fascicular etyma*, *supporting forms*, *add-sourcing*. There is a certain *esprit de corps* and air of intellectual excitement, which has seen us through stressful experiences like the break-ins and thefts of our computer equipment (April 1989). To all Stedtniki, past and present, my love and appreciation.

Finally, my sincere thanks to the Editors of the *University of California Publications in Linguistics* series, first to Rose Anne White, former UCPL Series Editor, with whom I had a happy working relationship since 1972; to the current UCPL Editor, Katherine Warne; to Michelle Echenique, Electronic Publishing Manager; to John Lynch, Production Editior; and to the Director of U.C. Press, Lynne Withey. Their support and encouragement in the final stages of the editorial process has made it a thoroughly pleasant experience.

Last but not least in love, I thank my wife Susan for sustaining me in this effort from start to finish, as she has in all things for over 40 years.

JAM
Berkeley, March 2003

Preface

My involvement in Tibeto-Burman (TB) and Sino-Tibetan (ST) comparative reconstruction dates from my first fieldwork on Jingpho, Burmese, and Lahu in the 1960's, and especially from my intense contact with Paul K. Benedict when I was teaching at Columbia University (1966-69). The manuscript version of Benedict's *Sino-Tibetan: a Conspectus* (*STC*) had been lying around unpublished since its composition around 1940; it was exciting for me to contribute to its eventual publication in 1972. With its nearly 700 TB cognate sets, and over 300 TB/Chinese comparisons, the *Conspectus* ushered in the current renaissance of TB and ST comparative linguistics. Its rigor and precision, as well as the breadth of its vision, have made it the indispensable point of departure for subsequent work in the field.

While there is certainly room for tinkering with a few details of Benedict's reconstructive scheme for Proto-Tibeto-Burman (PTB), the major features of the system itself remain basically unassailable. The real progress that has been made in the past 30 years lies elsewhere. An avalanche of new data from recent fieldwork has strengthened the support for previously reconstructed etyma and has permitted the reconstruction of hundreds of new roots at all taxonomic levels of TB, though many more undoubtedly remain to be discovered. The harnessing of the computer for etymological research has speeded up the identification of new cognates and provided a powerful tool for testing the validity of proposed reconstructions. A better understanding of the variational processes at work in TB and ST word-families has enabled us to decide more accurately whether sets of forms that bear partial phonosemantic resemblances to each other are really variants of the same etymon or etymologically independent. On the Chinese side, the successors to Karlgren have made profound changes in the reconstructive scheme for Old Chinese, and it is no exaggeration to say that the field of historical Sinology is now going through a

period of ferment. Still, almost all of *STC*'s suggested Chinese comparanda for PTB etyma have gone unchallenged.[1]

Despite its brilliance, the *Conspectus* is notoriously difficult to use, largely due to its complex apparatus of footnotes, which often (especially in the Chinese section) occupy more of the page than the text itself. These notes include Benedict's original ones from the 1940's, as well as those he and I added before publication in 1972. Some 200 valid etymologies are squirreled away in these convoluted notes, but they also contain a number of errors, unsubstantiated speculations, and over-complications.

Benedict himself realized the limitations of the data he had to work with, and never intended *STC* to be more than an overview or "conspectus" of its vast subject. Neither did he structure it as a practical handbook which systematically tabulated the sound correspondences among the major languages of the family at all canonical points of the syllable. (Such information is certainly extractable from the terse but labyrinthine pages of *STC*, but at the cost of considerable labor.) Towards the end of his life Benedict does seem to have felt the need to embark on such a systematic project, although it never actually got off the ground.

The present work may be viewed largely as an updating, clarification, and expansion of *STC*. It aims to build on the valid etymologies already proposed, but also to present new ones that conform to established sound correspondences. When necessary, previously proposed etymologies are modified in order to accommodate new data.

In this *Handbook*, I have organized the discussion according to the inventory of proto-entities at the various points of the syllable: initial consonants; medial glides; prefixes; simple and diphthongal vocalic nuclei; closed syllable rhymes (with final nasals, stops, liquids, and -s); and suffixes.[2] Wherever possible, the regular reflexes in major languages of these syllabic elements are displayed in tabular form. The best etymologies illustrating each sound-correspondence are presented, and exceptional or problematic cases are discussed, with alternative analyses suggested.

That is the "systematic" part. The "philosophical" aspects of this book are more elusive, but implicit throughout. First of all, I have striven for clarity and simplicity of

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1. The over 300 TB/OC comparisons made in *STC* are conveniently indexed in the excellent review by Chou Fa-kao (1972).

2. Similarly organized examples of the Handbook genre in Southeast Asia include Li Fang-Kuei's *A Handbook of Comparative Tai* (1977) and Wang Fushi's *Miáoyǔ fāngyán shēngyùnmǔ bǐjiào* (Comparison of the Initials and Rhymes of the Miao Dialects; 1979).

presentation, for "user-friendliness". Being understandable rather than obscurantist poses certain risks, in that one's opinions are clear and therefore falsifiable in the light of new data, but it has the advantage of encouraging feedback from others.[3] Secondly, I operate under a theoretical framework according to which the proto-lexicon is not conceived of in terms of monolithic, phonosemantically invariant etyma, but rather as a collection of word families that may each exhibit some internal variation on both the phonological and semantic planes, but according to certain reasonable principles. Distinguishing between such valid variational phenomena and wild speculative leaps is not always easy.

* * *

After the publication of the *Conspectus*, further progress in intra-TB and TB/Chinese comparison seemed to depend on multiplying the number of reliably reconstructed etyma, as well as systematizing and refining the methodological underpinnings of the reconstructions. In the mid-1970's, when I was attempting to apply the principles of glottochronology in order to subgroup the TB family, the very first item of "basic vocabulary" that I looked at happened to be 'belly / stomach'. Much to my initial dismay, I quickly found that it was futile to use a simple wordlist to try to subgroup a family as complex and ramified as TB. In fact it was impossible even to deal in isolation with a single point in semantic space; etyma with the meaning 'belly' or 'stomach' spilled over into concepts like 'cave / hole', 'swelling', 'calf of leg', 'liver', 'guts', *etc.* I became preoccupied with notions of semantic variability, semantic fields, and the field of bodypart nomenclature in particular. At the same time I could not help noticing the morphophonemic variations displayed by almost every etymon previously or newly reconstructed. Instead of guiltily sweeping these variational phenomena under the rug, I began to revel in them. In *Variational Semantics in Tibeto-Burman* (1978) I set out to establish an explicit methodology for handling phonosemantic variation in word families, introducing the notion of allofams and a notation for diagramming patterns of semantic association ("metastatic flowcharts").

In those pre-computer days, I naturally had to assemble my data by hand, copying out bodypart words from dictionaries and sorting them into synonym sets on filecards, then grouping them into putative cognate sets. The older sources used by Shafer and Benedict were supplemented by an ever-increasing volume of new material in the 1970's and 1980's, much of it from post-Cultural Revolution China, but also from India, Nepal, and

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3.   The difficulty of *STC* can be used as an excuse for not studying it thoroughly. It would be tragic if its fundamental insights were to be forgotten.

Thailand. It eventually became apparent that the job of digesting these massive amounts of new and old data would be vastly facilitated by the use of computers.

The hitch was my own ignorance of computer technology beyond the level of simple word-processing. Fortunately I somehow got the idea of applying to federal granting agencies for a longterm project to create a computerized etymological dictionary of Tibeto-Burman / Sino-Tibetan based on semantic principles, *i.e.* an etymological thesaurus.[4] In 1987, the *Sino-Tibetan Etymological Dictionary and Thesaurus* Project (STEDT) got under way, funded jointly by the National Science Foundation and the National Endowment for the Humanities.

Thanks to the efforts of a succession of computer-savvy graduate students (see the Acknowledgments), a massive lexical database of forms from over 250 TB languages and dialects has been created, mostly of bodypart terminology at first, but rapidly extending to other areas of the lexicon. It has been a race between the vertiginous progress of computer technology (when we started in the Pleistocene, 1987, we were using Mac Pluses!) and our ever-expanding needs for disk capacity, memory, and operating speed. The hardwon experience gained at the STEDT project has inspired similar lexical database projects in the U.S. and abroad.

It was originally planned to publish the Sino-Tibetan Etymological Dictionary and Thesaurus as a series of printed volumes, each containing full details on all the etymologies in a given semantic area, starting with bodyparts and then proceeding to animal names, natural objects, verbs of motion, and all the rest of the lexicon. The sheer amount of the etymologizable data soon made it clear that this was unrealistic, and that each projected volume of STEDT would have to be split up into smaller units or "fascicles", *e.g.* in the case of bodyparts into ten subdivisions including HEAD, LIMBS, INTERNAL ORGANS, DIFFUSE ORGANS, REPRODUCTIVE SYSTEM, *etc.*, each to be published separately. I decided to start with the reproductive system, not only because of its prurient interest but also because it seemed like the point of departure for all things. Accordingly a printed manuscript of some 480 pages was produced in 1997-98, called *Sino-Tibetan Etymological Dictionary and Thesaurus, Volume I: Bodyparts, Fascicle 1: The Reproductive System*, containing 286 pages of forms assembled into 174 cognate sets, divided into nine chapters: (1) Egg, (2) Birth, (3) Navel, (4) Breast, (5) Vagina, (6) Womb,

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4. The shining example of an etymological thesaurus in the field of Indo-European is Carl Darling Buck's *A Dictionary of Selected Synonyms in the Principal Indo-European Languages* (1949).

(7) Penis, (8) Copulate, (9) Body Fluids. As part of the front matter, I put together a 60 page essay on the initial consonants and consonant clusters of Proto-Tibeto-Burman.

As it turned out, perhaps fortunately, that introductory essay soon took on a teratoid life of its own, and became an example of what one might call in Proto-Tibeto-Burman

*kʷəy	lətak	rəmay	gəyaːp	way
dog	ACC	tail	wag	COP/NOM

or "the tail wagging the dog".[5] Was I not responsible for dealing with the whole proto-syllable, not just the initial consonants? I delayed publication of the "Reproductive Fascicle" until I could get the whole job done. The "introductory essay", then entitled *System and Philosophy of Tibeto-Burman Reconstruction*, eventually grew to its present length of some 600 pages. It gradually dawned on me that it would be preferable to publish it as a stand-alone book, indeed a *Handbook*.

This decision has much to recommend it. In its present form, the phonological approach of this *Handbook* is complementary to the main thrust of the STEDT project, which is semantically organized. Both prongs of attack are certainly necessary. Henceforth each set of etymologies in the various semantic areas of the lexicon can be put up on the worldwide web as soon as they are deemed ready to go, rather than waiting until they can appear in print form. Many trees will be spared as reams of paper are saved. As each series of etymologies is released, it will be possible to solicit comments and criticisms from colleagues all over the world, and it will be simplicity itself to incorporate any addenda or corrigenda. It is extremely wasteful of space to print out computer records from a database -- who wants to see the gloss 'egg' printed out hundreds of times? Since STEDT has had a policy of "following copy", the same form from a given language (especially well documented ones like Written Burmese or Written Tibetan) is likely to appear several times in slightly different transcriptions used in the various sources. Instead of trying to "normalize" these, or indeed to delete totally identical records from different sources, we can just include them all, thereby saving much drudgery, since space will not be an issue.

Perhaps the greatest advantage of having this *Handbook* appear before the semantically organized etymologies are promulgated is that it can serve as a standard or "template" against which each newly proposed etymon can be tested. Let us say, *e.g.*, that a hypothetical new PTB root **b-zer-s** has been reconstructed with the meaning 'tonsil'.

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5. The presence of the accusative particle **lətak** is motivated by the semantic anomalousness of this phrase, which has also caused the fronting of the object ***kʷəy** 'dog' to initial position.

The supporting forms for this etymology can then be compared for consistency with other data that motivate the reconstructions of the same proto-elements, *i.e.* other etyma with prefixal ***b-** (§4.4.3), with initial ***z-** (§3.3), with the liquid-final rhyme ***-er** (§9.2.3), and with suffixal ***-s** (§11.4). Before long the *Handbook* itself can be put up on the web, so that these new etymologies may be plugged directly into it.

Much obviously remains to be done. The data are still uneven in the various branches of the family, ranging from the overwhelmingly copious to the tantalizingly sparse. Most strikingly perhaps, this *Handbook* makes no attempt to reconstruct tones at the PTB level, although this can already be done at the level of certain individual subgroups (*e.g.* Lolo-Burmese, Tamangic, Karenic).

Some reconstructions are given at the subgroup level, when they are available, and a number of roots are marked as being confined to certain subgroups (*e.g.* Himalayan, Kiranti, Kamarupan, Lolo-Burmese, Karenic). It is precisely these roots of limited distribution, or "cognate isoglosses", that will prove to be important for a finer subgrouping of the TB family. However, new data frequently forces us to revise our judgments of etyma distribution: many roots considered to be confined to a single subgroup in *STC* must now be set up for TB as a whole. These are usually noted in the text.

As emphasized in the Conclusion (Ch. XIII), the approach of this *Handbook* is definitely conservative, in that speculative etymologies are almost always avoided, or at any rate suitably hedged. Variational phenomena are handled with care; phonosemantically non-identical roots are not claimed to be co-allofams unless the morphophonemic relationship between them is paralleled in other word families. Semantic leaps are kept to a minimum, and detailed justification is provided when the meanings of putative cognates diverge significantly. Many solid Chinese comparanda to TB etyma are offered, but no attempt is made to choose among the often contradictory reconstructive schemes for Old Chinese;[6] for now I just use the classic reconstructions of Karlgren (with some modifications[7]), a policy which *STC* also followed.[8] I usually have not tried to set up PST forms, as *STC* sporadically tries to do. I just give the best

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6. See "A Concise Introduction to Old Chinese Phonology" by Zev Handel (below, *Appendix A*), which treats the major differences in the reconstructive systems of Karlgren, Li Fang-Kuei, and W.H. Baxter.

7. One minor change is that we write the velar nasal as "ŋ" instead of "ng".

8. Despite of the fact that Karlgren's system has been superseded and simplified in some respects by subsequent scholars, *GSR* remains the best-known, most copious, and most convenient reference for OC. I conventionally do not precede OC reconstructions with an asterisk. Asterisks do, however, appear before the OC forms cited in *Appendix A*.

comparanda. That is why this is basically a Tibeto-Burman handbook, even though its system and methodology apply to all of Sino-Tibetan (hence the subtitle).

The primary organization of this *Handbook* is by rhyme, since this is the most stable part of the syllable.[9] In sharp contrast to Indo-European, the manner of initial consonants (voicing and aspiration) in TB/ST is highly variable, due to the pervasive phenomenon of prefixation (see Ch. IV). Chinese comparanda (I usually avoid the term "cognate") are given mostly under the proto-rhyme of their TB counterparts. Most correspondence charts of reflexes also appear under the rhymes. Still there is a certain unavoidable repetitiveness, in that the same root might be discussed in different contexts, *e.g.* with respect to its initial, its rhyme, and/or its variational pattern. The Indexes will facilitate finding all references to a given etymon.

A few words about nomenclatural and transcriptional matters:[10]

· Names for TB languages have undergone frequent changes, as exonyms are replaced by autonyms, and as names felt to be pejorative become politically incorrect.[11] However, certain older language names have been retained, just because they are more widely used in the literature: thus I use "Lushai" instead of the now-preferred self-designation "Mizo".

· Subgroup names can be particularly confusing. Occasionally I use equivalent names for the same subgroup, *e.g.* "Himalayish" or "Himalayan", "Bodo-Garo" or "Barish", "Kuki-Naga" or "Kuki-Chin-Naga". My use of "Kamarupan" as a geographical cover term for the subgroups of Northeast India (including Abor-Miri-Dafla, Bodo-Garo, and Kuki-Chin-Naga) remains controversial, although it is certainly useful.[12]

· Tones are not marked for every language that has them, especially not for those where no good tonological description is available. Tones are consistently marked for Lolo-Burmese languages and for Jingpho, as well as for the tonal languages cited in Sun *et al.*, 1991 (*ZMYYC*) and Dai *et al.*, 1992 (*TBL*); but they are only sporadically provided for such languages as Lushai and Lai Chin.

9. Hence the great utility of rhyming dictionaries for TB languages; Benedict put several such to good use during the compilation of the *Conspectus*.

10. For more details about the transcriptional systems used for key languages, see *Citational and Transcriptional Conventions*, below.

11. For a discussion of the issues surrounding the proliferation of language names in TB, see JAM 1986a.

12. See JAM 1999c ("In defense of 'Kamarupan' ").

xiii

Great care has been taken to ascribe etymologies to their original source. Any TB etymology or part thereof not specifically ascribed to a prior source is original with me, as far as I know. In any case, the responsibility for the TB reconstructions is mine alone.

It is hoped that this *Handbook* will prove useful to specialists and general linguists alike, and that it will help to demystify the most important understudied language family in the world.

Brief Table of Contents

Full Table of Contents

Full Table of Contents

Symbols and Abbreviations

I. General

I	Form I of a Chin verb
II	Form II of a Chin verb
*A	A is a reconstructed or hypothetical form
**A	A is a speculative form, or one that is claimed never to have existed
A > B	An older form (A) became a later form (B).
A < B	A is derived from an older form B
A ⪤ B	A and B are members of the same word family; A and B are co-allofams of a single etymon. Indicates major or minor *interlingual* variation, or major *intralingual* variation. Cp. "~".
A ?⪥? B	Are A and B allofamically related?; Do A and B belong to the same word-family?
A ✳ B	A and B are not co-allofams.
A ~ B	Indicates minor intralingual variation between A and B.
CLF	classifier
dial.	dialect
esp.	especially
id.	*idem* ; same as preceding.
lit.	literally
n. *or* N.	noun
p.c.	personal communication
pr.	pronoun
prob.	probably

prt.	particle
smn.	someone
sthg	something
syll.	syllable
ult.	ultimately
v. *or* V.	verb
v.i.	intransitive verb
v.t.	transitive verb

II. Languages and Proto-languages

Ak.	Akha
BG	Bodo-Garo (= Barish)
Bs.	Burmese
Dim.	Dimasa
G.	Garo
Gk.	Greek
IA	Indo-Aryan
Insc. Bs.	Inscriptional Burmese
Jg.	Jingpho (=Kachin)
Jse.	Japanese
Kan.	Kanauri
KC	Kuki-Chin
KCN	Kuki-Chin-Naga
Kmrp	Kamarupan
KN	Kuki-Naga
LB	Lolo-Burmese (= Burmese-Lolo = Yi-Burmese = Burmese-Yipho)
Lh.	Lahu
Lp.	Lepcha
Lu.	Lushai (=Mizo)
Mand.	Mandarin
MC	Middle Chinese (= Karlgren's "Ancient Chinese")
Me.	Meithei (= Manipuri)
Mk. *or* Mik.	Mikir
MK	Mon-Khmer
Mod. Bs.	Modern Burmese

OC	Old Chinese (= Karlgren's "Archaic Chinese")
PAN	Proto-Austronesian
PAT	Proto-Austro-Tai
PIE	Proto-Indo-European
PK	Proto-Karen
PLB	Proto-Lolo-Burmese
PNN	Proto-Northern-Naga
PST	Proto-Sino-Tibetan
PTB	Proto-Tibeto-Burman
rGyal.	rGyalrong
Sk. *or* SK	Sangkong
Skt.	Sanskrit
ST	Sino-Tibetan
Tav.	Tavoyan (dialect of Bs.)
TB	Tibeto-Burman
TN	Tangkhul Naga; also JAM 1972b
WB	Written Burmese
WT	Written Tibetan

III. Journals, Publishers, Conferences

AA	*American Anthropologist*, (Menasha, WI)
ALH	*Acta Linguistica Hafniensia* (Copenhagen)
AO	*Acta Orientalia* (Copenhagen)
AOH	*Acta Orientalia Academiae Scientiarum Hungaricae* (Budapest)
ARA	*Annual Review of Anthropology*
AS/BIHP	*Academia Sinica / Bulletin of the Institute of History and Philology* (Peking/Beijing; Taipei)
BEFEO	*Bulletin de l'Ecole Française d'Extrême-Orient*
BMFEA	*Bulletin of the Museum of Far Eastern Antiquities* (Stockholm)
BSLP	*Bulletin de la Société de Linguistique de Paris*
BSO(A)S	*Bulletin of the School of Oriental (and African) Studies* (London)
CIIL	Central Institute of Indian Languages (Mysore)
CLAO	Cahiers de Linguistique Asie Orientale (Paris)
EFEO	Ecole Française d'Extrême-Orient
EHESS	Ecole des Hautes Etudes en Sciences Sociales (Paris)

FICCAL	First International Conference on Comparative Austronesian Linguistics (Honolulu, 1974)
GK	*Gengo Kenkyü* (Tokyo)
HJAS	*Harvard Journal of Asiatic Studies* (Cambridge, MA)
HRAF	*Human Relations Area Files* (New Haven)
ICSTLL	International Conference on Sino-Tibetan Languages and Linguistics
IIJ	*Indo-Iranian Journal* (The Hague)
IJAL	*International Journal of American Linguistics*
ILCAA	Institute for the Study of Languages and Cultures of Asia and Africa (Tokyo)
JA	*Journal Asiatique* (Paris)
JAAS	*Journal of Asian and African Studies* (Tokyo)
JAOS	*Journal of the American Oriental Society* (New Haven)
JBRS	*Journal of the Burma Research Society* (Rangoon)
JCL	*Journal of Chinese Linguistics* (Berkeley)
JICSCUH	*Journal of the Institute of Chinese Studies of the Chinese University of Hongkong*
JRAS	*Journal of the Royal Asiatic Society* (London)
JRASB	*Journal of the Royal Asiatic Society of Bengal* (Calcutta)
LTBA	*Linguistics of the Tibeto-Burman Area* (Berkeley)
MKS	*Mon-Khmer Studies* (Bangkok)
MS	*Monumenta Serica* (St. Augustin, Germany)
MZYW	*Minzu Yuwen* (Beijing)
NEFA	North-East Frontier Agency (Arunachal Pradesh)
OPWSTBL	*Occasional Papers of the Wolfenden Society on Tibeto-Burman Linguistics* (Bloomington, IN; Champaign-Urbana, IL).
POLA	Project on Linguistic Analysis (Berkeley)
SEALS	Southeast Asian Linguistic Society
SELAF	Société d'Etudes Linguistiques et Anthropologiques de France (Paris)
SIAS	Scandinavian Institute of Asian Studies (Copenhagen)
SiL	*Studies in Linguistics* (Berkeley)
SIL	Summer Institute of Linguistics (Dallas, TX)
SOAS	School of Oriental and African Studies (London)
SP	*Studia Phonologica/Onsei Kagaku Kenkyū* (Kyoto)
SS	*Studia Serica* (Chengdu)

STEDT	The Sino-Tibetan Etymological Dictionary and Thesaurus Project (University of California, Berkeley)
TAK	*Tōnan Ajia Kenkyū* (Kyoto)
TP	*T'oung Pao* (Leiden)
YYYJ	*Yuyan Yanjiu* (Wuhan)

IV. Works and Individuals Cited [1]

AD	Karlgren 1923: *Analytic Dictionary of Chinese and Sino-Japanese.*
AW	Alfons Weidert.
CISTL	Kitamura, Nishida & Nagano, eds. 1994: *Current Issues in Sino-Tibetan Linguistics.*
CSTS	McCoy & Light, eds. 1986: *Contributions to Sino-Tibetan studies.*
CTT	Hyman, ed. 1973. *Consonant Types and Tone.*
DL	Matisoff 1988b: *The Dictionary of Lahu.*
DRM	David R. Mortensen.
GCC	Shibatani, ed. 1976: *The Grammar of Causative Constructions.*
GD	Matisoff 1970: "Glottal dissimilation and the Lahu high-rising tone: a tonogenetic case-study".
GEM	Geoffery E. Marrison.
GL	Matisoff 1973b/82: *The Grammar of Lahu.*
GRDT	Hashimoto, Mantaro J., ed. 1976: *Genetic Relationship, Diffusion and Typological Similarities of East end Southeast Asian Languages.*
GSR	Karlgren 1957: *Grammatica Serica Recensa.*
GSTC	Matisoff 1985a: "God and the Sino-Tibetan copula".
HCT	Li 1977: *A Handbook of Comparative Tai.*
ILH	Inga-Lill Hansson.
IPLS	Milner & Henderson, eds. 1965: *Indo-Pacific Linguistic Studies.*
JAM	James A. Matisoff.
KVB	Kenneth VanBik.
LSI	Grierson & Konow, eds. 1903-28. *Linguistic Survey of India.*
LSTA	Thurgood, Matisoff & Bradley, eds. 1985: *Linguistics of the Sino-Tibetan Area: the state of the art.*
LTNS	Barrau *et al.*, eds. 1972: *Langues et Techniques, Nature et Société.*

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1. For full citations see the References.

NHTBM	Nishi, Matisoff & Nagano, eds. 1995: *New Horizons in Tibeto-Burman Morphosyntax*.
OPWSTBL 1	Becker, ed. 1969: *Occasional Papers of the Wolfenden Society on Tibeto-Burman Linguistics*.
OPWSTBL 2	Lehman, ed. 1971: *Papers on Tibeto-Burman Historical and Comparative Linguistics from the 2ⁿᵈ Annual Meeting on Sino-Tibetan Reconstruction*.
Pal. suff.	Matisoff 1995a: "Sino-Tibetan palatal suffixes revisited".
PKB	Paul K. Benedict.
PSLTB	Matisoff 1997a: "Primary and secondary laryngeals in Tibeto-Burman".
QV	Matisoff 1979: "Problems and progress in Lolo-Burmese: *Quo Vadimus*?"
RSC	Richard S. Cook.
SB	Susanna Björverud.
STAL	Benedict 1976a: "Sino-Tibetan: another look".
STC	Benedict 1972a: *Sino-Tibetan: a Conspectus*.
TBL	Dai, Huang *et al*., eds. 1992: *Zàng-Miǎn yǔzú yǔyán cíhuì* [Tibeto-Burman Lexicon].
TN	Matisoff 1972b: "Tangkhul Naga and comparative Tibeto-Burman".
TSR	Matisoff 1972a: *The Loloish Tonal Split Revisited*.
WBRD	Benedict 1976b: *Written Burmese Rhyming Dictionary*.
WHB	William H. Baxter.
ZMYYC	Sun *et al*., eds. 1991: *Zàng-Miǎn-yǔ yǔyīn hé cíhuì* [Tibeto-Burman Phonology and Lexicon].

Citational and Transcriptional Conventions

Citations of published works

Citations of Benedict 1972 (*STC*) are of three types, referring either to a numbered etymological set, a page, or a footnote. Etymological set numbers are preceded by a cross-hatch, *e.g. STC* #262. Page references are indicated by a colon, *e.g. STC*:125. Footnotes are cited with a lower-case n., *e.g. STC*:n.340.

The cross-hatch or pound-symbol is also used when citing numbered etymological sets from other sources: *e.g. TSR* #85, *GSTC* #37, *ZMYYC* #426, *TBL* #1443. Numbers following colons are to be interpreted as page references, *e.g.* French 1983:189, *VSTB*:217-19, Hanson 1906/1954:145.

Proto-Tibeto-Burman

The symbols used to transcribe the phonemes of PTB are self-explanatory for the most part. One major difference from *STC* is the transcription of the *palatal series. While *STC* vacillates between a cluster-notation */ **sy- zy- tsy- dzy- ny-** / and a "unit-phoneme" notation using acute accents */ **ś- ź- tś- dź- ń-** /, this *Handbook* consistently opts for the former: */ **sy- zy- tsy- dzy- ny-** /, largely because this makes it easier to symbolize by parentheses the many cases where there is variation between a dental and a palatal consonant, *e.g.* ***ts(y)-, *dz(y)-**.[1]

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1. See the discussion of this issue below, 3.3.1. When alternative transcriptions of a particular etymon are at issue, forms from *STC* are occasionally cited with the unit-phoneme notation.

PTB long vowels are transcribed with a colon, *e.g.* ***gaːp**, ***riːl**. The numerous cases where there is variation between long and short vowels are symbolized by parentheses, *e.g.* ***ga(ː)p**, ***ri(ː)l**.

The variation that many etyma show between initial labial stop and semivowel is symbolized by an "extrusional" superscript / ᵂ / written after the stop, i.e. / ***pʷ- bʷ-** /. [2] An initial sequence of **h**-plus-**w** is also treated sometimes as if it were a unitary labiolaryngeal phoneme / **hʷ-** /.[3]

Old and Middle Chinese

The symbols used by Karlgren in his OC and MC reconstructions are succinctly outlined by Richard S. Cook and Zev J. Handel in the tables and notes in *Appendix B* (beginning on page 575 below).

Written Tibetan

Several transcriptions of WT are in common use. The system adopted here observes the following conventions:

I follow tradition by writing the WT final stops with the voiced symbols / **-b -d -g** /, as they are in Tibetan orthography, even though there is no voicing contrast in syllable-final position.[4]

Aspirated stops are symbolized by / **h** / rather than by apostrophes:

/ **ph- th- kh-** /.

The palatal series of initials is transcribed with acute accents:

/ **ś- ź- tś- tśh- dź- ń-** / .

The controversial symbol called *a-chung* (see below 4.2.2) is transcribed as / **ḥ** /, with a subscript dot, *e.g.* **ḥog** 'below', **ḥbu** 'insect', **ḥdzags** 'drop/drip', **ḥtshag** 'strain/filter'.[5]

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2. See below 3.4.2(3), 3.6.1, 4.5.1, *etc.*
3. See below 3.5.
4. This convention is sometimes also followed with other Himalayan languages under Tibetan orthographic influence, *e.g.* Kanauri. For all other TB languages, final stops are written with the voiceless symbols /-**p** -**t** -**k**/.
5. Another common way of transliterating *a-chung* is by an apostrophe: **'og**, **'bu**, **'dzags**, **'tshag**. Forms cited from Beyer 1992 (see esp. 11.2.1 below) follow his transcription of *a-chung* with a small capital ɴ-.

Proto-Lolo-Burmese

The PLB *palatal series is transcribed with wedges (hačeks) :

$$*/ \ \check{s}\text{-} \ \ \check{z}\text{-} \ \ t\check{s}\text{-} \ \ d\check{z}\text{-} \ /\ .$$

A series of *labiovelar unit phonemes is set up at the PLB level, written with superscript / ʷ /:[6]

$$*/ \ k^{w}\text{-} \ \ g^{w}\text{-} \ \ \eta^{w}\text{-} \ /\ .$$

The PLB *glottal prefix is separated from the following root-initial by a hyphen, *e.g.* ***ʔ-ba²**, ***ʔ-du¹**,***ʔ-pakᴴ**, ***ʔ-gapᴸ**. While there is tonal evidence for a voicing contrast after the glottal prefix in PLB syllables with *final stops (*e.g.* ***ʔ-pakᴴ** vs. ***ʔ-gapᴸ**), no such contrast can be demonstrated for PLB *open syllables with the glottal prefix. I conventionally write such syllables with voiced symbols (*e.g.* ***ʔ-ba²**, ***ʔ-du¹**).[7]

The PLB *nasal prefix may be conceived of either as having been homorganic to the following root-initial consonant (*[**mb- nd- ñdž- ŋg-**]) or as having been separated from the root-initial by a schwa.[8] Instead of indicating this prefix by an abstract symbol for an underspecified nasal (*e.g.* "***N-**"), I prefer to transcribe it (equally abstractly but less obtrusively) as "***m-**".

There are more PLB vocalic contrasts before final velars than before consonants at the other points of articulation. Although the differential reflexes of some of these rhymes in the various daughter languages are still not entirely clear, I tentatively set up such contrasts as ***-oŋ** / ***-uŋ** and ***-ok** / ***-uk** / ***-ök**.[9]

Tones are indicated for all reconstructed PLB forms. The proto-tones set up for non-stopped syllables are conventionally numbered from one to three, corresponding to Burmese clear, breathy, and creaky tones, respectively, *e.g.*:

PLB ***twa¹** 'handspan' / ***m-kum²** 'pillow' / ***ʔu³** 'egg' .

A two-way high vs. low tonal contrast is reconstructed for PLB stopped syllables, symbolized by superscript / ᴴ / and / ᴸ /, respectively, *e.g.*:

PLB ***s-myakᴴ** 'eye' / ***wakᴸ** 'pig' .

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6. See below 3.2(4).
7. See below 4.2.2(3a).
8. See below 4.3.2.
9. See below 7.2(5), 7.3(3), 8.4(1), 8.6(1), 8.1.2.

Written Burmese

WB aspirated obstruents are transcribed with postposed **h-** (/**ph- th- ch- kh-**/), but aspirated (= voiceless) sonorants are written with the **h-** preposed:

/**hm- hn- hñ- hŋ- hr- hl- hw- hy-**/

There is no contrast in WB between dental and palatal fricatives or affricates. Since the voiceless palatal affricate also occurs in syllable-final position (see below 8.3(1)), the affricates are transcribed with the palatal symbols / **c ch j** / rather than with the dental symbols / **ts tsh dz** /, *e.g.* **câ** 'eat', **chac** 'joint', **jut** 'stubborn'.[10] The palatal nasal / **ñ** / may also occur in syllable-final position (below 7.4), and is clearly a unit phoneme, *e.g.* **ñap** 'be squeezed', **khrañ** 'thread', **ʔəsâñ** 'liver'.

Several WB rhymes are transcribed in more than one way by different scholars. This Handbook adopts the same system as *STC* with respect to the following points:

> The open vowel written in the orthography with superscript "**i**" and subscript "**u**" is transcribed as /-**ui** /. The corresponding nasal- and stop-finalled rhymes are rendered as /-**uiŋ**/ and /-**uik**/.

> The rhymes now pronounced monophthongally in spoken Burmese as /-ɛ/ and /-ɔ/ are transcribed as the diphthongs /-**ai**/ and /-**au**/ for the WB stage. The nasal- and stop-finalled rhymes corresponding to the latter are transcribed as /-**auŋ**/ and /-**auk**/ (rather than as /-oŋ/ and /-ok/).

The three tones of WB are here symbolized by zero for Tone 1 (level with clear phonation, corresponding to PLB Tone *1); by a circumflex over the vowel for Tone 2 (high and/or falling with breathy phonation, corresponding to PLB Tone *2); and by a hook after the vowel for Tone 3 (high falling with creaky phonation, corresponding to PLB Tone *3), *e.g.*:

WB **phru** 'silver' (< PLB *plu^1)
WB **khâ** 'bitter' (< PLB *ka^2)
WB **la'** 'moon' (< PLB *la^3)

WB has no tonal contrast in stopped syllables.

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10. Note that I write the palatals differently in PTB, WT, PLB, and WB. This is not primarily due to pedantry, but rather partly to tradition, and partly to a desire to keep the various transcriptions distinct.

Other languages

· Jingpho

All Jingpho forms are cited with their tones, according to the dictionaries of Maran (1979) and/or Dai *et al*. (1983). High tone is shown by an acute accent (*e.g.* khá 'bitter', mətsát 'eight'), mid-tone by a macron (*e.g.* məsūm 'three'), low-tone by a grave accent (*e.g.* gùm-rà 'horse', šàt 'food'), and falling tone by a circumflex (*e.g.* ń-tâ 'house').

Unstressed Jg. syllables are vocalized with schwa (*e.g.* mətsát 'eight', ləŋâi 'one'), instead of with a-breve ("ă") as in the dictionaries of Hanson (1906/1954) and Dai et al. (1983).

Hanson's classic dictionary treated the low back monophthongal vowel [ɔ] as a diphthong, written with the two letters "aw". The transcription of this vowel in forms cited from Hanson has been normalized to /o/.

A Jingpho series of preglottalized sonorants was first discovered by Maran, a native speaker, in the 1960's, but has not been recognized in other sources. The occasional forms cited with such initials are transcribed according to Maran's system, *e.g.* ʔwàn 'fire'.

· Lahu

Forms are cited in the transcription of JAM (1973/82, 1988), except that the voiced velar fricative is here written as "ɣ", instead of with JAM's umlauted symbol "g̈".

· Lalo

Forms are cited in the transcription of Björverud 1998, with final glottal stop transcribed as "-q". As in SB's transcription, we write the low-stopped tone with a grave accent (*e.g.* lìq 'hand') but the high-stopped is herein written with an acute accent (*e.g.* ʔmíq 'eye'), instead of with SB's zero marking ("ʔmiq").

· Chin languages

Tones are only sporadically indicated for Chin languages, my principal sources being a copy of Lorrain's dictionary of Lushai/Mizo (1940) into which a native speaker, Siamkima Hkawlhring, had entered the tones by hand; and personal communications on Lai Chin tones from Kenneth VanBik.

Long vowels in Chin forms are written by doubling the vowel rather than by postposing a colon, *e.g.* Lai zaal 'shoulderbag', Lushai kóor 'peel/husk'.

· Tonemarks in cited forms

Forms from languages other than those mentioned above are cited with their tones whenever the source provides them, the most copious of these sources being *ZMYYC* and *TBL*, both of which use the Chao system of numerical tonemarks.

CHAPTER 1   *Introduction*

The great Sino-Tibetan language family, comprising Chinese on the one hand and Tibeto-Burman (TB) on the other,[1] is comparable in time-depth and internal diversity to Indo-European, and equally important in the context of world civilization. The overwhelming cultural and numerical predominance of Chinese is counterbalanced by the sheer number of languages (some 250-300) in the TB branch.

After the existence of this vast and ramified family of languages was posited in the mid-19th century, British scholars and colonial administrators in India and Burma began to study some of the dozens of little-known "tribal" languages of the region that seemed to be genetically related to the two major literary languages, Tibetan and Burmese. This early work was collected in the monumental *Linguistic Survey of India* (Grierson and Konow 1903-28), three sections of which (Vol. III, Parts 1,2,3) are devoted to wordlists and brief texts from TB languages.

Further significant progress in TB studies had to wait until the late 1930's, when the eccentric amateur comparativist Robert Shafer headed a Depression-era project called "Sino-Tibetan Linguistics", sponsored by the eminent anthropologist A.L. Kroeber of U.C. Berkeley.[2] With admirable thoroughness, the project staff assembled all the lexical material then available on TB languages, enabling Shafer to venture a detailed subgrouping of the family at different taxonomic levels, called (from higher to lower) *divisions, sections, branches, units, languages,* and *dialects*. This work was finally

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1.   Many scholars, especially in China, interpret "Sino-Tibetan" to include the Tai and Hmong-Mien families as well, though a consensus is developing that these latter two families, while possibly related to each other, have only an ancient contact relationship with Chinese (Benedict 1975a; JAM 1991a:486-90).
2.   For a readable and humorous account of this project, see Benedict 1975b (LTBA 2.1:81-92).

published piecemeal in a two-volume, five-part opus called *Introduction to Sino-Tibetan* (1966-67; 1974).

Shafer's junior collaborator Paul K. Benedict based his own work on the same body of material as Shafer, but achieved much more usable results. In an unpublished manuscript entitled *Sino-Tibetan: a Conspectus* (ca. 1942-43; henceforth *STC*), Benedict adopted a more modest approach to supergrouping and subgrouping than Shafer, stressing that many TB languages had so far resisted precise classification. While Shafer had included Tai in Sino-Tibetan, Benedict (1942) banished it from the family altogether, relating Tai instead to Austronesian.[3] Shafer's pioneering work, valuable as it was, suffered from his mistrust of phonemics, with a consequent proliferation of pseudo-precise and arcane phonetic symbols. Benedict's structural insight — his flair for isolating that which is crucial from masses of data — enabled him to formulate sound correspondences with greater precision, and to distinguish between regular and exceptional phonological developments.

The publication of a revised and heavily annotated version of *STC* in 1972, with J. Matisoff as contributing editor, laid the foundations for modern Sino-Tibetan historical/comparative linguistics. In this recension, nearly 700 Proto-Tibeto-Burman (PTB) roots were reconstructed (491 of them in numbered cognate sets, with about 200 more scattered throughout the text and footnotes), as well as some 325 comparisons of PTB roots with Old Chinese etyma, largely as reconstructed by Karlgren (1957). While Benedict focussed principally on five key, phonologically conservative TB languages (Tibetan, Burmese, Lushai [=Mizo], Kachin [=Jingpho], Garo), he also used data from more than 100 others, judiciously making allowances for inadequacies of transcription where necessary.[4]

The moment of writing (September, 1997) marks the 30th anniversary of the publication of *STC* in 1972. The recent tragic death of Benedict in a car accident (July 21, 1997) makes this a particularly appropriate time to take stock. How well has *STC* stood the test of time? The short answer is: remarkably well. The work has been reviewed about 15 times, almost always in a highly favorable tone,[5] and has been translated into Chinese.[6]

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3. To this putative megalolinguistic grouping, later to include Hmong-Mien and Japanese as well as Tai-Kadai and Austronesian, Benedict gave the name "Austro-T(h)ai" (see Benedict 1975a, 1990).

4. In a recently published work, Peiros and Starostin (1996) follow Benedict' s example in their choice of key TB languages, basing their Sino-Tibetan reconstructions on Written Tibetan, Written Burmese, Lushai, Jingpho, and Chinese, all of which are treated as if they belonged on the same taxonomic level. See the discussion in Handel (1998, Ch. 3).

5. A notable exception is the intemperate review by Miller (1974), which bitterly criticizes the fact that the notes added in 1972 sometimes modify points made in the original text (ca. 1942). See the defense of *STC* against Miller's attack by JAM (1975a).

6. See Le Saiyue and Luo Meizhen 1984.

In fact nearly all 700 of the TB cognate sets in *STC* have been shown to be perfectly valid, though many of the reconstructions have had to be changed slightly in the light of new data, and in a couple of cases etyma which had been reconstructed separately have been shown to be variant forms ("allofams") of the same word-family.[7]

1.1   Scope and subgrouping of the TB family

The exact number of TB languages is impossible to determine, not only because of the elusiveness of the distinction between "languages" and "dialects" , and the fact that a number of languages remain to be discovered and/or described, but especially because of the profusion and confusion of different names for the same language.[8] At the present state of our knowledge we can estimate that the Tibeto-Burman family contains approximately 250 languages, which may be broken down into population categories as indicated in Table 1:

Number of Speakers	Number of Languages
more than 1,000,000	9
500,000 - 999,000	12
250,000 - 499,000	11
100,000 - 249,000	16
50,000 - 99,000	16
25,000 - 49,000	27
10,000 - 24,000	44
fewer than 10,000	123

Table 1: TB languages by number of speakers[a]

a. These figures are based on Grimes, ed. 1996; see also JAM 1991a:480.

There are 9 TB languages with over a million speakers (Burmese, Tibetan, Bai, Yi (=Lolo), Karen, Meithei, Tujia, Hani, Jingpho), and altogether about 50 with more than 100,000 speakers; at the other end of the scale are some 125 languages with less than 10,000 speakers, many of which are now endangered (JAM 1991b). Though much of the geographical area covered by TB languages has been chronically inaccessible to fieldwork

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7.   E.g. ***dyam ⋇ *tyam** [*STC* #226] 'full; fill' and ***dyam** [*STC* #227] 'straight' ; see JAM 1988a.
8.   See JAM 1986a, and STEDT Monograph II (JAM 1996a).

by scholars from outside,[9] there has been a recent explosion of new data, especially from China[10] and Nepal.

As far as subgrouping this unruly conglomerate of languages goes, Benedict wisely refrained from constructing a family tree of the conventional type, presenting instead a schematic chart where Kachin (=Jingpho) was conceived as the center of geographical and linguistic diversity in the family. See Figure 1:
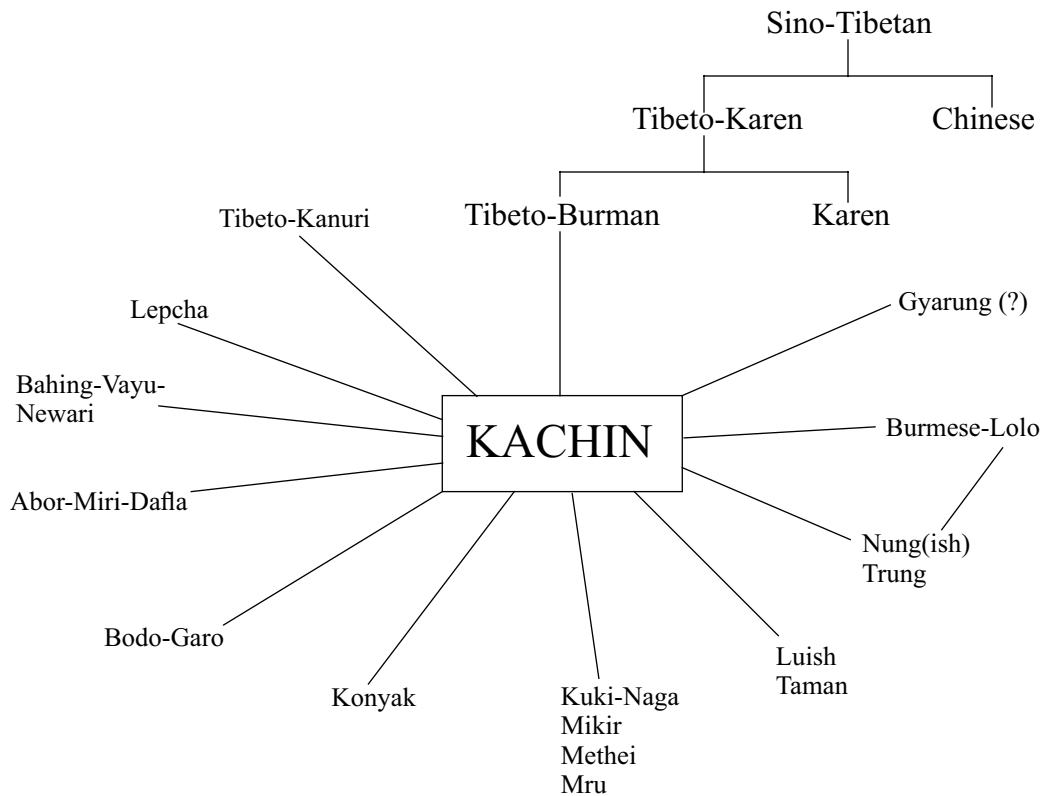
FIGURE 1. **Schematic Stammbaum of Sino-Tibetan Languages [*STC*, p. 6]**

9.   Very approximately, the distribution of TB languages by country is as follows: India 107, Burma 75, Nepal 69, China 50, Thailand 16, Bangladesh 16, Bhutan 9, Laos 8, Vietnam 8, Pakistan 1.

10. Among the most valuable of these new sources are Sun Hongkai, Xu Jufang *et al*. (*ZMYYC*; 1991), containing 1004 synonym sets in 52 languages and dialects; and Dai Qingxia and Huang Bufan (*TBL*; 1992), with 1822 synonym sets in 50 languages and dialects.

The genetic schema now being used heuristically at the STEDT project differs from this in several respects.[11] See Figure 2:
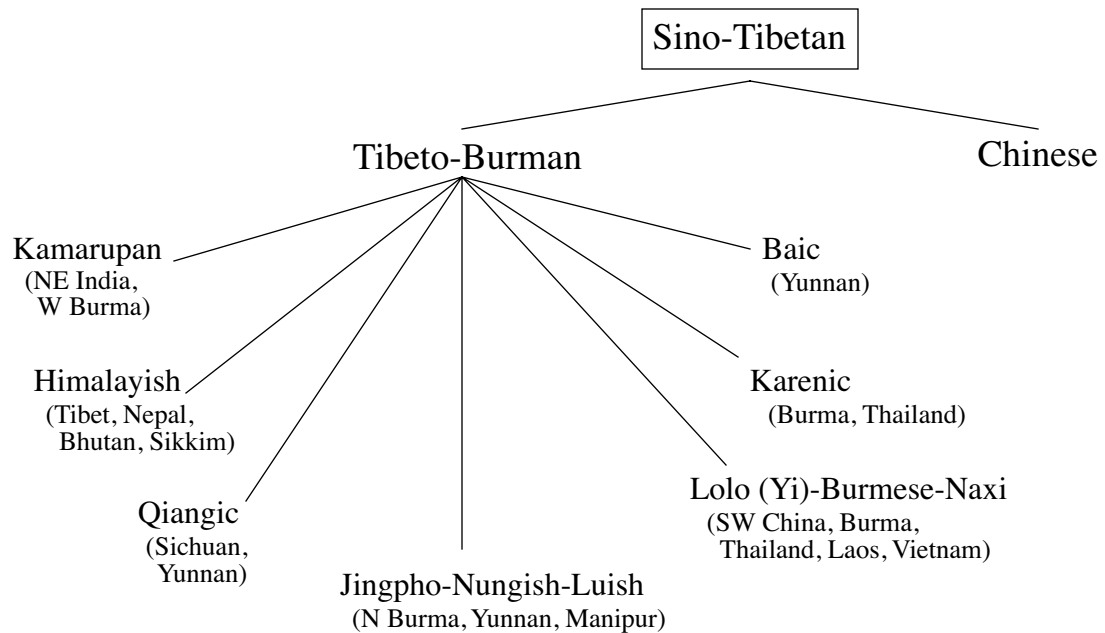
FIGURE 2. **Provisional STEDT Family Tree**

· Karenic is no longer regarded as having a special status, but is now considered to be a subgroup of TB proper.

· Baic, hardly mentioned (under the name "Minchia") in *STC*, but later hypothesized by Benedict to belong with Chinese in the "Sinitic" branch of Sino-Tibetan, is now also treated as just another subgroup of TB, though one under particularly heavy Chinese contact influence. Both Karenic and Baic have SVO word order, unlike the rest of the TB family.

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11. The STEDT project's working hypotheses regarding the subgrouping of individual languages may be found in the indices to STEDT Monograph III (J. Namkung, ed. 1996:455-7).

- The highly ramified Kuki-Chin-Naga group has provisionally been amalgamated with Bodo-Garo (=Barish) and Abor-Miri-Dafla (=Mirish) into a supergroup called by the purely geographical name of *Kamarupan*, from the old Sanskrit name for Assam.[12]

- The important Qiangic languages (deemed to include rGyalrong [=Gyarung=Jiarong] and the extinct Xixia [=Tangut]) were hardly known to non-Western scholars at the time *STC* was written (ca. 1942-3) or published (1972). It seems doubtful that a special relationship exists between Qiangic and Jingpho, or between Qiangic and Lolo-Burmese, as many Chinese scholars maintain.

- The Nungish and Luish languages are grouped with Jingpho (=Kachin).[13] Jingpho is also recognized to have a special contact relationship with the Northern Naga (=Konyak) group.

- The somewhat idiosyncratic Mikir, Meithei (=Manipuri), and Mru languages are included under Kamarupan.

- The Himalayish (=Himalayan) group is considered to include Bodic (*i.e.* Tibetanoid) languages, as well as Kanauri-Manchad, Kiranti (=Rai), Lepcha, and Newar.[14/15]

1.2   *Typological diversity of TB: Indosphere and Sinosphere*

The TB family, which extends over a huge geographic range, is characterized by great typological diversity, comprising languages that range from the highly tonal, monosyllabic, analytic type with practically no affixational morphology (*e.g.* Loloish), to marginally tonal or atonal languages with complex systems of verbal agreement morphology (*e.g.* the Kiranti group of E. Nepal). While most TB languages are verb-final, the Karenic and Baic branches are SVO, like Chinese.

This diversity is partly to be explained in terms of areal influence from Chinese on the one hand, and Indo-Aryan languages on the other. It is convenient to refer to the Chinese and Indian spheres of cultural influence as the "Sinosphere" and the "Indosphere".[16] Some languages and cultures are firmly in one or the other: *e.g.* the Munda and Khasi branches

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12. Issue has been taken with this term by Burling (1999), but see the reply by JAM (1999c).

13. The obscure Luish group, also known as Kadu-Andro-Sengmai, includes a few languages spoken by groups that were once exiled to a remote corner of NE India by the Rajah of Manipur. See Grierson 1921.

14. As part of a recent trend to purge TB language names of Indo-Aryan suffixes, specialists in Himalayish languages are no longer using the name "Newari" for this language, but rather "Nepal Bhasha" or simply "Newar" . Similarly, the language known formally as Magari is now preferably referred to as "Magar."

15. Various other subgroupings have been proposed, *e.g.* "Rungic" (Thurgood 1984) and "Sino-Bodic" (van Driem 1997). See a critique of the latter by JAM (2000b).

16. See JAM 1990a ("On megalocomparison.")

of Austroasiatic, the TB languages of Nepal, and much of the Kamarupan branch of TB (notably Meithei = Manipuri) are Indospheric; while the Hmong-Mien family, the Kam-Sui branch of Kadai, the Loloish branch of TB, and Vietnamese (Mon-Khmer) are Sinospheric. Others (*e.g.* Thai and Tibetan) have been influenced by both Chinese and Indian culture at different historical periods. Still other linguistic communities are so remote geographically that they have escaped significant influence from either cultural tradition (*e.g.* the Aslian branch of Mon-Khmer in Malaya, or the Nicobarese branch of Mon-Khmer in the Nicobar Islands of the Indian Ocean).

Elements of Indian culture, especially ideas of kingship, religions (Hinduism/Brahminism, Buddhism), and *devanāgarī* writing systems, began to penetrate both insular and peninsular Southeast Asia about 2000 years ago. Indic writing systems were adopted first by Austronesians (Javanese and Cham) and Austroasiatics (Khmer and Mon), then by Tai (Siamese and Lao) and Tibeto-Burmans (Pyu, Burmese, and Karen). The learned components of the vocabularies of Khmer, Mon, Burmese, and Thai/Lao consist of words of Pali/Sanskrit origin. Indian influence also spread north to the Himalayan region. Tibetan has used *devanāgarī* writing since A.D. 600, but has preferred to calque new religious and technical vocabulary from native morphemes rather than borrowing Indic ones.

What is now China south of the Yangtze did not have a considerable Han Chinese population until the beginning of the current era (Ramsey 1987, Norman 1988). In early times the scattered Chinese communities of the region must have been on a numerical and cultural par with the coterritorial non-Chinese populations, with borrowing of material culture and vocabulary proceeding in all directions (Benedict 1975; Mei and Norman 1976; Sagart 1990). As late as the end of the first millennium A.D., non-Chinese states flourished on the periphery of the Middle Kingdom (Nanchao and Bai in Yunnan, Xixia in the Gansu/Qinghai/Tibet border regions, Lolo (Yi) chieftaincies in Sichuan. The Mongol Yuan dynasty finally consolidated Chinese power south of the Yangtze in the 13th century. Tibet also fell under Mongol influence then, but did not come under complete Chinese control until the 18th century.

Whatever their genetic affiliations, the languages of the East and SE Asian area have undergone massive convergence in all areas of their structure — phonological, grammatical, and semantic.[17] Hundreds of words have crossed over genetic boundaries in

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17. An excellent recent study of such phenomena is Thomason and Kaufman 1988.

the course of millennia of intense language contact, so that it is often exceedingly difficult to distinguish ancient loans from genuine cognates.

1.3 *Teleo- and meso-reconstructions*

The current state of comparative/historical TB research is quite uneven. While some branches of the family are relatively well studied, to the point where "mesolanguages" have been reconstructed at the subgroup level,[18] large gaps remain — we have nothing approaching well-worked out reconstructions for such key subgroups as Qiangic, Baic, Luish, and Nungish. Still unclear is the exact genetic position of many transitional languages like Chepang, Kham, Lepcha, Newar (all lumped currently with "Himalayish"), or Meithei, Mikir, Mru (close to the Kuki-Chin-Naga branch), or Naxi/Moso and Jinuo (close to Lolo-Burmese), or the mysterious Tujia of Hunan/Hubei. The position of the crucially important Jingpho language is undergoing reevaluation, with current opinion returning to the notion of a special relationship with the Bodo-Garo-Konyak group (Burling 1971, Weidert 1987).[19] It remains to be seen whether the large "Kamarupan" (NE India) and "Himalayish" groups are anything more than purely geographic divisions of the family, and if so what the internal relationships among their many parts might be.

Although it remains true that "supergroups within TB cannot safely be set up at the present level of investigation" (*STC*, p. 11), the same can be said of Indo-European (IE) after nearly 200 years of scholarly investigation. Thus while it is obvious that the closely related Baltic and Slavic languages constitute a valid IE supergroup, "Balto-Slavic" (just as, *e.g.* the Loloish and Burmish languages clearly group together as "Lolo-Burmese"), higher order IE lumpings (*e.g.* "Italo-Celtic", "Italo-Germanic", "Italo-Greek") remain highly controversial, since patterns of shared innovations, or overlapping features of special resemblance, may be found between virtually any two major subgroups of the family.[20]

Meso-level reconstruction *per se* is not one of the goals of the STEDT project; nor does the project's reconstruction of PTB depend strictly on the direct comparison of

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18. See, *e.g.* Proto-Karen (Haudricourt 1942-5, 1975; Jones 1961; Burling 1969; Solnit, in prep.); Proto-Bodo (Burling 1959); Proto-Lolo-Burmese (Burling 1968, JAM 1969, 1972a; Bradley 1978); Proto-Tamang-Gurung-Thakali (Mazaudon 1978); Proto-Kiranti (Michailovsky 1991); Proto-N.-Naga (W. French 1983); Proto-Tani [Mirish] (J.T. Sun 1993).

19. *Cf.* the volume of Grierson and Konow (1903-28) called "Bodo-Naga-Kachin." Elsewhere (JAM 1974, 1991c) I have discussed the pros and cons of lumping Jingpho and Lolo-Burmese together into a supergroup facetiously called "Jiburish" (JIngpho-BURmish-LoloISH).

20. See the discussion in JAM (*VSTB*) 1978a:3-12.

meso-level reconstructions. However, such reconstructions are used when available in reconstructing roots at the Proto-Tibeto-Burman level. We therefore treat meso-level proto-forms as lexical data records, just like attested forms in individual languages.

I follow Benedict in caring little for a chimerical methodological purity in this respect, and generally endorse his philosophy of "teleoreconstruction", by which salient characteristics of the proto-language may be deduced by inspection of attested forms in well-chosen languages from different subgroups, thereby "leap-frogging" the need for step-wise reconstruction.[21] This in fact has been the only practical methodology for reconstructing TB given the uneven state of our present knowledge. It goes without saying that one's teleo-hypotheses are subject to constant revision in the light of new data at the level of individual languages or subgroups. As in all scientific inquiry, the process of formulating falsifiable hypotheses lies at the heart of the reconstructive enterprise. I feel that it is perfectly justifiable to "take a peek" outside a given subgroup in order to help one choose between alternative reconstructions that might be equally plausible on the basis of intra-group evidence alone.[22] It is for this reason that TB evidence will prove to be so crucial in evaluating the multitude of competing reconstructions of Old Chinese.

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21. This method must of course be applied with due caution, and I feel that Benedict applied it too loosely with respect to the vexed question of the existence of a reconstructible tonal system at the PTB level. See *e.g.* Benedict 1973 ("Tibeto-Burman tones, with a note on teleo-reconstruction").

22. Many of the features of W. French's excellent reconstruction of Proto-N.-Naga (1983) were motivated by extra-Naga evidence.

CHAPTER 2   *The PTB syllable canon*

I conceive of the PTB syllable as consisting of the following structural elements: an onset comprising a root initial consonant (C_i), precedable by up to two consonantal prefixes (P_2, P_1),[1] and optionally followed by a liquid or semivowel glide (G); and a vocalic nucleus consisting minimally of a simple vowel, followed optionally by a restricted set of possible final consonants (C_f) and/or a suffix (s). See *Figure 3*.

· In ST linguistics the syllable is traditionally divided into "initial" (Chinese *shēngmǔ* 聲母) and "rhyme" (Chinese yùnmǔ 韻母), with the glides (especially the semivowels -**w**- and -**y**-) occupying an ambiguous position, sometimes behaving as if they belonged to the initial consonant complex but sometimes patterning as if they were part of the rhyme.

· The semivowels could also occur postvocalically, forming falling diphthongs in -**w** and -**y**; in this position the semivowels are considered to belong to the inventory of C_f's (see below 5.5, 5.6). Vowel length is contrastive, but only in syllables closed with a final stop, nasal, liquid, or semivowel. This contrast is rather marginal at the PTB level, with many irregularities and much variation (see below 5.9, 6.3).

· There is no contrast between zero-initial *Ø- and glottal-initial *ʔ-.[2] Reconstructing *ʔ- simplifies the canon somewhat, since C_i is then an obligatory element.

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1.   These prefixes, especially those that were stops, and especially when preceding a stop Ci, were undoubtedly vocalized by an epenthetic schwa for ease of pronunciation. Strictly speaking such forms are "sesquisyllabic" (*i.e.* "a syllable and a half" long) rather than simply monosyllabic. When a sequence of two prefixes occurs before the same root, the one closer to the root (i.e "P1") is deemed to be older historically.

2.   See JAM 1997a and 3.5 below.

· A number of non-syllabic suffixes are reconstructible for PTB, most of them dental (*-s, *-t, *-n). When the suffix was -s, it could result in postvocalic sequences of stop or nasal plus -s (*e.g.* -ps, -ms), or (quite rarely) final liquid plus -s (-ls, -rs), which do not occur within a morpheme. Otherwise a single final consonant identifiable as a suffix on morphophonemic grounds, as in ***r-ya-t** 'laugh' (*cf.* WT **gźa-ba** 'to joke' ≍ **gźad-pa** 'laugh, smile') was phonetically identical to similar syllables where the C_f was part of the root (*e.g.* ***g/b-sat** 'kill' . See below 8.2(2), 11.3.

· The status of contrastive tone at the PTB stage is still very much in doubt, with Benedict (1972b) claiming that a two-tone system may be reconstructed for PTB.[3] I prefer to consider tone as having developed independently (though according to similar tonogenetic principles) at many different times and places throughout the history of TB (see JAM 1973a, 1974, 1991c).[4] To reflect this uncertainty, the symbol "T" is enclosed in brackets in Figure 3.

<div align="center">

[T]

(P₂) (P₁) C_i (G) V (:) (C_f) (s)

</div>
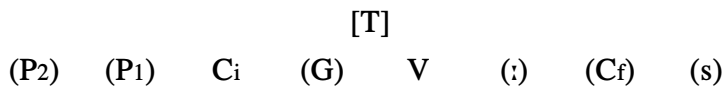
FIGURE 3. **The PTB syllable canon**

In the following chapters we will discuss each of the component parts of the syllable in turn. Yet in a sense it is rather artificial to break up the topic this way, since the parts of the ST/TB monosyllable have always been in such intimate interconnection. See *Figure 4* for an attempt to illustrate the nature of this mutual influence by a system of arrows.

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3.   According to Benedict, a third tone later arose due to sandhi phenomena. A similar position is adopted in Weidert 1987, though his three-way proto-contrast is conceived of primarily in terms of phonation types (clear, creaky, and breathy voice) rather than as tone *per se*.

4.   But see recent work by Ostapirat (1998) and Joseph & Burling (2001) which present data suggesting that certain contrasts in Chin and Bodo-Garo tone systems correspond fairly regularly with the phonation types of Chepang, and even with aspects of the tone system of Lolo-Burmese.

$$(P_2) \quad (P_1) \longleftrightarrow C_i \longleftarrow (G) \longrightarrow V \ (:) \longleftrightarrow C_f \longleftrightarrow (s)$$
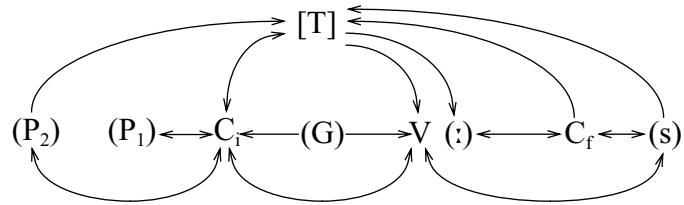
FIGURE 4. **Patterns of interinfluence in the TB syllable**

CHAPTER 3 *Initial consonants*

Let us take as our point of departure the array of simple initial consonants presented in *STC* . See *Figure 5*.

p	t	ts	tś	k	
b	d	dz	dź	g	
		s	ś		h
		z	ź		
m	n		(ń)	ŋ	
w	l	r	y		

FIGURE 5. **The inventory of simple consonants presented in *STC*.**

3.1   *Manners of articulation: voicing, aspiration, and prefixal influence*

I follow Benedict in reconstructing a simple two-way contrast in manner of articulation (***voiced** and ***voiceless**) for PTB obstruents, though many daughter languages have three or even four manners of articulation. Many factors have been involved in the proliferation of manner contrasts in the daughter languages. One is clearly areal contact. Thus many Himalayish languages of Nepal (*e.g.* including Chamling, Chepang, Dumi, Khaling, Kulung, Limbu, Newar, Thulung) have developed a series of voiced aspirates due to Indospheric influence, first confined to borrowings from Indo-Aryan, but now occurring in native TB vocabulary items as well.[1]

More crucial for the complication of TB manner developments are the intricate patterns of interaction between prefix and root initial.[2] A ***voiceless** C_i could easily assimilate in voicing to a voiced prefix (*e.g.* ***m-**), while a voiceless prefix (*e.g.* ***s-**) could

devoice or aspirate an originally ***voiced** C_i. The prefix might then drop, leaving only the change in voicing of the C_i as a trace of its former presence. Nothing in fact is more unstable in diachronic TB phonology than the voicing or aspiration of initial obstruents; there are innumerable TB word families with both voiced and voiceless allofams[3]. The voicing or voicelessness of the prevocalic consonant complex is of key importance in the process of tonogenesis.

This kind of variation is acknowledged in the chart of *TB Initial Consonants* presented in *STC* (pp. 17-18), which contains items like "PTB ***k** > Kachin **k(h)** ~ **g**; PTB ***g** > Kachin **g** ~ **k(h)**". These apparent "irregularities" are often misunderstood by rigid neo-grammarians (see Miller 1972) who mistake patterns of allofamic variation (conditioned by factors which are not always recoverable) for lack of rigor. A distinction must be drawn between *ad hoc* explanations which attempt to establish cognacy where none exists, and pervasive variational patterns which prevent the establishment of artificially strict correspondence sets.

Of particular importance as prefix-induced types of secondary articulation are *prenasalization* and *preglottalization* . The nasal prefix (which we can write as ***m-**, or more abstractly as ***N-**) frequently dropped after voicing the following C_i, as in Lahu and probably in Burmese (*e.g.* PLB ***m-krəw²** 'dove' > Lahu **gû**). Often, however, the nasal prefix has remained as such (as *e.g.* in Luquan Lolo or Mpi), with an extreme case furnished by Rengma (Eastern Naga group), which has a full set of prenasalized initials with three contrasting manners of articulation:[4]

mp	mpf	nt		ñc	ŋk
mph		nth			ŋkh
mb		nd	ndr	ñj	ŋgw

Preglottalized initials have arisen through the influence of one of the "glottogenic" prefixes ***s-** or ***ʔə-** (the latter written as ***a-** in *STC*). In certain subgroups there is much evidence for a contrast between voiced and voiceless preglottalized initials.[5] Thus

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1.   Another, more obscure areal phenomenon that must have affected TB manner developments was the massive devoicing of *voiced series that occurred throughout East Asia around the period of the Mongol invasions (12th-13th cc.), affecting many language families including Tai, Karenic, Hmong-Mien, Khmer and Vietnamese, as well as a number of TB languages like Burmese and Lahu.

2.   For more details see below 4.1.2.

3.   These alternations in voicing are often exploited for grammatical purposes. See below 4.1.1.

4.   See Namkung, ed., 1996:338-9.

Proto-Karen, as first reconstructed by Haudricourt (1942-45, 1953), had an array of initials very similar to those of Proto-Tai, with the voiced glottalized series probably to be conceived of as phonetically imploded[6]:

p	t	c	k
ph	th	ch	kh
b	d	j	g
ʔb	ʔd		

But this system does not account for about 14 good roots where Pa-o Karen[7] plain voiceless stops correspond to aspirates elsewhere. R. B. Jones (1961) had formulated complex *ad hoc* rules to account for these, but Benedict 1979 ("Four forays" #2) prefers to explain them by setting up a Proto-Karen series of voiceless glottalized stops deriving from the *(ʔ)a- prefix:

ʔp	ʔt	ʔc	ʔk

As an illustration of the intricacy of prefix-induced manner developments, see the Loloish correspondence chart in *Table 2:*

PLB		Luquan	Lisu	Lahu	Akha	Bisu	Sangkong
*p	ph	ph	ph	ph	p/ph	ph	ph
*ʔ-b/ʔ-p	ph	p	p	p	p	ph(?)	ph
*b	p	b	b	p	b	p	p
*m-b/*m-p	p ~ b	mph	b	b	b	p	p
*m	m	m	m	m	m	b	mb
*ʔ-m/*hm	hm	m	m	m	m	m	m

TABLE 2. **Manner developments in Lolo-Burmese obstruents.**

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5.   This was demonstrated on tonal grounds for Proto-Loloish stopped syllables in JAM 1972a (*TSR*), though there is still no convincing evidence for a voicing contrast in Loloish preglottalized non-stopped syllables.

6.   The Karen implosives undoubtedly arose through Mon and Tai influence.

7.   Formerly known by the Burmese pejorative name of "Taungthu", literally "mountain people".

From top to bottom, these reflexes range from more stop-like down to more nasal-like. This arrangement is satisfying because identical reflexes of different ***manners** are contiguous in any vertical column (*i.e.* for any given language).[8]

In the SE Asian linguistic area there is also a profound interrelationship between the manner of initial consonants and the development of *tone*, usually manifested by the influence of the former on the latter. Typically a voiced initial is correlated with a lower tone than a voiceless one, although this phenomenon is usually only allophonic in a language with a robust voicing contrast. However, if a language undergoes a consonantal merger due to devoicing of an older *voiced series, as has happened repeatedly in this linguistic area (see note 1, above), this previously allophonic tonal difference can become contrastive,[9] schematically. See *Figure 6*:

Stage I		*Stage II*	
voicing contrast maintained	*allophonic tonal difference*	*voicing contrast lost*	*phonemic tonal difference*
/pam/	[pám]	/pám/	
/bam/	[bàm]	/pàm/	

FIGURE 6. **Tonogenesis due to loss of initial voicing contrast**

Much rarer is the converse situation, where it is the tone of a syllable that affects the manner of the initial consonant. Such a case has been documented in Sani (C. Loloish),[10] where etyma which reconstruct with Proto-Lolo-Burmese (PLB) ***voiced** initials have Sani reflexes with *voiceless unaspirates* (and mid tone) if they were under PLB Tone ***1**, but retain their *voiced* initials (with low tone) if they were under PLB Tone ***2**.

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8.   For a similar arrangement of the Tai consonantal series with respect to tonal developments, see Gedney 1970/1989.

9.   This is one of the chief mechanisms of *tonogenesis*, a topic that has inspired a vast literature in the past half century. See, *e.g.*, Haudricourt 1954b; JAM 1970, 1972a, 1973a, 1979; Weidert 1987.

10. See JAM 1979:27. Sani data from Ma Xueliang 1951.

*Tone *1 etyma with *voiced initials*

	PLB	Sani		PLB	Sani
'wing'	*duŋ[1]	tȳ	'bridge'	*dzam[1]	tsɤ̄
'fly (v.)'	*byam[1]	tɬī	'liquor'	*m-dzəy[1]	tsū̦
'body'	*guŋ[1] *or* *goŋ[1]	kū̦	'rice'	*dza[1]	tsā

*Tone *2 etyma with *voiced initials*

	PLB	Sani		PLB	Sani
'bee'	*bya[2]	dlà	'insect'	*bəw[2]	bỳ̦
'copper'	*grəy[2]	dzù̦	'raw' [a]	*džim[2]	dzì̦
'eat'	*dža[2]	dzà	'speech'	*daŋ[2]	dò
'give'	*bəy[2]	bì̦	'thin'	*ba[2]	bà
'hear'	*gla[2]	gà			

TABLE 3. **Sani manner developments conditioned by tone**

a. *Cf.* Lh. ɔ̀-cî̄, Lalo dzì. See also Nung əzim 'raw' < PTB *dz(y)im 'raw / green'.

This curious development is best understood in terms of the different phonation types associated with the PLB tones. While Tone *1 syllables are thought to have modal or neutral phonation, Tone *2 seems to have been characterized by *breathiness*, which favored the retention of the voiced quality of the initial consonant.[11]

In sum, we might well say that the simple two-way TB manner contrast has always been "bursting at the seams".[12]

3.2 Primary and secondary positions of articulation of stops

As indicated above, the PTB obstruents reconstructed in *STC* include stops at three positions of articulation (labial, dental, velar), as well as two series of affricates (dental

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11. See Mazaudon 1974; JAM 2000c.

12. An initial voicing contrast sometimes makes itself felt most saliently by a phonational feature on the following vowel. In the phonetic transcription of Dai *et al.* (1983), Jingpho voiced initial obstruents are written voiceless followed by a clear vowel, while voiceless unaspirates are also written voiceless, but followed by a tense or creaky vowel, indicated by a subscript macron: /**b**a/ [pa] vs. /**p**a/ [p̱a].

and palatal).[13] At least three other positional types of obstruents occur in one or another daughter language, but can be easily shown to be secondary (postvelars, retroflexes, labiodentals). A fourth type (labiovelars) requires more indirect comparative evidence to discern, but may apparently be reconstructed at the PTB level.

(1)   Postvelars

A number of TB languages have a postvelar (uvular) series of initials. Postvelars are especially characteristic of the Qiangic languages (occurring in Guiqiong, Muya, Namuyi, Pumi, Qiang, Shixing, and Zhaba [=Queyu]), and the Loloish branch (Lahu, Mo-ang, Nyi, Sangkong), though they also occur sporadically in Kamarupan (Sema Naga), Himalayish (Balti Tibetan) and Baic (Bijiang). In Loloish there are usually only two members of the series, / q qh / ; in Qiangic postvelars achieve greater elaboration, often including fricatives and/or voiced and/or prenasalized stops. Muya (=Minyak) has no fewer than 7 postvelar phonemes:[14]

$$/ q \; qh \; qh \; G \; \textsc{n}G \; \chi \; \textsc{r} /$$

Postvelars are generally secondary developments of the TB ***velar** series, as in Black Lahu, where they regularly descend from simple ***velars** that are not followed by a glide (see below 3.6). The presence or absence of a postvelar series has no significance for subgrouping TB. In fact many languages have postvelars in some dialects but not in others: they occur in Black Lahu, Jinghua and Dayang Pumi, Balti Tibetan, and Bijiang Bai — but not, *e.g.* in Yellow Lahu, Taoba Pumi, Khams Tibetan, or Jianchuan Bai.

Postvelars are something of an areal feature in the Sinosphere, occurring also in Hmong-Mien and Kam-Sui.

In Mikir, PTB ***k-** has become deobstruentized to **h-**, rather like the development of proto-Germanic ***χ** from PIE ***k-** by Grimm's Law, *e.g.*:

	PTB	*Mikir*	*STC#*
'bitter'	*ka	ho	8
'dog'	*kwəy	hi	159

13. We shall return to the question of the phonemic status of the ***palatal** series, below 3.3.1.
14. For the full phonemic systems of these languages and dialects, see Namkung, ed. 1996 *(Phonological Inventories)*.

	PTB	*Mikir*	*STC#*
'excrement'	*kləy	hī	125
'house'	*kyim	hem	53
'mouth'	*m-ka	iŋ-*ho*	468

(2)   Retroflexes

Quite a few modern TB languages have a retroflex series of affricates, fricatives, and/or stops, but they do not occur in Written Tibetan or Written Burmese, and are not attested for Xixia/Tangut (either in Nishida's (1964, 1966), Sofronov's (1978), or Gong's (1985, 1994, 1999) reconstructions). They seem to be secondarily derived from proto-clusters with medial liquids.[15/16]

Retroflex fricatives and affricates are especially characteristic of Northern Loloish and Qiangic, and (to a somewhat lesser degree) of Himalayish, and also occur sporadically in Abor-Miri-Dafla, Nungish, and Baic.

(a)   Lolo-Burmese languages with a retroflex series invariably have dental and palatal series as well, so that there is at least a three-way contrast. This generalization is true of Achang, Ahi, Gasu, Lalo, Li, Lolopho, Luquan, Lüsu, Nasu, Naxi, Nesu, Noesu, Nosu, Nusu, Nyi, and Yi (Mile, Nanhua, Nanjian, Xide dialects). Besides these three series of affricates, Nyi has voiced and voiceless laterally released affricates / tɬ dl / as well. A few Loloish languages also have a set of retroflex stops (*e.g.* Luquan, Nasu, Noesu, and Yi Mile).

(b)   In Qiangic also, the presence of a retroflex series entails the coexistence of dental and palatal series. This holds for Ergong (=Daofu), Ersu, Guiqiong, Muya, Namuyi, rGyalrong (Zhuokeji), Pumi Jinghua, Pumi Taoba, Qiang, Shixing, and Zhaba (=Queyu). Several languages of this group actually have more complex systems, with a further contrast between apicopalatal (=prepalatal) and laminopalatal (=postpalatal) series (Ersu, Guiqiong, rGyalrong (Zhuokeji), Pumi Jinghua, Qiang, and Shixing).

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15. See "Liquid clusters", below 3.6.4.

16. This is similar to the case of Chinese, where it is now generally accepted that the MC retroflex series of initials, which occur only in words placed in "Division II" of the rhyme tables, derive from OC clusters with medial *-r-. See Appendix A by Handel.

> (c) Several Modern Tibetan dialects show either the three-way dental/retroflex/palatal (Amdo Bla-brang, Batang, Khams sDe-dGe) or four-way dental/retroflex/prepalatal/postpalatal contrast (Amdo Zeku, Lhasa Weizang, Baima).

Languages with *retroflex stops* are somewhat fewer in number. Their stronghold is in Himalayish, with a fair scattering of Loloish and other attestations. (a) In Loloish, retroflex stops stand either in a three-way contrast with dental and palatal affricates (Luquan, Yi Dafang), or a four-way contrast with dental, palatal, and retroflex affricates (Nasu, Noesu, Yi Mile). (b) Retroflex stops are widespread in the various branches of Himalayish. They occur in West Himalayish, with a three-way contrast in Bunan and Kanauri, and a four-way contrast in Lahuli and Pattani (=Manchad); in Bodic languages, including Dzongkha and several Tibetan dialects (Jirel, Ladakhi, Sherpa, Spiti); and in languages of Nepal (Gurung, Manang,[17] Newar Dolakha, Sunwar, Tamang (Taglung and Sahugaon dialects), Thakali (Marpha and Syang dialects), and Thulung. In several other Himalayish and Mirish languages, retroflex stops are confined almost exclusively to loanwords, either from Chinese or Tibetan (Darang Deng, Geman Deng, Cangluo Motuo, Idu) or from Nepali (Dumi, Limbu, Magar). (c) Bai Bijiang and Nung have three series of affricates in addition to retroflex stops. Bawm (Central Chin) has both retroflex stops and lateral affricates / tl thl / .

Retroflex stops are not especially characteristic of Qiangic, with the exception of Pumi Dayang, which (besides three series of affricates) has a full series of retroflex stops, which do not occur in other known Pumi dialects, even the closely related Jinghua:

$$/\ \underline{t}\ \ \underline{t}w\ \ \underline{t}h\ \ \underline{t}hw\ \ \underline{d}\ \ \underline{d}w\ /$$

Most of these retroflex stops derive from TB clusters of ***velar-plus-liquid**:[18]

	PTB	*Dayang*	*Jinghua*	*Taoba*	*Lahu* [a]
'daughter-in-law'	*krwəy	ʈhɨ̌	tʂhə¹³	tsũ⁵⁵tʂhə⁵³	ɔ̀-*khî*-ma
'foot'	*krəy	ʈhɨ́	tʂhə⁵⁵	tʂhə⁵³	khɨ
'gall'	*m-kris	ʈɨ́	tʂə⁵⁵	tʂə⁵⁵	kɨ
'garden'	*kram	ʈhə̌			kho

---

17. In Manang the contrast is phonetically between alveolar vs. dental stops, with the latter transcribed with subscript dots. A similar phonetic opposition is found in Lushai and Lai (Central Chin).

'eagle / vulture / falcon / bird of prey'	*glaŋ	ʈɒ̆	tʂɒ[13]	tʂɛ[35]	(Jg. gəlaŋ)
'horn'	*krəw	ʈhʉ́	tʂhy[55]	tʂhũ[53]	khɔ
'six'	*d-kruk	ʈhŭ	tʂhu[13]	tʂhu[35]	khɔ̀ʔ
'star'	*ʔ-grəy[1] [b]	ɖɨ̆	dʐə[13]	dʐə[35]	mɔ̀ʔ-*kə*
'thread'	*kriŋ	ɖŭ	dʐy[55]	dʐũ[53]	khɛ

a. As we shall see, below 3.6.4.1(1), Lahu velars descend regularly from *velar-plus-r clusters.

b. This is a Proto-Lolo-Burmese form.

(3)   Labiodentals

Labiodental stops and nasals are occasionally found in TB languages, but are always demonstrably of secondary origin.[19]

In Black Lahu (Central Loloish), the labiodentals [pf pfh bv ɱ] are merely allophones of labials before the vowel /u/, which is in turn unrounded to [ɯ] in this environment:[20]

/**pu**/ → [pfɯ]; /**phu**/ → [pfhɯ]; /**bu**/ → [bvɯ]; /**mu**/ → [ɱɯ] or [ɱ̩]

Angami Naga (Kohima dialect) also has a full series of labiodentals / **f**, **pf**, **phf**, **mv** / , but their synchronic and diachronic status is more complicated.[21] They are now phonemic, but they have several different historical origins:

*(a) From primary medial *-w-*	*PTB*	*Angami*
'bee'	*m-kwaːy	mèpfǐ
'dog' [a]	*d-kʷəy	tèfə́
'goat'	*d-ŋwa	tèmvə́

---

18. This is not the whole story, however. These retroflexes (especially the voiced member ɖ) also seem to have other sources, *e.g.* *pw- and *ly-: PTB *pwaay 'chaff' > Dayang ɖwɒ̆; PTB *m-lyak 'lick' > Dayang ɖɒ̆. Dayang ʈʉ̆ 'dig' is interesting. It looks as if it is related to the widespread TB root *du (*STC* #258); but PTB *-u usually goes to Dayang -u, and Dayang retroflexes do not derive from plain *dental stops. Perhaps a better comparison here is PTB *klaw 'dig out, weed' (*STC* #269).

19. For a discussion of labiodental fricatives / **f** **v** / , see below 3.2(3).

20. See JAM 1973/1982 (GL), pp. 3-4.

21. Much ink has been spilled on this question, which was first discussed in a preliminary way in JAM 1980 ("Stars, moon, and spirits..."). My analysis was attacked in Weidert 1981, and this was replied to in JAM 1982a ("Proto-Sprachgefühl").

*(a) From primary medial *-w-*	*PTB*	*Angami*
'monkey'	*d/g-woy	tèpfí
'nine'	*s-kwa	thèpfə́
'star / moon'	*s-ŋwa-t	thèmvə̌

a. This etymon is now reconstructed with a unitary **labiovelar** initial. See §4.

*(b) From primary vocalic *-u*		
'male / (grand) father'	*pu	pfu
'all / twenty'	*m-kul	mèpfə̌

*(c) From secondary vocalic -u (< PTB *-a)*		
(i) After velar initials		
'bitter'	*b-ka	pfhə
'chin'	*m-ka	⁵u²me¹pfhə
'span / divaricate'	*ka	¹pfə

(ii) After labial initials		
'carry on back'	*ba	¹pfə
'search/seek'	*pa ᵃ	⁵pfhə
'thin'	*ba	²rə⁵pfə

a. Cf. Tangkhul Naga **pha**, Ntenyi **pha**, Mao **pho**, Chokri **phu**, Rongmei **phu**. This root is apparently confined to Naga languages.

(4)   Labiovelars

The diachronic status of labiovelar initials is rather different from that of the labiodentals. There is persuasive evidence for setting up a series of unitary ***labiovelar** phonemes at the Proto-Loloish and Proto-Lolo-Burmese levels, with at least six examples uncovered to date; but whether it will prove necessary to reconstruct a unitary ***labiovelar** series for PTB or PST is still unclear. At any rate these 6 Lolo-Burmese etyma all have good cognates elsewhere in ST (notably in Karenic and in Chinese).

The key Loloish language for establishing PLB ***labiovelars** is Lahu, which has labial initials in several roots corresponding to velars or velar-plus-**w** clusters elsewhere.[22] The most important of these etyma is 'dog'[23], reconstructed as PTB ***kwəy**, where the Lahu

reflex is **phî**; but this development is exactly paralleled in 'nest', a homophonous root under a different LB tone (JAM 1978b:6-7):

		PLB	WB	Mpi	Lahu
(1)	'dog'[a]	*k^wəy²	khwê	khɯ²	phî
(2)	'nest'[b]	*k^wəy¹	--	ʔa-khɯ⁶	phɨ

a. The interesting lateral reflex in Thulung Rai **khlea** 'dog' (Lahaussois 2002), points up the phonetic similarity between a "dark l" and **w**.

b. The Lahu development is paralleled in Pa-o (Karenic) **phwi** 'nest' (< Proto-Karen *s-(kh)wiᴬ; *cf.* Pwo and Sgaw θwi < *s-wi, with preemption by the prefix). Abor **a-ki** preserves the velar component of the consonant group. See Benedict 1983c:17.

Both 'dog' and 'nest' point to PLB voiceless *k^w- . This development contrasts with the fate of a sequence of *velar stop plus a -**w**- that functioned as part of the vocalic nucleus, *i.e.* a -**w**- that was the onset of a rising diphthong like -u̯a- :

(3)	'wear clothes'[a]	PLB *gwa²	Lisu gwa⁵	Mpi ko¹	Lahu qâ

a. See *STC* #160. See below 3.6.1 for a general discussion of the ambiguous status of -**w**- in TB/ST phonology.

Also distinct are reflexes of labial stop plus medial -**w**- :

		PLB	WB	Mpi	Lahu
(4)	'chaff'	*pway²	phwâi	koʔ-*phɯ²*	vàʔ-*phɨ*

A third *labiovelar root is 'comb',[24] reflecting a preglottalized voiced counterpart *ʔ-g^w-. Many Loloish languages have labial reflexes of 'comb':

(5)	'comb'	Proto-Loloish *ʔ-g^wəɯ² > Lahu pɨ 'to comb', Lisu o⁵⁵ *pɯ⁵⁵* 'a comb', Naxi *pv³¹* mi¹³, Yi Nanhua u⁵⁵ *pi⁵⁵*, Yi Nanjian u²¹ *pɯ²¹* tɕi³³, Jinuo *phi³³* ɕi⁴², Gazhuo o³¹*piɛ⁵⁵*

Other Yi dialects have velar rather than labial reflexes, pointing up the diachronic instability of this complex initial:

22. This is a natural enough phonetic development. The Proto-Indo-European labiovelars became labials in Greek before -**o**, as in PIE *ek^w$o- 'horse' > Gk. **hippos**; PIE *g^wei- 'live' > Gk. **bios** 'life'.

23. See *STC* #159; the aberrant initial reflexes in Lahu, Karen, and Lushai are discussed in note 83 (p.26) and n. 365 (p. 113).

24. Reconstructed in my note 16 (p. 27) to Benedict 1979, and in JAM 1988b:869.

Yi Xide $ɔ^{33}$ $kɯ^{55}$, Yi Dafang o^{33} ku^{55}.

A Burmish variant ***pri** of this phonologically unstable root is reflected by WB **phî ~ phrî** 'to comb, brush', Maru **pjɛ³⁵**, Zaiwa **pjɛ²¹**, Achang Lianghe **phjɛ³¹**, N. Hpun *phyè*-xò. Outside of LB, the reflexes are sometimes overtly labiovelar, *e.g.* Darang Deng [Mirish] **tshe⁵⁵*kwi*⁵⁵**, Digaro se-*kwi*, Lushai **khuiʔ**; Proto-Karen ***khwi-s** > Pwo **khwì**, Sgaw **khwí**, Palaychi **khwɛ̀q**, Bwe **wi ~ khwi**.[25] At least as often, however, the reflexes have labial initials: (Qiangic) Shixing **ɸiɛ⁵⁵**, Namuyi **pəˈ¹³⁵**; Sulong **biek³³** (with unexplained final stop), Bai **su⁵⁵*phĩ*²¹** (with unexplained nasal vowel).[26]

Two more labiovelar roots are to be reconstructed at the PLB level with prenasalized initials, reflected by the voiced Lahu initial **b-**:

(6)	'trumpet'	PLB ***m-gʷya¹ᐟ²** Lahu **bɛ̂** 'trumpet' ≍ *bɛ̀*-hɛ-ma 'large trumpet'

No other LB cognates have been found so far, but there seems to be an excellent fit with a Karen form cited by Haudricourt ("Restitution du karen commun" (1946), reprinted in 1972:136): **gwê** 'clairon' (*i.e.* clarion, trumpet). (See JAM 1988b:946, 948.) A homophonous Lahu reflex occurs in 'chew', where other LB languages have velars, labiovelars, or prenasalized labiovelars:

(7)	'chew'[a]	PLB ***m-gʷya²** Lahu **bɛ̂** 'chew', Lisu **gua³¹**, Hani **g'a³¹**, Yi Xide **ŋgɯ³³**, Naxi **ŋgɯ³³-ŋgɯ³³**

a. For extended discussion of this etymology, see JAM 1986b, where a complex word-family with double glide is set up at the PTB level: PTB ***s-/N-g-w-y-a-t**. See below 3.6.5.

(8)	Finally, an etymon meaning 'star' in TB but 'moon' in Chinese is reconstructed with a labiovelar nasal ***ŋʷ-** in JAM 1980 ("Stars, moon, and spirits"), as PTB ***s-ŋʷa-t** on the basis of forms like Lahu **mə̀ʔ-kə** 'star', Angami Naga **thèmvɔ̆** 'star', and Old Chinese 月 **ngi̯wăt** 'moon' [*GSR* #306a-f].

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25. *Cf.* also PNN ***C-gyuay** > Chang **ku**-*sei* etc. See French 1983:470.
26. See *STC* #480, and Benedict 1979:13; also *ZMYYC* #'s 459, 654.

3.3 Fricatives and affricates [27]

3.3.1 Dental and palatal fricates

No labiodental fricatives are reconstructed for PTB, though many daughter languages have /**v**/ (usually < ***w**) and/or /**f**/ (deriving *e.g.* in Lahu from earlier ***hw** and *ʔ-**w**.[28] Both dental and palatal fricatives */ **s z š ž** / are reconstructible (though *ž was quite rare). Lahu has merged palatal and dental fricatives and affricates in favor of the palatals, and lacks the phonemes / **s z ts tsh dz** / ; these do occur phonetically, however, as allophones of the palatals before /ɨ/ :[29]

$$
\text{Lahu:}
\left\{
\begin{array}{c}
/c/ \\
/ch/ \\
/j/ \\
/š/ \\
/y/
\end{array}
\right\}
\rightarrow
\left\{
\begin{array}{c}
[ts] \\
[tsh] \\
[dz] \\
[s] \\
[z]
\end{array}
\right\}
/ \underline{\qquad} \text{ɨ}
$$

Examples:

	PLB	*WB*	*Lahu*	
'die'	*səy^1	se	/šɨ/	[sɿ^{33}]
'joint'	*ʔ-dzik^L	chac	/cɨ́/	[tsɿ^{35}]
'sleep'	*yip^L	ʔip	/yɨ̀/	[zɿ^{31}]
'urine'	*m-(d)z(y)əy^2	sê	/jɨ̂/	[dzɿ^{53}]
'weigh' [a]	*kyiːn^1	khyin	/chɨ/	[tsʰɿ^{33}]

> a. *Cf.* also Lalo **tshí**.

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27. A convenient cover term for these sounds taken collectively is *fricates*.

28. Lepcha has f- < *sw- , as in 'tooth' *s-**wa** > Lp. **fo** (*STC*, n. 111). Chin languages often have f- < *z- or *dz-, *e.g.* *(d)za 'child' > Lushai **fa**; *zim 'collect / gather' > WB **sim**, Lai **fim**, Cho θim.

29. See JAM 1973/1982 (GL):6-7.

The voiced fricative ***z-** has interesting reflexes in Lolo-Burmese, including WB **s-**, Lahu **y-**, Lisu **r-**, Sangkong **ʑ-**, Mpi and Ugong **l-**:

PLB	WB	Lahu	Lisu	Mpi[a]	Ugong
*s	s	š	s [s] /__ɨ	s	l
*š	s	š	š / xw [b] [s] /__ɨ	s	th
*z	s	y [z]/__ɨ	r	l	l

TABLE 4. **Reflexes of fricatives in Lolo-Burmese.**

a. See JAM 1978b.

b. Lisu has complex reflexes conditioned by the following vowel: ***š** > Lisu **š** before front vowels, but > Lisu **h/x** before non-front vowels. See JAM 1979 ("QV"), p. 34.

	PLB	WB	Mpi	Lahu
'child'	*za²	sâ	ʔɑ²-lo²	ɔ̀-yâ
'daughter'	*za²-mi²/³	səmî	lo²-mi²	yâ-mî
'descend'	*zak[L]	sak	la¹	yàʔ
'strong'	*zan¹	san	---	yè
'he/she'	*zaŋ²	sâŋ	---	yɔ̂
'use'	*zum²	sûm	---	yɛ̂
'leopard'	*zik[L]	sac	---	mɔ̀ʔ-yɨ̀ʔ [a]

a. Lit. "monkey leopard", referring to the species "cloudy leopard" [*Felis nebulosa*].

Some TB languages (notably in the Qiangic group) have developed a profusion of sibilant fricatives and affricates, vastly more complex than what can be set up for PTB. A striking example is the Dayang dialect of Pumi (=Prinmi) [see JAM 1998]:

s	sy	sw	ʂ	ʂw	ʃ	ʃw	sʃ	sʃw		ɕ	ɕʃ	ɕʃw
z	zy		ʐ	ʐw			zʒ					
ts	tsy	tsw	tʂ	tʂw	tʃ		ʃtʃ	ʃtʃw	ʃtʃy	tɕ		
tsh	tshy	tshw	tʂh	tʂhw	tʃh	tʃhw	ʃtʃh	ʃtʃw	ʃtʃhy	tɕh		tɕhw
dz	dzy	dzw	dʐ		dʒ	dʒw	ʒdʒ	ʒdʒw				

The fricatival virtuosity of the Pumi is demonstrated by the following nearly perfect minimal triplet: **syú** 'paddy' / **sʃǔ** 'carry on back' / **ɕʃǔ** 'hide' . The complex developments that can lead to this sibilant hypertrophy may be illustrated by the disparate TB roots whose reflexes in Dayang Pumi are **zʒ** :[30]

	Pumi Dayang	*PTB*
'nail / claw'	**zʒǎN**	*m-tsyen
'right side'	**zʒɨ́**	*g-ya
'sheep'	**zʒóuN**	*yaŋ
'trousers'	**zʒɨ̌**	*s-la

All phonemic analyses of complex phones must deal with the problem of *unit phonemes* vs. *clusters*, a distinction which Y. R. Chao (1934) characterized as "one-piece sound" vs. "two-piece sound". This distinction is highly unstable diachronically, and often it does not make much difference one way or the other. In the original manuscript version of *STC* (ca. 1942-3), palatal initials were treated as clusters: */ sy zy tsy dzy /.[31] In the published version these are reconsidered to be unit phonemes */ ś ź tś dź / (notes 121 and 122, p. 37), which has the slight advantage of permitting the reconstruction of *śr- (instead of the clumsy *syr- or *sry-) in several key roots ('alive' *śriŋ, 'louse' *śrik, 'ashamed' *śrak; n. 304, p. 108). On the other hand, an argument in favor of the cluster analysis of the palatals may be made on the grounds of phonotactic symmetry: since the labial, dental, and velar stops all cluster with *-y-, and since the dental affricates */ ts dz / must definitely be considered unit phonemes, it would be nicely parallel to consider the

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30. Since the Dayang dialect has no simple voiced palatal fricative phone [ʒ], one could treat [zʒ] as being phonemically /ʒ/.

31. This is the policy generally followed in this *Handbook*.

palatal affricates to be clusters of */ ts dz / + -y-. In any case, I have decided to avoid the unitary symbols "č" and "ǰ" for the palatal affricates, since there are many cases of proto-variation between simple fricatives and affricates,[32] or between dental stops and dental affricates,[33] which can conveniently be captured by notations with parentheses if we use digraphic symbols, *e.g.* *(t)s, *(t)ś; *t(s), *d(z).[34]

The contrast between dental and palatal sibilants and affricates is shaky or non-existent in many TB languages (including Burmese and Lahu[35]), though it is maintained in WT, and indeed must be reconstructed even for Proto-Lolo-Burmese.[36] In Mpi (S. Loloish) the two series have neatly distinct reflexes, with the ***dental affricates** developing into *dental stops* (*e.g.* 'ten' PLB *tsay¹ > Mpi *to² thɤ⁶*, 'wash' PLB *tsəy² > Mpi **thi¹**; 'hawk' PLB *dzwan¹ > Mpi *te⁶ mo⁴*, 'drop' *dzik^L > Mpi *tɯ̄ʔ²*), while the ***palatal affricates** remained as such, merging with older ***velar-plus-y clusters** (*e.g.* 'sunlight' PLB *məw²-ts(y)a¹ > Mpi ɲ⁴*tɕho⁶*, Lahu **mû-*cha***; 'suck / kiss' PLB *tšuk^H > Mpi **tɕhuʔ¹**; 'tooth / tusk' PLB *džway¹ > Mpi **tɕɯ⁶**; 'eat' PLB *dža² > Mpi **tɕo¹**).[37] In the root for 'thorn; prick, sting', Mpi has a doublet **tho¹ �done tɕho¹**, which points to earlier *ts- ⋈ *tš- variation.[38] In Bola (Burmish group), as in Mpi, the ***dental affricates** have developed into dental stops, but so have the ***palatal affricates**, so that Bola is powerless to distinguish between the two series:[39]

	Bola	*PLB*	
'eat'	ta²¹	*dža²	*Cf.* Lahu **câ**
'play'	tai⁴⁵	*džay²	*Cf. STC* #289
'rice'	ta⁵⁵ (cooked)	*dža¹	*Cf.* Lahu **cà** (uncooked)

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32. Many examples are given in JAM 1978a:54-56 (*VSTB*), including 'eat', 'urine', 'hair of head', and 'child'. See also JAM 1974:156-7. *Cf.* the discussion of 'liver', below.

33. See the discussion of 'mortar', below.

34. Conventionally, we use acute accents for palatals at the PTB level */ ś ź tś dź /, but wedges for PLB palatals */ š ž tš dž /.

35. As mentioned above, Lahu has both types phonetically, but the dentals [s z ts tsh dz] only occur before /ɨ/, so that Lahu (like Hawaiian) is one of the few languages in the world to lack an /s/ phoneme.

36. This was first demonstrated in JAM 1969 "Lahu and PLB", and cited in *STC*, n. 178 (p. 53).

37. The key etymon 'eat' had been reconstructed with a dental affricate in *STC* #66 (*dza), in spite of forms with palatal initials cited from Bahing, Magari, Jingpho, and Garo. The Mpi data provides further evidence that the correct PTB reconstruction is a *palatal affricate. See JAM 1978b:10-13.

38. This etymon is set up simply as PTB ***tsow** in *STC* #276, despite reflexes with palatals like Lepcha and Jingpho **dźu**.

	Bola	*PLB*	
'tooth'	tui³⁵	*džway¹	*Cf.* Lahu cì
'ten'	thai⁵⁵	*tsay¹	*Cf.* Lahu chi
'salt'	tha⁴⁵	*tsa²	*Cf. STC* #214

Several roots must be set up with fricative ⋊ affricate variation at the PTB level, including 'child' *za ⋊ *tsa (*STC* #59 and p. 27) and 'urine' *zəy ⋊ *ts(y)i (*STC* #77 and pp. 30, 90).

In the etymon for 'liver', reconstructed ***m-sin** in *STC* #234, Mpi has a dental stop (ʔɑ-thɯ²), demonstrating that *ts- ⋊ *s- variation must be set up for this root at the PLB level (*tsin¹ ⋊ *sin¹, or *(t)sin¹), paralleled elsewhere in TB (*cf.* WT **mtśhin** vs. Kanauri **śin**, *etc.*). Such proto-variation between affricates and fricatives is all the more plausible in view of diachronic developments that can be traced within particular languages or subgroups. Thus in many Kamarupan languages (especially in Kuki-Chin and Bodo-Garo), PTB *ts- regularly becomes s- (*e.g.* 'mortar' PTB *tsum > Lushai **sum**, Garo **sum**; 'hair of head' PTB *tsam > Lushai **sam**, Garo **mik-sam** 'eyebrow'; 'joint' PTB *tsik > Mikir **sek**).[40] Something very similar has happened in the history of Burmese: WB had only a single series of affricates, representing the neutralization of the dentals */ ts dz / and the palatals */ tš dž /; these have become the fricatives / s sʰ / (plain vs. aspirated s) in Modern Burmese.

Another sort of relationship, this time between ***dental stop** and ***dental affricate**, is exemplified by the root for 'mortar' just mentioned, with most reflexes pointing unambiguously to PTB *tsum (*e.g.* WB **chum**, Lahu **chɛ**, Lushai **sum**), while Jingpho **thùm** reflects *tum, implying PTB *t(s)um.[41]

Finally, many Kamarupan languages have developed dental stops from PTB *s-, *e.g.* 'kill' PTB *g/b-sat > Lushai **that**, Mikir **that**, Dimasa **thai**; 'fruit' PTB *sey > Lushai **thei**,

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40. The voiced affricates *dz- and *dž- have sometimes become f- in Lushai and other Chin languages like Lai, *e.g.* 'suck' PTB *dzo:p > Lushai **fo:p**; PTB *m-dz(y)u(:)k 'plant, be erect' > Lushai **fuk**; 'hang down / sag' *džwal > Lushai **fual**. In other cases Lushai and Lai show a different reflex, ts- : *dzəy 'seed' > WB **ce'** / Lushai and Lai **tsii** (below, 5.3.2(2a)); *dzoŋ 'wait' > WB **coŋ'** / Lushai and Lai **tsoŋ** (below, 7.3(3)); *dzyi:p 'close together' > WB **cip** 'be set or placed closely; near (in time or place)' / Lu. and Lai **tsiip** 'be shut; to close' (below, 8.3(3a)); *dzik ⋊ *dziŋ 'split, mince' > WB **cañ** / Lushai, Lai **tsik** (below, 12.1(2c)); *dziŋ 'relatives / ancestors' > WB **cañ** 'place in a row', **bhûi-*cañ*** 'ancestry' / Lai *tsiŋ*-la 'line of ancestors, relatives (below, 12.6.1(2)).

41. *STC* #75 indulges in a bit of "proto-inventory stuffing" by positing the improbable PTB cluster *tśr- for this root. Japanese is a good example of a language showing synchronic subphonemic interplay between [t] and [ts]: the Japanese phoneme /t/ is realized as [ts] before /u/, the same vowel as in TB 'mortar'.

Garo **the**, Mikir **thei**, Tangkhul **thei**, Dimasa **thai**; 'die' PTB ***səy** > Lushai, Mikir, Dimasa **thi**; 'three' PTB ***g-sum** > Lushai **thum**, Tangkhul **kəthum**, *etc.*[42] Again a similar development has occurred in the history of Burmese, where WB s- has become an interdental fricative /θ/ or affricate [tθ], *e.g.* 'three' WB **sûm** > Mod. Bs. **tθôuɴ**. Note that for languages like Lushai, Mikir, and Burmese, we must posit drag-chains whereby *s- first underwent the change to a stop, after which *ts- was free to develop into s- :

(1)	PTB *s > Lushai and Mikir **th**
(2)	PTB *ts > Lushai and Mikir **s**
(1)	WB s > Mod. Bs. **tθ**
(2)	WB ts (or **c**) > Mod. Bs. **s**
	WB tsh (or **ch**) > Mod. Bs. **sʰ**

	PTB	*Lushai*	*Mikir*	*WB*	*Mod. Bs.*
'tree'	*siŋ ⪥ *sik	thiŋ	theŋ	sac	θíʔ
'joint'	*tsik	---	sek	chac	sʰíʔ
'hair (head)'	*tsam	sam	---	cham	sʰaɴ

In the case of Burmese, a third link in the chain ensued, when WB clusters of ***velars** plus the glides ***/ -y- -r- -l- /** developed into new palatal affricates in Modern Burmese:

(3)	WB **gy, gr, gl** > Mod. Bs. **c**
	WB **ky, kr, kl** > Mod. Bs. **ch**

A similar drag chain occurred in Meithei, where *s- > **h**-, after which *ts- > s- (*e.g.* *tsam 'hair' > Me. **sə́m**, *tsa 'hot' > Me. sa, *tsum 'mortar' > Me. *sum*-bal.

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42. In Meithei, PTB *s- has often developed into **h**-, in a development reminiscent of the fate of Proto-Indo-European *s- in Greek (*e.g.* 'three' > Meithei **húm**, 'fruit' > Meithei **mahéi**, 'kill' > Meithei **hát**, 'fat / oil' PTB *sa:w > Meithei **məhau**), but PTB *s- remains Meithei s- before front vowels, a palatal falling diphthong, or **y**, *e.g.* *sya 'animal / flesh / body' > Me. **sá**, *siŋ 'tree / wood' > Me. **síŋ** 'firewood', *səy 'die' > Me. si; *sit 'blow / sweep' > Me. **sít**. See *STC*:28, Chelliah 1997:19, and JAM 2001e:246.

The decay of initial ***s-** is carried even further in Abor-Miri (Padam-Mising), where it often disappears entirely:[43]

	PTB	*Abor*	*Miri*
'three'	*g-sum	a-um	a-um
'fruit'	*sey	a-ye	a-ye
'liver'	*m-sin	a-in	a-śin [a]
'son' [b]	*za	a-o	a-o

a. A following -i- sometimes prevented the *s- from dropping by palatalizing it to ś-. See also 'tree / wood': PTB *siŋ > Abor and Miri e-śiŋ.

b. As this example shows, a similar fate befell *z- in these languages.

We have thus observed all kinds of synchronic and diachronic interrelationships involving fricatives and affricates: proto-variation discoverable comparatively, synchronic variation within a single language, and diachronic developments within given languages or subgroups. In phonological terms these relationships include:

(a)	Variation between palatal and dental affricates, *e.g.* *ts- ⋊ *tš- (equivalent to the notation *ts(y)- .
(b)	Proto-variation between affricates and dental stops, *e.g.* *ts- ⋊ t- (*cf.* 'mortar'), or diachronic development of affricates into dental stops *ts- > t- (Mpi, Bola).
(c)	Interplay between dental affricates and fricatives, *e.g.* ts /s or dz/z, either indicating proto-variation *ts ⋊ *s (*cf.* 'liver'), or diachronic evolution *ts > s, as in Lushai or Burmese; diachronic development of dental stops from sibilants, *e.g.* *s > th, as in the history of Lushai.

The reflexes of the PTB fricates in some of the major languages discussed in this section are summarized in the following chart:[44]

PTB	*WT* [a]	*WB*	*Lahu*	*Mpi*	*Lushai*	*Mikir*	*Meithei*
*s	s ~ ś/__i [b]	s	š ~ s/__ɨ	l	th	th	h
*ś	ś	s	š ~ s/__ɨ	s	s ~ ś	s [c]	s
*z [d]	z	s	y	l	f	s [e]	??

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43. See JAM 1978a(*VSTB*):277-8.

3.3.1: Dental and palatal fricates

PTB	WT [a]	WB	Lahu	Mpi	Lushai	Mikir	Meithei
*ts	ts(h)	ch (=tsh)	ch ~ tsh/__ɨ	th	s	s	s
*tś	tś(h)	ch (=tsh)	ch ~ tsh/__ɨ	tɕh	s ~ ś	t(?) [f]	s [g]
*dz	dz ~ z [h]	c (=ts)	c ~ ts/__ɨ	t	f / ts	??	tś [i]
*dź	dź ~ ź	c (=ts)	c ~ ts/__ɨ	tɕ	f / ts	tś [j]	c/ch/ts

a. The WT reflexes are complicated by the interaction of these initials with prefixes, *e.g.* *m-sin 'liver' > WT mtśhin (via *mśin). WT aspirated and non-aspirated affricates (like WT obstruents generally) are in complementary distribution with respect to the prefixes, with the aspirates occuring only after m- and ḥ-, and the non-aspirates after all other prefixes. See below 4.1.2.

b. WT regularly palatalizes dentals before -i, *e.g.* śi 'die' < *səy, śiŋ 'wood / tree' < *siŋ (*STC*:55).

c. The Mikir and Meithei reflexes are established by 'grandchild': PTB *šu(w) > Mk. and Me. su (*STC*:158).

d. *z- is preserved as such in a number of TB languages, including many in the Qiangic and Loloish groups, *e.g.*: *zum 'use' > (Qiangic) Namuyi zy⁵⁵, Ersu zi⁵⁵; (Loloish) Yi Xide zi³³, Yi Nanhua zɯ²¹, Yi Mile zi²¹, Yi Mojiang zɯ³³, Lisu zi²¹, Hani zɔ³¹ (but Lahu yê, WB sûm). See *ZMYYC* #679.

e. *Cf.* 'child': PTB *za > Mk. so. Meithei macha seems to derive from the affricated variant *tsa.

f. *Cf.* Proto-Kuki-Naga *m-tsyi 'salt' > Mikir iŋ-ti, Tangkhul mətsi, Lushai tśi, Ao Naga mətsə, Sema Naga əmti (*STC* n. 332), also Daai Chin msi (Hartmann 2001a). I would now like to include in this etymon Jg. mətsì 'yeast / leaven' and Lahu dî '*id.*' (cited in my note 123 in *STC*), implying PTB *m-t(s)i 'salt / yeast'.

g. *Cf.* PTB *tsyow 'cook / boil / bake' > Meithei əsau 'heat', (*STC* #275).

h. WT has dropped the occlusive part of the PTB *affricate in several roots: *dz(y)a 'eat' > WT za, *dz(y)im 'sweet / delicious' > WT źim-pa; *džon 'ride (an animal)' > WT źon-pa.

i. *Cf.* PTB *dzar 'younger sister' > Meithei i-tśal ~ i-tśan (*STC* #68).

j. *Cf.* PTB *dz(y)a 'eat' > Mikir kətśõ (Weidert 1987). The Meithei cognate is recorded in serveral different ways in the various sources: ca, cha, tsà. Abor-Miri (Padam-Mising) do is possibly to be assigned to this etymon, implying a development as in Mpi.

Laterally released affricates are occasionally found in TB languages, though they are obviously of secondary origin, as in the C. Loloish languages Sani (=Nyi) and Ahi (=Axi), where they derive from clusters of *labial-plus-y, *e.g.* 'bee' PLB *bya² > Sani dla-ma; 'fly' (v.) PLB *byam¹ > Sani tɬɿ.[45] In Central Chin languages sequences of dental stops plus -l- seem to function rather as clusters than as unitary phonemes, deriving typically from *velar-plus-l clusters, *e.g.* PTB *kla-k 'fall' > Lai Chin tlaa, tlaak; *g-la 'moon' > Lushai thla.

Initial or prefixal *s-, like initial *ʔ-, can exert a decisive conditioning effect on the *tone* of its syllable, a phenomenon which is especially clear in LB.[46] Thus the *s- prefix before a nasal C_i in a Proto-Loloish stopped syllable induces the **HIGH**-stopped tone, *e.g.*

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44. Jingpho has been omitted from the chart owing to the extreme variability of its reflexes, *e.g.* *z > Jg. z- or š-; *ts- > Jg. ts- or dz-; *dz- > dz- ~ ts- ~ š-. See the chart in *STC*:18.

45. Note that PLB *voiced obstruents are devoiced in Sani words from Tone *1, but remain voiced under Tone *2 etyma. See JAM 1979.

46. See JAM 1972a (*TSR*): *passim*, and below 4.1.1 and 4.2.1.

*s-myak[H] 'eye' > Lahu mê̠ʔ (**HIGH**) vs. *mak[L] 'soldier' > Lh. *màʔ-yâ* (**LOW**). A syllable with root-initial *s- sometimes shows an irregular tonal correspondence, *e.g.* WB **sân** 'louse' (< PLB Tone *2) vs. Lahu **še** (< PLB Tone *1). Benedict (*STC*:197) explains a set of tonally irregular TB/Chinese comparanda by invoking the special tonogenetic effect of sibilant initials, which he claims caused PST etyma under Tone ***B** to acquire Chinese Tone ***A** (*píngshēng*), with at least one case where this correspondence is reversed.[47]

3.3.2 Sources of Sangkong ʑ-

At the PTB level, the voiced palatal fricative (whether written *ź, *zy, or *ʑ) was extremely rare, with the *STC* (p. 54) only giving one tentative example, *zya:w 'rot / decay / digest'. Some modern languages have developed it secondarily; in the case of Sangkong (S. Loloish) it represents the merger of several older resonantal initials:[48]

- (i) SK ʑ < PLB *y-

	Sangkong	*PLB*
'house'	ʑim⁵⁵	*yim¹
'take'	ʑu⁵⁵	*yu¹
'sleep'	ʑu̠³¹	*yup[L]
'seed'	aŋ³³ʑø³¹	*yəw² a
'potato'	ʑaŋ³¹zɿ³⁵	< Chinese b

    a. *Cf.* Lahu **yɔ̂**.
    b. *Cf.* Mandarin 洋芋 *yángyù* (lit. "Western taro") and Lahu *yàʔ-yí*-šī.

- (ii) SK ʑ < PLB *r-

	Sangkong	*Lahu*	*PLB*
'bone'	aŋ³³ʑø³¹	ɣɔ̂	*rəw²
'stand'	ʑap³¹	hú	*ʔ-rap[L]
'copula'ᵃ	ʑe⁵⁵	ve	*ray (⋇ *way)

    a. The SK form is a 'non-1st person agreement particle'; for Lahu **ve** see JAM 1985a (*GSTC*) and 1972c.

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47. See JAM 1999a:24-5 and below 11.4.5.

48. *Cf.* the discussion of Loloish resonantal reflexes in JAM 1969:171-9. The Lahu reflexes of PLB *y, *r, *w, C-š, and *z/ž are / y ɣ v š y / , respectively.

· (iii) SK *ʐ* < PLB **w-*

	Sangkong	*Lahu*	*PLB*
'bloom / flower'	ʐø³³	vêʔ	*s-wat[H]
'elder sibling' [a]	a³¹ʐɯ³¹	a-ví ~ ɔ̀-ví	*ʔ-wyik[L]

> a. This morpheme is often coupled with the root for 'younger sibling' (PTB *nyey) in elaborate expressions meaning 'siblings in general', *e.g.* SK a³¹ʐɯ³¹a³¹ȵi⁵⁵, Lahu a-ví-a-ni, ɔ̀-ví-ɔ̀-ni. See *GSTC* #146 and *DL*:59.

· (iv) SK *ʐ* < PLB **C-š*

	Sangkong	*Lahu*	*PLB*
'easy / cheap'	ʐa⁵⁵	ša	*C-ša¹

· (v) SK *ʐ* < PLB **z* or **ž*

	Sangkong	*Lahu*	*PLB*	*WT*	*PTB*
'excrement / rust / blight'	ʐaŋ³¹	yɔ̂	*z/žaŋ²	gśaŋ, bśaŋ	*g/b-syaŋ

3.4 Sonorants: nasals and resonants

3.4.1 Nasals

(1) Positions of articulation

Nasals are reconstructed for PTB at four points of articulation, */ m n ń ŋ / . Neither the original text nor the new footnotes of *STC* specifically mention the status of the ***palatal nasal**, and the reconstructions of words with this initial are uniformly written with the digraph "**ny**". In the chart of initial consonant clusters (p. 38), "**ny**" is treated just like /**my**/ and /**ŋy**/, and in etyma with the vowel *-i- the semivowel is parenthesized, implying a lack of distinctiveness in this environment: ***n(y)ik** [*STC* #235] 'filth / excrement', ***n(y)iːt** [*STC* #236] 'nod / sleep'. It is clear, however, (*e.g.* from the Index, pp. 204-5) that Benedict later came to treat the palatal nasal as a unit phoneme like the rest of the palatal series.[49]

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49. Yet the palatal nasal is not mentioned in note 122 (p. 37), where this new palatal series is proposed.

(2)   Plain vs. complex nasals

Many TB languages, including Burmese, Pumi, and the Chin group, have a series of voiceless or aspirated nasals, which can easily be shown to derive from earlier combinations of *s- or *ʔ- with a nasal root-initial, *e.g.* 'snot' PTB *s-nap > WT **snabs**, WB **hnap**, Lushai **hnap**, Pumi (Jinghua) n̥ɑ¹³; 'medicine' PTB *s-man > WT **sman**, Pumi Dayang m̥í . Voiceless nasals are widely distributed in TB, being found in *Himalayish* (Chepang, Dhimal, and Khams Tibetan [Batang, sDe-gDe (Dege)]); *Qiangic* (Zhaba [=Queyu], Pumi [Jinghua]); *Lolo-Burmese* (WB and Modern Burmese, Achang; Nusu [Bijiang]⁵⁰, Bisu, Jinuo [Youle]); *Nungish* (Anong)⁵¹ and *Kamarupan* [Naga] (Angami, Chokri, Khezha), [Kuki-Chin] (Kom Rem, Lai, Laizo, Lakher [Maraa], Lushai), [Mirish] (Damu, Darang). Voiceless nasals are absent in Jingpho, Karenic, and Baic.

Three manner series of nasals must be reconstructed for PLB, *e.g.* ***m**, ***hm**, ***ʔ-m**, on the basis of conclusive tonal evidence from Loloish ***stopped syllables**, with PLB ***hm** deriving from PTB *s-m, and PLB ***ʔ-m** < PTB *ʔ(ə)-m.⁵² Lahu has a threefold tonal distinction here, with ***plain nasals** acquiring the low-stopped tone / ˋʔ / (*e.g.* PLB *myok^L 'monkey' > Lh. mɔ̀ʔ; PLB *mwat^L 'hungry' > Lh. mə̀ʔ), ***s-** prefixed nasals determining the high-stopped tone / ˆʔ / (*e.g.* PLB *s-mut^H 'blow' > Lh. mə̂ʔ, PLB *s-mak^H 'dream' > Lh. mâʔ), and the ***preglottalized nasals** triggering "glottal dissimilation" (see JAM 1970) to produce the Lahu high-rising tone / ˊ / (*e.g.* Proto-Loloish *ʔ-mak^L 'son-in-law' > Lh. má, Proto-Loloish *ʔ-nak^L 'deep' > Lh. ná). As the superscripts in the PLB forms indicate, the ***plain** and ***glottalized nasals** determined the ʟᴏᴡ-stopped tone for Loloish in general, while the ***s-prefixed nasals** induced Loloish ʜɪɢʜ-stopped tone. In non-stopped LB syllables there is tonal evidence for only two nasal series, ***plain** vs. ***complex** (aspirated-or-glottalized). Thus in roots under PLB Tone *1, Lahu has low-falling tone / ˋ / from ***plain nasals** (*e.g.* PLB *naŋ¹ 'you' > WB **naŋ**, Lh. nɔ̀, PLB *mraŋ¹ 'see' > WB **mraŋ**, Lh. mɔ̀), but midtone (unmarked) from ***complex nasals** (*e.g.* PLB *s/ʔ-nay¹ 'bamboo strip' > Lh. **ne**, PLB *s/ʔ-mi¹ 'catch, overtake' > WB **hmi**, Lh. **mi**, Lalo **mɛ**). In

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50. Nusu also has a series of glottalized nasals / ʔm ʔn ʔn̠ ʔŋ / as well as / ʔl /. The most frequent sources of both glottalized and voiceless nasals are proto-nasals prefixed by *s- or *ʔ- .

51. Anong also has syllabic nasals (see below 4.3.3), which are "normally realized as having a preceding glottal stop", *e.g.* [ʔm̩], [ʔn̩] (Namkung ed., 1996:306). See the discussion of Tibetan *a-chung*, below 4.2.2.

52. See JAM 1972a (*TSR*):24, 57-63. The laryngeal prefix is written as "H" in *TSR*. See below 4.2.2. Three similar series of nasals are set up for Proto-Kam-Sui (see Li Fang-Kuei 1965 "The Tai and the Kam-Sui languages"). The newly described Loloish language Mo-ang has an elaborate synchronic series of preglottalized nasals / ʔm ʔmj ʔn ʔnj ʔn̠ ʔn̠j ʔŋ / (Wu 1993, Namkung ed. 1996:262). Burmish languages with a glottalized series of nasals include Atsi (Zaiwa) and Maru (Langsu), which also have a series of glottalized stops. This glottal feature, prefixal in origin (see n. 50), manifests itself synchronically mostly as creaky phonation on the following vowel. See Burling 1967.

Tone *2 etyma, **plain nasals** give Lahu high-falling tone / ˆ/ (*e.g.* PLB *ma² 'not' > Lh. mâ, PLB *nwa² 'cattle' > Lh. nû, PLB *ŋa² 'fish' > Lh. ŋâ), while **complex nasals** give Lahu very-low tone / ˉ/, *e.g.* *s/ʔ-ma² 'teach' > Lh. mā, PLB *s/ʔ-nam² 'sesame' > Lh. nū, PLB *s/ʔ-ŋa² 'borrow, lend' > Lh. ŋā). As always when dealing with complex initials, however, we find a number of roots showing variation between **simple** and **complex** nasals, *e.g.* 'mushroom' (Lh. mù points to *məw¹, but WB **hmui** reflects *ʔ-məw¹), 'listen' (Lh. na points to *ʔ-na¹, but WB **na** reflects plain *na¹), 'deep' (Lh. ná comes from *ʔ-nak^L [see above], but WB **nak** reflects plain *nak^L).

Languages with voiceless nasals frequently have voiceless resonants (liquids and/or semivowels) as well, *e.g.* Burmese, Dhimal. Manang (Tamangic group of Himalayish) has voiceless liquids / **hl hr** /, but no voiceless nasals. Lotha Naga (Acharya 1975) is said to have a series of voiced aspirated nasals and liquids, written " **m**^{h} **n**^{h} **ɳ**^{h} **ŋ**^{h} **r**^{h} **l**^{h} ". Mao Naga (Namkung, ed. 1996:243) apparently has only two voiceless sonorants, "**ngh**" and "**rh**".

(3)   Some interesting nasal phenomena in Loloish

Several Loloish languages show interesting reflexes of nasal initials:

· In Bisu (S. Loloish), PLB **plain nasals** have become the homorganic voiced stops:[53]

	PLB	*Other LB*	*Bisu*
'female / girl'	*mi²ᐟ³	Lahu yâ-mî	bì
'spirit / demon'	*nat^L ⋇ *nan²	WB **nat**, Lahu nê	dàt
'I / me'	*ŋa¹	Lahu ŋà	gā
'soft'	*now²	Lahu nû	dɔ̀
'hungry'	*mwat^L	Lahu mɤ̀ʔ	bɛ̀
'noun suffix'	*-ma³	Lahu ni-*ma* [a]	nɯŋ-*ba*

a. The Lahu and Bisu forms mean 'heart'.

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53. See JAM 1979 (QV), p. 33. This is reminiscent of the similar development found in the Min dialects of Chinese, where the resulting voiced stops are often still slightly prenasalized (p.c. Jerry Norman).

PLB ***complex nasals** generally remain Bisu nasals:

	PLB	*Other LB*	*Bisu*
'bean'	*s-nuk^H	Lahu nɔ̂ʔ	nū
'heart'	*s-ni-ŋ/k	WB hnac, Lahu *ni*-ma	*nɯŋ*-ba
'eye'	*s-myak^H	Lahu mɛ̂ʔ	*mè*-hnɯ

Again, however, many such roots show Loloish variation between ***plain** and ***complex nasals**:

	PLB	*Other LB*	*Bisu*
'fire'	*mey²	WB mî	bì
	*s/ʔ-mey²	Lahu à-*mī*	
'black'	*nak^L	WB nak	dāʔ
	*s-nak^H	Lahu nâʔ	---
'monkey'	*myuk^L	WB myauk, Lahu mɔ̂ʔ	---
	*s-myuk^H	---	mjò

· In Luquan (N. Loloish), a variety of PLB sonorant initials, including prefixed liquids and complex nasals or nasal clusters, have developed into the retroflex nasal ɳ:[54]

	PLB	*Luquan*		*PLB*	*Luquan*
'brain'	*s-nuk^H	ɳa¹¹	'neck'	*m-liŋ¹	ɳɚ¹¹
'many'	*mra²	ɳu³³	'ripe'	*s/ʔ-min¹	ɳɚ³³
'monkey'	*myuk^L	ɳū⁵⁵	'soul / spirit'	*s/ʔ-la³	ɳu¹¹
'moon'	*s/ʔ-la³	ɳū²²	'wind'	*s/ʔ-ləy¹	ɳɯ¹¹

54. See Wheatley 1973, quoted in JAM 1979 (QV):33. For the Luquan tonal reflexes, see QV:36.

· In Naxi (outlier Loloish), PLB ***glottalized nasals** become voiceless spirants:[55]

	PLB	*Naxi*
'body hair'	*ʔ-məw[1]	[2]ffŭ
'deep'	*ʔ-nak[L]	[3]ho
'ear'	*ʔ-na[2]	[2]hä
'red'	*ʔ-ni[1]	[1]hö
'rib'	*ʔ-nam[1]	[1]ho

(4)   Prenasalized obstruents and syllabic nasals

Many TB languages (*e.g.* WT, Baima, Zhaba (=Queyu), Luquan Lolo, Mpi) have a series of prenasalized initial obstruents, where the nasal component does not constitute a syllable by itself.

A number of other languages do have preinitial nasal elements that constitute separate syllables. In Lotha Naga and Mzieme, this nasal preinitial is obviously syllabic, since it may occur before nasal root-initials (*e.g.* Lotha **nli ~ nni** 'tongue'). Jingpho (which is particularly interesting in this regard) has several fully syllabic nasal prefixes that can bear a tone, most importantly the high-toned morpheme /ń̩/ 'negative'. Lalo (W. Loloish; SB 1998) has developed secondary syllabic nasals from syllables with nasal root initial and vowel *-a, *e.g.* PLB *ʔ-ŋa[2] 'borrow/lend' > Lalo à-ǹ̩, PLB *ŋa[2] 'fish' > à-ǹ̩, PLB *nwa[2] 'cattle' > Lalo à-ń̩.

Prenasalized obstruents and syllabic nasals are best discussed in the context of the PTB nasal prefix *m- (below 4.3).

(5)   Nasalized vowels

Nasalized vowels occur in many TB languages, either due to rhinoglottophilia after laryngeal initials (below 3.5); or through the spreading of the feature from a nasal root-initial (as in Mpi; below 4.3.4); or, most commonly, through the decay of a syllable-final nasal. Nasalized vowels will be discussed (below Ch. 7) in the context of syllable-final consonants.

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55. See Okrand 1973, quoted in QV:34. Since *s- prefixed nasals seem to have developed into simple nasals in Naxi stopped syllables (*e.g.* *s-**nuk** 'bean' > Naxi [1]**nu̱**; *s-**myak** 'eye' > Naxi [1]**miu** ~ [1]**niu**), this is further evidence that the *s- and *ʔ- prefixes were still distinct before nasals at the PLB stage, at least in stopped syllables. See below 4.2.

3.4.2   Resonants

Four resonants are set up for PTB, the liquids ***r-** and ***l-**, and the semivowels ***w-** and ***y-**.[56] In the present context we consider these phonemes in their role as root-initial consonants.[57]

(1)   *r-

A great variety of articulatory gestures are subsumed under the category of rhotic liquids, including apical trills, flaps, retroflex continuants, and postvelar trills; often these are pronounced with extra features like audible friction or labiodental contact. Given this phonetic latitude (*i.e.* widely divergent sounds are still accepted as "kinds of r"), it is not surprising that the reflexes of PTB ***r-** are so various, even within a single branch of the family. Within Lolo-Burmese, reflexes include other resonants (**y-** or **w/v-**), and voiced fricatives ranging from dental, palatal, and retroflex to velar. Some languages (*e.g.* Lahu) have consistent reflexes; others (*e.g.* Akha, Lisu, Xide, Mile, Mojiang) have complex conditioned reflexes depending on the following vowel.

·   ***r- > y-**

The palatalization of ***r > y** occurred in Burmese, both in initial and medial position (WB ***r-** > Mod. Bs. **y-**; WB ***-r-** > Mod. Bs. **-y-**), and is paralleled in several other Lolo-Burmese languages, including Leqi (Lashi), Sani, Hani (*e.g.* Mojiang and Shuikui dialects), Jinuo, and Gazhuo:

	PLB	*Mod. Bs.*	*Leqi*	*Sani*	*Hani*	*Jinuo*	*Gazhuo*
'get'	**ra³*	ya'	---	---	jɔ³³	jɔ⁴⁴/³³	---
'laugh'	**ray¹*	ye	jiː³¹	jæ³³	---	---	---
'reap'	**riːtᴸ*	yeiʔ	---	---	---	---	ji⁵⁵
'weave'	**rakᴸ*	yeʔ	jɔːʔ³¹	---	ja³¹	ja⁴⁴	---

With added friction, this palatalizing tendency led to voiced fricatives in the dental/palatal/retroflex area, *e.g.*:

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56. See the concise discussion in *STC*:33-36.

57. In their even more important role as glides, they are discussed below (3.6). These four resonants, like the nasals, are "weak" root-initials, particularly susceptible of being "preempted" by a prefix (see below 4.5.3).

· *r- > ʐ-

	PLB	Xide	Dafang	Nanhua	Mile	Nanjian
'water'	*rəy¹	ʑ1̩³³	ʑi²¹	ʑi³³	ʑi³³	---
'laugh'	*ray¹	ʑ1̩²² ʑ1̩³³	---	ʑe³³	---	ʑe⁵⁵
'reap'	*riːtᴸ	ʑ1̩⁵⁵	---	---	---	---

· *r- > ʐ-

	PLB	Achang	Naxi Yongning
'bone'	*rəw²	a³¹ʐau³¹	---
'laugh'	*ray¹	ʐə⁵⁵	ʐa³³
'get'	*ra³	ʐua³⁵	---
'weave'	*rakᴸ	ʐuaʔ⁵⁵	---
'reap'	*riːtᴸ	ʐit⁵⁵	---

· *r- > z-

	PLB	Akha	Naxi Lijiang
'laugh'	*ray¹	---	za³¹, zæ²¹
'get'	*ra³	za	---
'weave'	*rakᴸ	zàqᵃ	---

    a. Before other rhymes, Akha has different reflexes, *e.g.* 'laugh' *ray¹ > Ak. í,
    'bone' *rəw² > Ak. **shà yɔ̌**.

· *r- > w- or v-

    Sometimes we find labial reflexes, bespeaking a conflation of *r- and *w- (what I have called the "widdle wabbit" or "Elmer Fudd syndwome"[58]):

	PLB	Zaiwa	Xide	Lisu
'bone'	*rəw²	ʃŏ²¹*vui²¹*	*vu²¹* du³³	---
'laugh'	*ray¹	vui⁵¹	---	---
'get'	*ra³	*vo⁵⁵*ju⁵¹	---	wɑ⁴⁴
'weave'	*rakᴸ	voʔ²¹	---	---

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58. Elmer Fudd is a cartoon character incapable of pronouncing [r], known primarily for his hostility to Bugs Bunny, to whom he refers as "that wascally wabbit".

A further development of *r- > w- > Ø before *-a also occurs, *e.g.* in Hani/Akha:

'laugh'	*ray¹	Hani Lüchun ɯ⁵⁵, Hani Mojiang u³³ ʃɿ⁵⁵, Akha í

There is considerable evidence to indicate that at least one type of PTB *r- must have had a "uvular" articulation (like that, *e.g.* of Parisian French). In several subgroups of TB (Lolo-Burmese, Karenic, Naga) the reflexes of initial *r- include the voiced velar fricative /ɣ/:

· *r- > ɣ-

    Lolo-Burmese

	PLB	*Loloish*
'water'	*rəy¹	Yi Nanjian ɣɯ⁵⁵, Lahu ɣɨ, Mile ɣᴀ³³, Mojiang ɣɛ²¹
'bone'	*rəw²	Lahu ɣɔ̂, Langsu (Maru) ʃŏ³³*ɣuk⁵⁵*, Nanhua *ɣɯ²¹*gɑ²¹, Wuding xɯ¹¹*ɣɯ³³*, Sani *ɣɯ¹¹*pɣ³³
'laugh'ᵃ	*ray¹	Lahu ɣɨ, Dafang ɣə²², Langsu ɣə³¹, Bola ɣəi⁵⁵, Wuding ɣɔ¹¹, Jinuo ɣɯ⁴²
'get'	*ra³	Lahu ɣa³, Xide ɣɯ²¹, Weishan ɣɑ³³, Nanhua ɣo³³, Wuding ɣʉ², Sani ɣɒ³³, Hani Lüchun ɣa³³, Hani Dazhai ɣa³³, Dafang ɣu²¹, Nanjian ɣa³³, Mile ɣo³³, Mojiang ɣo²¹
'weave'	*rakᴸ	Lahu ɣàʔ, Dafang ɣa¹³, Langsu ɣɔʔ³¹, Bola ɣaʔ³¹, Hani Lüchun ɣa̱³¹, Gazhuo ɣa³⁴, Langsu ɣɔʔ³¹
'reap'	*riːt	Lahu ɣə̀ʔ

a. See also Lisu xɯ⁴¹, with voiceless velar fricative.

    Karenic

	PTB	*PLB*	*Karenic*
'Clf. for humans'	---	*ra²	Pwo ɣa, ɣá; Palaychi ɣá; Sgaw ɣa (*cf.* Lahu ğâ)
'snake'	*s-b-rul	*m-rəy¹	Pa-o rû; Pwo ɣú, ɣúʔ; Palaychi rù; Sgaw ɣỳ; Bwe **Rù**
'cane / rattan'	*ri(ː)m	---	Pa-o rê; Pwo ɣé, ɣéʔ; Palaychi ɣì; Sgaw ɣè
'count'	*r-tsyəy	*rəy¹ᐟ³	Palaychi *ɣì*-nɔ́q; Sgaw ɣì (*cf.* WB re, Lahu ğɔ)

Although the data is still limited, a couple of Naga languages (Mao, Sema) also seem to have developed voiced velar spirants (written "gh" in Marrison 1967), *e.g.* 'snake' Mao

in∘*gho*, Sema apo∘*ghü*. Most interestingly, a number of Chin languages (Tiddim, Chinbok, Thado) have gone so far as to "harden" initial ***r-** to the velar stop **g-** (although in Lushai it remains **r-**).[59] Siyin and Ngawn have evolved even further, ending up with the velar nasal **ŋ-**:

	PTB	*Lushai*	*Tiddim*	*Siyin*
'bone'	*rus	ruʔ	gùʔ	a-ŋu
'rain'	*rwa	ruàʔ	gùa	ŋua
'bamboo'	*r-wa	ruá	gūa	ŋua
'enemy'	*g-raːl	ráal	gāal	ŋal
'six'	*d-k-ruk	rùk	gùk	---
'snake'	*s-b-ruːl	rúul	gūul	---
'abdomen / guts'	*riːl	ríil	gīl	ŋil

In the word for 'seven' (PTB ***s-nis**), Lushai and the other Chin languages have reflexes that unmistakably point to ***s-r-**:

> Lushai pa-**sarih**, Gangte **sagih**, Hmar pa-**sari**, Kom Rem **sari**, Kuki **sagi**, Lakher **sari**, Paite **sagih**, Puiron **sari**, Thado sʌgi, Tiddim səgiʔ, Vaiphei **sagi** .

Elsewhere in Kamarupan we find Meithei **taret**, Meluri **terü**, Ntenyi **tüghü**, Pochury **türü**, *etc*. However, *STC* refuses to recognize the cognacy of these forms with ***s-nis**,[60] probably because **r �france n** is not an established variational pattern for TB. Yet in this case a plausible explanation is to hand: no doubt these rhotic forms arose through contamination with the next lower numeral ***d-ruk**, where the **-r-** appears by right (*cf. e.g.* Lushai **paruk**, Meithei **taruk**, Mikir **throk**, *etc*.).[61]

It appears therefore that there were many competing phonetic variants of ***r-** in the TB area, just as there are in modern dialects of, *e.g.* French or Hebrew.

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59. See Solnit 1979. Final ***-r** similarly > **-k** in Tiddim, merging with the reflex of ***-k**. See below Ch. 9 ("Final liquids").

60. *STC* p. 94, lines 1-2. The only form cited there is incorrect ("Lushai səri"), without the final orthographic **-h** (phonemically **-ʔ**), which is the regular reflex of PTB ***-s** (*cf.* also the Gangte, Paite, and Tiddim reflexes). The **-h** appears in Lorrain's dictionary (p. 405).

61. See JAM 1995b ("Numerals"), §4.2212.

(2)   **y-*

Evidently, this TB phoneme was frequently pronounced with considerable local friction. In some Kamarupan languages (*e.g.* Garo, Dimasa, Mikir) it became a palatal affricate, while in Lushai it became z- :[62]

	PTB	Lushai	Mikir	Garo	Dimasa
'fan'	* yaːp	zaːp	hi-*dźap*	tśo	dźau
'rat'	*b-yəw	sa-*zu*	phi-*dźu*	---	---
'liquor'	*yəw	zu	---	tśu	dźu

In Lahu, the /y/ phoneme is strongly fricated before the front vowels /i e/, and in fact functions as the voiced homologue of /š/ in terms of its allophonic realization as [z] before /ɨ/:

$$
\text{Lahu:} \left\{ \begin{array}{c} /c/ \\ /ch/ \\ /j/ \\ /š/ \\ /y/ \end{array} \right\} \rightarrow \left\{ \begin{array}{c} [ts] \\ [tsh] \\ [dz] \\ [s] \\ [z] \end{array} \right\} / \underline{\hspace{1cm}} ɨ
$$

In other words, Lahu has merged *z and *y in favor of /y/, just as it has merged *s and *š in favor of /š/, with [z] and [s] appearing only as allophones before /ɨ/.

Variation between ***r** and ***y** is most common when they appear after a root-initial consonant, *e.g.* *kr- ⋊ *ky-, *mr- ⋊ *my (see below 3.6.3-3.6.4), but occasionally, if they are preceded by a prefix, they vary even when they are the root-initial consonants, *e.g.* *g-y ⋊ *g-r. These are really indistinguishable situations phonetically, regardless of

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62. See *STC*, sets #92-94.

whether the sequence is etymologically ***C$_i$** + **G-** or ***P** + **C$_i$-**. Examples where the resonants are deemed to be the root-initial include:

'ashamed'	PTB *g-yak (> *e.g.* Tangkhul Naga kəkhəyak, Jg. kəyàʔ, Lahu yàʔ-tɔ) [*STC* #452] ⋊ *s-rak (> *e.g.* Bunan šrag, WB hrak, Maru ɣoʔ) [*STC* #431]. Although *STC* treats these as two separately numbered roots, they are cited (p. 34) as an example of "interchange of initials". Later, when Benedict had altered the reconstruction of #431 to *śrak (*STC*, n. 304), he asserted (n. 110) that this "minimized the possibility of some relationship with *g-yak." [a]
'righthand'	PTB *g-ya (> *e.g.* WT lag-gyas, WB lak-ya) ⋊ *g-ra (> *e.g.* Jg. ləkhrá, Garo dźak-*ra*, Dimasa yau-*gada* (note deltacization)) [*STC* #98]

a. The two roots are considered allofamic in *TSR* #182. For Chinese comparanda bearing on this problem, see below 8.2(e).

(3)   **w-*

The usual reflex of PTB ***w-** is **w** or **v**, though a large number of roots show interaction between /w/ and the labial stops /p b/, especially when the nuclear vowel was ***-a**. These etyma are susceptible of several interpretations, and have been conceived of as true clusters within a single morpheme (*e.g.* ***pwa**) or as sequences of labial stop prefix + root-initial **w-** (*e.g.* ***p-wa**). See below 3.6.1 and 3.6.2.[63]

There is evidence of a certain amount of variation between /w/ and /r/, both at the proto-level and within individual daughter languages. Thus, ***w** > ɣ in many Loloish languages, overlapping with the reflexes of ***r**:

'snow / frost'	PLB *wa² > Lahu vâ, but Yi (Nanhua, Mile, Mojiang) ɣo²¹.

Since Lahu does not tolerate the syllables /vo/ or /vu/, ***w-** becomes ɣ in words which develop high back vowels, merging there with the reflex of ***r-**:

'stomach' [a]	PLB *p-wam² > WB wâm, but Lahu ɣ̂ô-pè

63. Benedict changed his mind several times about the way to reconstruct the initials of these roots, eventually coming down in favor of the cluster analysis (*STC*, n. 78). A full-scale study (JAM 2000a) has just been devoted to this problem, for which an "extrusional" solution was offered.

a. Extra-LB cognates include: Mk **vam** 'waist / loin'; Lu. *von*-a**ś**or 'have diarrhea'; Lakher a-*vy*, pa-*vy* 'stomach'; Tamlu **hwum** 'belly'; Jg. p**ù**-*phām* 'stomach'; Tangkhul Naga ā-phur-ā-*pham* 'belly' < PTB *pʷam.

In a number of words, Lahu has synchronic ɣ-/v- doublets, pointing to an older *r- ⋚ *w- hesitation ('pick up; hold in the hand' ɣ**ɔ̂**ʔ ~ v**ɔ̂**ʔ; 'a ring' **ɔ̀**-ɣ**ɔ̂** ~ **ɔ̀**-v**ɔ̂**). Loanwords from Burmese with w- are regularly borrowed into Lahu not with v-, but with ɣ-: 'doctor' Bs. **hsəyawùn** > Lh. **šālāɣūn**; 'meeting' Bs. **sîwêi** > Lh. **šíɣwé**.[64]

In Karenic, *w- becomes a velar fricative in Pwo, thus merging with reflexes of *r- (above §1). In Pa-o and Palaychi, on the other hand, *w- is reflected by h-, while Sgaw dialects show variation between ɣ- and h- :

	PTB	*PLB*	*Karenic*
'stomach'	*pʷik	*ʔ-wik[L a]	Pa-o h**ó**ʔ; Pwo ɣ**àu**ʔ, ɣ**ɔ̀**ʔ; Palaychi h**ù**q; Sgaw ɣɣʔ, hyʔ

a. *TSR* #176.

One very important etymon shows *w- ⋚ *r- variation at the PTB level:

'copula'	PTB *way ⋚ *ray [a]

a. This etymology is discussed at length in JAM 1985a (*GSTC*). See below 5.5.7.

*(4)   The lateral initial *l-*

*(a)   *l- and *r-*

*l- and *r- are generally kept quite distinct in TB, though Garo has merged them in an interesting way. While final *-r > Garo -l (see below Ch. 9), initial *l- > Garo r-:

	PTB	*Lushai*	*Jingpho*	*Garo*	*WB*
'road'	*lam	lam	lām	ram	lâm
'stone'	*r-luŋ	luŋ	ǹ-lùŋ	roŋ	---
'penis'	*m-ley	---	mənè	*ri*-gaŋ	lî

The situation in Meithei is much less clear. *STC* (p. 33) notes "r- ~ l- fluctuation in Meithei" without giving any examples, but a more detailed look is instructive. In general, initial l- seems to predominate in Meithei, with PTB *l- usually well maintained as such:

	PTB	*Meithei*			*PTB*	*Meithei*
'bow'	*d-ləy	*li*-**rung**		'leaf / tea' [a]	*s-la	la
'earth'	*m-ləy	lei		'lick / tongue'	*m-lyak	lek
'fathom'	*laːm	ləm		'road'	*lam	*lam*-bi
'field'	*low	lou		'tongue'	*s-lay	ləy

a. Cf. Magar **hla**; Dhimal **hla-ba**; Mikir **lo**. LB forms meaning 'tea' seem also to descend from this etymon, e.g. Lalo **là-phìq**, WB **lə-phak** < PLB *la[1]. The second element in the Lalo and WB forms reflect an independant etymon for 'leaf' *r-pak, below 8.2(1).

There are also several examples of PTB *r- > Meithei l-:

	PTB	*Meithei*
'cane / rattan'	*rey	li
'enemy'	*g-raːl	lal
'god'[a]	*g-ray	lai
'stand'	*g-r(y)ap	lep

a. *Cf.* JAM 1985a (*GSTC*):61-62.

But it would be an oversimplification to say that Meithei has merged *l- and *r- in favor of l- (*i.e.* to claim that Meithei is the mirror-image of Garo in this respect), since there are also a few examples of PTB *l- > Meithei r-, and of PTB *r- remaining as Meithei r-:

	PTB	*Meithei*
'four'	*b-ləy	mari
'flea'	*s-ləy	hui-*ri* [a]
'bone'	*k/s-rus	saru
'gums'	*r-ni-l	ya-*ri* [b]

a. The first syllable means 'dog'; *cf.* Lushai **ui-hli**.

b. The first syllable means 'tooth'. This example illustrates the survival of the originally prefixal **r-** by "preemption" of the nasal root-initial. See below 4.5.3.

In fact, the r-/l- distinction is quite unstable in Meithei, with many words showing variation (either in a single data-source or from one source to another):

'speak / language'	lon	~	ron
'Meithei language'	meithei-*lon*	~	meithei-*ron*
'hungry'	cak *lam*-bə, *lem*-ba	~	a∘*ram*-ba
'cane / rattan'	li 'cane, rattan'ᵃ	~	thou-*ri* 'rope'
'book'	lai-*lik*	~	lai-*rik*
'saw (n.)' ᵇ	ho-*lay*	~	ho-*ray*

a. See above.

b. Both 'book' and 'saw' are loanwords < Indo-Aryan. *Cf.* Pali lekha 'book' > Old Mon lekh, Shan lik, Lahu lìʔ, etc., and the IA root lōhī- 'iron object', lōhōpaskara- 'iron tools' (Turner 1966:650).

At the level of comparative TB, there are a few roots that show *l- ≥ *r- variation that cannot be explained away, including 'heavy' (PTB *s-ləy-t ≥ *s-rəy-t [*STC* #95]); 'neck' (PTB *liŋ ≥ *riŋ [*STC* #96], and 'buy / barter' (PTB *lay [*STC* #283] ≥ *b-rey [*STC* #293] ≥ *r-ley [*STC* p.64]⁶⁵).

(b)   **l- and *n-*

There are occasional instances of l-/n- interchange in TB. In the most transparent cases, we can find an explanation in terms of phenomena external to TB. Thus the two Lahu pronunciations of the loanword lá-hɔ̂ʔ ~ ná-hɔ̂ʔ 'conical bamboo hat; coolie hat' undoubtedly reflect a similar alternation in the presumable source language, SW Mandarin.⁶⁶

More interestingly, at least two prime TB etyma ('penis'; 'stone') show evidence of a secondary n- arising from l-, probably through the influence of a prefix:

'penis'	PTB *m-ley > WT mdźeᵃ, WB lî, but Jingpho mənè, Meithei mənu, Lahu nī.

a. For Tibetan affricates developing from lateral initials before front vowels see §c, below.

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65. The second and third of these variants are both claimed (*STC*, n. 207) to be "separate but related loans" from Austro-Tai *mbaḷi, which somehow both got conflated with the native PTB root *lay.
66. The Chinese source of this loan has not yet been identified.

The nasal prefix apparently caused the root-initial l- to nasalize (Jingpho, Meithei), after which the original prefix dropped altogether (Lahu). This amounts to saying that the prefix "preempted" the root-initial in Lahu. (See below 4.5.3).

> 'stone'   PTB ***r-luŋ** > Mikir **arlong**, Jg. **ǹ-lùŋ**, but Meithei **nung**, Lotha **olung ~ onung**, Ntenyi **alung ~ anong**

Jingpho often has, as here, a syllabic **n-** as the reflex of prefixal ***r-** in noun-roots (see below 4.4.1). We might suspect that something similar happened to this root in Meithei, after which the initial lateral was preempted by the new prefix, *i.e.* ***r-luŋ** > ***n-luŋ** > **nung**). The synchronic variation in Lotha and Ntenyi (Naga group) might have a similar explanation: perhaps the lateral had not been completely driven out before it was "protected" by a new vocalic prefix.

In final position, both liquids ***-r** and ***-l** were replaced in some languages by final **-n** (see below Ch. 9).

(c)   **l and *d(ž)-/*t(š)-*

Much more important than l-/**n-** interchange is the relationship among ***l-**, palatal fricates, and dental stops. WT regularly develops fricates from PTB ***l-** in syllables which reconstruct with medial -**y-** or the rhyme ***-əy**:

	PTB	*WT*		*PTB*	*WT*
'bow' a	***d/s-ləy**	gźu	'heavy'	***s-ləy**	*ltśi*-ba, *ldźi*-ba
'flea'	***s-ləy**	*ldźi*-ba, *ḥdźi*-ba	'tongue'	***s-lya**	ltśe
'four' b	***b-ləy**	bźi	'wind'	***g-ləy**	rdzi

a. The interesting vowel reflexes in this set of words are discussed below 5.3.2.

b. Many Naga languages have developed dental stops in this root, including Angami **da**, **die**; Chokri **da**, Kezhama **pedi**, Liangmai and Maram **madai**, Mao **padei**, Mzieme **m(a)dai**, Nruanghmei **padei**, Sema **bidhi**, Tangkhul **mati**, and Zeme **medai**.

At the comparative TB level there are a large number of roots that show interplay between l- and dental stops:[67]

> 'arrow'   PTB ***b/m-la** (> *e.g.* Bahing **bla**, Tangkhul **məla**) [*STC* #449] ✹
> PTB ***m-da** (> *e.g.* WT **mda**, Jingpho (Hkauri dialect) **niŋda**) a

'straight / flat / full'	PTB *dyam ≽ *tyam [*STC* #226 and #227] [b] (> *e.g.* Batang **dyam** 'be full; be straight'; WT **ldem-pa** 'straight', **ltam-pa** 'full', **tham-pa ~ them-pa** 'full'; Nung **ədam** 'flat; a plain') ≽ PTB *lyap 'flat' [*STC* #212] (> *e.g.* WT **leb-mo** 'flat', **gleb-pa** 'flatten', WB **lyap** 'very thin') [c]
'good'	PTB *l(y)ak ≽ *l(y)aŋ [d] (> *e.g.* WT **legs-pa ~ lags-pa** 'good; elegant; beautiful' and **yag-po ~ ḥdźag-po** 'good' ≽ PTB *m-d(y)ak (> *e.g.* WB **tak-tak ~ tyak-tyak** 'very'; Lahu **dàʔ** 'good, beautiful' ~ **qha-dɛ̀ʔ** 'well, properly'; Lalo **dìq** ; Tiddim Chin **tak** 'right, correct')
'hand'	The widespread PTB root *l(y)ak (> *e.g.* WT **lag-pa**, WB **lak**) is reflected by an allofam *dyak in Proto-Bodo-Garo (> *e.g.* Garo **dźak**, Dimasa **yau**), and by forms with **d-**, **y-**, or **tś-** in Northern Naga (Konyak) languages (*e.g.* Tablung **yak**, Banpara **tśak**, Namsang **dak**, Moshang **yok**). Other related forms attest to palatalization in this word-family, *e.g.* PLB *ʔ-gyak[H] 'cubit' [JAM 1972a (*TSR*) #100], Lushai **zak** (< *yak) 'armpit', WB *gyak*-**kəli** 'armpit'.[e]

a. *m-**da** is reluctantly treated as a distinct etymon from *b-**la** in *STC*, n. 313.

b. See JAM 1988a ("Universal semantics and allofamic identification") for the reasoning behind combining these two distinct sets in *STC* into a single etymology. See also n. 95 below.

c. I am positing alternation between final homorganic stop and nasal in this root. See below 12.5.

d. This root was first set up in JAM 1990b, § 3.21, where several solid Chinese cognates are also adduced. See 8.2(1e).

e. *STC* (n. 109) unnecessarily splits these forms off from the others by setting up a separate root *g-**yak**.

The puzzling Jingpho cognate **lətáʔ** 'hand' can be explained as the result of a development like *lak > *lyak > *dyak, after which a new prefix **lə-** was added, by analogy with, *e.g.* **ləgō** 'foot' (many other Jingpho nouns and verbs referring to the limbs or actions with the limbs have the **lə-** prefix, undoubtedly a reduction of the original morpheme *lak).[68]

'lick / tongue'	A "pan-allofamic formula"[a] of roughly the following structure may be set up for this complex TB word-family, for which *STC* sets up at least four variants (*m-lay ~ *s-lay ≽ *m-lyak ~ *s-lyak ≽ *s-lyam ≽ *s-lyaːw):

a. See JAM 1978a (*VSTB*), passim.

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67. The whole question of l-/**d**- interchange in TB, as well as parallel phenomena in Indo-European, have been discussed in JAM 1990b ("The dinguist's dilemma"), still unpublished.

				-y
s-				-w
m-	l	(y)	a	-t
(g-)				-k
				-m

Reflexes with dental stops include Jingpho **mətáʔ** 'lick' (< ***m-d(y)ak** < ***m-lyak**) and WT **ldag** 'lick' (both ignored in *STC*). The latter is a co-allofam within WT of **lće** 'tongue' (< ***s-lay**) and **ldźags** 'tongue (respectful)' < ***s-lyak**.

Interestingly enough, an etymon with this meaning displays **l ≶ d** variation in Indo-European: PIE ***dn̥ghū-** 'tongue' > Proto-Germanic ***tungōn**, but > Latin **lingua**.[69]

'moon'	This etymon was originally reconstructed ***s-la** [*STC* #144] (*cf.* WT **zla-ba**, Nung **səla**, WB **la'**) , with the remark that the dental stops in Jingpho **šətā** and Kadu **səda** "cannot be explained"; Lushai **thla** and Meithei **tha** were assigned to another allofam ***g-la**.[a] Later (n. 137), *STC* revised this reconstruction to ***s-gla** (by reconceiving the alternate prefixes as cooccurring in linear order), claiming that this better explained the Jingpho form. However, the development ***sgl** > ***skl** > **št** does not seem particularly natural, and one could just as well imagine a deltacization of the lateral initial, parhaps via the palatalizing influence of the ***s-** prefix[b]: ***s-la** > ***s-lya** > ***s-dya** > **šəta** (with regression of the palatal element to the prefix, since Jingpho lacks a **dy-** or **ty-** cluster). This etymon is one of those where the Manö dialect of Karenni (= Red Karen = Kayah) has developed a dental stop from a ***lateral** (Manö **ta** 'moon'). Other examples include Manö **ta** 'leaf' < ***s-la**, **ti** 'four' < ***b-ləy**, and **pti** 'tongue' < PKaren ***ple** (*STC*, p. 137).
'navel'	*STC* sets up two separate roots for 'navel / center', ***laːy** [*STC* #287] (> *e.g.* Lushai **laai** 'middle, center; navel', Tiddim **laai** 'middle') and ***s-tay** [*STC* #299] (> *e.g.* WT **lte-ba**, Jg. **šədāi** 'navel', Garo **ste** 'abdomen'). In light of all that has been said, these two roots should certainly be considered co-allofams of one and the same etymon.[c]

a. Lushai regularly developed **thl-** or **tl-** from *velar-plus-l clusters. See below 3.6.4.1(2). *Cf.* also Nocte ³**da**.

b. *Cf.* the development of secondary yod in Lepcha through the influence of prefixal ***s-**, pointed out long ago in Benedict 1943. See below 4.2.1.

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68. A different explanation for this Jingpho form is offered in *STC*, notes 109 and 137.

    c. The name of the Central Chin language known as "Lai" /laay/, spoken in such towns as Hakha and Falaam, means 'central; middle', and is evidently cognate to the name of the Southern Chin language called "Daai" (see Hartmann 2001a, 2001b). Coincidentally, the Kadai language of Hainan known in Chinese as 黎語 **Lí-yǔ** is called *Hlai* by its native speakers, a name evidently cognate to the ethnonym *T(h)ai*.

Many of the above etyma have excellent Chinese cognates, though the exact nature of TB/OC liquid correspondences is still highly controversial. *STC* maintains that both PST *r- and *l- merged to Old Chinese l-, with an alternative development to OC (d)i̯- "under conditions of palatalization (not fully worked out)" (n. 458, p. 171). For Sinologists like Pulleyblank, Schüssler, Starostin, and Baxter, both liquids must be reconstructed for OC:

PST/PTB	OC *(GSR; STC)*	OC *(Baxter)*	MC *(Baxter)*
*(C-)r	*l	*C-r	l
		*r	j
*l	*l	*l	d
*ly	*(d)i̯	*(l)j	j
*d	*d'	*d	d

In fact, however, the last word has yet to be said on this subject, and I have identified several etyma where PTB *(C-)l- seems to correspond to Baxter's *(C)-r-, including 'fall', 'good', 'neck', 'salty', 'strength / arm', and 'young man / husband'.[70]

(5)   Secondary complex resonants

    As with the voiceless nasals, voiceless resonants (**hl**, **hr**, **hw**, **hy**) in TB languages generally derive from ***resonants** preceded by the ***s-** or ***ʔ-** prefix. At the level of PLB, we must reconstruct three resonantal series (***plain**, ***preglottalized**, and ***prefixed by a voiceless velar**), *e.g.* ***l**, ***ʔ-l**, ***k-l**,[71] mostly on the basis of tonal behavior in originally stopped syllables: stopped syllables with ***plain resonantal initials** yield syllables in the Loloish ʟᴏᴡ-stopped tone (*e.g.* PLB ***lak** 'hand' > Lahu **làʔ**); ***preglottalized** syllables of this type (deriving from ***s-** or ***ʔ-**) provoke the Lahu high-rising tone and initial **h-** or **f-** [72] (*e.g.* PLB ***ʔ-lakᴸ** 'youth / youngster' > Lahu **há**); while ***velar-prefixed resonants** lead to the ʜɪɢʜ tone class (*e.g.* PLB ***k-rak** 'chicken' > Lahu **ɣâʔ**).

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69. Other well-known IE examples include PIE ***dakru-** 'tears' > PGmc ***taxru-**, but > Latin **lacrima**. Whereas in Indo-European the direction of sporadic change seems to be *d- > l-, in TB it is the opposite tendency *l(y)- > d- that seems to be dominant. See JAM 1990b:1-3.

70. See JAM 1995a ("Palatal suffixes"):50-53.

71. *Cf. TSR*, chart on p. 24, and pp. 25-6, 64-70. See below 4.4.

72. Lahu **h-** descends from a variety of complex resonants, including */ **hr**, **hy**, **hl**, **ʔr**, **ʔy**, **ʔl** / , while ***hw** and ***ʔ-w** > Lahu f-). See JAM 1969 "Lahu and PLB"; 1970:27 (GD); 1979 (QV).

3.5   *Laryngeals* [73]

Two laryngeal initials may be set up for PTB, ***h-** and ***ʔ-/Ø-**. It is not possible to distinguish between ***zero-initial** and prevocalic ***glottal stop** at the PTB stage.[74] While their Indo-European counterparts might be more famous, laryngeals are no less interesting in TB, where they participate in a wide variety of prosodic phenomena within and across syllables, including *tonogenesis, glottal dissimilation, rhinoglottophilia,* and *laryngeokinesis.*[75] By their very nature laryngeals are much more active and unstable than buccal consonants. They can arise apparently *ex nihilo* and disappear just as easily. They can exert their influence on immediately adjacent segments or on relatively distant ones. They seem to be relatable synchronically and diachronically to all other classes of non-obstruents: semivowels, liquids, nasals, and spirants. Thus, **h-** may be involved in vowel nasalization (rhinoglottophilia); it is often related historically to voiceless fricatives like **s**, **f**, and **ɸ**; and it can be the reflex of plain, voiceless, or glottalized liquids or semivowels. See *Figure 7*.

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73. For a more detailed study of laryngeal initials in TB, see JAM 1997a. Conventionally, we reconstruct PTB ***ʔ-** rather than ***Ø-** .

74. Many TB languages (*e.g.* Lai Chin) have an automatic glottal-stop onset in syllables with no other prevocalic consonant (as in German), but many (*e.g.* Lahu) do not, and are subject to fusions of vowel-initial morphemes with a previous open or unchecked syllable.

75. For discussions of these phenomena, see JAM 1970 (glottal dissimilation), 1973a (tonogenesis), 1975b (rhinoglottophilia), 1978b (laryngeokinesis).
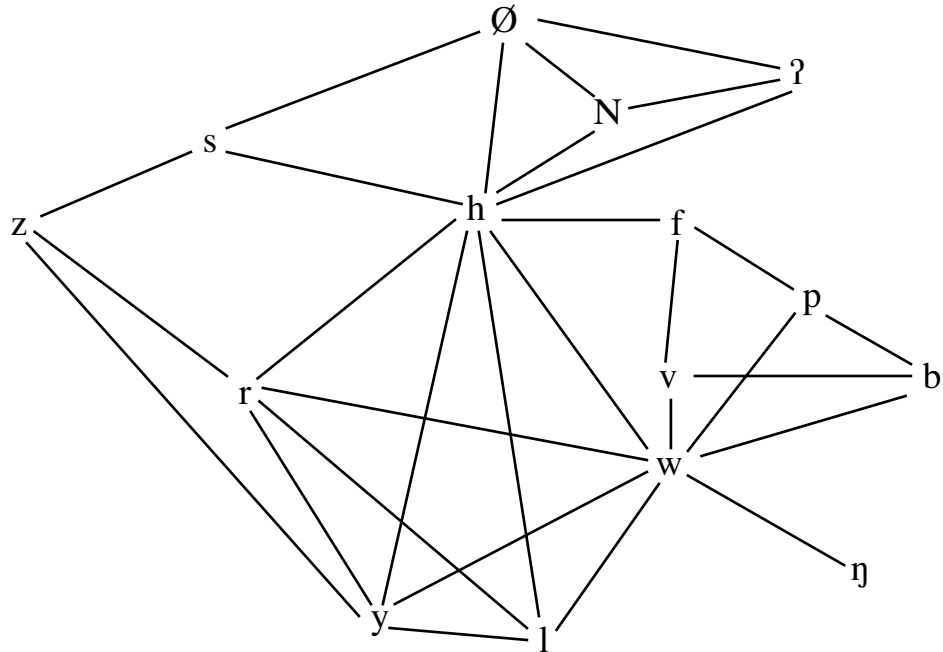
FIGURE 7. **Interrelationships among laryngeals, sonorants, and spirants**

Roots reconstructed with the initial sequence ***hw**- are susceptible of several essentially equivalent interpretations. The most neutral of these is to regard the sequence as root-initial ***h**- plus bilabial glide -**w**-. Occasionally there is some point in considering it to be a unitary labio-laryngeal proto-phoneme ***hʷ**- (cf. ***bʷar ⋨ *hʷar** 'throw / throw away / divorce'). In at least one case it is not clear whether to reconstruct PTB ***hw**- or a presumably earlier sequence of prefixal ***s**- plus bilabial root-initial (***hwam** *or* ***s-wam** 'dare').

(1)   *Secondary and variable laryngeals*

Many occurrences of **h-** or **ʔ-/Ø-** in TB languages can be shown to be secondary:

(a)   **s- > h- / ʔ- / Ø-*

In a number of Kamarupan languages, **h-** or **zero-initial** is a regular reflex of PTB ***s-** :

	PTB	*Meithei*	*Gallong*	*Mising (Miri)*	*Padam (Abor)*
'awaken'	*m-sow	həw	---	---	---
'fat / grease'	*saːw	məhau	au	u	---
'liver'	*m-sin	---	---	---	a-*in*
'three'	*g-sum	a-*hum*	---	a-*um*	---

(b)   **ʔ- / h- + R / L / Y > h-*

In many Loloish languages (*e.g.* Lahu), Proto-Loloish or PLB complex resonants (*i.e.* prefixed, aspirated, or glottalized liquids and semivowels) evolve into **h-** (or occasionally zero):

	PLB	*WB*	*Lahu*
'eight'	*ʔ-rit^L	hrac	hí
'four'	*ʔ-ləy^2	lê	ɔ̂
'put to sleep'	*s-yip > PL ʔyip^L	sip	í
'spirit'	*hla^3	hla'	ha
'stand'	*ʔ-rap^L	rap	hú
'swidden' [a]	*hya^1	ya	hɛ

> a. *I.e.* 'non-irrigated upland rice field' (as opposed to 'irrigated lowland paddy field', for which no word is attested in PLB/PTB).

Cf. also 'trousers' (so far attested only in Loloish): PL ***ʔ-la^2** > Sani **hla^{55}**, Hani **hlɔ̀**, Lahu **hā**.

(c)   **Ø- > h- / f-*

Occasionally an **h-** (or **f-**) arises out of nothing, especially before the vowel **-u**, as in certain reflexes of the Lolo-Burmese root for 'egg':

PLB:	*(ʔ)u³
LAHU:	u³³
LISU (CENTRAL):	hu³
LISU (NUJIANG):	e⁵⁵fu⁴⁴

(d)   **h- / ʔ- ⋇ *stop*

A large (and growing) number of TB etyma have been discovered which show allofamic variation between laryngeal and buccal initials:

· *h* ⋇ velar stop

'earth' ***ha** ⋇ ***r-ka**; 'gag / choke' ***hak** ⋇ ***kak**; 'hide' ***hway** ⋇ ***kwa(ː)y**; 'roll' ***hiːl** ⋇ ***kiːl**; 'steal' ***hu** ⋇ ***r-kəw**

· *ʔ- /Ø-* ⋇ velar stop [76]

'bend / return / back' ***ʔuk** ⋇ ***kuk**; 'hatch / cover' ***ʔup** ⋇ ***gup**; 'mute / stupid' ***ʔa** ⋇ ***ʔ-ga²** (PLB); 'needle' ***ʔap** ⋇ ***gaːp**; 'pillow / block' ***ʔum** ⋇ ***kum**; 'shoot' ***ʔap** ⋇ ***gaːp**; 'spin / spider' ***waŋ** ⋇ ***kaŋ** [77]

· *ʔ- /Ø-* ⋇ labial or dental stop

'lay eggs / incubate' ***pʷum** (but Chepang **ʔum**, via **ɸum**)[78]; 'sharp / sharpen' WT **bdar** 'whet', Tagin **ar** 'sharp'

(2)   Laryngeals and sound symbolism

Laryngeals are minimal sounds in terms of occlusion. There is something about them (including the fact that they can be articulated by many animals other than humans) that makes them especially appropriate for imitating animal cries, other sounds in nature, or inarticulate, strangulated vocalizations by humans. There are convincing cognate sets in TB with ***laryngeal** onsets for etyma with the following meanings: 'bark (v.)'; 'belch';

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76. These examples are slightly different from the case of ***k-yim** ⋇ ***k-yum** 'house', where the velar element is best regarded as prefixal. *Cf.* 7.2(1b) below.

77. For the velar-initialed allofam of 'spider', see below 7.1(3).

78. This etymon actually illustrates a widespread variational pattern in TB, between initial labial stops and **w-**, which affects at least a dozen other excellent etyma. See n. 63 and below 3.6.1(2).

'crow (n.)'; 'dumb'; 'gag'; 'hawk' (n.); 'hiccup'; 'howl'; 'murmur'; 'sneeze'; 'snore'; 'owl'; 'whistle'; 'yawn', *etc*. However, sound symbolism is involved in only a small fraction of the laryngeal-initial roots that can be set up for PTB.

(3)   Primary laryngeals

Etyma with primary laryngeal initials (especially ***h-**) have been considered *rarae aves* in TB: "TB initial ***h-** is rare, and can be reconstructed for only a few roots of restricted range, with only ***hap** 'bite, snap' (#89) represented in more than two main divisions..." (*STC*, p. 33)

Using the powerful STEDT database, it has not been unduly difficult to uncover 50 new roots with laryngeal initials (many of them attested in several subgroups of TB), including 24 with ***h-**, 8 with ***hw-**, 9 with ***hy-**, 3 with ***(ʔ)a-**, 2 with ***(ʔ)o-**, and 4 with ***(ʔ)u-**.[79] One particularly good example, with a plausible Chinese cognate, will be presented here:

<table>
<tr><td colspan="2" align="center">PTB ***hu** 'rear / raise / nourish' [a]</td></tr>
<tr><td align="right">*Loloish*</td><td>Lahu **hu**; Luquan **ʔhɣ^{11}**, Lisu **hø̃^{33}**, Xide **hu^{55}** (< PLB ***hu^3**)</td></tr>
<tr><td align="right">*Abor-Miri-Dafla*</td><td>Abor-Miri **u**</td></tr>
<tr><td align="right">*Qiangic*</td><td>Qiang (Mawo) **χu**</td></tr>
</table>

a. *Cf.* also Chinese 愛 'good, like, love' OC ***xūʔ**. This OC reconstruction is by WHB, suggested as cognate during his stay at STEDT in the spring of 1995. The root is reconstructed as OC **χôg** in *GSR* #1044a-e. See JAM 1997a:38.

Totally unexpected was the discovery that an unusually large number of etyma with ***laryngeal** initials also have liquid finals. Given the relative rarity of TB etyma in *-**r** and *-**l**, it was astounding to notice that about 30 such roots may be reconstructed with laryngeal initials (*e.g.* 'fowl / chicken / quail' ***ʔaːr**; 'distribute' ***hor**; 'fall' ***hol**; 'hand' ***ʔul**; 'heat up / burn' ***hul** �č ***hwal**; 'run / go by vehicle' ***hyar**; 'skin' ***ʔul**; 'sweet' ***hul** �č ***hil**; 'throat' ***ʔol** �č ***ʔor**, *etc.*).[80]

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79. See JAM 1997a. These may now be added to the 32 roots with such initials already reconstructed in *STC*, including 7 with ***h-**, 5 with ***hw-**, 1 with ***hy-**, 5 with ***a-**, 2 with ***e-**, 4 with ***i-**, 3 with ***o-** and 5 with ***u-**.

80. See JAM 1997a:47-8, and below Ch. 9.

3.6   Clusters of initial consonant plus glide

The canonical slot "G"comprises the four resonants (semivowels and liquids): *-w-, *-y-, *-r-, and *-l-. The following table lists all clusters of initial consonant plus glide which appear in *STC*:

pw	tw	tsw		kw	
py	ty	tsy [=tś]		ky	
pr	\<tr\>		\<tśr\>	kr	
pl				kl	
bw	dw	dzw	\<dźw\>	gw	
by	dy	dzy [=dź]		gy	
br	\<dr\>			gr	
bl				gl	
		sw			hw
		sy [=ś]			hy
		\<sr\>	\<śr\>		
		(zw)			
		zy [=ź]			
		\<(zr)\>			
		\<zl\>	\<źr\>		
mw	nw			ŋw	
my	ny			ŋy	
mr				ŋr	
ml					
	lw	rw	yw		
	ly	ry			

TABLE 5. **PTB resonantal clusters**

In general, the published version of *STC* recognizes many more clusters than the original manuscript version. In the original the following clusters are explicitly rejected for PTB:

<div align="center">

**/ dr- dl- tr- tl- sr- sl- zl- / .[81]

</div>

Of these seven, four are explicitly added to the inventory in the published version: ***dr-, *tr-, *sr-, *zl-**. The cluster ***sl-** is deemed to have "probably occurred in the ancestral TB

speech, especially in view of ***zl-**, but [this] has not yet been demonstrated" (n. 135). The remaining two ****/ tl dl /** remain as foreign to PTB as to English. We will return to these problematic consonant sequences in the section on liquid clusters, below 3.6.4.

3.6.1   The structural place of glides in the ST/TB syllable[82]

The glides pose particularly intricate problems of analysis:

(1)   One phoneme or two? C_i or $C_i + G$?

Should complex proto-phones like ***affricates** be considered underlyingly as unitary proto-phonemes or as clusters of stop-plus-glide?

> (a) As indicated above (3.3), Benedict changed his mind about the status of his original clusters of ***dentals-plus-y,** ***/ sy zy tsy tshy dzy /** , reinterpreting them as unitary palatal proto-phonemes ***/ ś ź tś tśh dź /** , thus introducing simplifications in some respects, but asymmetries and complications in others (see below 3.6.3).

> (b) We have considered arguments for setting up a unitary series of ***labiovelars**, at least at certain proto-subgroup levels (above 3.2(4)), as opposed to clusters of ***velars-plus-w** (see below 3.6.2).

(2)   Intrinsic clusters or prefix plus root-initial ? $C_i + G$ or $P + C_i$?

It is a truism of phonotactics that certain complex consonant combinations can never occur within a morpheme, but only across morpheme boundary, and that languages differ greatly with respect to their permissible intramorphemic sequences. Careful English speakers can produce a monstrous final cluster like the -ksθs in *sixths*, but only because it is underlyingly broken up in their minds into **-ks-θ-s**, with two suffixal morphemes after the final cluster of the root. While Russian speakers have no problem with intramorphemic /šč/, as in **/šči/** 'cabbage soup' or **/boršč/** 'beet soup', English speakers can only manage this sequence across morpheme boundary, as in *fish chowder* .

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81. *STC*, p. 42. At that time Benedict considered these consonant sequences not as intrinsic clusters (*i.e.* occurring within a morpheme), but as combinations of prefix plus initial consonant. See below 3.6.4.
82. See below 4.5.

Under favorable circumstances it is possible in TB to distinguish neatly between a cluster of initial consonant plus glide and a sequence of prefix plus resonantal root-initial:

	PLB	*WB*	*Lahu*	*Lisu*
'weave'	*rak^L	rak	g̈àʔ	yɛ^{31} 'loom'
'crossbow'	*krak^H	—	khâʔ	tʃhɛ^{35}
'chicken'	*k-rak^H	krak	g̈âʔ	ɑ^{55}ɣɑ^{55}

The word for 'weave' [*TSR* #192] has the simple resonantal initial *r-, which regularly becomes Lahu ɣ- (written "g̈" in my transcription), and the syllable is naturally in the Loloish LOW-stopped class (realized in Lahu by the low-stopped tone / `ʔ /) because of the ***voiced initial**. The root for 'crossbow' [*TSR* #9] begins with a true cluster of ***velar-plus-r**, regularly yielding the Lahu front-velar **kh-**[83] and a Lisu palatal affricate, and belongs to the Loloish HIGH-stopped class (realized in Lahu by the high-stopped tone / ˆʔ /) because of the ***voicelessness** of the velar. The etymon for 'chicken' [*TSR* #184] is distinct from the other two. Here the **k-** in the WB form is clearly prefixal,[84] and the Lahu initial **g̈-** still reflects the true root-initial *r-. However, the tone of this word is HIGH-stopped, because of the former presence of the voiceless prefix.[85]

At least a dozen excellent etyma show variation between labial stop initials and initial **w-**.[86] Here too Benedict vacillated in his interpretation. While decisively rejecting the possibility of setting up a special series of initial consonants (*e.g.* ****p^w**) to account for this, he first considered the variation to be due to "prefixed elements, present or discarded [which] have exerted an influence on the initial", *e.g.* **p-w-* (*STC* , p. 23). Later, however, he changed his mind (largely on the basis of Chinese evidence), and reinterpreted these etyma as containing intrinsic clusters of the form **pw-* (*STC*, notes 78, 463, 487). In any event, nothing could be shakier than a putative contrast between **p-w-* and **pw-* at the Proto-Sino-Tibetan level. Whatever the "original" situation, the possibility of *metanalysis*

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83. As opposed to PLB simple *velars, which give Lahu postvelars / q qh /; see 3.6.4.1 below.

84. It is the famous "velar animal-prefix", about which more below 4.4.4.

85. See *TSR*: 68-70.

86. These include 'axe' *r-p^{w}a, 'bamboo / cane' *p^{w}a, 'belly' *p^{w}am, 'flower' *b^{w}at, 'hide (v.)' *s-p^{w}ak, 'hoof' *k/s-p^{w}a, 'leech' *k-r-p^{w}at, 'lefthand' *b^{w}ay, 'palm / sole' *r-p^{w}ak, 'pig' *p^{w}ak, 'sow / winnow' *b^{w}ar, 'spindle' *p^{w}aŋ, 'patch / sew' *p^{w}a, etc. The superscript / ^{w} / is meant to indicate that the labial semivowel is a secondary outgrowth of the stop, a development which was especially frequent before the vowel *a. An analogous phenomenon is the Japanese treatement of loans from English with /kæ-/, which regularly develop an extrusional palatal glide -y- before the vowel (*e.g. kyábetsu < cabbage, kyáppu < cap, kyátasutorofui < catastrophe*).

is always present in situations of this kind, so that a prefix can easily be reinterpreted as a root initial, and vice versa.[87]

Even such a widespread and basic root as ***kwəy** 'dog' (*STC* #159) has undergone reanalysis in various branches of the family. There is no doubt that the PTB root began with a velar stop followed by a labial element (*cf.* WB **khwê**, Jg. **gwì**, WT **khyi** [88]). In fact, as we have seen [above 3.2(4)] so closely was the velar bound to the semivowel that some languages treated the sequence like a unitary labiovelar phoneme ***k^w-** (> Lahu **phî**). Contrariwise, other languages treated the velar element as a prefix,[89] and separated it off from the rest of the word. The Chin languages generally dropped the velar entirely (*e.g.* Lushai **ui**, Tiddim **ʔwi**, Lai *ʔuy*-tsəw), while forms like **thwi** in Karenic represent a "reprefixation" after the loss of the original velar.[90]

For more on various prefixal evolutionary scenarios, see below 4.5.

(3)   Part of the initial or part of the rhyme?

The semivowels -**w**- and -**y**- (and to a lesser extent the liquids -**r**- and -**l**-) because of their dual vocalic/consonantal nature, are capable of intimate phonetic interaction both with the syllable's initial consonant and its nuclear vowel. They are intrinsically "Janus-headed", looking backwards and forwards at the same time,[91] as a few examples from Lolo-Burmese will quickly illustrate:

	PTB	*PLB*	*WB*	*Lahu*
'bamboo'	*g-p^{w}a	*wa^2	wâ	vâ
'pig'	*p^{w}ak	*wak^L	wak	vàʔ
'hide (v.t.)'	*s-wak	*ʔ-wak^L	hwak	fá
'emerge'	*s-twak	*ʔ-twak^H	thwak	tɔ̂ʔ
'dog'	*kwəy	*k^{w}əy^2	khwê	phî

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87. In JAM 2000a, an explanation is offered in terms of "extrusion", *i.e.* the perseveration of a phonetic feature to the point where it oversteps the bounds of a single segment, so that it creates a second segment to which it imparts a portion of its phonetic substance.

88. PTB ***kw-** > WT **khy-** is a regular development. WT lacks initial **kw-** or **khw-**.

89. No doubt identifying it with the "velar animal prefix", below 4.4.4.

90. This is clearly explained in *STC*, p. 133: "Karen **thwi** ... in the face of (other) TB ***kwiy** is puzzling, but can be explained as follows: ***kwiy** > ***k-wiy** [kəwiy], with the initial interpreted as a prefix, whence ***t-wiy** > **thwi** through the typically Karen process of alternating prefixes, *e.g.* Sgaw **kəθi** ~ **təθi** 'tobacco'."

91. For a (rather polemic) discussion of this point, see JAM 1982a (Sprachgefühl), pp. 19 ff and n. 70 (pp. 50-1).

	PTB	*PLB*	*WB*	*Lahu*
'bee'	*bya	*bya²	pyâ	pɛ̂
'eye'	*s-myak	*s-myakᴴ	myak	mɛ̂ʔ
'boil / cook (v.t.)'	*s-glak	*ʔ-glakᴸ	khyak	cá

In 'bamboo', 'pig', and 'hide', the **w-** functions as the PLB initial consonant, and the regular vocalic developments of *-a > Lahu -a and *-ak > Lahu -aʔ are unaffected; but in 'emerge', the -w- functions as part of the rhyme, and the Lahu vowel is backed to -ɔ. In 'bee' and 'eye', the -y- is also functioning as part of the rhyme, fronting the Lahu vowel to -ɛ. In 'boil / cook', the *-l- was evidently treated as part of the initial consonant cluster, and the Lahu vowel remains -a. The lack of -ʔ in the Lahu reflexes of 'hide' and 'boil', as well as the high-rising tone / ´ / of these syllables, are due to "glottal dissimilation". See below 4.2.2.

3.6.2   *Consonant combinations with -w-*

The PTB **w**-clusters set up in *STC* are tabulated below:

pw	tw	tsw		kw	
bw	dw	(dzw)	\<dźw\>	gw	
		sw			hw
		(zw)			
mw	nw			(ŋw)	
	lw	rw	(yw)		

TABLE 6. **PTB w-clusters**

The cluster ***ŋw** is parenthesized in the *STC* chart (pp. 38-9), though it appears in two etyma, including the important ***ŋwa** 'cattle' (#215). Cluster ***zw** is parenthesized in the chart, and in fact no roots are reconstructed with this initial. One root with ***dzw** is reconstructed for PLB, and "by inference" for PTB (***dzwan** 'hawk' [n. 162]). The cluster ***yw** appears in a couple of roots (***ywar** 'sell'; perhaps a loan from Austro-Tai) and ***ywi** 'follow', which I have shown to have a good Sino-Tibetan etymology.[92] **dźw** (formerly **dzyw**) is set up for 'hang down / sag' (#242).

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92. See JAM 1992 ("Following the marrow"), where this etymon is reconstructed as PST *s-yuy.

Some TB languages have restrictions on medial -**w**- in terms of the following vowel. Thus in Written Burmese and Mzieme (Angamoid Branch of Naga)[93], although -**w**- occurs freely after initials at all points of articulation, it occurs only before -**a** and -**e**, so that -**wa** and -**we** are best regarded as unitary rhymes. On the other hand, the Dayang dialect of Pumi has relatively few restrictions on the occurrence of -**w**-, either in terms of the initial or the following vowel: -**w**- occurs freely after all of this dialect's many consonantal positions except labials, and before all vowels except back rounded / **u o ou** /.[94] See

tw	stw	ʈw	tsw	tʂw		ɕtɕw	kw	qw	χqw
[thw]	sthw	ʈhw	tshw	tʂhw	tʃhw	ɕtɕhw	khw	qhw	χqhw
[dw?]	zdw	ɖw	dzw	dʐw	dʒw	ʐdʑw	gw	[Gw]	[ɣGw]
sw	sʃw			ʂw	ʃw	ɕʃw	xw		
				ʐw			ɣw		
lw				rw					
ɬw									

TABLE 7. **Labial clusters in Pumi Dayang**

Table 7.

In some Dayang words with high front vowel, the glide [**w**] is realized as a non-syllabic rounded glide [ɥ], similar to that in French *nuit* [nɥi]:

	Dayang	*PTB*
'liver'	tswĭn [tsɥin]	*m-sin
'handspan'	tɕhwí [tɕhɥi]	*m-twa
'pull / drag'	tswín [tsɥin]	
'shoe'	tswĭ [tsɥi]	

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93. See Namkung, ed. 1996:309-10.

94. However, the Dayang vowel /-o/ is automatically pronounced with labialization of the preceding consonant, *e.g.* /ro/ 'chicken' [rᵂo]. This is in fact the chief auditory clue for distinguishing the rhymes /-o/ and /-ou/, since labialization of the initial does *not* take place before /-ou/. There are also a number of words where **w**- occurs as the initial before the vowel /-o/, *e.g.* wŏ 'tiger', wò-mí 'guest' , wó 'mouse' . These words could be analyzed as having zero-initial, but there seems little point to this, since it complicates the syllable canon, and initial **w**- occurs freely before other vowels as well, including /-ou/. See JAM 1998.

3.6.3   *Consonant combinations with* **-y-**

The PTB **y-** clusters set up in *STC* are tabulated here:

py	(ty)	tsy	[=tś]	ky	
by	(dy)	(dzy)	[=dź]	gy	
		sy	[=ś]		(hy)
		(zy)	[=ź]		
my	ny			ŋy	
	ly	ry			

TABLE 8. **PTB palatal clusters**

(1)   **ty-** *and* **dy-**

These palatalized dentals are parenthesized in the *STC* chart (p. 37), though there are several roots reconstructed with each, including ***tyak** (pp. 20, 52, 122) 'very; real', ***tyaŋ** (#225) 'black; dark', ***dyal ~ *tyal** (p. 52) 'village', ***dyam** 'straight' (#227) and ***dyam ~ *tyam** (#226) 'full'.[95] To account for the unusual Bodo-Garo correspondence between Garo **dź-** and Dimasa **y-**, initial ***dy-** is set up at the Proto-Barish level, in turn deriving from PTB ***gl-** or ***g-l-**; *e.g.* 'hand / arm' Garo **dźak**, Dimasa **yau** < PBarish ***dyak** < PTB ***g-lak** (*STC* , p. 52).

(2)   **hy-**

hy is also parenthesized in the chart, and is only reconstructed in the single root (***hyak** 'scratch' #230). Nine additional roots with this initial are reconstructed in JAM 1997a: ***hyak** 'back';***h(y)an** 'curry / vegetable dish' ; ***hyak** 'flesh'; ***hyen** 'hear / listen; look / see'; ***hyop ⪥ *hyom** 'jump'; ***hyam** 'mat'; ***hyar** 'run / ride / go by vehicle'; ***hyal** 'take / keep'; ***hyu ⪥ *huy** 'whistle'.

(3)   *Palatalized fricates*

As noted above (3.3), the initials ***/ tsy dzy sy zy /** in the original MS version of *STC* have been reinterpreted as unit phonemes in the published version: ***/ tś dź ś ź /** . Both **zy-** and **dzy-** are parenthesized in the chart (p. 37); but four roots were finally reconstructed

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95. These last two items (*STC* #227 and #226) have been shown to be one and the same etymon (JAM 1988a "Straight, flat, full") See above, 3.4.2(4c).

with ***ź-/zy-**,[96] and no fewer than five for ***dź-/dzy-**: ***dźaːl** 'far', ***dźim** 'sweet', ***dźon** 'ride', ***dźuk** 'vulva', and ***dźwal** 'hang down / sag'.

This rephonemicization has the effect of removing several etyma from the "double glide" category (see below 3.6.5). Thus instead of reconstructions with double glide ***-yw-**, *e.g.* ***tsywap** 'lung' (#239), ***tsywar** 'cut / chop' (#240), ***sywar** 'flow / pour' (#241), ***dzywal** 'hang down / sag' (#242), we have ***tświap**, ***tświar**, ***świar**, ***dźwal**. On the other hand, Benedict let stand several cases of ***-yw-** reconstructions after other types of initials (*e.g.* ***sywəy** 'rub / scrape / shave' #180; ***kywəy** 'yam' #238), and in fact introduced a number of new ones: ***skywaːr** (formerly ***s-kyur**) 'sour' #42; ***pywak** 'sweep' #174 (formerly ***pyak**); ***s-hywəy** (formerly ***s-hwiy**) 'blood' #222.[97]

Arguments against this reanalysis are certainly possible. Since the labial, dental and velar stops all cluster with -**y**-, why shouldn't the indubitably unitary dental affricates and fricatives /s z ts dz/ also cluster with -**y**- ? Furthermore these dental fricates[98] all cluster with -**w**-, so why shouldn't they also cluster with -**y**- ? Another objection would be that Benedict never considers the possibility of treating *dental consonant-plus-r* combinations as unit phonemes, *i.e.* ***/ sr- zr- tr- dr- /** are not treated as unitary retroflexes like ***/ ʂ ʐ tʂ dʐ /** .[99]

(4)   **my- and n(y-)*

A number of languages have interesting reflexes of ***labial nasal-plus-y** clusters. In many Loloish languages, as well as in some Tibetan dialects, Nungish, and several Qiangic languages, there is a strong tendency for ***my-** clusters to develop into dental nasals (**ny-** or simply **n-**):

> 'eye'   PTB ***s-myak** ≽ ***s-mik** (> *e.g.* WT **mig**, Jg. **myìʔ**, WB **myak**, Lahu **mɛ̂ʔ**)

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96. These include ***źəy** 'small / minute'; ***źraŋ** 'uncle'; ***źum** 'use'; and ***zyaːw** ≽ ***zyu(w)** 'rot / digest' (the latter inadvertently left as ***zy-** in the published version, pp. 54, 209).

97. In addition, the revised version of *STC* sets up three new proto-clusters of palatals-plus-r: ***śr-**, ***źr-**, ***tśr-**. These are also tantamount to double glides in terms of the old system, viz. ***/ syr zyr tsyr /** or ***/ sry zry tsry /** . In any case the evidence for these new clusters is scanty, and other analyses are equally plausible. See 3.6.4.2 and 3.6.5, below.

98. For the term "fricates" see above, n. 27.

99. See above 3.2(2).

But compare the following:[100]

Tibetan	Dege (sDe-dGe) n̪iʔ⁵³, Xiahe hn̪ək, Zeku ɣn̪ək
Qiangic [a]	Pumi (Taoba) n̪ɛ⁵³, rGyalrong (Suomo) təmn̪ak, Zhaba (ZMYYC's 扎 巴, of Daofu County) n̪e⁵⁵, Guiqiong n̪ɑ³⁵, Shixing *n̪ɛ³³ji⁵⁵*
Loloish [b]	Xide *n̪ɔ³³dzɤ²¹*, Dafang *na³³du³³*, Mile (Axi) *ne̱³³sᴀ²¹*, Mojiang *ne̱³³sɛ³³*, Naxi (Yongning) *n̪a³ˡlɿ³³*, Sani **ne⁴⁴**
Nungish	Nungish shows variation between **m-** and **n-** in this and other roots: Nung **mɛ ~ nɛ** 'eye', **mit ~ nit** 'mind' (< PTB ***m-yit**).

a. Other Qiangic languages retain the labial nasal, *e.g.* Pumi (Jinghua) **miɑ⁵⁵**, Pumi (Dayang) **myáɴ**, Ergong **mau**, Muya **mi⁵³**, Ersu **miɑ⁵⁵**.

b. Most Loloish languages retain the labial nasal, *e.g.* Nanjian *mi̱³³çe²¹*, Nanhua *me̱³³du²¹*, Lisu *miɛ⁴⁴suɯ³¹*, Lahu **mɛ̂ʔ-šī**, Naxi (Lijiang) *miə³ˡly³³*, Hani (Biyue) *ma³³tsɿ³³*, Hani (Dazhai) **mja³³**.

'monkey'	PTB ***myok** [a] > PLB ***myokᴸ** (*TSR* #133)

a. This etymon is reconstructed as ***mruk** or ***m-ruk** in *STC*, n. 314, despite the fact that all of the reflexes but one (Bahing **moro**) have **-y-** instead of **-r-**: WB **myauk** (but Intha dialect **mrok ~ mlok**), Bhramu **pəyuk**, Chepang **yuk**, Digaro **təmyu**, Gurung **timyu** (the latter two with reprefixation).

The proto-labiality of the nasal in this root is well-established, but palatal or dental nasals appear in at least one Qiangic language (Guiqiong **n̪o³⁵**; as opposed to Ersu **mi³³**), and in a number of Lolo-Burmese languages:

Loloish [a]	Xide **a³³n̪u⁵⁵**, Dafang **ŋɔ¹³**, Mile (Axi) **ᴀ³³nu̱⁵⁵**, Mojiang **ᴀ⁵⁵nu̱²¹** /vs. *e.g.* Nanjian **a⁵⁵mo²¹**, Nanhua **ᴀ⁵⁵mio̱²¹**, Lisu *tʃɛ³⁵mi⁴¹*, Naxi (Yongning) *ʑi³¹mu⁵⁵*, Hani Biyue **a⁵⁵my̱³¹**, Hani Dazhai **a⁵⁵mju̱³¹**, Nusu (Bijiang) **ʔmiu⁵⁵**
Burmish [b]	Achang **n̪uʔ⁵⁵** (vs. Zaiwa [Atsi] **mjuʔ²¹**, Langsu [Maru] **mjauk**)

a. These forms are from *ZMYYC* p. 498. *TSR* (JAM 1972a) cites a Nasu (Gao Huanian 1958) doublet **mɔ³⁴ ~ nu⁴⁴**, and Luquan (Ma Xueliang 1949) **ɲuʔ⁵⁵**.

b. A velar nasal has developed in this root in a Nungish language: Anong **ŋi³¹sɑ³¹**.

Evidently the distinction between **my-** and **ny-** has been hard to maintain in many TB languages, with much variation even among dialects of a single language.

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100. The following data (except for the Pumi Dayang, Lahu, and Sani forms) are from *ZMYYC* p. 608. See also *STC*, n. 93.

(5)   ***by** and **d-** / **dl-** / **ɖ-***

A number of Loloish languages have undergone backing of ***palatalized labial stops** to dental or retroflex stops, or to affricates (dental, retroflexed, or even lateral).

'bee'   PTB ***bya** [*STC* #177] (> *e.g.* WT **bya** 'bird, fowl') ⋊ ***bra** (> *e.g.* Angami **pera**) > PLB ***bya²** (> *e.g.* WB **pyâ** 'bee', Lahu **pê**, Lolopho **byo**, Lisu **byæ**, Nanjian **bɑ²¹**, Hani (Dazhai) *bja³¹*si⁵⁵, Jinuo **pjɔ³³**)

But compare:

Sani *dlá*-**mà** (Ma Xueliang 1951; cited in *TSR* p. 41), Dafang **ɖu³³**, Mile (Axi) **ɖo²¹**, Mojiang **do³³**.

According to *ZMYYC* (p.523), both Nanhua and Lisu show dialectal variation in this root between a palatalized labial and a dental or retroflex initial: Nanhua *bio²¹*çᴀ²¹ ~ *do²¹*çᴀ²¹; Lisu **biɛ³¹** ~ **dʒɛ²¹**.

'fly (v.)'   PTB ***byam**[a] > PLB ***byam¹** (> *e.g.* WB **pyam**, Lahu **pò**, Nanjian **by⁵⁵**, Mojiang **be²¹** (but compare Mojiang **do³³** 'bee', above), Naxi (Lijiang) **mbi³¹**, Hani (Biyue) **pe⁵⁵**, Hani (Dazhai) **bjɔ⁵⁵**, Haoni (Hani Shuikui) **pu⁵⁵**

But compare:

Sani (Ma Xueliang 1951) **tɬɪ**,[b] Dafang **ɖʅ²¹**, Mile (Axi) **ʈi³³**, Naxi (Yongning) **dze¹³**

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  a. This etymon is misreconstructed as ***pyam** in *STC* p. 206.
  b. The voicing discrepancy between Sani **dlá-mà** 'bee' and **tɬɪ** 'fly' is perfectly regular. The Sani reflexes of the PLB *voiced series are different according to the proto-tone: PLB Tone *1 words with *voiced initials (like 'fly') > Sani voiceless unaspirates, while Tone *2 words with *voiced initials (like 'bee') retain their voicing in Sani. See above 3.1 and JAM 1979 (QV), p. 27.

Again, according to *ZMYYC* (p. 1153), both Nanhua and Lisu show dialectal variation in this root between a palatalized labial and a dental or retroflex initial: Nanhua **biu³³** ~ **dɯ³³**; Lisu **bi³³** ~ **dʒe³³**. Also showing shift from the labial position are Achang **tʂam** and Anong **dɛm⁵⁵**.

3.6.4 *Liquid clusters*

STC sets up the following liquid clusters for PTB (items added in the notes to the revised version are in angle brackets):

pr	<tr>	<tśr>	kr
pl			kl
br	<dr>		gr
bl			gl
		<sr>	<śr>
		<(zr)>	
		<zl>	<źr>
mr			ŋr
ml			

TABLE 9. **PTB liquid clusters.**

In modern TB languages, medial *-r- or *-l- is frequently fricativized to -ẓ-, as in Achang (Burmish group), *e.g.* 'pus' PLB *m-blen[1] > Achang pẓəŋ⁵⁵; dialects of Jingpho spoken in China have a similar fricative -r- (written with "-ʒ-" in Dai Qingxia *et al.*, 1983), *e.g.* 'daughter-in-law' PTB *krwəy > Jg. khʒi³³; while Pumi Dayang has developed two series of labial affricates from ***labial-plus-liquid clusters**, /pẓ, pṣh, bẓ/[101] and /pʃ, pʃh, bʒ/ (see below 3.6.4.1(3)). Many similar examples may be found in Written Tibetan, where liquid consonant groups typically develop into fricatives or affricates, *e.g.* 'four' *b-ləy > WT bźi; 'flea' *s-ləy > WT ldźi. Other TB languages, *e.g.* Pwo and Sgaw Karen, have developed velar fricatives from *-r-: 'grind' *kriːt > Pa-o khrỳt, Pwo ɣaiʔ ~ ɣɛ̀ʔ, Sgaw ɣìʔ*; 'otter' *sram > Palaychi shrɔ́q, Sgaw shɣɔ́.

101.One example of a newly reconstructed PTB root with such a Dayang reflex: 'ring (for finger)' PTB
> Lahu làʔ-pē, Pumi Dayang ẓɔ̌ bẓɛ́N (the first syllables of both forms mean 'hand').

The phonetic interrelationships among these sounds may be schematized as in Figure 8:
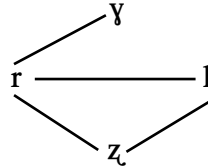
FIGURE 8. **Liquid relationships.**

3.6.4.1 *Reflexes of consonant-plus-liquid in particular subgroups*

(1)   Lolo-Burmese

Written Burmese is by no means the most useful language for establishing the distinction among medial *-r-, *-l-, and *-y-. Even though -l- does appear in a number of words in Inscriptional (or "Old") Burmese (ca. 1100-1500), it corresponds sometimes to PTB *-r- as well as *-l-, so that "the Burmese evidence is not of critical value in making this distinction" (*STC* p.41, n.134):

*(a)   PTB *-l-> OB -l(y)-> WB -y-*

	PTB	Inscriptional Burmese	Written Burmese
'stone'	*r-luŋ	klauk	kyauk
'free'	*g-lwat	klwat	kywat
'tiger' [a]	*k-la	klyâ	kyâ
'fall'	*kla	khlya'	khya'
'cooked' (v.i.)	*glak	klyak	kyak
'cook / boil' (v.t.)	*klak	khlyak	khyak

a. Undoubtedly an old loan from Mon Khmer; see above 4.4.4 (3).

(b)   *PTB *-l- > OB -l- > WB -r-*

	PTB	Inscriptional Burmese	Written Burmese
'white'	*plu	phlu	phru
'grandchild'	*b-ləy	mlîy	mrê
'earth'	*mləy	mle (Tavoyan dialect)	mre

(c)   *PTB *-r- > OB -l- > WB -r-*

	PTB	Inscriptional Burmese	Written Burmese
'six' a	*d-kruk	khlauk	krauk
'foot'	*krəy	khley	khre

a. This etymon, as well as 'sew' and 'tight / tense; long / distended' has WB velar + r where WT has dental + r. See below 4.4.5, 4.4.6, 4.5.1, 4.5.2, 7.1(3), 8.4(4).

As far as developments from OB to WB are concerned, although there is a general tendency for OB *-l- to become WB -y- after velars, as in (a) above, and for OB *-l- to become WB -r- after labials, as in (b), there are numerous exceptions, as in (c), with many words showing vacillation in different inscriptions between alternate spellings with -l-, -ly-, and -r-.[102/103]

Relatively solid evidence for medial *-l- is available from Southern Loloish languages like Bisu and Mpi. Bisu actually preserves medial *-l- as -l- in some cases,[104] while Mpi

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102. See Nishi Yoshio 1976 ("Medials in Burmese").

103. One interesting exception, where WB velar + r comes from PLB/PTB *velar + l, is 'between / have a space between': PLB *ʔ-gla² > WB krâ 'have a space between, be apart' ⋉ khrâ 'be between; divide, be different', Lahu kā 'space between' (*e.g.* mêʔ-tɛ-*kā* 'space between the eyes'); but *cf.* Jinuo *khlo⁴⁴* lo⁴⁴ 'between', Tavoyan (dial. of Burmese) klà, which establish the PLB medial as *-l-. There is a phonosemantically similar root *kaːl 'space between' in Kamarupan, where the l is postvocalic (> Tiddim kaːl, Lushai kaːr-a, Sangtam kala); this is an excellent match with Chinese 間 'crevice, interstice; interval, space between', OC kăn (*GSR* #191a-c). See below 9.3.4.

104. E.g. Bisu mùŋ-blàp 'lightning' (*cf.* Jingpho myìʔ-hpràp). See JAM 1979 (QV), note 39.

has different reflexes for *-r- and *-l- after velar initials, and probably after labials as well.[105] See Table 10.

PLB	*P	*PR	*PL	*PY	*T	*TS	*C	*KY	*KL	*KR	*K	*KW
LAHU	p	p	p	p	t	c	c	c	k	k	q	p
MPI	p	p	py	py	t	t	c	c	ky	k	k	k
WB	p	pr	pr	py	t	c = ts	c = ts	ky	kr/ky	kr	k	kʷ

TABLE 10. **Lolo-Burmese consonantal developments**

*KY was preserved as such in WB, but became palatal affricates in both Lahu and Mpi. In Lahu, ***KL** and ***KR** merged to yield K, either liquid medial serving to protect the velar initial from backing to Q. In WB, ***KR** and ***KL** were confused an an early date, yielding KR and/or KY. In Mpi, however, the two liquid glides have quite distinct reflexes: *-r- dropped without trace, but *-l- became Mpi -y- (written with "-j-" in Srinuan 1976):

	PLB	WB	Mpi	Lahu
'waist'	*gyuk^L	kyauk	ʔoʔ ^{2}-*tɕoʔ* ^{2}	cɔ̀ʔ
'horn'	*krəw^1	khrui	ŋ^2*khɯ*^{6}	khɔ
'hear'	*gla^2	krâ	kjo^1	kâ
'cold'	*ʔ-klak^H �done *m-klak^H	krak	kja^3	kâʔ

The root for 'cold' shows glide variation at the PTB level (*cf.* WT *khyags*-pa 'frozen; ice; frost, cold'), as well as alternation of homorganic final stop and nasal. Reflecting the nasal-finalled allofam are WT *graŋ*-ba 'cold', Trung **glaŋ** 'cold', Mikir **paŋ**-*kleŋ* 'freeze, congeal', Lahu **gɔ̀** 'cold' (the voiced Lahu initial reflects a prenasalized PLB allofam

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105. Bisu has actually merged *-r- and *-l- to -l-; this is the opposite development from, *e.g.* Jingpho, where *-r- and *-l- have largely merged to -r-. For a case where Jingpho has apparently developed -y- from *-l-, see 'kidney', below.

*m-glaŋ¹), as well as Chinese 涼 **glịang / lịang** [*GSR* #755-l].[106] Thus the "pan-allofamic formula" for this word-family at the PTB/PST level is :

P	C_i	G	V	C_f
ʔ-	k			k
		l		
		r	a	
		y		ŋ
N-	g			

'kidney'	A form of particular interest is Mpi **ŋ⁴kjo⁵** 'kidney', which is not to be related to WAIST (above, despite the WB form **kyauk-kap** 'kidney'), but rather to Jingpho **ǹ-khyūn**, now reconstructible as PTB ***m-glun**. An excellent Chinese comparandum to this etymon is 腎 OC **d̂ịĕn** [*GSR* #368h]. *Cf.* also 蜃 OC **dịən** 'small of the back, reins' [*GSR* #540h-i]. See below 7.5(8).

Analogous to the development of ***KR** > Mpi **K-**, clusters of the type ***PR** become simple labials in Mpi:

	PLB	WB	Mpi	Lahu
'untie' [a]	*prəy¹	phre	phɯ⁵	phɨ
'spleen' [b]	*ʔ-pray¹	---	ʔoʔ² *phe⁶*	ɔ̀-*pe*

a. *Cf.* also Lalo **phɔ́**.

b. *Cf.* Angami Naga **u-*pri***. This root was reconstructed (perhaps mistakenly) as PTB *p(l)ay in JAM 1978a (*VSTB*):217, on the basis of forms like Mikir ***pli*-ha**. Again there is an excellent Chinese comparandum 脾 OC **b'ịeg** [*GSR* #874h]. See below 5.5.7.

106.See *TSR* #99 and *STC*: n. 124 and #120.

On the other hand, both ***PY** and ***PL** become Mpi palatalized labials **pj-/phj-**:

	PLB	*WB*	*Mpi*	*Lahu*
'fly (v.)'	*byam¹	pyam	pjɤŋ⁵	pò
'white / silver' [a]	*plu¹	phru	phju⁶	phu
'full / plenty' [b]	*ʔ-bliŋ¹	prañ/phrañ	ʔo²-*pjɯ³*	pɛ
'pus' [c]	*m-blen¹	prañ	pjɯ⁶ ~ pju⁶	bɛ̀
'porcupine'	*ʔ-blu¹	phru	ha⁴ *phju⁶*	fâʔ-*pu*

   a. *Cf. STC* pp. 60-1, note 194.

   b. *Cf. STC* #142. The Lh. cognate means 'abundant/plenty'; Lh. **bî** 'full' is apparently not related.

   c. This root is reconstructed as ***pren ~ *bren** in *STC* p. 143. The Tavoy Burmese form **plè** lends further support to the reconstruction with -l-.

The preglottalized PLB initial in the root for 'porcupine' is recoverable on the basis of the correspondence of the WB aspirate to the Lahu plain stop, as well as by the Lahu mid-tone.[107] Many more Lolo-Burmese forms are cited in *TBL* #318; several of these have constricted vowels that also reflect the ***glottal prefix**: *(Burmish)* Zaiwa (Atsi) **pjṳ⁵¹**, Langsu (Maru) **pjṳ³¹**, Bola **pjṳ⁵⁵**; *(Loloish)* Nanhua **pṳ³⁵**, Lisu **hɛ̃³⁵ pṳ³⁵**. Other LB forms include Achang **phʐo⁵⁵** (note the fricative quality of the glide), Xide *pu³³ nɔ³³*, Hani **xu³³***phju⁵⁵*, Jinuo **xo⁴²***phu³¹*, Naxi *py²¹ ly³³*. This root, which does not appear in *STC*, can in fact be set up for TB as a whole (PTB ***s-blu**), since it is also attested in Meithei (**sa-bu**), as well as in Qiangic (*TBL, ibid.*): Pumi (Lanping) **pʂə⁵⁵**, Pumi Jiulong **pʐɿ³⁵**, Shixing **pʁ⁵³**, Namuyi **pu³¹**, Lusu **ʂæ³⁵***phʐu⁵³*. The first syllables of the Meithei and Lusu forms mean "animal" (< PTB ***sya** or ***śa**); this is undoubtedly the source of the preglottalization in LB.[108]

(2)   Chin

The reflexes of liquid clusters in Tiddim and Lushai, two key languages of the Chin group, were studied in detail in Solnit (1979). Tiddim Chin has lost all trace of medial *-r-

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107. For the basic rules of correspondence for Lolo-Burmese initials and tones see Burling 1967/68 and JAM 1969 ("Lahu and PLB"). Since in non-stopped syllables it is not possible to demonstrate a voicing contrast in stops after the PLB glottal prefix (*cf.* the neutralization of voicing in English stops after initial s-), this root could equally well be reconstructed ***ʔ-plu** at the PLB level. In stopped syllables, however, a voicing contrast after the glottal prefix can be recovered on tonal grounds, as explained in JAM 1972a (*TSR*).

108. For more about this "animal prefix" see below 4.4.4. Another animal name reconstructible with a PLB ***preglottalized initial** is 'frog': PLB ***ʔ-pa²** or ***ʔ-ba²** (WB **phâ**, Lahu **pā**), with direct evidence of the original animal prefix provided by forms like WT **sbal** (PTB ***s-bal**).

and *-l- after both velar and labial initials, but keeps the original point of articulation of the stop intact. In Lushai, medial *-l- is preserved as such, but both ***velar** and ***labial stops** are dentalized in this environment, resulting in lateral affricates /tl thl/; similarly, the ***velar/*labial** contrast is neutralized before medial *-r-, resulting in clusters of dental-plus-**r** /tr thr/ (sometimes transcribed as retroflex stops /ʈ ʈh/):

Proto-Kuki-Naga	Tiddim	Lushai	Example	Tiddim [a]	Lushai
*g	k	k	'shoot'	kaap	kaap
*k	x	kh	'bitter'	xaa	khaa
*gl	k	tl	'fall' (v.i.)	kiat [b]	tlaak
*kl	x	thl	'moon'	xaa	thlaa
*bl [c]	p	tl	'fall' (v.i.)	puuk	tluuk
*pl	ph	thl	'fell' (v.t.)	phuuk	thluuk
*gr	k	tr / ʈ	'weep'	kap	trap [d]
*kr	x	thr / ʈh	'grow'	xaŋ	thraŋ
[*br	p	tr / ʈ		(examples lacking)] [e]	
*pr	ph	thr / ʈh	'good'	phaa	thraa
*sr / *śr	h	hr	'brave'	haaŋ	hraŋ

a. It is interesting to note that the Tiddim reflexes of *g- and *k- parallel Germanic developments according to Grimm's Law: *i.e.* the ***voiced stop** devoices, while the ***voiceless stop** becomes a fricative.

b. This form is from Henderson 1965:151.

c. Another good example of PKN **bl-** is 'run', below 5.3.2(2).

d. Lai Chin has identical reflexes to Lushai, *e.g.* PTB *gruːl 'rope' > WB krûi, Lai **truul**; 'pass over / overtake / be overbearing' PTB *grol > WB krâw, Lai **trol**; 'fall (of fruit or leaf) / cause to fall' PTB *gril ≍ *kril > WB krwe ≍ khrwe, Lai **tril** ≍ **thril**; 'chest (of body)' PTB *g-raŋ > WB raŋ, Lai **traŋ**; 'dwarf / stunted' PTB *s-grum > WB **kyum**', Lai **trum**, Lahu chɔ-*kɛ*-nɛ. Thanks to KVB for these examples. See below 7.2(1), 9.3.2(1,5), 9.3.3(3).

e. But see below 4.5.1 for a discussion of ***b-raŋ** ≍ ***g-raŋ** 'chest / breast'.

(3)   Qiangic

As noted above in 3.2(2), the Dayang dialect of Pumi (JAM 1998a) has a full series of retroflex stops, which do not occur in other known Pumi dialects, even the closely related Jinghua and Taoba, and which usually derive from TB clusters of ***velars-plus-liquid**, *e.g.*:

	PTB	Dayang	Jinghua	Taoba	Lahu
'horn'	*krəw	ʈhʉ́	tʂhy[55]	tʂhũ[53]	khɔ
'hawk / eagle'	*glaŋ	ʈɤ̆	tʂɒ[13]	tʂɛ[35]	

Although the details are still far from clear, ***labial-plus-liquid** clusters have developed into two series of Dayang labial affricates, one retroflex and one palatal. The palatal series is often pronounced with an epenthetic stop between the labial and fricative elements, a bit of redundancy for which the recording linguist is grateful. The offglides in the aspirated and voiced members of the retroflex series /pʂh bʐ/ are ʂ and ʐ respectively; in the plain member of this series, the offglide varies between [ʐ] and a fricative **r**-sound similar to Czech /ř/:

pʐ [př]	pʃ [ptʃ]
pʂh	pʃh [ptʃh] ᵃ
bʐ	bʒ [bdʒ]

a. There is at least one excellent example of TB *pw- >
Dayang p(t)ʃh- : PTB *pʷak > Dayang ptʃhŏ 'pig'.

These true clusters are to be distinguished from secondary sequences of consonant-plus-**r** that result from the optional elision of schwa from the minor syllable of a sesquisyllabic Dayang word:

[pr]	'foodstuff'	**prǎ ~ pərǎ**
[br]	'snake'	**brá ~ bərá**
[bl]	'lip'	**xyùɴ-bló ~ xyùɴ-bəló**
[vr]	'scar'	**vrə̀-tʂhŭ ~ vərə̀-tʂhŭ**

In these cases the schwa returns in careful speech.

3.6.4.2   *Rare or dubious liquid clusters*

(1)   **tr- and *dr-*

Altering his initial view that dental stops before -r- were prefixal, Benedict ended up reconstructing 'weave' (#17) as ***trak** (to accommodate, *e.g.* both WT ḥthag and WB **rak**) and 'fireplace' (#18) as ***trap** (as the prototype of *e.g.* both WT **thab** and Jg. **rap**). Feeling a residual uneasiness about these reconstructions, he characterized both of these etyma as "loans from Austro-Tai" (notes 68, 69).[109]

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109. See *STC*: n. 135, p.42. I personally consider both of these to be good PTB roots: for 'weave' *cf. e.g.* Lahu ğàʔ (*TSR* #192); for 'fireplace / wall' *cf.* Lahu ğɔ̀ʔ (JAM 1988b:1132). 'Weave' actually has several additional well-attested allofams, including ***wak** and ***k-rak**, as well as a solid Chinese cognate 織 (*GSR* #920f). See below 8.2(1e).

(2)   *sr-, *zr-, and *zl-

Similarly, the sibilant onsets in these combinations were originally treated as prefixal, but later as the first element in morpheme-internal clusters, the best example being 'otter', originally reconstructed as ***s-ram** (#438), but subsequently revised to ***sram**, on the basis of forms like Lushai **sa-hram**.[110]

Three of these etyma in ***sr-** have good-looking Chinese cognates, including two kinship terms:[111]

		OC	*GSR*	*PTB*
'aunt / elder sister / elder relative'	嫂	**sri̯u** 'older sister'	133e	***sru(w)** 'aunt'
'clan / family name'	姓	**sri̯ĕng** 'clan, family, family name'	812q-r	***sriŋ** 'sister' (*i.e.* carrier of matriclan name)
'squirrel / weasel'	狌 鼪	**sri̯ĕng**	812t 812u	***sreŋ**

However, Chinese is of no help in deciding the prefixal vs. cluster analysis of these TB etyma, since OC ***sr-** also corresponds to TB roots where the ***s-** is clearly prefixal:

		OC	*GSR*	*PTB*
'pass the night'	宿	***sri̯ôk**	1029a-b	***s-r(y)ak**
'sharp'	銛	***sri̯am**	621a	***s-ryam**

110. See *STC*, notes 302, 304. The labial initial in the WB cognate **phyam** has never been satisfactorily explained. For an attempt to do so in terms of contact from Mon-Khmer, see JAM (1989d, "The otter and the jackal").

111. See below 5.3.3(1), 7.5(6), 7.5(10), 8.2(e), and 7.5(1). For discussion of the putative Chinese cognates to PTB sibilant clusters see *STC* n. 457, pp. 170-1. Benedict, as always, sticks closely to Karlgren's *GSR* reconstructions, occasionally modifying them slightly to suit his purposes.

The voiced clusters ***zr-** and ***zl-** are each reconstructed for a single root, the former with a putative Chinese cognate:

'worm'	PTB ***zril** (WT **sril ~ srin**, Thado **til**, WB **ti**; see *STC*, n. 121); *cf.* 螾 OC ***dįən** [*GSR* #450j] 'earthworm' ≍ 蟺 **ɗįan** [*GSR* #148p] '*id.*' ≍ 蚓 [*GSR* #371c] **dįĕn** '*id.*' (see below 9.3.4)
'round'	Formerly reconstructed ***s-lum** (#143), later changed to ***zlum** on the basis of WT **zlum-pa**.[a]

a. This new reconstruction forces Benedict to distinguish between "primary" WT **zl-** < PTB ***zl-** on the one hand, and "secondary" WT **zl-** on the other (as in **zla-ba** 'moon' < ***s-gla** (originally reconstructed as ***s-la ~ *g-la**). See *STC*, n. 136.

The validity of the ***zl-** reconstruction is especially questionable in view of the absence of any certain examples of PTB ***sl-** (as opposed to ***s-l-**).[112]

(3)   *śr-, *źr-, and *tśr-

Several roots previously reconstructed with sibilant prefix plus root-initial ***r-** were later reanalyzed as true clusters of unitary palatal fricates plus rhotic glide.[113] Several of these revised PTB roots have attractive Chinese cognates:[114]

· ***śr-**

	PTB-1	PTB-2		OC (PKB)	GSR
'louse' [a]	*s-rik	*śrik	蝨	*śrįɛt	506a
'live / bear / be born'	*s-riŋ	*śriŋ	生	*śrĕng	812a-d
'ashamed / shy'	*s-rak	*śrak	色	*śrįək [b]	927a
'potato / yam'	*s-ra	*śra [c]	薯	*dįo	[not in *GSR* #45]
'place' [d]	(*s-ra)	*sra	所	*śrįo	91a-c

a. Yet the Kanauri reflex of this etymon is **rik**, surely evidence that the sibilant element was treated as prefixal (***s-** is one of the most common "animal prefixes" in TB; see below 4.2.1), forcing Benedict to invoke "metanalysis" (n. 304) and demonstrating that it is not always possible to put too fine a point on these matters! A phonologically similar etymon ***s-rik** ≍ ***s-ryak** 'pheasant' (#403) has been allowed to stand with a prefixal reconstruction.

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112. "***sl-** probably occurred in the ancestral TB speech, especially in view of ***zl-**, but has not yet been demonstrated" (*STC*, n. 135).

113. This is tantamount to reconstructing double glides ***-yr-** or ***-ry-** in these words; see below 3.6.5.

114. See *STC* n. 457, pp. 170-1. See below 8.3(e), 7.5(6), 8.2(1e), and 5.2.4(1).

b. The Chinese word means 'color (of face); looks; (womanly) beauty', the connection with TB presumably via blushing, *i.e.* showing the color of the face when shy.

c. This root was mistakenly left as ***s-ra** in the Index of *STC*, p. 207.

d. This comparison was first suggested by JAM. Cf. Jg. **rà ~ šǝrà** 'place'. See *STC* n. 457, p. 171.

· ***źr-**

This cluster is reconstructed in a single root ***źraŋ** (*STC* #205 and n. 156) 'uncle' (> *e.g.* WT **źaŋ-po** 'uncle', WB **ʔǝhraŋ** 'master, lord', Laizo **raŋ** 'father's sister's husband').[115] This etymon, formerly reconstructed ***ryaŋ**, thus supposedly constrasts with 'worm' ***zril** (§b above).

· ***tśr-**

In three roots where Jingpho or Nung has dental stops alongside affricates in other languages, Benedict changed original reconstructions with ***ts-** to the more complex initial ***tśr-**:

	STC[1]	*STC*[2]	*TB*
'mortar' (#75)	*tsum	*tśrum	WB **chum**, Jg. **thùm** [a]
'count / number' (#76)	*r-tsiy	*r-tśrǝy	WT **rtsi-ba**, Jg. **thí**
'spittle' (#231)	*m-ts(y)il	*m-tśril	WT **mtśhil-ma**, Nung **thil**

a. This Jingpho development is quite different, *e.g.* from the cases of Mpi or Bola, where *dental affricates *regularly* became dental stops (see above 3.3).

While Benedict suspects 'mortar' of being a loan into TB from Austro-Tai (n. 95), the latter two roots have likely Chinese cognates (n. 457):

	GSR	
'count' 數		reconstructed as OC ***sli̯u** in *GSR* #123r, revised by Benedict to ***śri̯u**
'spittle' 漦		'dragon's spittle; frothy saliva (as of a rabid dog)' not included in *GSR* #979, but reconstructed by Benedict as OC ***dźʼriǝr**

It seems to me preferable to invoke proto-variation in 'mortar', reconstructing it as PTB ***t(s)um**, regardless of the unprovable assumption that it was a loan into PTB from Austro-Tai. 'Count' seems certainly to be a valid PST etymon, and even the rather esoteric

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115. A Chinese comparandum is also offered (n. 457) for this etymon, 尚 OC ***d̂i̯aŋ** (*GSR* #725a-c) 'upwards; high, admirable, superior' . The putative Tibetan cognate was usable in a similar honorific sense (*STC*, n. 155). See below 7.5(3).

Chinese word for 'dragon's spittle' may indeed be related to the TB root for 'spittle', but here too it seems unnecessary to reconstruct such a complex initial cluster when allofamic reconstructions would do as well: 'count' ***r-t(s)yəy**; 'spittle' ***m-t(s)il**.

(4)   Clusters of nasal plus liquid

Some sequences of nasal plus liquid occur across morpheme boundary, *i.e.* are to be analyzed etymologically as nasal prefix plus liquid root-initial, *e.g.* 'lick' ***m-lyak** (simplex) ≍ ***s-lyak** (causative) [*STC* #211]; 'high / long' ***m-raŋ** (*STC*, p. 43); 'horse' ***k-m-raŋ** (≍ ***s-raŋ**) (*STC* #145); 'steal' ***m-ruːk** (*STC*, p. 144).

In several roots WB has secondary **mr-** clusters where the nasal element derives from either the ***m-** or the ***b-** prefix:

	PTB	*WB*
'grandchild'	***b/m-ləy**	**mrê** (Inscriptional Bs. **mliy** a)
'arrow'	***b/m-la**	**hmrâ**
'snake'	***s-b-ruːl**	**mrwe**

> a. In a number of roots the Burmese inscriptions have **ml-** or **mly-**, where later Written Burmese has **mr-** and **my-**, respectively. See *STC* p. 42, and below 3.6.4.1.

However, at least three true nasal-plus-liquid clusters (***mr-**, ***ŋr-**, ***ml-**) may be set up for PTB.[116]

· ***mr-**:

The best attested of these true nasal-liquid clusters is ***mr-** (*cf.* 'see' ***mraŋ** [*STC* #146]), but even here most of the cognate sets show variation in the first or second element, especially variation between **mr-** and **br-**,[117] and/or between **mr-** and **my-**: *e.g.* 'monkey', set up as ***mruk** (*STC* p. 112) on the basis of forms like Bahing **moro**, though reflexes pointing to ***myuk** are much more common (*e.g.* WB **myauk**; see *TSR* #133); 'much / many' (*STC* #148), set up as ***mra** (*STC* #148), though WT has *bra*-**ba** and WB has **myâ**; 'cut / tear' (*STC* #147) reconstructed ***mrak**, though Trung **pra** and Dimasa *dźəbrau* point rather to ***brak**); 'grass' (*STC* #149), set up as ***mrak**, though WT **ḥdźag** reflects ***lyak**.

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116. No examples of ****nr**, ****nl**, or ****ŋl** have been found.

117. The English word *Burma* , which derives from Burmese **mranma**, illustrates this hesitation between **br-** and **mr-**.

Distinct from these are *STC* etyma where the nasal and the liquid occurred in the reverse order, *i.e.* which are set up with the ***r-** prefix and root-initial **m-**, *e.g.* 'wound' ***r-ma** (#446); 'wen / mole' ***r-men** (#104); 'name' ***r-miŋ** (#83); 'man' ***r-mi(y)** (pp. 107,119,158); 'bud / blossom' ***r-moy** (#305); 'foggy / dark' ***r-muːk** (#357); 'sky / clouds' ***r-məw** (#488). A special problem is posed by the root for 'tail', set up as ***r-may** (#282) on the basis of forms like Aimol **rəmai** and Mikir **arme**, even though reflexes like Bahing **me-ri** and Burmese **ʔəmrî** have the nasal preceding the liquid. Here Benedict confesses he is "tempted to interpret the Bahing and Burmese forms in terms of metathesis, but there is no analogy whatsoever for this shift in either language" (n. 204, p. 64).

· ***ŋr-**:

This rare cluster is reconstructed only for two roots of limited distribution: 'meet' ***ŋra** (#154) and 'contradict / deny' ***ŋraŋ** (#155), with the latter etymon showing variation with a velar stop onset (Lushai **ṭaŋ** or **traŋ** 'deny' < ***graŋ**).[118]

· ***ml-**:

This cluster also occurs in only two PTB etyma: 'earth / country' ***m-ləy** (#152) and 'swallow (v.)' ***mlyəw-k** (#153), both of which have dialectal or inscriptional Burmese evidence to back up the reconstructions (Tavoyan Burmese **mle** 'earth'; Inscriptional Burmese **mlyui** 'swallow (v.)').

It is interesting to note that the Sinologists Axel Schüssler and William H. Baxter have both recently proposed the reconstruction of an Old Chinese cluster ***ml-** for certain words with the Middle Chinese voiced palatal fricative ***ź-** (**dźy-** in Schüssler's notation).[119] Among the candidates for this OC initial are 'snake' 蛇 (perhaps OC ***mljaj** or ***mlyar** > Mand. **shé**) to be compared with PTB ***s-b/m-rul**; 'eat' 食 (perhaps OC ***mlyak** > Mand. **shí**), to be compared with PTB ***m-lyak** 'lick / eat';[120] and 'rope' 繩 (perhaps OC ***mljəŋ** > Mand. **shéng**), to be compared with WB **ʔəhmyâŋ** 'string, thread, fiber, nerve'. An additional bit of evidence for this hypothesis is provided by Naxi (a language close to the

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118. For this Lushai development of *velar-plus-**r** clusters, see above 3.6.4.1(2).
119. See Schüssler 1987, 1995 and Baxter 1995 (the latter two still unpublished), quoted in Handel 1997. See also Handel's *Appendix*, "Introduction to Old Chinese phonology", below .
120. We have noted that in TB terms the ***m-** in this etymon is prefixal (*cf.* unprefixed forms like WB **lyak**, Lushai **liak**, Lepcha **lyak**).

Lolo-Burmese group), where PTB sequences of ***nasal plus liquid** have also become fricatives (similar to the putative OC ***ml-** > MC ***ź-** > Mand. **sh-** development):

	PLB	*Naxi*
'horse'	***mraŋ²**	**²zhwua**
'high'	***ʔ-mraŋ³**	**¹shwua** [a]

    a. This Naxi development was first pointed out in an unpublished paper by Okrand (1973), quoted in JAM 1979 ("QV").

3.6.5   *Double glides*

The PTB syllable canon presented above Ch. 2 must be revised slightly to account for proto-syllables with double glides, *i.e.* syllables containing both a liquid and a semivowel medial /*-rw- *-ry- *-lw- *-ly-/ or both semivowels in sequence /*-yw-/:

$$*(P_2)\ (P_1)\ Ci\ (G^1)\ (G^2)\ V\ (Cf)\ (s)\ .^{121}$$

Double glides are often demonstrably of secondary origin: sometimes they arise through fusion of two separate syllables in a compound ('lung', 'elder sibling'; §4 on *-yw- below); they may also derive from a reinterpretation of ***prefix plus resonantal initial plus single glide** (***P - C**i **- G**) as a ***root initial plus double glide** (***C**i **- G - G**), *e.g.* ***g-lwat** > **glwat** (see 'free /loose'; 'salt', below).

*(1)   *-RW-*

This combination of medials occurs in a number of roots, especially after velar initials. A couple of these roots are of fairly limited distribution, *e.g.* 'rustle' ***krwap** (*STC* #243); 'sew' ***krwi(y)** (*STC*, p. 41), but several others are widely attested, including 'daughter-in-law' ***krwəy** (*STC* #244)[122] and 'sweat'. This latter etymon is erroneously claimed to be restricted to Lolo-Burmese in *STC* (pp. 90, 202, 220), and indeed it is solidly reconstructible as PLB ***ʔ-grwəy²**, but it is also found in several other branches of TB, including Kuki-Chin-Naga (*e.g.* Lakher **mathlai**, Angami **rükhru**), Qiangic (*e.g.* Qiang Mawo **xtʂə**, Qiang Taoping **χtʂuə⁵⁵**, rGyalrong **tə-ʃtʂɛ**, *etc.*),[123] and Himalayish (*e.g.* WT

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121. Clusters of two liquids /**-rl-/ or /**lr-/ do not occur. In medial clusters of liquid and semivowel, we conventionally write the semivowel second, *i.e.* *-rw- (not **-wr-), etc. When there are two semivowels we write the **y** first: *-yw- (not -wy-). An apparent exception is my PLB reconstruction ***m-gʷya²** 'chew' (JAM 1986b), but here the -w- is deemed to be part of a labiovelar root-initial; see above 3.2(4).

122. This is a root where Dayang Pumi has a retroflex stop reflex; see above 3.2(2).

123. Several other Qiangic forms are to be found in *ZMYYC* #277:647.

rŋul). 'Sweat' should thus be added as a fourth example of the development of PTB *-ul > WB -we, along with 'hair', 'silver', 'snake' (see *STC*, pp. 15-16, and below 9.3.2(4), "Liquid final consonants"), though the double glide found in LB is to be considered secondary with respect to TB as a whole:

	PTB	*WT*	*Lushai*	*WB*
'hair (body)'	*s-mul	---	hmul	mwê
'silver'	*d-ŋul	dŋul	---	ŋwe
'snake'	*s-bruːl	sbrul	---	mrwe
'sweat'	*s-krul ⩲ *s-ŋrul	rŋul	---	khrwê

Two important etyma for animal names, 'snake' (*s-bruːl) and 'leech' (*k-r-wat), are both reconstructible with sequences of three consonants. Etymologically it appears that the first consonant was a genuine prefix, while the second was the root-initial, and the third was a glide: ***P-C$_i$-G**. In some languages, however, the second consonant was also treated as a prefix and dropped, so that the original glide became the root-initial:

'snake'	PTB *s-bruːl ⩲ *s-mrul > PLB *m-r-wəy¹ > Lahu vɨ̀ (< *we¹).
'leech'	PTB *r-pʷat (*STC* #45) > PLB *k-r-watᴸ (*TSR* #167) ᵃ > WB krwat, but Lahu vèʔ (< *watᴸ).

a. This *k- is still another example of the "velar animal prefix"; see below 4.4.4(3).

(2)   *-RY-

The reanalysis of dental fricates plus -y-, *i.e.* */ tsy tshy dzy sy zy / , as unit proto-phonemes */ tś tśh dź ś ź / [124] removes several etyma with medial -r- after palatal initials from the double glide category. Roots with newly reconstructed clusters like */ tśr śr źr / are thus reinterpreted as having the structure *C$_i$ - G, instead of *C$_i$ - G¹ - G². These include 'spittle' (*STC* #231), formerly reconstructed as *m-ts(y)il, but later, with an *-r- added, as *m-tśril (in the older system this would be a change to *m-tsyril or *m-tsryil); and 'count' (*STC* #76), formerly reconstructed as *r-tsiy, later as *r-tśrəy (in the older system this would be a change to *r-tsryəy or *r-tsyrəy).[125]

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124. See above 3.3.1.

125. This new phonemicization of palatal affricates also changes some sequences of P + Ci into simple Ci, *e.g.* *s-rak 'ashamed' > *śrak; *s-rik 'pheasant' > *śrik; *s-riŋ 'alive' > *śriŋ> See above, *ibid.*

On the other hand, the revised *STC* scheme introduces a new double ***-ry-** glide in 'salt' (#245), formerly reconstructed ***g-ryum**, later as ***gryum**, *i.e.* a change from ***P - C**$_i$ - **G** to ***C**$_i$ **+ G**^{1} **+ G**^{2}. (For a similar case in WB see 'free / loose', below). This is deemed to contrast with 'stand' (*STC* #246), where the prefixal reconstruction ***g-ryap** is retained.

(3)   *-LW- and *-LY-

Sequences of double medials including ***-l-** are quite rare. The widely distributed root ***g-lwat ⋊ *s-lwat** 'free / loose' (*STC* #209) has four allofamic reflexes in WB: alongside the simplex/causative pair **lwat** 'be free (v.i.)' / **hlwat** 'to release (v.t.)' are a synonymous pair with velar initials, **kywat** (v.i.) / **khywat** (v.t.), bespeaking a pre-Burmese metanalysis of the prefix as a root-initial, *i.e.* a change from ***P - C**$_i$ - **G** to ***C**$_i$ **+ G**^{1} **+ G**^{2}.

The root for 'swallow (v.)' ***mlyəw-k** (*STC* #153; *TSR* #137) is reflected by Inscriptional Burmese **mlyui** (> WB **myui**), with double glide **-ly-**. However, as is usually the case with complex consonant sequences of this type, many languages have treated the initial nasal as a prefix, changing the perceived structure of the etymon from ***C**$_i$ **+ G**^{1} **+ G**^{2} to ***P + C**$_i$ **+ G**: *e.g.* Jingpho **məyùʔ**, Angami Naga **me-zu**, Sgaw Karen **yu** (vs. Pa-o Karen (Taungthu) **myɔ**, with the initial retained).

(4)   *-YW-

This is the most frequently encountered of the double glides, though like all the others it is unstable diachronically. One ***-yw-** root where the original *STC* reconstruction has remained unchanged is 'yam' ***kywəy** (#238).[126] Several other etyma originally reconstructed with ***-yw-** have lost their ***-y-** due to the reinterpretation of the palatals as unit phonemes:

	STC[1]	*STC*[2]
'cut / chop' (#240)	***tsywar**	***tświar**
'flow / pour' (#241)	***sywar**	***świar**
'hang down / sag' (#242)	***dzywal**	***dźwal**

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126. Even here, however, Benedict changed his mind, having originally considered this root to be a loan from Austro-Tai, but later coming to the view that it is an native TB item. See *STC*, n. 185.

On the other hand, in several other roots a single glide (-**w**- or -**y**-) in the original reconstruction has been augmented by a second proto-glide in the revised version of *STC*:

		STC[1]	*STC*[2]
'blood'	#222	*s-hwiy	*s-hywəy
'sour'	#42	*s-kyur	*s-kywar
'sweep'	#174	*pyak [a]	*pywak
'rub / scrape / shave'	#180	*s(y)wiy [b]	*sywəy

a. No explanation for this changed reconstruction is offered, though Jingpho has a doublet form **we** (called a Hkauri dialect variant in Hanson 1906/1954:708), alongside the more standard **ye** (in both of these variants the labial stop is apparently treated as a prefix). However, in the Jingpho-Chinese dictionary of Dai Qingxia *et al*. (1983), where tones are indicated, the Hkauri form does not appear, and the latter form is transcribed **ye**[55], without final -ʔ, so its cognacy is doubtful.

b. In this root the parentheses were removed from the *-(y)- in the revised version.

In a number of other roots, a sequence of labial-plus-palatal elements is to be regarded as a combination of a ***labiovelar initial plus palatal glide** (in a manner analogous to the new sequences of unitary ***palatal initials plus labial glide**, above):

'chew'	PLB *m-g^{w}ya[2] [a]
'moon'	PTB *s-ŋ^w(y)at [b]

a. See JAM 1986b, "Labiovelar unit phonemes in LB?"

b. See JAM 1980, "Stars, moon, and spirits." This word for 'moon' (which means 'star' in some TB cognates), has an excellent Chinese comparandum 月 (OC *ŋi̯wăt) [*GSR* #306a-f]. See below 8.2(2c).

Finally, the most interesting cases of apparent double glides have arisen secondarily through the fusion of two originally separate constituents of compounds:

'lung'	An etymon ***tsywap** (later revised to ***tśwap**) is set up in *STC* #239 on the basis of Lushai **ts'uap** and Garo **kasop**. I have shown at length [a] how this is really a fusion of the two syllables of an original compound ***tsi-wap**, where the second element means 'soft; spongy' (*cf.* Jingpho **wóp** 'spongy', **sìn-wóp** 'lungs'), and the first element occurs independently in such forms as Lahu **chî**.
'elder sibling'	Similarly, a root for 'elder sibling' that I had set up as PLB ***ʔ-wyik** (*TSR* #172) was reanalyzed by Benedict as deriving from ***ʔu-(y)ik**, where the first element is a root meaning 'head; elder relative' (< PTB ***d-bu**). [b]

a. JAM 1978a (*VSTB*):113-23.

b. *Cf.* WB **ʔû-rî** "mother's elder brother", **ʔû-maŋ** "mother's younger brother", as well as common Kuki-Naga ***u** 'elder sibling'.

Prefixes

4.1   Introduction: semantic and morphophonemic unpredictability

Prefixes are of primary importance for ST/TB reconstruction. The most ancient stratum of prefixes that we can recover is well preserved in some branches of TB, including the West Himalayish and Bodish nuclei of Himalayan [Tibeto-Kanauri], Qiangic (esp. rGyalrongic), Jingpho-Nung, Kuki-Chin-Naga, and Mikir. Elsewhere the original prefixes seem to have undergone widespread replacement by secondary prefixes, as in Lepcha, Karenic, Abor-Miri-Dafla, and Bodo-Garo. In still other languages, the proto-prefixes have disappeared entirely, or have only left indirect traces. This latter category includes Bahing-Vayu/Kiranti, Konyak[1] (= Northern Naga), and Burmish, as well as the Sinospheric branches of the family: Chinese itself,[2] Baic, and Loloish. Loloish is particularly interesting in this respect, since many prefixes may be recovered thanks to the tonal and consonantal effects they left behind in the syllables where they occurred.[3]

The first systematic treatment of the forms and functions of TB prefixes was Wolfenden 1929.[4] The *Conspectus*[5] takes up where Wolfenden left off, positing an array of seven PTB prefixes, of which three are highly important, with relatively well-defined

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1.   In this feature Konyak differs markedly from Jingpho, with which it otherwise shares lexical similarities. See above 1.1.

2.   Sinologists are increasingly becoming aware of the possibility that a system of pre-Old Chinese prefixes might account for initial consonant alternations within word families. A pioneer in this line of thinking was Fr. Paul Fu-mien Yang (*e.g.* 1973/1985), who convincingly argued for the existence of OC velar clusters where the stop element *k- was later treated as a prefix in certain Chinese dialects. In the new notes to *STC*, Benedict (1972a) attempted to demonstrate traces of correspondences to PTB prefixes (especially *s-) in many Chinese etyma. See also Benedict 1975c.

3.   Prefixation in Lolo-Burmese and elsewhere has been discussed in numerous articles and monographs, especially JAM 1970 (*GD*), 1972a (*TSR*), 1972b ("TN and comparative TB"), 1973a, 1974a ("Tones of Jg. and LB"), 1979 (*QV*), 1995b/1997 ("Numerals").

semantic content (*s-, *m-, and "*a-"[6]), and four are less so (*b-, *g-, *d-, *r-). We will discuss them individually below (4.2-4.4).

4.1.1   *Prefixal semantics and the grammatical exploitation of prefixes*

A terminological problem presents itself at the outset. Some scholars have objected to the term "prefix" in cases where the pre-initial element does not have a clearcut meaning. While we might be tempted to call some of these semantically vague entities "prefixal formatives", or simply "formatives", there seems little point in making a sharp distinction between "meaningful" and "meaningless" pre-initial elements. Even the most ancient prefixes with the clearest meanings often occur in words where it is hard to see what semantic increment they provide. On the other hand, those prefixes which have the most transparent meanings in a given daughter language are likely to be of relatively recent origin. The point is that TB prefixes are constantly subject to replacement or change. What is semantically murky today might once have been relatively clear. Contrariwise, prefixational patterns that were vague, sporadic, or unsystematic in the past have frequently been regularized by analogy to the point where they are now highly productive and grammaticalized.[7]

On the semantically transparent end of the spectrum, we sometimes find a lexically specific prefix that obviously descends from a fully syllabic morpheme of known meaning, *e.g.* the sibilant prefix *s(ə)- (< PTB **sya** 'animal') that occurs in some animal names in certain languages (see below 4.2.1), and perhaps the nasal prefix *m(ə)- (? < PTB **mi(y)** 'person') that appears here and there in words for body-parts (below 4.3). In these cases the meaning of the prefixal element may be clear even if it is not very productive.[8]

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4.   The scope of this brilliant work may be divined by its full title: *Outlines of Tibeto-Burman Linguistic Morphology, with special reference to the Prefixes, Infixes and Suffixes of Classical Tibetan and the Languages of the Kachin,Bodo, Nâgâ, Kuki-Chin and Burma Groups.* Wolfenden's positing of "infixes" has misled certain later scholars (see below 4.5.2(3)). In recognition of Wolfenden's importance in the history of TB studies, an informal "Wolfenden Society" was established in the late 1960's, and the monograph series *OPWSTBL (Occasional Publications of the Wolfenden Society on Tibeto-Burman Linguistics)* produced six volumes between 1969 and 1978.

5.   Benedict 1972a:103-123; 131-3.

6.   We reinterpret this vocalic prefix as a consonantal glottal stop, *ʔ(ə)-. See below 4.2.2.

7.   At any rate Tibeto-Burmanists are better off in this respect than specialists in Mon-Khmer, who have had little success in assigning any semantic content whatsoever to the minor syllables of their innumerable "sesquisyllabic" words.

8.   This is true of a much more ancient "animal prefix", *k-, that occurs sporadically (especially in Lolo-Burmese), and which is apparently of Mon-Khmer origin. See below 4.4.4(3).

At a higher level of grammaticalization, many TB languages have developed productive, semantically transparent "prefixal paradigms":

· A defining grammatical characteristic of the Qiangic languages is their elaborate systems of "directional prefixes",[9] preposed to verbs to indicate the real or figurative direction of the verbal event. The Qiangic languages tabulated in Huang Bufan (1991:298-9) feature a total of 13 such directional categories, with any given language actually having anywhere from 3 (Namuyi) to 10 (Ersu, Muya) of them. A typical array to be found in the Northern Qiang dialect of Mao County, Sichuan (Yadu township, Ekou village):

tə-	'upward'	ɑ-	'downward'
kə-	'inward'	hɑ-	'outward'
ȵə-	'upstream'	sə-	'downstream'
dzə-	'toward the center; centripetal'	thɑ-	'away from the center; centrifugal'
dɑ-	'uncertain direction'		

Other directional categories actualized in Qiangic languages are 'toward the mountains' (*e.g.* Ersu **khuar³³**-), 'towards the water' (*e.g.* Ersu **ŋua˩³³**-), 'backwards' (*e.g.* Ersu **ȵu⁵⁵**-), and 'in a circle' (*e.g.* Muya **rə**-).

· Many Chin languages have developed neat systems of subject/object personal prefixes on verbs (usually reduced forms of the independent personal pronouns) that do double duty as possessive prefixes on nouns, as *e.g.* in Lai Chin:[10]

ka-kal	'I go'	**ka-rool**	'my food'
na-kal	'you go'	**na-rool**	'your food'
ʔa-kal	'he/she goes'	**ʔa-rool**	'his/her food'

· The most interesting morphological alternation involving prefixes is also arguably the most ancient: the opposition between inner-directed or stative verbs on the one hand, signalled by the nasal prefix ***m-**; and transitive or outer-directed or causative verbs on the other, marked by the sibilant prefix ***s-**.[11] Despite the relative semantic clarity of

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9. Called 方向前綴 *fāngxiàng qiánzhùi* by Chinese scholars. See Wen Yu 1943, Sun Hongkai 1983, Huang Bufan 1991, Huang Chenglong 1997, and Evans 1999.

10. Two special issues of LTBA (20.2 Fall 1997 and 21.1 Spring 1998), dedicated to Paul K. Benedict, have recently been devoted to articles on this language.

11. This was already clearly recognized in Wolfenden 1929. We shall return to these prefixes (below 4.2.1, 4.3) in a more general context.

this opposition, the morphophonemic traces of these prefixes in the daughter languages range from the obvious to the indirect.[12] On the obvious side we find pairs like WT **mnam** 'have a smell, be odorous' (v.i.) / **snam** 'sniff something' (v.t.). Often, however, the only traces left by the proto-prefixes are oppositions in the manner of the initial consonants in the verb-pairs:

— Burmese has well over 50 verb-pairs where the intransitive member has a plain initial and the causative/transitive has an aspirate (*e.g.* WB **prat** 'be cut in two' / **phrat** 'cut sthg in two', **nûi** 'be awake' / **hnûi** 'awaken someone', **lwat** 'be free, loose' / **hlwat** 'set free'), where the aspiration is a clear reflex of the *s- prefix. [13]

— Hayu (=Vayu), a dying TB language spoken in a few villages four days' trek southeast of Kathmandu, displays several patterns of manner alternations in these pairs, with the conditioning not clear (Michailovsky 1988:106-110):

(a) *voiced vs. voiceless unaspirated* (19 exs., including **dam** 'be filled' / **tam** 'fill sthg', **dʊk** 'fall' / **tʊk** 'drop sthg');

(b) *voiced vs. voiceless aspirated* (19 exs., including **bek** 'enter' / **phek** 'cause to enter', **bok** 'be born' / **phok** 'give birth to';

(c) *voiceless unaspirated vs. aspirated* (a rare category with only 4 exs., including **tun** 'drink' / **thun** 'give to drink').[14]

— Lahu preserves over a dozen such pairs, which may be divided into four categories in terms of the manner traces left by the two prefixes:[15]

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12. For a general treatment of TB causative formations, see JAM 1976.

13. See Okell 1969:I, 205-8.) A very similar development has occurred in several Chin languages. *Cf.* pairs like Lai Chin **kaaŋ** 'be burning' / **khaaŋ** 'burn sthg'.

14. Two additional patterns occur with non-obstruental initials: (d) *vowel initial vs. h-* (7 exs., *e.g.* **wo** 'white' / **ho** 'wash clothes'); (e) *liquid vs. spirant* (5 exs., *e.g.* **ram** 'be afraid' / **xwam** 'startle someone'.

15. See JAM 1973/82 (pp. 32-34, 676) and JAM 1975c.

(1)   *voiced obstruent simplex vs. voiceless unaspirated causative*

dɔ̀	'drink'	tɔ	'give to drink'
jɔ̀	'study'	cɔ	'train someone'
dɛ̀	'come to rest'	tɛ	'set sthg down'
dû	'dig'	tū	'bury someone'

As indicated above (3.1), the Lahu voiced series of obstruents descends unambiguously from PLB ***prenasalized initials**. This simplicia in this category thus clearly reflect the PTB stative prefix ***m-**.

(2)   *voiceless unaspirated simplex and voiceless unaspirated causative*

câ	'eat'	cā	'feed'
tɔ̀ʔ	'burn' (v.i.)	tú	'set on fire'

Here the initial of the simplex was voiceable (ɗ and ʝ occur in the language), but evidently the nasal prefix was never applied to these roots. (Prefixes are unpredictable entities after all!)

(3)   *voiced fricative simplex vs. voiceless fricative causative*

và ʔ	'hide oneself'	fá	'hide sthg'
vɘ̀ʔ	'wear'	fɨ́	'dress someone'

The simplicia descend from PLB ***w-**, and the causatives from PLB ***ʔ-w-**.

(4)   sonorant initials

mɔ̂	'see'	mɔ	'show'
nɔ̂	'be awake'	nɔ̄	'awaken someone'
lɛ̀ʔ	'lick'	lɛ́	'feed an animal'[a]
yɨ̀ʔ	'sleep'	í	'put to sleep'[b]

a. The nasal prefix did survive in this root in several other Loloish languages, *e.g.* Akha **myeu**, Hani Dazhai **mjɣ³¹**, Jinuo **mⁱa⁵⁵** < PLB ***m-lyak**. The ***s-/*ʔ-** causative prefix is directly reflected in Sani **lhaʔ²²** (< ***ʔ-lyak** < ***s-lyak**). See JAM 1972a, #179.

b. Note the zero initial and different vowel in the causative form, where one would have expected initial **h-**, as the normal reflex of PLB ***ʔ-y-**. See above 3.4.2(5). WB here has a rare survival of the original ***s-** prefix: **ʔip** 'sleep' / **sip** 'put to sleep'.

Here the initials of the simplicia are necessarily voiced, so any effect of a nasal prefix would be impossible to trace. (The ***nasal prefix** left no tonal effects in Lahu.)

On the other hand, the initials and/or tones of the causative forms in all four categories unambiguously reflect the Proto-Loloish prefix ***ʔ-** (ultimately < PLB/PTB ***s-**). This glottal prefix led to voiceless unaspirated initials in all cases where Lahu tolerates them (Lahu, unlike Burmese, lacks voiceless nasals or liquids, explaining the non-alternation in category 4),[16] and to special tonal developments: all the causative forms are either under the mid-tone (unmarked, < PLB Tone ***1**), the very-low tone (makred by a macron, < PLB ***2**), or the high-rising tone (marked by an acute, < PLB ***LOW-stopped syllables**).[17]

4.1.2   Constraints and interaction between prefixes and initial consonants[18]

Even languages that preserve prefixes well have synchronic phonotactic constraints on the manner and position of articulation of the root-initials that may occur after particular prefixes. In WT, for example, all the prefixes may occur before voiced root-initials; before voiceless initials, however, there is complementary distribution between the two prefixes **m-** and **ḥ-** (*a-chung*) on the one hand,[19] which only occur before aspirated stops, and all the others (**b- d- g- r- l- s-**), which only occur before non-aspirates. As far as position of

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16. Lahu **lɛ́** 'feed an animal' is somewhat anomalous, since PLB ***ʔ-l-** normally gives Lahu **h-** ; see above 3.4.2(•). Perhaps the lateral articulation was protected by the original ***m-** prefix.

17. See Burling 1968, JAM 1969, etc.

18. See above 3.1 "Manners of articulation: voicing, aspiration, and prefixal influence".

19. For some discussion of this controversial prefix, see below 4.2.2.

articulation goes, the voiced stop prefixes / **b- d- g-** / do not occur before homorganic root-initials, *i.e.* there is no **b-** before labials, no **g-** before velars, no **d-** before dentals or palatals. Furthermore, **d-** and **g-** are in complementary distribution, with **d-** occurring only before velars and labials, and **g-** only before palatals and dentals (both stops and affricates), fricatives, and sonorants. The **b-** prefix occupies an intermediate position, occurring (like **g-** but unlike **d-**) before palatals and dentals, but also before velars (like **d-** but unlike **g-**).

From a diachronic point of view, an original prefix might interact morphophonemically with the following root-initial in a bewildering variety of ways: "Besides affecting the voicing or aspiration of the root-initial, the prefixes could metathesize with it, palatalize it, drive it out entirely ('prefix-preemption'), fuse with it into a single segment, drop altogether, be substituted for by another prefix—and any or all of these activities could be accompanied by an effect on the *tone* of the syllable."[20] We can imagine a large number of fates in one language or another for a hypothetical etymon **g-ya*:[21]

(1)   prefix preservation

The presumably original prefix remains roughly the same, perhaps buffered from the Ci by a schwa (> **gəya, kəya**). [*Cf.* WT **lag g-yas** 'right hand'].[22]

(2)   prefix loss or prefix absence

The daughter language reflects the simple root-initial; either it never used a prefix with this particular word in the first place, or else it has lost it without trace (> **ya**). [*Cf.* Garo **dźak-***ra*, WB **lak-***ya* 'right hand'.] Even dialects of the same language may differ in their prefixal preservative propensities. The Tavoyan dialect of Burmese is much more

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20. JAM 1975a:165-6. See also JAM 1979:20, 24-5. As Benedict put it, "these elements are peculiarly subject to replacement or loss [...] Prefix variation of this kind [...] is characteristic of TB roots as a whole. This fact suggests that TB prefixes remained separable and largely functional well into the PTB period, and that the rigid schematicizations found in modern TB languages have been developed secondarily" (*STC*:103).

21. The morphophonemic possibilities are especially rich when the root-initial was "weak" (*i.e.* a non-obstruent), as in this partly hypothetical case, which is quite similar to an actual etymon: PTB **g-ya* ⋈ **g-ra** 'right (side)' (*STC* #98).

22. The graphic shape of the WT word shows that here **g-** is the prefix and **y** is the root initial (*i.e.*, this is *not* a cluster where **g-** is the initial and -**y**- is a glide).

thoroughly monosyllabic than standard Burmese, which abounds in sesquisyllables and compounds (Okell 1995:107):

'paddy'	WB **cəpâ** (Modern Standard Bs. **səpâ**), Tav. **bà**
'cooked rice'	WB **thəmâŋ** (Mod. Stand. **thəmîɴ**), Tav. **hmàn**
'banana'	WB **hŋak-pyô-sî** (> Mod. Stand. **hŋəpyôðî**), Tav. **byɔ̀-θì**

(3)   prefix substitution or prefix alternation

Many TB languages have a "favorite prefix" which they have freely introduced into roots in place of earlier ones.[23] Our etymon ***g-ya** might easily become **pəya, təya, məya,** *etc.*, in one or another daughter language. Among these favorite prefixes we may mention Old Chinese *s- (see Benedict 1975c); WB **ʔə-**; Lahu **ɔ̀-** (< PLB ***ʔaŋ-**; *cf.* Bisu **ʔaŋ,** Phunoi **ʔã-**); Mikir **iŋ-**; Chokri **tə-** and **thə-**; Tangkhul **khə-** before verb roots, *etc.* Prefixal substitutions are especially characteristic of TB numerals:[24] Jingpho has created a "prefix run" in the numerals '3', '4', and '5', by substituting its **mə-** prefix for the presumably original prefixes still to be found in WT:

	WT	*Jingpho*
'three'	**gsum**	**məsūm**
'four'	**bźi**	**məlī**
'five'	**lŋa**	**məŋā**

Two words for lower animals nicely illustrate this prefixal variability:

'leech'	PTB ***r-pʷat** (*STC* #45 and p. 103) > Magari **ləwat,** Angami **reva**; but also Nung **dəpat ~ phəphat,** Miri **təpat,** Digaro **kəpe,** Mikir **iŋphat,** WB **krwat,** Lakher **tśəva,** Lai **tsaaŋ**-*wat*; many languages have unprefixed forms like Jg. **wot,** Lepcha **fot,** Chang Naga **wat,** Lahu **vèʔ**.
'ant'	PTB ***-rwak** (*STC* #199). A velar prefix appears in WT **grog-ma,** rGyalrong **kŏrŏk,** Lohorong/Lambichong **khorok**; a dental prefix in Mirish (Miri **təruk,** Dafla **torub**); a sibilant prefix in Nung **sərɔ** (*cf.* the *s- 'animal prefix', below 4.2.1); and a labial prefix (derived from the full noun ***bəw** 'insect') in WB **pərwak** (*cf.* Lahu **pú-g̈ɔ̂ʔ**).[a]

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23. Or in addition to previous ones. See §6 below.
24. See *STC* pp. 94-5 and JAM 1995b/1997:*passim*, especially §5.

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a. As I sardonically observed in JAM 1982a, a "proto-form stuffer" like Weidert (1981, 1987) might prefer to reconstruct a monstrous proto-form like ***kpstrwak** rather than recognize prefixal variability.

Prefixal alternations are by no means confined to TB, but are to be found in all language families of SEA that have sesquisyllables, or compounds that have prefixizable first elements (see below 4.5.3). Thus a *Wanderwort* like 'rabbit' appears as sesquisyllabic **krətàaj** in Siamese, but as a dissyllabic compound in Tai Nuea (**paŋ⁴taay¹**); a form similar to the latter was borrowed into Lahu as **pa(n)tây**, and into Jingpho as **prāŋtái** (see JAM 1988b:804).

(4)   prefix fusion

Especially when the root initial is non-obstruental, as in our ***g-ya** example, it frequently happens that the prefix unites with the C_i to form a single consonantal segment that incorporates phonetic features of both, typically a fricative or affricate, *e.g.* > **dža, ça, ʐa**.

(5)   prefix preemption

A similar phenomenon that occurs especially before "weak" root-initials is what I have called *prefix preemption*, whereby the prefix drives out the original root-initial entirely, and itself becomes the only consonantal onset of the syllable,[25] *e.g.* ***g-ya** > **ga**.

(6)   reprefixation

At any point in the history of an etymon, a given language is always free to add a new prefix in front of an older one.[26] Sometimes the older prefix is maintained intact, as in Tangkhul Naga **khəmələk** 'lick', where the productive verb-prefix **k(h)ə-** has been superadded to the older nasal prefix (PTB ***m-lyak**) so that the word now has two minor syllables. Similarly for Tangkhul **kəkhəyak** 'shame, veneration' < PTB ***g-yak** 'ashamed' (*STC* #452; *cf.* Jg. **kəyàʔ**).

Often, however, the older prefix has been completely or partially disguised. The second syllable of Miri **si-tum** 'bear' already shows preemption of the original root-initial ***w-** by an ancient dental prefix (PTB ***d-wam**: *STC* #461; *cf.* also WT **dom**); to this the younger sibilant animal prefix (demonstrably from PTB ***sya** 'animal'; below 4.2.1) has

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25. See JAM 1972b (*TN*), 1979 (*QV*), etc. Several important etyma where this has occurred will be presented below in the context of "Prefixes and syllable structure" (4.5.3).
26. See "Diachronic layers of prefixes", below 4.5.2.

been superadded: ***sya-d-wam** > ***sV-dom** > **si-tum**. (Returning to our hypothetical case, we could easily imagine a development like ***g-ya** > **dža** [fusion] > **m-dža** [reprefixation].)

(7)   metanalysis of an original cluster with loss of *initial consonant

It occasionally happens that a true consonant cluster consisting of root-initial consonant plus glide gets metanalyzed as a prefix plus root-initial glide, with subsequent loss of the "prefixal" element. Thus PLB ***myuk** 'monkey' (*TSR* #133) > Nakhi ¹**yü** (vs. WB **myauk**, Lahu **mɔ̀ʔ**, *etc.*). Perhaps the most important root in which this has occurred is PTB ***kwəy** 'dog' (*STC* #159; *cf.* WT **khyi**, WB **khwê**), where many Kuki-Chin languages have lost the velar element entirely (*e.g.* Lushai **ui**, Lai **uy**). Karen has undergone a similar development here, but went further; after detaching the original velar as if it were a prefix, Karenic proceeded to reprefix the root with a new dental element, *e.g.* Pwo, Sgaw **thwì** 'dog'. An analogous process seems to have led to Proto-Karen ***thɔʔ** 'pig': PTB ***pʷak** > pre-Karen ***p-wak** [prefixization] > ***wak** [loss of initial consonant] > ***t-wak** [reprefixation].[27]

(8)   metanalysis of compound > prefixization

Finally, it can sometimes be demonstrated that the end of the first syllable of an original compound has been incorporated into the onset of the second syllable, so that the first syllable has essentially been "prefixized", or treated as a prefix.[28]

'righthand'	PTB ***lak-(g-)ya** > WB **lak-ya**, but Jg. **ləkhrá**
	Many other Jingpho words having to do with the hands and feet now begin with the secondary prefix **lə-** < ***lak** 'hand' (see below 4.4.2).
'pick up'	PLB ***lakᴸ-rukᴴ** > ***k-rukᴴ** (*TSR* #187)
	Forms like WB **kauk** and Lisu **gaw³** show preemption of the initial ***r-** by the secondary velar prefix < ***lak** 'hand'. In other Loloish languages (*e.g.* Lahu **ğɔ̂ʔ**), the initial reflects PLB ***r-**, but the ʜɪɢʜ tone-class of the syllable points unmistakably to the voiceless velar prefix (*i.e.* the secondary prefix disappeared after causing the tone-class to become high). See below 4.4.4(3).

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27. See *STC* p. 133 and n. 365.

'elder sibling'	PLB *ʔ-wyik^L < ʔu-(y)ik^L (*TSR* #172 and p. 72)
	The unique PLB initial cluster in *ʔ-wyik^L is to be derived from a dissyllabic prototype *ʔu²-(y)ik^L, where the first syllable reflects the etymon *d-bu 'head', an honorific morpheme frequently occurring in TB words for senior kinsmen (*cf.* WB ʔû-rî "mother's elder brother", ʔû-mâŋ "mother's younger brother", as well as common Kuki-Naga *u 'elder sibling'. See above 3.6.5(4).

4.1.3   *Vocalization and tonalization of prefixes*

Prefixes and initials obviously differ greatly in the ease with which they can be pronounced sequentially. A prefix like s- is readily combinable with consonants of all types, with no help required from an intervening vowel.[29] A stop prefix, on the other hand, is hard to articulate before a stop initial.

We cannot be sure from the WT orthography how the Tibetan combinations of prefixes and initials were pronounced in ancient times; but judging by their excellent state of preservation in WT, we may surmise that they were pronounced with a following unstressed schwa-type vowel, which served to protect them from too close contact with the root-initial. That is, most words with prefixes must have been pronounced sesquisyllabically.[30]

It is true that the minor syllables of some sesquisyllabic TB languages have vowels with a quality somewhat different from ordinary mid-central schwa.[31] In Chokri Naga (closely related to Angami), a language with complicated and sporadic intersyllabic vowel morphophonemics, including vowel harmony,[32] the unstressed vowel of the minor syllable is sometimes reduced to schwa but sometimes not, *e.g.* in animal names with the prefix tə-/thə-, which descends from the full morpheme thi²¹ 'animal, flesh, meat' (< PTB *sya):[33] thə ɣɔ⁴⁴ 'frog', thi³ ʑɛ⁴⁴ ~ tə ʑɛ⁴⁴ 'barking deer', tə ɣɑ⁴⁴ 'bear', tə çi⁴⁴ ~ ti³ çi⁴⁴

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28. See "The compounding/prefixation cycle" (below 4.5.4).

29. Hence the fact that s- is far and away the most frequent initial consonant in English. Benedict (*e.g.* 1975c) insisted on the viability of the contrast between reconstructed OC cluster vs. prefixal syllable onsets with s-, citing English contrasts like *scum* vs. *succumb*.

30. To use older terminology, the prefixal "half-syllable" must have been *anacrusic* to the stressed full syllable (*anacrusis* < Gk. *ana-* 'up' *krouein* 'strike'). An iambic foot, in Greek verse, consisted of an anacrusis plus an *arsis* (*aeirein* 'raise'): ˘ ´ .

31. This is apparent even from the transcriptions to be found in older sources, *e.g.* rGyalrong kŏrŏk and Dafla torub 'ant', cited in *STC* #199.

32. See R.S.Cook (1999:4) "Echo vocalism in Chokri Naga topicalization/suspensive constructions".

33. See below 4.2.1. The conditioning for the aspiration of the Chokri prefix is not clear.

'dog', **tə ki⁴⁴** 'monkey', **thə vɔ²¹** 'pig'. Note that the minor syllables are considered toneless when the vowel is schwa, but are conventionally written with a short mid-tone /³/ when the quality of the vowel is not reduced.

Jingpho may be taken as a model sesquisyllabizing language with schwa vocalism in all its minor syllables. The typical Jingpho word is sesquisyllabic.[34] No fewer than 20 consonants (including ʔ-, sometimes regarded as zero-initial) may begin the minor syllable, though only 5 of them are common, and 12 are marginal or dialectal. A rough count of the entries beginning with each prefix in Hanson (1906/1954) gives some idea of their relative frequency (approximate number of pages in parentheses):

VERY FREQUENT:	**mə-** (41.5); **ʔə-** (37); **kə-** (35.5); **lə-** (27.5); **šə-** (24.3)
FAIRLY FREQUENT:	**gə-** (9.3); **ǰə-** 6.8); **sə-** (6.7)
RARE:	**tšə-** (4.5); **pə-** (4); **khə-** (3); **də-** (3); **phə-** (1.5); **tsə-** (1)
LESS THAN ONE PAGE:	**tə-, thə-, bə-**
ONLY IN THE HKAURI DIALECT:	**nə-, rə-, ŋə-**

Even though the vowels in all these minor syllables are the same, and unstressed to boot, it has been claimed (*e.g.* by Maran 1971, a native speaker) that they bear a two-way tonal contrast.[35] Dai's dictionary (1983) goes so far as to distinguish three tones in minor syllables, though the low tone /31/ is by far the most frequent,[36] and /33/ is very rare. A detailed study would be required to see whether these tonal differences are truly distinctive, or merely low-level phonetic variants reflecting the influence of the tone in the following major syllable. In any case, any such differences could not be of great antiquity in terms of TB as a whole.

While the prefixal half-syllables themselves do not exhibit significant tonal differences, the prefixes could certainly exert decisive influence over the tone of the following major syllable. See, *e.g.*, 4.4.4(3) below.

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34. E.g., all the numerals from 'one' to 'ten' are sesquisyllables, except for **krúʔ** 'six' and **šī** 'ten'. In Hanson's 739-page dictionary (1906/1954), about 233 pages are sesquisyllabic words. This calculation is readily made because Hanson alphabetizes prefixed syllables separately at the end of each letter. Hanson transcribes the schwa with the a-breve symbol, "ă".

35. I confess I had never perceived any such contrast in Maran's speech (he was my consultant for several months in the summer of 1963).

36. I similarly treat the unstressed highly productive unstressed prefix **ɔ̀-** in Lahu (< PLB ʔaŋ) as being under the low-falling tone, though strictly speaking it should perhaps be considered toneless. See JAM 1988b (*DL*):134-220.

4.2   The laryngealizing prefixes *s- and *ʔ-

These two elements, among the most important and semantically transparent of all TB prefixes, are conveniently grouped together because of their "laryngealizing" propensities, *i.e.* their tendency to induce aspiration or glottalization of the root initial, or creakiness on the vowel of the syllables in which they occur.[37]

Both prefixes occur equally well before obstruents and sonorants. Although their effect on the root initial may be identical in many languages (they have both led, *e.g.* to aspiration of the initial in Burmese), it is sometimes possible to distinguish their reflexes even if they are highly indirect. In Loloish stopped syllables there is a clear tonal contrast among ***plain**, ***aspirated**, and ***preglottalized nasals**,[38] with the latter two descending from ***s-N** and ***ʔ-N**, respectively:

	PLB	*WB*	*Lahu*	*Lahu Tone*
'soldier / war'	*makᴸ	mak	màʔ	low-stopped
'blow'	*s-mutᴴ	hmut	mə̂ʔ	high-stopped
'snot'	*ʔ-napᴸ	hnap	nú	high-rising[a]

    a.   The high-rising tone here is a consequence of "glottal dissimilation" (see JAM 1970).

Sometimes Burmish and Loloish show different prefixal behavior before nasals:

	PLB	*WB*	*Lahu*	*Lahu Tone*
'eye'	*s-myakᴴ	myak	mɛ̂ʔ	high-stopped

In this important root, WB reflects a ***plain nasal**, while the tone in Lahu and all other Loloish languages unmistakably points to the ***s-** **prefix** (*TSR* #145); hence the parentheses in the PLB reconstruction.

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37. Both of these laryngealizing prefixes can have decisive effects on the *tone* and/or *phonation type* of their syllables. See, *e.g.*, the discussion of the tones of the *ʔ- prefixed Lahu causatives (above 4.1.1), as well as the origin of the Burmese "creaky tone" in the *s- prefix. See Thurgood 1981, and below 4.2.2(3a).

38. See JAM 1972a:24-5, 57-63. As mentioned above 3.4.1(2), a similar three-way nasal contrast is set up for Proto-Kam-Sui by Li Fang-kuei (1965). In Loloish non-stopped syllables, the tonal effects of these prefixes have so far proven to be indistinguishable.

Naxi has strikingly different initial reflexes for the two kinds of complex nasals, in both stopped and unstopped syllables. Nasals with the ***s-** prefix developed into simple nasals in Naxi, while ***preglottalized nasals** became **h-** or **f-** : [39]

		PLoloish	Lahu	Naxi
'bean'		*s-nuk^H	nɔ̂ʔ	^{1}nṹ
'eye'		*s-myak^H	mɛ̂ʔ	^{1}miu ~ ^{1}niu
'deep'		*ʔ-nak^L	ná	^{3}ho
'ear'		*ʔ-na^2	nā	^{2}hä
'red'		*ʔ-ni^1	ni	^{1}hö
'side / rib'		*ʔ-nam^1	--	^{1}ho
'body hair'		*ʔ-məw^1	mu	^{2}ffṹ

Interestingly, WB shows plain nasals in all of the above words: WB **nauk** 'bean', **myak** 'eye', **nak** 'deep', **nâ** 'ear', **ni** 'red', **nam** 'rib', **mwê** 'body hair'.

4.2.1 Prefixal *s-

(1) Before verbs

Following Wolfenden,[40] *STC* (pp. 105-6) characterizes the PTB ***s-** prefix before verb roots as "directive, causative, or intensive".

Tibetan

Prefixal **s-** appears overtly in the causative member of many WT verb-pairs:

mnam-pa	'have an odor'	snam-pa	'sniff sthg'
ḥkor-ba	'turn round'	skor-ba	'surround'
ḥbar-ba	'catch fire'	sbar-ba	'light, kindle'
ḥphro-ba	'proceed, emanate from'	spro-ba	'make go out, disperse'
riŋ-ba	'be long'	sriŋ-ba	'lengthen'

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39. These forms are from Rock 1963, as cited in Okrand 1973 and JAM 1979:34. In He and Jiang's more modern transcription (1985), "h-" is written /x/, and "ff-" is simply /f/. See above 3.4.1(3).

40. See Wolfenden 1929:46-53 (Tibetan); 85-6 (Kachin=Jingpho); 200-1 (Burmese). See also JAM 1976a:415-419.

This prefix is also used in WT in an inchoative sense, to signal "general direction into the condition or state named by the verb root": *smin*-pa 'ripen', *sŋo*-ba 'become green', *sbo*-ba 'become swollen', *sbrid*-pa 'become numb, torpid'.

Jingpho

The sibilant prefix is highly productive as a causative marker in Jingpho, though it has been palatalized to šə- (varying with džə- before an aspirated or sibilant root-initial:[41]

lòt	'be loose, free; escape'	šəlòt	'set free'
dám	'go astray'	sədám	'lead astray'
prùt	'come to a boil'	šəprùt	'bring to a boil'
phrīŋ	'be full'	džəphrīŋ	'fill sthg'
sù	'be awake'	džəsù	'awaken smn'

Lepcha

As demonstrated long ago (Benedict 1943), Lepcha has developed a "secondary palatal infix" which appears after the root-initial as the reflex of the old sibilant causative prefix:

nak	'be straight'	nyak	'straighten'
thor	'escape, get free'	thyor	'let go, set free'
rop	'stick, adhere'	ryop	'affix, attach sthg'

This is really an example of *metathesis* rather than of infixation:[42]

$$*s + C_i > + C_i + y$$

As mentioned above (4.1.1), many TB languages (Burmese, Lahu and other Loloish languages, Lai and other Chin languages, Hayu and other Himalayish languages) preserve more indirect traces of the sibilant causative prefix, in terms of the manner of the initial consonant and/or the tone of the syllable. Occasionally the original *s- prefix peeps

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41. The closely related Nung language has a similar palatal sibilant causative prefix: ənem 'be low' / šənem 'lower sthg'.

42. A somewhat analogous metathetic development was posited by Bodman (1969), who derived some instances of OC dental affricates from PST sequences of prefixal *s- before a dental root-initial, *i.e.* $*s + t >$ ts-.

through even in Burmese, when the root-initial was weak enough to permit "preemption": WB ʔip 'sleep' / sip 'put to sleep'; waŋ 'enter' / swâŋ 'put into, insert'; WB swâ 'go' looks like a frozen prefixed form even though its meaning is not causative (*cf.* Jg. wà 'go', without the prefix).

(2)   Before nouns

The clearest semantic contribution of ***s-** to noun roots is in words for animals and parts of the body, where it definitely represents a reduction of the syllable ***sya** 'animal / flesh / body' (*STC* #181, and pp. 106-8).[43] This element appears as fully syllabic **sa-** in Lushai animal names: **sa-khi** 'barking deer', **sa-vom** 'bear', **sa-va** 'bird', **sa-hŋa** 'fish', **sa-kor** 'horse', **sa-hram** 'otter', **sa-kuʔ** 'porcupine', **sa-zu** 'rat; rabbit', **sa-zuk** 'sambar deer', **sa-kei** 'tiger', **sa-nghar** 'wildcat', **sa-thar** 'wild goat', *etc*. In Jingpho-Nung the element has become unstressed to a sesquisyllable, and sometimes palatalized: Jg. **səgû** 'sheep', **sənaŋ** 'wild boar', **səwōi** 'pangolin', **šəkrép** 'bedbug', **šərū** 'bamboo rat; mole', **šəro(ŋ)** 'tiger'; Nung **səwi** 'bear', **sərɔ** 'ant', **səri** 'barking deer'. In Miri the prefix is vocalized with -i-: **si-tum** 'bear', **si-be** 'monkey'. In Chokri Naga it appears as a sesquisyllabic dental stop, sometimes aspirated (tə-/thə-) < **thi** 'animal' < ***sya** (see above 4.1.3).[44] In WT orthography the sibilant element is written right before the root initial, *e.g.* **sbrul** 'snake', **sbal-pa** 'frog', **sdig-pa** 'scorpion', **sreg-pa** 'pheasant', **srin-bu** 'insect', **stag** 'tiger', **spre** 'monkey', though it was probably pronounced with an epenthetic schwa before certain stop root-initials.

In a couple of animal names *STC* (pp. 107-8) ultimately deems the sibilant element to be part of the root-initial, and not a prefix, though much hesitation is displayed on this point (see above 3.6.1): 'otter' "***s-ram = *sram**"; 'louse' "***s-rik = *śrik**". Occasionally the sibilant prefix is only one of those reconstructed for the root: 'horse' ***s-raŋ ≍ *m-raŋ**.

A large number of roots for parts of the body have a sibilant prefix (sometimes alternating with a different prefix in some languages): 'back' ***s-nuŋ**; 'blood' ***s-hywəy**; 'bone' ***s-rus ≍ *m-rus ≍ *g-rus**; 'hair' ***s-kra**; 'heart / brains' ***s-niŋ**; 'navel / belly' ***s-tay**; 'nose' ***s-na**; 'snot' ***s-nap**; 'sweat' ***s-krul ≍ *s-ŋrul**; 'tongue' ***s-lay ≍ *m-lay**, *etc*.

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43. Other TB animal prefixes recognized in *STC* are Bodo-Garo **mV-**, with variable vocalism (n. 301), and the PLB velar prefix ***k-** that survives in several roots with sonorant initials. For the latter see below 4.4.4(3).

44. G.H. Luce (1986:88-96) records a similar animal prefix **tă-** in the idiosyncratic Mru language of Arakan, *e.g.* **tăpri**[1] 'tiger', **tătɔm**[4] 'bear', **tămin**[2] 'cat', **tăkui**[1] 'dog'.

(3)   Morphophonemic complications

(a)   Obstruentization of nasals after prefixal *s- in Kanauri and Chinese

Perhaps the most frequent response of a fairly conservative daughter language to the combination of prefixal ***s-** + nasal Ci is to develop voiceless nasals (see above 3.4.1). Kanauri (West Himalayish) adopted a different strategy. Although Kanauri preserves the ***s-** prefix well before most initials (its inventory includes the initial combinations /**sp- sb- st- sṭ- sk- sg- skl-**/), combinations of s-plus-nasal are not to be found. This is because they have regularly developed into nasal-plus-stop:[45]

	PTB	*Kanauri*
'gums'	***s-nil**	stil
'heart'	***s-niŋ**	stiŋ
'nose'	***s-na**	*sta*-kuc
'seven'	***s-nis**	stis, tis
'smell'	***s-nam**	stam

There is also some evidence that the ***s-** prefix occasionally led to the obstruentization of root-initial **n** to an affricate in Old Chinese:

	PTB		*OC*	*GSR*
'seven'	***s-nis**	七	**ts'i̯ĕt**	400a-d
'nose'	***s-na**	自	**dz'i̯əg**	1237m-p 'self'[a]

a. OC not reconstructed in *GSR*. The graph is said to be a drawing of a nose, and occurs in this sense as radical in 鼻 **bi̯əd** 521c.

Boodberg (1937) cites the 説文 *Shuo Wen* analysis of the character 年 OC **nien** 'year' (PTB ***s-niŋ**) as including 千 OC **ts'ien** 'thousand' as phonetic. See *STC* n. 471, p. 177; Duàn Yùcái 段玉裁 1815:326.

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45. See JAM 2001b ("Zhangzhung"). So far no certain examples have been found of Kanauri **sp-** < ***s-m**, or of Kan. **sk-** < ***sŋ-**.

(b)   *Preemption of nasals after prefixal *s- in Bodo-Garo*

In several Bodo-Garo (Barish) languages, *e.g.* Bodo and Dimasa, root-initial **n-** has been dropped after prefixal ***s-**, which itself here becomes laryngealized to **h-**, *i.e.* ***s-n->** **h-**:[46]

	PTB	*Garo*	*Bodo*	*Dimasa*
'daughter-in-law'	*s-nam	nam	ham	ham
'enter'	*s-nap	nap	hap	hap
'good'	*s-nam	nam	ham	ham

(c)   *Assimilation of the sibilant prefix to the root-initial*

We have seen the many ways in which the ***s-** prefix could influence the root-initial, but the influence has sometimes operated in the opposite direction: *i.e.* the sibilant prefix itself could undergo assimilatory changes under the influence of the root-initial.[47] In Dayang Pumi there are no fewer than eight surface realizations of the prefix, to allow it to agree in voicing and position of articulation with the following root-initial:

$$*s- \quad > \quad [\alpha \text{ voice}] \quad / \text{\_\_\_\_\_} [\alpha \text{ voiced}]$$

i.e. ɸ > β; s > z; ʃ > ʒ; χ > ʁ
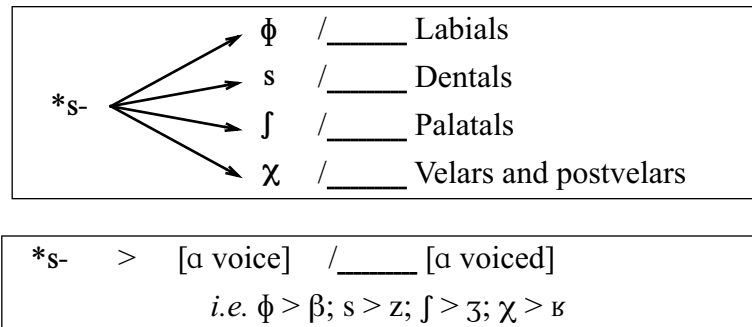
4.2.2   *The glottal prefix: *ʔa- ⤞ *(ʔ)ə- ⤞ *ʔə̃- ⤞ *ʔaŋ- ⤞ *ʔak-*

Perhaps the most interesting TB prefix, both from the morphophonemic and semantic point of view, is the one presented in *STC* (pp. 121-3) as "*a-". Benedict correctly considers all the many semantic functions of this prefix to be outgrowths of one and the same proto-element.[48] However, the morphophonemics of this prefix are more complicated than he had supposed. While *STC*:123 recognizes both stressed and unstressed variants,[49] two refinements are necessary:

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46. See *STC*:84.

47. Such assimilatory alternations are much more common with the nasal prefix, however (below 4.3).

(a) an essential component of the prefix was its initial glottal stop, especially when its vowel was stressed;

(b) besides the simple semisyllabic version of the prefix, there is a well-attested fully syllabic variant with final velar nasal (***ʔaŋ-**), and occasionally even a secondary allomorph with final velar stop (***ʔak-**).

It is a moot point whether the open or nasal-finalled variant of this prefix is "more basic". We will return below (§2) to the question of competing historical scenarios for these allofams, after a discussion of the various semantic functions of the prefix.

(1)   Semantic functions [50]

(a)   Kinship

The prefix appears throughout TB with kinship terms, both in their vocative and referential usage, with the details of use varying from language to language, *e.g.* Garo **a-pa** 'father', **a-ma** 'mother'; Lahu **a-pa** 'father!' (voc.), **a-ví-a-ni** 'older and younger siblings!' (voc.), **a-pi** 'grandmother' (voc. or ref.), **a-e** 'mother!' (voc.).[51] In Jingpho, this prefix turns up in the form of glottalization of the root-initial if the latter is a sonorant, *e.g.* **ʔmōi** 'mother-in-law!' (vocative by wife to husband's mother), **ʔwâ** 'father!' (voc.), **ʔwôi** 'grandma!' (voc.) [see below §3c].

(b)   3ʳᵈ person possessive

In this function (widespread *e.g.* in Himalayish and Chin languages), the prefix appears affixed to the thing possessed, whether the possessor is a pronoun (otherwise unexpressed) or a common noun:[52]

48. Wolfenden (1929:177*ff.*) had attempted to distinguish genetically between the "pronominal" and "non-pronominal" prefixes of this shape. In any case, even if only a single element was involved at the PTB stage, it is always possible that at a still earlier stage more than one distinct entity were involved. This would be somewhat analogous to the English initial element **a-** that appears in dozens of words with no very clear overall meaning, since it descends from several different morphemes, including 'on', 'at', and 'all' (*cf.* locatives like *aboard, abaft, away, around, asea, abed*; statives like *afire, aflame, a-glimmer, a-glow*; and miscellaneous words like *atone* (< *at one*) and *alone* (< *all one*), etc.

49. *STC* transcribes the prefix variously in forms cited from daughter languages as **a-**, **ə-**, or **ă-**.

50. Both the kinship and pronominal possessive functions of this TB prefix seem quite analogous to the Chinese prefix conventionally written with the character 阿 (Mand. **ā**), which appears in personal names and kinship terms, often to form vocatives or first-person possessives. See Mathews 1960:1.

51. Compare the corresponding Lahu referential forms with the **ɔ̀-** prefix (< ***ʔaŋ-**): **ɔ̀-pa, ɔ̀-ví-ɔ̀-ni, ɔ̀-pi, ɔ̀-e** (below §2).

52. This is opposite from English, where it is the possessor that receives the marking: *John's book < John his book.*

(i)   Pronominal possessor

   Lai Chin **ʔa-rool** 'his/her food' (see above 4.1.1)

(ii)   In genitive constructions with common nouns, prefixed to the thing possessed

· (Himalayish) Bahing **biŋ ə-tami** 'calf' ("cow its-child"), **byar ə-pwaku** 'sugar-cane' ("cane its-juice"); Lepcha **vi** 'blood', **so** 'vessel' > **vi a-so** 'blood vessel' ("blood its-vessel")

· (Chin) Aimol **rəmai** 'tail' < ***r-may** (*STC* #282), **rul ə-rmai** "the snake's tail" ("snake its-tail").

· (Lolo-Burmese) Burmese **wak-sâ** 'pork', **wak ʔəsâ** 'the meat/flesh of a pig'; Lahu **và ʔ-šā** 'pork', **và ʔ ɔ̀-šā** 'the meat/flesh of a pig'.

· (Kamarupan) Mikir **o-so a-hem** 'placenta' ("child its-house"), **mék a-so** 'pupil' ("eye its-child"), **mék a-rèng** 'eyelid' (**rèng** 'skin'), **bùm a-rèng** 'foreskin', **bùm a-lāng** 'semen' (**bùm** 'penis', **lāng** 'water'), **òk a-nò** 'fin' ("fish its-ear"), **ri a-sék** 'elbow' ("arm its-joint"), **kèng a-sék** 'ankle' (**kèng** 'foot'), **nò a-bō** 'earwax'.

(c)   Verb prefix showing agreement with a 3ʳᵈ person subject

   This usage corresponds closely to the possessive function of the prefix before noun roots, and a given language will typically use the prefix in both ways, *e.g.* Lai Chin **ʔa-kal** 'he/she goes', parallel to **ʔa-rool** 'his/her food' (see above 4.1.1).

(d)   Nominalizer of verbs

   It is easy to see the connection between 3ʳᵈ person possession and verb nominalization: 'its Verb-ing; (its) Verb-ness'. A few examples: (Jingpho) **súŋ** 'to use', **ʔəsúŋ** 'a use'; **wák** 'to notch', **ʔəwak** 'a notch'; (Lepcha) **ŋan** 'sit', **ăŋan** 'dwelling'; (Burmese) **lup** 'to work', **ʔəlup** 'labor'; **thûm** 'tie in knot', **ʔəthûm** 'a knot'; (Lahu) **qɔ̀ʔ** 'be bent', **ɔ̀-qɔ̀ʔ** 'bent object, corner'; **cā** 'to sprout', **ɔ̀-cā** 'a sprout'; **phôʔ** 'pile up', **ɔ̀-phôʔ** 'a heap'; **lɔ́** 'be left over' (< Shan), **ɔ̀-lɔ́** 'excess, superfluity'.

   Often a verb will coöccur with its derived prefixed noun in "cognate" N/V constructions, *e.g.* Lahu **ɔ̀-u u ve** 'lay an egg', **ɔ̀-cā cā ve** 'to sprout a sprout', **ɔ̀-thîʔ thîʔ ve** 'wrap a package', **ɔ̀-mɛ mɛ ve** 'name with a name; give a name to'.[53] In Lahu some verbs also have homophonous unprefixed classifiers, so that the same morpheme may occur

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53. See Hansson 1996 and JAM 1996b.

three times in quantified NP's, with the prefix appearing only before the head-noun: ɔ̀-thî̃ʔ nî thî̃ʔ thî̃ʔ ve ("wrap two wrap of wrapping").

(e) "Aspectual" verb prefix

In this usage, the glottal prefix sometimes functions very similarly to prefixal *m- (below 4.3),[54] to indicate stativity or intransitivity: *e.g.* Mikir ăthik 'just'; Jingpho ʔəkhá 'bitter', ʔəthàt 'thick', ʔəsìt 'tasteless'. (In formations like these the unprefixed root is already stative, so the prefix merely provides "phonological bulk"; see §f below.) Sometimes, however, the prefix occurs with the opposite effect, lending a transitive or causative feature to the verbal meaning, as in Jingpho: wām 'dare', ʔəwām 'respect, treat with deference'; thín 'be closely woven', ʔəthín 'press closer together'; rái 'to be', ʔərái 'arrange, make preparations'.

In sum, as far as aspectual function goes, *m- is consistently stativizing/intransitive, *s- is consistently causativizing/transitivizing, while *ʔ- behaves sometimes one way, sometimes the other.[55]

(f) With nouns, as bulk-providers

Very frequently this prefix is added to roots that are already nouns, merely to give them a bit more phonological bulk, providing them with the salience to serve as constituents in larger constructions.[56] Sometimes the prefixed version has some increment or change of meaning, but often the two forms are semantically identical.

Lepcha In most words, the addition of the prefix makes no difference to the meaning, *e.g.* (a-)mik 'eye', (a-)vi 'blood', (a-)so 'vessel for body-fluid', (a-)li 'tongue', (a-)šil 'penis', (a-)fo 'tooth', (a-)byet 'liver', (a-)gon 'fin', (a-)bu 'lung', (a-)t'yak 'head'. In some cases, however, there is semantic specialization: Lepcha uŋ 'water', a-uŋ 'meat broth'; vi 'blood', a-vi 'menses'; rip 'flower', a-rip 'cloth flower'.

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54. For a discussion of the dual nasal/glottal nature of the often stativizing WT prefix ḥ- (a-chung), and of the relationship between WT ḥ- and m-, see below §4.

55. As we have seen (above 4.1.1), the causative prefix was *ʔ- at the Proto-Loloish stage, though it ultimately descends from PTB *s-.

56. This is termed "lapse of function" in *STC*:121.

Lahu Usually the prefix ɔ̀- (< *ʔaŋ-) makes no difference to the meaning, as in (ɔ̀-)jɔ̂-mɔ̂ 'master', (ɔ̀-)má-pā 'son-in-law', (ɔ̀-)šɨ̄ 'blood'; but there are also pairs like šā 'animal, game' vs. ɔ̀-šā 'meat'; khɔ̂ 'language, speech' vs. ɔ̀-khɔ̂ 'noise, sound'; mɛ̂ʔ 'eye', ɔ̀-mɛ̂ʔ 'dot, speck, knot in wood'.

Burmese (ʔə-)ʔok 'underpart, below'; (ʔə-)khwaṇ' 'permission'; but swâ 'tooth' vs. ʔəswâ 'cutting edge of tool'; ʔim 'house' vs. ʔəʔim 'sheath'; myak 'eye' vs. ʔəmyak 'knot in timber'.

(2)   Morphophonemic variations

As indicated above, I interpret the basic form of this prefix as *ʔa-, usually semisyllabized as *ʔə-. This unstressed variant is the form found, *e.g.*, in Burmese, where over 11.5% of the total lexicon bears the prefix.[57] In addition, we must recognize a variant with final nasal, *ʔaŋ-, as well as one with the homorganic final stop, *ʔak-. We may envision more than one morphophonemic scenario relating these prefixes.

Either (a) the prefixes with velar finals reflect a completely different etymon from the open form *ʔa- ⚹ ʔə-;

or (b) all the prefixes are related, and the nasal-finalled variant is to be explained in terms of rhinoglottophilia induced by the initial glottal stop, becoming first *ʔã- or *ʔə̃-, then in some languages undergoing "nasal reinforcement" to forms like ʔaŋ-;

or (c) the basic form of the prefix was *ʔaŋ-, which later got unstressed to *ʔəŋ-, then sometimes lost the nasal occlusion to yield *ʔə̃- or simply ʔə-.[a]

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a. This latter hypothesis would be paralleled rather closely by the occasional fate of PIE syllabic *m̥-, which became a- in Greek and Sanskrit.

In any case, all three prefixes are attested in Lahu.[58] We have seen (above §1a) the stressed mid-tone element a- (< *ʔa-) that occurs (usually with vocative force) in kinship terms. In addition, Lahu has a prefix á- under the high-rising tone (< *ʔak-) that occurs in about 70 words (*e.g.*, á-lɛ̀ʔ 'salt', á-chɛ̀ʔ 'goat', á-thâ "jew's-harp").[59] However, by far the most common prefix in Lahu is ɔ̀- (< *ʔaŋ-), which occurs before hundreds of roots, including many integrated loanwords from Shan and Burmese. It serves to convert both

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57. Fully 124 of the 1061 pages of Judson's dictionary (1966 reprinting) contain words with this prefix.

58. See my note 335 in *STC*:121.

59. These words fill 13 out of 1414 pages in *The Dictionary of Lahu*, or less than 1% of the lexicon. The variant with final stop is the rarest of the three in TB as a whole, and seems clearly to be a secondary development from the form with final velar nasal.

nominal and verbal roots into autonomous nouns, which may then be compounded with preceding, "specifying" nouns; but it is often used just to give more phonological weight or semantic specialization to roots which are already autonomous nouns in their own right.[60]

The nasal-finalled variant *ʔaŋ- may be reconstructed with certitude for Proto-Loloish on the testimony of Southern Loloish languages like Bisu, Phunoi, and Sangkong:

Bisu

The prefix ʔaŋ- occurs before both nominal and stative verbal (adjectival) roots: *(with adjectival roots)* ʔaŋ-tɛ̀ 'alive', ʔaŋ-hmaŋ 'beautiful', ʔaŋ-khà 'bitter', ʔaŋ-pláŋ 'black', ʔaŋ-chɔ̀ 'cold', ʔaŋ-kɔ̀j 'crooked', ʔaŋ-hnà 'deep', ʔaŋ-kɯ 'dry', ʔaŋ-phlɛn 'flat; even', ʔaŋ-plɯŋ 'full', ʔaŋ-ken 'stiff', ʔaŋ-han 'heavy', ʔaŋ-bjà 'many', ʔaŋ-hnɛ́ 'red', ʔaŋ-dá 'sick', ʔaŋ-nám 'bad-smelling', ʔaŋ-cháw 'sweet';[61] *(with noun roots)* ʔaŋ-gàw 'bone', ʔaŋ-sà 'breath', ʔaŋ-dà 'dawn', ʔaŋ-ʔu 'egg', ʔaŋ-tù 'head', ʔaŋ-khjáw 'horn', ʔaŋ-bà 'insect', ʔaŋ-hmaw 'liver', ʔaŋ-ʃà 'meat', ʔaŋ-hnɯ 'seed'.

Phunoi

The prefix ʔã⁵⁵- appears with a few verbal roots (ʔã⁵⁵-tat¹¹ 'alive', ʔã⁵⁵-piɲ³³ 'full'), but is mostly used with nouns: ʔã⁵⁵-hmot³³ 'body hair', ʔã⁵⁵-jau¹¹ 'bone', ʔã⁵⁵-do¹¹ 'brain', ʔã⁵⁵-jã⁵⁵ 'chest', ʔã⁵⁵-hna¹¹ 'ear', ʔã⁵⁵-biɑ³³ 'eye', ʔã⁵⁵-sʰi⁵⁵ 'fat', ʔã⁵⁵-tu³³ 'head', ʔã⁵⁵-chɑu⁵⁵ 'horn', ʔã⁵⁵-ʔu⁵⁵ 'intestines', ʔã⁵⁵-sin¹¹ 'liver', ʔã⁵⁵-hmap³³ 'lung', ʔã⁵⁵-hluʔ¹¹ 'skin', ʔã⁵⁵-liɲ³³ 'throat', ʔã⁵⁵-hlá 'tongue', ʔã⁵⁵-co 'waist', ʔã⁵⁵-tõ 'wing'.

Sangkong[62]

The prefix aŋ³³- is apparently only used with nominal roots: aŋ³³-mbaŋ⁵⁵ 'body', aŋ³³-tu³¹ 'head', aŋ³³-tsham⁵⁵ 'hair of head', aŋ³³-ndo³¹ 'brain', aŋ³³-na³¹ 'ear', aŋ³³-so³¹ 'tooth', aŋ³³-khoŋ³¹ 'throat' aŋ³³-la̱³¹ 'hand', aŋ³³-tɕo³¹ 'waist', aŋ³³-zø³¹ 'bone', aŋ³³-u⁵⁵ 'intestines', aŋ³³-phje³¹ 'liver', aŋ³³-phap 'lung', aŋ³³-ndøt⁵⁵ 'phlegm'.

Nung

Nung also has a nominalizing prefix əŋ-, *e.g.* əŋ-sü 'stopper' < sü 'close up, cork', əŋ-wam 'a cover' < wam 'to cover', əŋ-məthip 'a fold' < məthip 'to fold' (*STC*, n. 330).

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60. Fully 86 out of the 1414 pages of *The Dictionary of Lahu* (about 6% of the lexicon) contain words with this prefix. For a more detailed discussion of this prefix see JAM 1973/1982:66-74.

61. This prefix is productive enough to be added to adjectives borrowed from Tai, *e.g.* ʔaŋ-wàj 'fast', ʔaŋ-hɔ́m 'fragrant', ʔaŋ-khjaw 'green'.

62. Data from Li Yongsui 1991.

Tangkhul Naga

Tangkhul has a prefix **a-**, which occurs especially with body parts (*e.g.* **a-sho** 'claw', **a-sa** 'flesh', **a-mathin** 'liver', **a-phar** 'lungs', **a-hui** 'skin', **a-khamei** 'tail'), but also a curious dissyllabic element **aŋa-** which seems to be a sequence of the two related prefixes **aŋ- + a-** (*e.g.* **aŋ-a-tak** 'among', **aŋ-a-tok** 'brain', **aŋ-a-chi** 'horn', **aŋ-a-yuŋ** 'root', **aŋ-a-chaŋ** 'wing').

Mikir

Mikir[63] has three important vowel initial prefixes, **a-**, **ang-**, **ing-**, two of which end in the velar nasal:

· Prefixal **a-** usually functions as a genitive element in compounds, as in **mék a-rèng** 'eyelid' (see §1bii, above), but also occasionally appears as a bulk-provider before noun roots (**a-chu** 'hair of head'; **so ~ a-so** 'child'[64]).

· **ang-** may also serve as a genitive element in compounds (**mék ang-sùm** 'eyelash'), but also occurs before a large number of noun roots used independently: **ang-kok** 'hole', **ang-ni** 'tusk', **ang-jin** 'shoulder', **ang-ham** 'palate', **ang-hap** 'uvula', **ang-mi** 'body hair', **ang-ru** 'rust', **ang-kur** 'root', *etc*.

· Even more frequent is the prefix **ing-**, which occurs before verb roots (**ing-jùp** 'suck', **ing-thak** 'be itchy') as well as before many nouns: **ing-thin** 'liver; heart', **ing-phor** 'lung', **ing-phat** 'leech', **ing-kroy** 'saliva', **ing-mî** 'body hair', **ing-sî** 'heart'. However, this prefix is better derived from the nasal prefix ***m-** (see below 4.3.2).

There is considerable overlap in function among these three Mikir prefixes, with some roots capable of taking more than one alternant with little apparent difference in meaning, *e.g.* **ang-mi** (Walker) **~ ing-mî** (Grüssner) 'body hair'.[65]

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63. Mikir forms cited with tone-marks are from Grüssner 1978; the others are from Walker 1925.
64. This particular word can also take **o-**: **o-so ⋉ a-so**. No other Mikir words in the STEDT database have this **o-** prefix.
65. *STC*:122 cites both **ĭŋnim** 'smell' (written with a breve) and **aŋnim** 'odor'.

Lotha Naga

Lotha prefers mid-vowel coloration for its most common vocalic prefixes, with **o-** (perhaps < ***ʔaŋ**-) and **e-** (perhaps < ***ʔiŋ**-) seemingly of about equal frequency:

o-	o-khe 'hand', o-ka 'daughter', o-so 'meat', o-pok 'belly', o-fhu 'skin', o-ho 'tooth', o-hro 'bean', o-lo 'bow (for arrows)', o-ki 'house', o-zu 'rope', o-ma 'salt'
e-	e-ŋu 'neck', e-ŋü 'wife', e-khu 'fat', e-cho 'wing', e-won 'arm', e-chen 'blood', e-mhi 'tail', e-thi 'fruit', e-lok 'cloud', e-yo 'cheek', e-no 'ear'

Prefixal **e-** may occasionally be used before Lotha verb-roots (**e-khu** 'cough', **e-nak** 'scratch', **e-sap** 'blow'), and there is also an example in the STEDT database of **eng-** before a velar-initialled verb-root (**eng-kak** 'bite').

Mao Naga

Mao also favors the **o-** prefix with noun roots: **o-ba** 'arm', **o-pu** 'belly', **o-zhi** 'blood', **o-re** 'bone', **o-phi** 'foot', **o-le** 'heart', **o-ho** 'tooth', **o-khe** 'dish', **o-chü** 'house', **o-ri** 'rope', **o-si** 'dog', **o-mi** 'fire', **o-khe** 'tiger'.[66] There is also at least one example of the **e-** prefix: **e-ve** 'leech' (*cf.* Mikir **ing-phat**).

(3)   Glottalized initials and glottal prosodies

The glottal prefix has led to the development of a glottalized manner series of obstruents in some branches of TB.[67] Yet glottalic features are notoriously hard to localize in particular segments of a syllable,[68] and the proto-laryngeal prefix is often manifested mostly on the vowel, which may acquire "creaky" or "glottalized" phonation,[69] or even a special tone.[70] The way glottal constriction is transcribed for a given language by different authors — *i.e.* whether it is treated as a feature of the initial or of the vowel — is often merely a matter of individual preference.

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66. Contrast Lushai sa-kei 'tiger', with a specific animal prefix (above 4.2.1).

67. This is analogous to the ***nasal prefix** giving rise to a prenasalized series of obstruents. See below 4.3.

68. See the discussion of Mpi "laryngeokinesis", in JAM 1978b.

69. Creakiness can also arise through the decay of a former syllable-final stop to -ʔ. See below Ch. 8.

70. For a discussion of the tonal effects of "glottal dissimilation", see JAM 1970, 1972a, and 1973b. For the prefixal origin of Burmese creaky tone see Thurgood 1981.

(a)   *Lolo-Burmese*

Burling's important discovery (1968) of glottal constriction in some words in the Burmish languages Maru (Langsu) and Atsi (Zaiwa), led him to reconstruct a ***glottalized** series of obstruents for Proto-Lolo-Burmese. These ***glottalized initials** merged with the PLB ***voiceless** series in Burmese, becoming WB aspirates; in Loloish they generally became plain voiceless unaspirates, with special tonal developments:

PLB	*WB*	*Atsi / Maru*	*Lahu*	*Lisu*	*Akha*
*ʔ-p, *ʔ-b	ph	pʔ	p	p	p

Burling recorded the following glottalized initials for Maru and Atsi:

pʔ	pʔy	tʔ		tsʔ	cʔ	kʔ	kʔy
mʔ	mʔy	nʔ	nʔy			ŋʔ	
		lʔ					

Björverud recently (1998) recorded four preglottalized sonorants, ʔm, ʔn, ʔl and ʔv, in Lalo (Western Loloish).[71] Lalo forms with these initials generally correspond quite well to etyma reconstructed with the PLB *ʔ- prefix:

	PLB	*Lalo*		*PLB*	*Lalo*
'brood / incubate'	*ʔ-mu²	ʔmù	'rib'	*ʔ-nam¹	*ʔnú*-zà
'deep'	*ʔ-nak^L	ʔnìq	'snot'	*ʔ-nap^L	ʔnỳq
'dry in sun'	*ʔ-lap^L	ʔlỳq	'soot / acrid'	*ʔ-mu²	*ʔmù*-ʃìq
'ear'	*ʔ-na²	ʔnà	'trousers'	*ʔ-la²	ʔlà
'fry'	*ʔ-lu³	ʔlẃ	'wait'	*ʔ-laŋ¹	ʔlw
'press'	*ʔ-nip^L	ʔnìq			

However, Asian linguists prefer by and large to mark constriction on the vowel rather than to set up glottalized initial consonants. Such are the treatments of glottal constriction in Zaiwa (Xu Xijian 1984; Yabu 1982), Jingpho (Dai *et al.* 1983), Bola (Dai *et al.* 1991), *etc*.

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71. See Namkung *ed*. 1996:204. Other Loloish languages with preglottalized initials include Nusu (ʔm, ʔn, ʔŋ, ʔn̥, ʔl) and Mo-ang (ʔm, ʔmj, ʔn, ʔnj, ʔn̥, ʔn̥j (!), ʔŋ). *Op. cit.* p. 309, 262; and 3.4.1 (n. 50) above.

There seems to have been only a marginal contrast at the Proto-Loloish level between ***voiced** vs. ***voiceless glottalized obstruents**. In open syllables there is no tonal evidence for such a contrast, and I conventionally use the voiced symbols in reconstructions, *e.g.*:

	WT	*PLB*	*WB*	*Lahu*	*Bola*
'frog'	sbal	*ʔ-ba²	phâ	pā	---
'porcupine'	---	*ʔ-blu¹	phru	fâʔ-*pu*	pjṳ⁵⁵
'put / place'	sta	*ʔ-da²	thâ	tā	---
'teach'	---	*ʔ-ma¹/²	hma	mā	ma̤³⁵

On the other hand, a voicing contrast seems necessary to posit in PL stopped syllables, where a ***voiceless glottalized initial** leads to the Lahu high-stopped tone / ˆʔ /, while a ***voiced glottalized initial** develops into Lahu high-rising tone / ´ / by "glottal dissimilation" (see JAM 1970, 1972a:37-43):

PLB	*Lahu*
*ʔ-pak^H	pâʔ 'collapse'
*ʔ-bak^L	pá 'side'

Such a strange opposition seems clearly to call for an interpretation in terms of a still earlier contrast between sesquisyllabic forms like ***ʔəpak** and ***ʔəbak**.[72]

The two "laryngealizing" prefixes ***s-** and ***ʔ-** had largely merged to ***ʔ-** before stops, spirants, and resonants by the Proto-Loloish stage,[73] but were still kept apart before nasal initials in stopped syllables, with ***s-** causing the syllable to join the HIGH-stopped class, and ***ʔ-** causing it to join the LOW-stopped class (see above 4.2; JAM 1972a:23-25). There has been some controversy over how to reconstruct the causative prefix in Lolo-Burmese. Largely for tonal reasons, especially to account for the phenomenon of "glottal dissimilation", I consider the marker of causativization at the Proto-Loloish (and probably

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72. This interpretation is made all the more plausible by the need to reconstruct a velar member of the preglottalized series at the PLB level, as *e.g.* in PLB *ʔ-gak^L 'branch' > WB **khak**, Lahu q̀á. A true series of unitary preglottalized stops typically lacks a velar or palatal member. See the situation in Karenic, §b below.

73. I am now inclined to reinterpret the "voiceless glottalized" initials in PLB *stopped syllables with obstruental initials as sequences of prefixal *s- plus voiceless stop:

PLB (TSR)	*PLB (New)*	*Lahu*
*grak^L	*grak^L	kàʔ
*ʔ-krak^H	*s-krak^H	kâʔ
*ʔ-grak^L	*ʔ-grak^L < **s-grak	ká

even the PLB) stage to have been the **ʔ-** prefix, though the matter is complicated by a sporadic survival of prefixal **s-** in Burmese where the phonological environment was favorable, with the clearest example being WB **ʔip** 'sleep' (< *(y)ip) / **sip** 'put to sleep' (< *s-(y)ip); see above 4.1.1.

(b)   Karenic

Proto-Karen is reconstructed with four series of initial stops: ***plain, *aspirated, *voiced**, and ***voiced preglottalized**, with the latter series being confined to the labial and dental positions /*ʔb ʔd/ (Haudricourt 1946, 1953, 1975).[74] This is the typical pattern for Southeast Asia: similarly defective glottalized series are to be found in Tai and Mon-Khmer, with both of which Karen has been in prolonged historical contact.

In addition to these series, Benedict (1979)[75] reconstructs a Proto-Karen ***voiceless preglottalized** series to account for about 14 examples where the Pa-o (Taungthu) dialect has voiceless unaspirates as against aspirates elsewhere. He suggests that the main source of this glottalization was the PTB *ʔ(ə)- prefix before voiceless initials.

(c)   Jingpho

Jingpho dialects exemplify three stages of glottalization:

> (a) semi-syllabic prefixal ʔə-, as in ʔəkhá 'bitter', ʔəthàt 'thick' (see above);
>
> (b) preglottalized sonorants / ʔm ʔn ʔw ʔy ʔr ʔl /;
>
> (c) constricted vowels.

I have personally heard these preglottalized sonorants in the speech of LaRaw Maran (1963), who explicitly called them to my attention. In Dai *et al.* (1983), however, these words are written with plain initials and constricted vowels. This may simply be a matter of phonemic interpretation, though it is also possible that the Jingpho dialects of Yunnan are somewhat different in this respect from Maran's dialect (Kachin State, Burma).

A stronghold of glottalized words is vocative kinship terms:

ʔmōi	'mother-in-law!' (voc. by wife to husband's mother); Dai 520: moi³³

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74. Similar inventories are to be found in modern Karen languages. For Bwe Karen, Henderson (1997) records glottalized stops /ʔb ʔd/, nasals /ʔm ʔn/, and resonants /ʔw ʔl ʔr ʔy/, all contrasting with the corresponding members of the plain voiced series.

75. This is to be found in the second of his "Four forays into Karen linguistic history", entitled "A note on the reconstruction of Karen preglottalized surd stops" (LTBA 5.1:8-12).

ʔwâ	'father!' (voc.); Dai 858: wa̱⁵¹
ʔwōi	'grandma!' (voc.); Dai 879: wo̱i³³
ʔɹát	'sister-in-law!; brother-in-law!' (voc. used by people of the same age; Dai 687: ʒa̱t⁵⁵
ʔnā	'older sister!' vs. nā 'ear'; Dai 543 na̱³³
ʔnām	'daughter-in-law!' (voc. by mother-in-law to daughter-in-law); Dai 548: na̱m³³ (vs. nam³³ 'enter menstrual period')
ʔnû	'mother!'; Dai 639 does not indicate constriction: nu⁵¹
ʔnīŋ	'maternal cross-cousin; form of address of girl to girls not of same clan'; Dai 595: ni̱ŋ⁵⁵)

Glottalization also occurs with a number of semantically miscellaneous noun and verb roots that have nothing to do with kinship:

ʔnî̱ŋ	'this way'; Dai 595 shows no constriction)
ʔmāŋ	'purple' vs. māŋ 'corpse' (māŋ ʔmāŋ ʔai 'the corpse is purple'); Dai 479: maŋ³³ 'corpse' / ma̱ŋ³³ 'purple'
ʔwàn	'fire' vs. wàn 'round'; Dai 868 does not indicate constriction in 'fire'
ʔyúp	'sleep' vs. yùp-māŋ 'dream'; Dai 901 does not indicate constriction in 'sleep')
ʔyép	'tobacco container'; Dai 892: je̱p⁵⁵ vs. yép-yép 'be intimately connected (as lovers)'
ʔyèn	'to peel (fruit)'; Dai 892 writes with constriction: je̱n³³ (vs. jen³³ 'pickle, preserve in salt' < Chinese)
məʔyēn	'saliva'; Dai 515: mă³¹je̱n³³ (vs. mă³¹jen³³ 'tin'); this word has been doubly prefixed: < *m-ʔ-yen
ʔlòiʔ-lòi	'a little, few'; Dai 431: lo̱i³¹ lo̱i³¹ (vs. lòi 'easy')
ʔlàŋ	'do once; classifier for times', ʔlàŋ-mòʔ 'a little'; Dai 410: la̱ŋ³¹)

(4)   Glottalization and nasalization

Glottality and nasality interact in a variety of ways in TB phonology and morphology. We have seen that at the PLB level the nasal and glottal prefixes are opposed paradigmatically in simplex (***nasal**-) vs. causative (***glottal**-) verb-pairs.[76] At a more remote time-depth, both the glottal and the nasal prefixes are characteristic of stative/intransitive (*i.e.* non-causative) verbs, as in Jingpho (ʔə- and mə-, often written "ă-"

and "mă-") and Written Tibetan, where these prefixes are written with the symbols "a-chung" (here transcribed ḥ-), and m-.

The phonetic nature of the consonant represented by the WT letter "a-chung" is highly controversial.[77] Some scholars have interpreted it as "smooth vocalic ingress" (contrasting with initial glottal stop before vowels). Others have claimed that it represented nasalization when it occurred before an initial consonant.[78] In fact, however, the phonetic features of glottality and nasality themselves are organically connected through the phenomenon I have called rhinoglottophilia (JAM 1975b), which frequently manifests itself as subphonemic vowel nasalization in syllables with laryngeal onsets (ḥ-, ʔ-, or Ø-initial). It is my view that a-chung represented a glottal onset that had engendered a rhinoglottophiliac feature of nasalization: *ʔə̃- (see §2 above).[79]

The use of *a-chung* before WT nouns (*e.g.* ḥbu 'insect', ḥbras 'rice', ḥdab-ma 'wing', ḥgul 'neck') often seems to parallel the bulk-providing function of reflexes of the ***glottal prefix** like WB ʔə- (§2 above). WT syllables beginning otherwise with a vowel are written with initial *a-chung*, which could well have represented glottal stop in that position, rather than being a mere "place-holder" for the vowel.[80]

In any case it must be acknowledged that WT ḥ- and m- form a kind of natural class distributionally, in that both of these prefixes only occur before voiced or aspirated initials, never before voiceless unaspirates.[81]

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76. The nasal ⋇ glottal interplay is also found in no fewer than fourteen stop-finalled PLB roots, not all of which can now be recognized as simplex/causative pairs (and a couple of which are not even verbs). See *TSR* pp. 48-52, #'s 98-110, 179.

77. For a good discussion, see Beyer 1992:43, 47.

78. In this environment the WT ḥ- prefix frequently turns up as a nasal in modern dialects. In Lhasa lexical compounds where the second syllable begins with orthographic ḥ-, the first syllable often gets pronounced with a nasal coda. There are examples of WT variation between the ḥ- and m- prefixes before the same verb-root (ḥthol-ba ~ mthol-ba 'confess'; ḥkhyud-pa ~ mkhyud-pa 'embrace'), but such examples also exist between ḥ- and b- (ḥgraŋ-ba ~ bgraŋ-ba 'count'; ḥdźo-ba ~ bźo-ba 'to milk'.

79. More precisely, I consider *a-chung* to have represented a syllabic pre-glottalized nasal onset, something like [ʔm̩]. This is exactly what one finds synchronically in Nung (=Anong), where there is a series of syllabic nasals that are "normally realized as having a preceding glottal stop", *i.e.* [ʔm̩ ʔn̩ ʔɲ̩ ʔn̩̪ ʔŋ̩]. (See *ZMYYC*:331-6, and Namkung, ed. 1996:306.) An interesting parallel is to be found in Indo-European, where PIE syllabic *m̩ is reflected in Greek and Sanskrit as a (*cf.* "a-chung"), *e.g.* *dekm̩ 'ten' > Gk. deka, Skt. daśa.

80. There is a good example of an etymon where WT has *a-chung* before a vowel, while WB has glottal stop, and Lahu has the high-rising tone which results from glottal dissimilation, implying glottal incidents at both ends of the syllable: 'below/underpart' WT ḥog, WB ʔauk, Lahu hɔ́.

81. Other restrictions on pre-consonantal *a-chung*: it does not occur before simple fricatives, but only before affricates; and it does not occur before nasal initials (see *STC*:notes 338, 339).

A particularly interesting demonstration of the close relationship between the prosodies of glottalization and nasalization is furnished by Mpi (S. Loloish). In this language there are no fewer than 9 examples of etyma with the PLB rhyme *-ak and **complex-nasal initials** (*i.e.* nasals preceded by the PLB *s- or *ʔ- prefixes). In all these cases a strange progressive assimilation has occurred, such that the original final *-k has been replaced by a vowel quality containing both a nasal and a laryngeal component—a kind of rightward displacement of the original initial consonant cluster:[82]

	PLB	*Mpi*	*Lahu*
'black'	*s-nak^H	naŋʔ³	nâʔ
'deep'	*ʔ-nak^L	naŋʔ¹	ná
'dream'	*s-mak^H	maŋʔ³	mâʔ
'open'	*ʔ-ŋak^L	ŋaŋʔ¹	ŋá

4.3   *Prefixal *m-, syllabic nasals, and prenasalized obstruents*

4.3.1   *Semantic functions of the various nasal prefixes*

Prefixal **m**- occurs before both noun and verb roots. While Wolfenden (1928, 1929:139) attempted to draw a sharp distinction between its nominal and verbal usages, Benedict (*STC*:118) feels that "a single element is involved".

Before verb roots, the nasal prefix generally signals *inner-directed states or actions*, including "middle voice" notions like stativity, intransitivity, durativity, reflexivity, as in WT verbs like **mgu-ba** 'rejoice', **mŋa-ba** 'be, exist', **mnal-ba** 'sleep', **mtśhi-ba** 'appear', **mnab-pa** 'dress oneself', and PTB etyma like *m-nwi(y) 'laugh', *m-tuːk 'spit', *m-sow 'awaken'. As we have seen, in this usage it is sometimes found in paradigmatic opposition to the *s- prefix, which marks *outer-directed action*, transitivity, causativity: *e.g.* WT **mnam-pa** 'smell, stink' (v.i.) vs. **snam-pa** 'sniff, take a smell of' (v.t.); Lahu **lɛ̀ʔ**, Akha **myə̂ʔ** 'lick' (< *m-lyak) vs. Lahu **lɛ́** 'cause to lick, feed an animal',[83] Garo **srak** (< *s-lyak).

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82. See JAM 1978b:22-24. These glottalized/nasalized syllables are written with the digraph -ŋʔ in Srinuan 1976.

83. We have seen (above 4.1.1) how the proto-opposition between PLB *prenasalized simplicia and *pre-glottalized (ultimately *pre-sibilantized) causatives is reflected indirectly by manner and tonal contrasts in Lolo-Burmese verb-pairs.

With noun roots, Benedict interprets ***m-** as "an old pronominal element" (*STC* p. 119), which sometimes shows up as a 3rd person possessive prefix (often with inalienably possessed items like kinship terms and bodyparts), as in Meithei **na-ton məkhul** 'nostril' ("nose its-hole"), **mə-yama** 'his older brother', **məmei** 'tail', **məko** 'head'. In a number of cases, bodyparts with this prefix seem to be derived possessively from underlying stative verbs, *e.g.* PTB ***m-kri-t** 'gall' (*STC* #412) ("its sourness"< ***kri** 'sour'; WT **mthe-bo** 'thumb' ("its largeness") < PTB ***tay** 'big' (*STC* #298); WT **mgal** 'jaw' < **ḥgal-ba** 'be in opposition'; Jg. **məpyen** 'wings' < **pyen** 'to fly' < PTB ***byam** (*STC* pp. 29, 51).

The "middle" and "inalienably possessive" notions can be related semantically through the idea of *inner-directedness*.

Since the nasal prefix occurs with so many bodypart roots, Shafer (1938) suggested that it derives from PTB ***mi(y)** 'person', but Benedict explicitly rejects this "despite the parallelism presented by prefixed ***s-** (< ***sya** 'flesh')".[84] On the other hand, *STC* (n. 301, p. 107) does recognize a "Bodo-Garo prefixed **mi-**" that occurs in animal names, and guesses that it might be related to that very PTB root, ***r-mi(y)** 'man (homo)'![85]

The complexity of the synchronic semantics of the nasal prefix is well exemplified in H. Hartmann's recent study (2001a) of prenasalization and preglottalization in Daai and other Chin languages. In Daai, prefixal **m-** is often inseparable from a following noun or verb, and thus contributes nothing to the meaning, *e.g. (with verbs)* **mbei** 'feed', **mhlä** 'like / love', **msi** 'spit'; *(with nouns)* **mhnüüp** 'day', **msi** 'salt', **mpai** 'grass', **mpui** 'elephant'. It does however, occur frequently with bodyparts (*e.g.* **mtan** 'calf', **mpyong** 'mouth', **mni** 'lip'), including several where it is also found in other TB subgroups: **mtin** 'nail', **mthin** 'liver', **mlei** 'tongue', **mjuung** 'finger', **mkha** 'chin'.[86]

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84. *STC* n. 329. See above 4.2.1.

85. It is not clear why this prefix is reconstructed with the vowel -i-, since the examples given have a wide range of vowels, indicating that the quality was not distinctive (*e.g.* Garo **matram**, Dimasa **matham** 'otter'; Garo **mattśa**, Dimasa **misi** 'tiger'; Garo **mattśok**, Dimasa **moso** 'deer'), causing Benedict to "note the vocalic harmony".

86. See *STC* #'s 74, 234, 355, 470.

With verb roots, the Daai nasal prefix sometimes has a causativizing or transitivizing function, which is paradoxically the opposite of its presumably original PTB role (see above):

do	'be good'	**mdo**	'make well / heal'
thu	'rot'	**mthu**	'cause to rot'
shot	'leave'	**mshot**	'drive out'
hlai	'change'	**mhlai**	'cause to change'

The stativizing function has been taken over by another Daai nasal prefix, **ng-**, which makes transitive verbs intransitive or reflexive/reciprocal:

yuk	'write'	**ng'yuk**	'be written'
mäh	'carry (a child)'	**ngmäh**	'be carried'
khü	'call'	**ngkhü**	'call each other'
hmuh	'see / meet'	**nghmuh**	'meet each other'
hlai	'change'	**nghlai**	'exchange'

4.3.2   Phonetic types of nasal onsets in TB languages

Although a given daughter language may well reflect the PTB ***nasal prefix** as a syllabic nasal unspecified for position of articulation (*i.e.* homorganic with the following root-initial), there is reason to set the prefix up specifically as a *labial* at the PTB level, ***m-** or ***mə-**. In Nungish and Kuki-Chin-Naga, the branches of TB where this prefix has reached its maximum development, it frequently appears as a labial stop instead of a nasal, *e.g.* Trung **pənam** 'smell' < *m-nam, Nung **phəsin** 'liver' < *m-sin, **phəlɛ** 'tongue' < *m-lay; Lakher **pəthi** 'liver', **pəhnei** 'laugh' < *m-nwi(y), **pətśi** 'spittle' < *m-ts(y)il.[87]

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87. Other KCN languages with similar reflexes of *m- include Zeme (Empeo) **bə-**, N. Khami **pə-** (but S. Khami **mə-**), Anal and Lamgang **bə-** ~ **pə-**. In Mikir this nasal prefix has been fully vocalized to **iŋ-**. *e.g.* **iŋthin** 'liver' < *m-sin, **iŋkoi** 'twenty' < *m-kul, **iŋnek** 'laugh' < *m-nwi(y), **iŋnim** 'smell' < *m-nam (see *STC*, p. 119). A similar Mikir prefix **aŋ-** apparently descends from a variant of the glottal prefix *ʔa-; see above 4.2.2(2).

In general there are six types of nasal syllable-onsets exemplified in TB languages, modern or reconstructed:

(a)	plain nasal root-initials with no prefix (*e.g.* **ma**)
(b)	preglottalized nasals (*e.g.* **ʔma**);[a] usually from earlier ***s-ma** or ***ʔəma**
(c)	voiceless nasals (*e.g.* **hma**, **m̥a**); from earlier ***s-ma**, ***r-ma**, *etc.*
(d)	anacrusic nasal prefix,[b] minor portion of a sesquisyllable (*e.g.* **mə-da**)
(e)	syllabic nasals (*e.g.* **n̥-da**)
(f)	prenasalized consonant series (*e.g.* **ᵐba**)[c]

a. No TB language would ever have a contrast between preglottalized and postglottalized nasals (or stops), if we take "postglottalized" to mean that the realization of the feature appears mostly on the vowel of the syllable. However, an opposition is certainly possible between *voiceless/aspirated nasals on the one hand and *preglottalized nasals on the other, as in PLB (above 3.4.1) and in Proto-Kam-Sui (Li Fang-Kuei 1965).

b. This prefix is usually vocalized with schwa, though some languages have other unstressed vowels, or a vowel harmonic with the vocalism of the fully syllabic portion of the word.

c. See above 3.4.1(2), 3.4.1(4).

While syllabic nasals may take a tone (as in Jingpho or Mpi), a prenasalized obstruent functions as a single consonantal segment, and cannot be a "tone-bearing unit". Both syllabic nasals (usually) and the onsets of prenasalized obstruents (always) assimilate in position of articulation: **m̥-b**, **n̥-d**, **ŋ̥-g**, *etc.*, and **mb-**, **nd-**, **ŋg-**, *etc.* From a diachronic point of view, a syllabic nasal may be a reduction from a **C¹V(C²)-** syllable in a compound, where either **C¹** or **C²** was a nasal.[88]

It is quite possible to maintain a voicing contrast in root initials after the nasal prefix, as *e.g.* in Loloish stopped syllables, where tonal evidence permits the reconstruction of two nasal manner series, *e.g.* Lahu **gàʔ** 'striped' < PLB ***m-gak^L** vs. **gâʔ** 'crawl / creep' < PLB ***m-kak^H** (*TSR* #'s 76, 81). Many modern languages have more than one manner series of prenasalized obstruents (see below).

Synchronically, some languages have nasal onsets of several types. We have seen that WT has both **m-** (probably phonetically **mə-**) and **ḥ-** (perhaps a preglottalized syllabic nasal). Jingpho also has both a semisyllabic **mə-** and a syllabic, tone-bearing nasal that assimilates to the following consonant:[89] Sometimes a given root may be preceded by

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88. See the discussion of the different diachronic layers of nasal prefixes in Mpi, below.

89. The closely related Anong language also has syllabic nasals, as well as a series of preglottalized sonorants. In the latter feature Anong again agrees with Jingpho; see above 4.2.2(3c).

either one, with no semantic differentiation (**məbūŋ** ~ **m̀-būŋ** 'wind', **mədžòʔ** ~ **ǹdžòʔ** 'topknot'), but in other cases there is a meaning change (**dùp** 'pound', **mədùp** 'sledge', **ǹ-dùp** 'blacksmith'; **bà** 'be big', **məbàʔ** 'chief, ruler', **m̀-bà** ~ **nìŋ-bà** 'big and ferocious'). As this last example shows, the Jingpho syllabic nasal sometimes alternates with a full prefixal "formative" syllable of the form **NVN**-, like **nìŋ**-, **nùm**-, or **nàm**-. It is unclear whether these (meaningless) full syllables are the ultimate source of some Jingpho syllabic nasals (*i.e.* whether the syllabic nasals are reductions of these formatives), or whether the formatives are later elaborations of more ancient unvocalized syllabic nasals.[90]

The most important Jingpho morpheme expressed by a syllabic nasal is **ń**- 'negative', an obvious reduction of the fully syllabic PTB negative ***ma**, *e.g.* **khá** 'bitter', **ń-khá** 'not bitter'; **lāi** 'change', **ń-lāi**. When the verb is under the low tone / ˋ /, the negative prefix causes it to assume the high-falling sandhi tone / ˆ /: **lù** 'have', **ń-lû** 'not have'. Other Jg. syllabic nasal morphemes include **n̄**- '2nd person possessive with nouns; 2p agreement marker with verbs' < **nāŋ** 'you'; and **ǹ**- 'suspensive clause-joiner' < **ǹ-ná** (Hanson 1906/54:483).[91]

Sometimes, however, the Jingpho syllabic nasal is convincingly to be ascribed to earlier PTB ***r**- (see below 4.4).

4.3.3   *Prenasalized obstruents and syllabic nasals*

Phonetically the main difference between syllabic nasals and prenasalized obstruents is the syllabicity of the nasal element: when the nasal does not constitute a syllable by itself[92] it may be regarded as a feature of the following consonant. From descriptions given in the sources on particular languages, it is often difficult to tell the two types of nasal onsets apart, especially since in both types the nasal element is normally homorganic to the following consonant.

Languages with one or more prenasalized series of consonants are widely distributed in TB:

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90. The expansion of single segments to fully syllabic formatives has been termed "dimidiation" by P. Boodberg (1937) in connection with Chinese. There is at least one clear case involving a different Jg. formative, **gùm**-, where this explanation is clearly to be preferred, *e.g.* Jg. **gùm-rà(ŋ)** 'horse' < PTB ***m-raŋ**.
91. It is interesting to note that Chokri Naga (Angamoid group) has a similar suspensive particle **no**, which is also frequently reduced to a syllabic nasal. Coincidentally, Japanese has a nominalizing particle **no** which is often similarly reduced: *ikanai no desu > ikanai n'desu* '(it is the case that he) does not go'.
92. In tone languages a convenient test of syllabicity is whether the nasal element can bear a tone separate from the following vowel.

Himalayish:

· Found in modern Tibetan dialects, including **Bla-brang** and **Zeku** of the Amdo group, and **Batang** and **Dege** (sDe-dGe) of the Khams group; also in **Baima**. Zeku has two series, voiced and aspirated; all the rest have a single prenasalized voiced series.

Loloish:

· **Mpi** (S. Loloish) has two prenasalized series, voiceless unaspirated and aspirated. All other Loloish languages so far described have only a single series, usually voiced (**Yi Dafang**, **Yi Xide**, **Noesu**, **Nosu**, **Naxi**). **Luquan** (Ma Xueliang 1949) has only an aspirated series, at 8 points of articulation:

| mp' | nt' | nts' | nʈ' | ntʂ' | ntš' | ŋk' | ŋkʷ' |

· **Nasu**, as described by Gao Huanian (=Kao Hua-nien 1958), has a series of voiced aspirates corresponding to the Luquan prenasalized aspirates; these are transcribed by Chen Kang (1986) as prenasalized voiced aspirates:

| mbʰ | ndʰ | ndzʰ | ndʰ | ndʐʰ | ndʑʰ | ŋgʰ |

· **Mo-ang** (Wu 1993) has both a prenasalized series of obstruents and a preglottalized series of sonorants. (See above, 3.4.1 n. 52.)

· **Jinuo** (Gai 1986): the Youle variety of Jinuo has both voiced and voiceless nasals, and both of these series may be syllabic, *i.e.*:

m-ba, hm̩-ba; n̩-da, hn̩-da

Qiangic:

Several Qiangic languages have three manners of prenasalized initials (plain, aspirated, and voiced, *e.g.* mp, mpʰ, mb), including **Ergong**, **Guiqiong**, and the lCog-rtse (Zhuokeji) dialect of **rGyalrong** (Nagano 1984).[93] **Namuyi**, **Muya**, and **Lüsu** have only the voiced and aspirated series (like Tibetan), while **Zhaba** (=Queyu) and **Shixing** have only a single, voiced series.

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93. Nagano 1984:16 (Namkung, ed., p.123): "...there is a prenasal phoneme to the stops and affricates, /N-/, which assimilates and is rather syllabic. In this sense, this phoneme is contrastive to /m-/ at the prefixing position which never assimilates." This is very similar to the two distinct Jingpho nasals, syllabic /N̩-/ (which assimilates) and vocalized prefixal /mə-/ which does not.

Of particular interest is the most anciently attested Qiangic language, **Xixia** (Tangut), where Nishida (1964/66, 1976) reconstructs a voiced prenasalized series. There are at least 5 striking etymologies (discussed in JAM 1978b:18) where there is independent Lolo-Burmese evidence for the nasal prefix which Nishida reconstructs:

'ruler, lord, emperor'
Xixia ***ndzɯ** (N. 1976:35)
PLB ***m-dzəw²** > Lahu *jɔ̂-mɔ̂*, Luquan **nts'y**, Nasu *dz'ɿ³³-mo³³*, WB **cûi** 'rule, govern'

'be settled; come to rest'
Xixia ***ndĭẽ** (N. 1966:354)
PLB ***m-diŋ¹** �done ***ʔ-diŋ¹** > Lahu **dɛ̀** 'come to rest' ⋈ **tɛ** 'put sthg down'. Cognate to OC ***d'ieng** / Mand. **dìng** 定 (*GSR* #833z). See below n. 7.5(6)

'drink'
Xixia ***ndefi** (N. 1966:415)
PLB ***m-daŋ¹** ⋈ ***m-doŋ¹** > Lahu **dɔ̀** 'drink' ⋈ **tɔ** (< ***ʔ-d-**) 'give to drink', Luquan **nt'ɐ¹¹**, Nasu **d'ɔ²¹³**, Yi Xide **ndo³³**, Yi Dafang **ndɔ²¹**, Mpi **toŋ⁵** ⋈ **tɑŋ⁵**. *Cf.* also WT **ḥthuŋ**. (See JAM 1988:720.)

'shine'
Xixia ***mbifi** (N. 1966:447) [a]
PLB ***m-ba³** > WB **pa'**, Lahu **ba**

a. The development of ***-a** > Xixia **-i** is quite regular, with many examples. See below 5.2.3.

'tail'
Xixia ***mbɪfi** (N. 1966:464)
PLB ***m-ba³** > Mpi **m²pɑ⁴**. [a]

a. This root has yet to be discovered elsewhere in Loloish.

As is only natural, however, there are a few counterexamples. There are cases where Nishida reconstructs a prenasalized initial that so far has no independent support, *e.g.* 'waist' Xixia ***ndžu** / PLB ***gyok** (*TSR* #6). Contrariwise, sometimes Xixia has non-prenasalized forms in etyma where there is other evidence of a nasal prefix: 'pillow'

PLB *m-kum[2], but Xixia *ɣõ (N. 1966:386); 'pus' PLB *m-blen[1], but Xixia *pʉ̈ (N. 1966:490); 'tears' PLB *m-brəy[1], Xixia *Bɫ (N. 1966:414), but Mpi m[4]pi[6].

Kamarupan:

Prenasalized initials seem to have developed more abundantly here than anywhere else in TB. In fact several Naga language names themselves have prenasalized initials (Ntenyi, Nruanghmei, Mzieme).

Some languages only have a single prenasalized series, as in the Mirish languages **Geman Deng** (only aspirated) and **Idu Luoba** (only voiced), or as in **Sema Naga** (only plain).[94]

Two prenasalized series are found in **Khoirao** and **Ntenyi** (plain and aspirated), and in **Mzieme**/**Zeme** (plain and voiced). Mzieme has two series of prenasalized obstruents, as well as prenasalized fricatives and nasals, with the nasal element in the latter evidently syllabic, since these sounds are sometimes transcribed (inconsistently in the data of Marrison 1967) with apostrophes:

mp	nt	nts	ŋk	
n'b	md		ŋg	
	nz			
mm	n'n	n'ny	n'ŋ	n'h

Even more complex systems are to be found in **Rongmei** (Nruanghmei) and **Rengma** (Tseminyu), which have three prenasalized series, *e.g.* / mp mph mb /, along with a series of syllabic nasals before sonorants / mm nn ññ ŋŋ nl nr / and (in Rengma) before fricatives / ns nsh /. Besides all this, **Liangmei** has what looks like voiceless nasal finals / -mh -nh -ngh /, though the "h" might rather represent breathy voice or glottal stop. Lotha has 3 series of prenasalized stops and affricates, *i.e.* / mp mph mb /; syllabic nasals before nasal, liquid, and spirantal initials / ns nz nl nn /; and (like Rengma) voiceless nasals / mh nh nyh ngh /. Lotha reflects PTB prefixal *m- with a syllabic nasal homorganic to the root-initial,[95] *e.g.* 'tongue' nli ~ nni (< *m-lay), 'liver' ntę (< *m-sin), 'spit' ñtśa (< *m-tsyil), 'knee' ŋkho (< *m-kuːk); but 'lick' myak (< *m-lyak).

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94. In addition to its plain prenasalized series / mp mt ml /, Sema also has a set of voiceless nasals: / hm hn hñ /.

95. This is phrased somewhat differently than in *STC*, n. 327, where it is said that "Lotha has **n**- for *m- before dentals, velars, and palatals excluding -y-". It seems clear that the nasal elements in "ntś-" and "nkh" are actually homorganic to the obtruents, and they are usually so transcribed in Marrison 1967.

4.3.4 Diachronic layers of nasal prefixes: Proto-Loloish and Mpi

At least one ***prenasalized series of obstruents** is easily set up for Proto-Loloish, since many Loloish languages have consistent manner-reflexes, *e.g.* the Lahu voiced series / **b d j g** /, the Luquan (Ma Xueliang 1949) prenasalized aspirates / **mp' nt'** *etc.* /, and the Nasu (Gao Huanian 1958) voiced aspirates / **b' d'** *etc.* /, as well as many dialects of Yi (above). In stopped syllables there is tonal evidence for two prenasalized series, ***voiced** and ***voiceless**, that led, *e.g.* to Lahu reflexes like **bàʔ** (< ***m-bak**) vs. **bâʔ** (< ***m-pak**).[96]

Of special diachronic interest are the two series of prenasalized initials in Mpi (S. Loloish), since it can be demonstrated that the words in which they occur belong to several different strata, ranging from the very ancient to the very recent:[97]

· (a) The oldest stratum contains those Mpi words which have extra-LB cognates which unambiguously point to PTB ***m-**:

	Mpi	*PTB*	*Other*
'door'	ŋ⁴ko⁴	*m-ka	S. Khami əmkha, Jingpho məkha 'be open, as a door'
'dove'	ŋ²khi²	*m-krəw	Khami məkhru, Angami mekru, Lahu gû
'kidney'	ŋ⁴kjo⁵	*m-glun	Jingpho ǹ-khyūn
'pillow'	ŋ²kwiŋ²	*m-kum	Nung məkhim, Luquan ŋk'ɣ, Lahu ú-*gɛ̂*

· (b) Of more recent origin are "prefixized" words which were originally dissyllabic compounds where the first constituent began with a nasal:

	Mpi	
'ear'	m²pha²	*cf.* Lahu **nā-pɔ** 'ear', **á-phàʔ** 'leaf'; Mpi 1ˢᵗ syll. is 'ear' < PTB ***r-na**, 2ⁿᵈ Mpi syll. < ***pak** 'leaf; flat object'
'face'	m⁴phjoŋ²	*cf.* Lahu **mɛ̂ʔ-phû**; 1ˢᵗ syll. < ***s-myak** 'eye'
'hair (head)'	ŋ⁴khɯ⁶	*cf.* Lahu **ú-khɛ-mu**, with order of syllables reversed: **ú-** 'head', **khɛ** 'thread', **mu** 'hair' < PTB ***s-mul**
'nose'	ŋ⁴khoŋ⁶	*cf.* Lahu **nā-qhɔ̂** < PTB ***s-na** 'nose' and ***koŋ** 'hole, hollow passage'

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96. See JAM 1972a (*TSR*), pp. 15-16, 43-53.
97. See below 4.5.2 "Diachronic layers of prefixes", and the discussion in JAM 1978b:13-17.

		Mpi	
'smoke'	mi²-khwi² ~ ŋ²khwi²	note the unprefixized doublet; *cf.* Lahu mû-qhɔ̂ '*id.*'; 1ˢᵗ syll. < PTB **məw** 'sky'
'sunlight'	ŋ⁴tɕho⁶	*cf.* Lahu mû-cha '*id.*'; same 1ˢᵗ syll.

· (c) Finally, and most numerous, are recent nasal-initial loanwords from Tai:

	Mpi	
'clock'	ŋ²kɑ⁴	*cf.* Thai **naalikaa**; here the first two syllables of the Tai form both undergo procrustean reduction to an Mpi prefix
'eggplant'	mɑ²khɤ⁶ ~ ŋ²khɤ⁶	*cf.* Thai **məkhy̌a**; note the unprefixized doublet
'lime'	n⁴nɑ⁵	*cf.* Thai **mənaaw**
'percussion cap (of rifle)'	n⁴teʔ⁶	*cf.* Lahu **màʔ-tê̂ʔ** '*id.*' < Shan
'scorpion'	m²puŋʔ⁶	*cf.* Thai **məlɛɛŋpɔ̀ɔŋ ~ mɛɛŋpɔ̀ɔŋ**
'teak'	n⁴sa⁶	*cf.* Thai **májsàk**
'well'	m⁴po⁵	*cf.* Thai **náambɔ̀ɔ**; here it is hard to say whether it is the initial **n-** or the final **-m** of **náam-** which survives as the Mpi prefix

In 10,000 years these layers will undoubtedly be indistinguishable from each other.

4.4 The voiced stop and liquid prefixes */ r- l- b- d- g- /

These prefixes are of relatively minor importance, and are mostly of uncertain semantic function. They are attested directly in certain branches of TB, indirectly or not at all (as far as can be determined) in others. While some roots can be reconstructed with these prefixes as far back as PTB, in many cases prefixes of this shape can be shown to be secondary developments within a given subgroup of TB, or even in an individual language.[98]

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98. These prefixes are briefly discussed in *STC*: *r- (pp. 109-10), *b- (pp. 110-12), *g- (pp. 112-14), *d- (pp. 114-17).

4.4.1 *r-

This prefix has been reconstructed at the PTB level for a thoroughly miscellaneous set of roots, mostly nouns but also a few verbs:

(1) *With nouns*

NATURAL OBJECTS	*r-ka 'earth', *r-muːk 'fog', *r-wa ≍ *g-wa 'rain', *r-luŋ 'stone'
ANIMALS	*r-saŋ 'lizard', *r-may 'tail'
BODY-PARTS	*r-kaːm 'edge/lips', *r-guːŋ 'edge/shin',[a] *r-miŋ'name',[b] *r-sa 'vein/sinew', (n.) *r-ma-t 'wound'
ARTIFACTS and HABITATIONS	*r-pʷa 'axe', *r-wa ≍ *g-wa 'village'

a. The two words for 'edge' also have non-bodypart meanings.

b. 'Name' is not exactly a body-part, though it may be similarly viewed as inalienably possessed.

(2) *With verbs*

Wolfenden (1929) characterized this prefix as *directive* (*i.e.* transitive?) with verb roots, but treated it as an infix (pp. 43-44).[99] It is reconstructed at the PTB level with a few transitive verbs, *e.g.* 'roast / fry' *r-ŋaw [*STC* #270]; 'roll up / wrap' *r-tul [*STC* pp. 110, 147]; 'steal' *r-kəw [*STC* #33]; 'scoop' *r-ko-t [*STC* #420]. On the other hand it is also set up for several adjectival / stative verbs, *e.g.* 'coarse / thick' *r-tas [*STC* 426]; 'lightweight' *r-yaːŋ [*STC* #328]; 'old' *r-ga [*STC* #445].

(3) *Attestation and reflexes in particular TB languages:*

In WT, prefixal r- occurs directly before the root-initial, with no orthographic vowel intervening: *e.g.* rtsaŋs-pa 'lizard', rtsa-ba 'vein; root', rtul-ba 'blunt, dull', rnil 'gums', rku 'steal', rga-ba 'old'.[100] It appears with both transitive and intransitive verbs,

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99. Wolfenden went rather overboard in postulating infixes for TB. Besides his -r-, he postulated an -l- infix (pp. 44-6), as well as an *-s- infix (pp. 46-9), and with less confidence, also -d- and -g- infixes (pp. 40-43). For some thoughts about infixes vs. layers of prefixes, see below 4.5.2.

100. As Gong Hwang-cherng observes (2000:47), medial -r- does not occur after the WT dentals / t th d ts tsh dz /, though WT prefixal r- is common *before* these initials. He adduces many comparisons between etyma with this WT prefix and OC forms where medial -r- is reconstructed (especially those included in Division II in the MC rhyme-books).

occasionally alternating with s-, *e.g.*: **rtab-pa ~ stab-pa** (v.i.) 'be in a hurry, confused, frightened'; **thuŋ-ba** 'be short', **rtuŋ-ba ~ stuŋ-ba** (v.t.) 'shrink, shorten'.

The ***r-** prefix is usually vocalized into a minor syllable. In some languages the vocalic peak of sonority precedes the /r-/; in others it follows. Liquids, being highly vocalic segments, are in any case notorious for metathesizing with neighboring vowels. Languages where the rhotic segment is pronounced after an unstressed vowel include the Himalayish languages (C. Nepal) Magar (**ar-**) and Kham (**or-**), and the Kamarupan language Mikir (**ar-**):

· *Magar* **ar-**:

> **ar-ghan** 'wasp', **ar-kin** 'fingernail', **ar-min** 'name'

· *Kham* **or-**:

> **or-jəm** "cock's comb", **or-na** 'ear', **or-ta** 'intestines', **or-ja** 'lower back', **or-kal** 'penis', **or-la** 'side', **or-mẽ:h** 'tail'

· *Mikir:* The **ar-** prefix occurs with dozens of noun and verb roots (forms spelled as in the individual sources):

> NOUNS: **ar-phek** 'broom' < ***pyak** [*STC* #174]; **ar-klèng** 'marrow' < ***r-kliŋ** [*STC* #126]; **ar-vè** 'rain' < ***r-wa** [*STC* #443]; **ar-tho** 'sinew / vein' < ***r-sa** [*STC* #442]; **ar-lōng** 'stone' < ***r-luŋ** [*STC* #88]
>
> VERBS: **ar-klok** 'boil' < ***klak** �italic ***glak** [*STC* #124]; **ar-that** 'thick' < ***r-tas** [*STC* #426]; **ar-dźaŋ** 'light (weight)' < ***r-ya:ŋ** [*STC* #328]; **ar-nuk** 'deep' (*cf.* PLB ***ʔ-nak** [*TSR* #157]; **ar-nu** 'roast/fry' < ***r-ŋaw** [*STC* #270]

When the rhotic element precedes the unstressed vowel (as usually in, *e.g.* Naga and Bodo-Garo languages), the vowel may assume a number of lax, centralized qualities (*e.g.* [ə] [ɛ] [ɪ] [ɔ] [ɐ]), transcribed in a variety of ways (often with the umlauted symbol "ü̃") in the earlier sources.[101] This is clear in a language like Angami Naga, where the r-prefix is of high frequency with both nominal and verbal roots (forms spelled as in the individual sources):

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101. Further complicating the phonetics is the tendency of Naga and Bodo-Garo languages to harmonize the unstressed vowel with the full vowel of the sesquisyllable, in ways that remain to be investigated in detail. The same indeterminacy of the prefixal vowel obtains in these languages after the other prefixes as well.

· *Angami:*

> NOUNS **reva** 'leech' (< *r-pʷat [*STC* #45]); **rosi** 'fruit' (< *sey [*STC* #57); **radi** 'peacock' (< *m-doŋ [*STC* #341]); **rükhru** 'sweat' (< *krul [*cf. STC* p. 90][102]
>
> VERBS **regu, rügu** 'steal' (< *r-kəw); **retuu** 'roll up' (< *r-tul [*STC* pp. 110, 147]; **ranie, rünyü, rəń˙** 'hear' (< *r-na [*STC* #453]); **rüna** 'early' (< *nap ✕ *nak; *cf. TSR* #131)

Since Jingpho lacks an /r-/ phoneme in any position, it generally reflects PTB *r- as syllabic ṇ- with noun-roots,[103] and lə- with verb-roots (next section).

4.4.2 "Prefixal 1-"

*l- is not formally set up for PTB in *STC*, though it is "surreptitiously" introduced with the numeral 'five', which is set up at the PTB level with two allofams, *l-ŋa ✕ *b-ŋa [*STC* #78], on the strength of the WT reflex **lŋa**.[104] It is also hesitantly reconstructed at the PTB level for the root *l-tak 'ascend; place above' because of the agreement ("perhaps through coincidence": *STC* n.308) between WT **ltag-ma** 'upper part' and Jg. **ləthàʔ** 'upper, above'.

With a number of Jingpho words (especially verbs), prefixal lə- may be traced back to PTB *r- (**ləgú** 'steal' (< *r-kəw), **ləkhót** 'scoop' (< *r-ko-t), **ləthàt** 'coarse' (< *r-tas), **ləgá** 'old' (< *r-ga). With a few verbs, Jg. lə- can be shown to have nominalizing function: **bù** 'wear' > **ləbù** 'lower garment'; **tšēn** 'do' (Hanson:83 "an obsolete root" [not in Dai *et al.*]) > **lətšēn** 'work' (there is also a causative form **šətšēn** 'set, as a trap' (Hanson:634); **šòt** 'scrape' > **ləšót** 'chisel / gouge'.

With nouns, as noted above, *r- usually becomes a Jingpho syllabic nasal, but there are also a few prenominal examples of Jg. lə- < PTB *r- (**ləmù** 'sky' (< *r-məw), **ləsá** 'sinew / vein' < *r-sa), as well as in several numerals: **ləŋâi** 'one', **ləkhôŋ** 'two' (both isolated in TB),[105] and **lətsa** 'hundred' (< *r-gya).

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102. Contra *STC*:220, this root is not confined to Lolo-Burmese. The PLB reconstruction is *ʔ-grwəy² < PTB *s-krul ✕ *s-ŋrul. See above 3.6.5(1).

103. Sometimes dimidiated to a full syllable, **niŋ-** or **num-**. Jingpho reflexes of the PTB roots cited above include: **n̄-sāŋ-sòn** 'lizard', **ǹ-gàm** ✕ **nìŋ-gàm** 'edge', **ǹ-gùŋ** 'back edge (of a blade)', **ǹ-lùŋ** 'stone', **ǹ-mài** 'tail', **ǹ-wā** ✕ **nìŋ-wā** 'axe', **ǹ-mà** ✕ **nùm-mà** 'wound; scar'. The Jg. form for 'earth' "**n-ga**" cited in *STC* (p. 109, line 7) appears to be spurious, though the simplex **gá** certainly exists, along with the prefixed form **ʔəgá**.

104. It is possible that the WT lateral prefix with this root is a reduction of PTB *lak 'hand' (*cf. STC* #86). A similar association between 'hand' and 'five' is found in Austronesian (*e.g.* Indonesian **lima** 'hand; five'). As we shall see, Jingpho prefixal lə- frequently occurs in words referring to the limbs.

Distinct from all the above are a number of Jingpho nouns and verbs relating to the arms or legs, where the prefixal lə- is certainly a reduction of PTB *lak 'hand / arm': ləbòp 'calf of leg', ləcòk 'pinch', ləgài 'limp', ləgō 'foot / leg', ləgràʔ 'handful', ləkùng 'limb / branch', ləkùŋ 'dexterity', ləkhā 'wind between thumb and forefinger', ləkhám 'to step', ləkhàp 'hamstring', ləkhàt 'kick', ləkhùt 'paw (as a horse); scrape with the front foot', ləkhôn 'bracelet', ləkhrá 'righthand', ləkhrè 'back of the ankle', ləkhrīŋ 'feel a cramp in the leg', ləkhrùʔ 'hoof', lakhyèŋ 'walk splayfooted', ləmòʔ 'short-legged', ləmòm "grope one's way", ləʔmyá 'toddle', ləmyīn 'nail, talon', lənū 'thumb, big toe', ləpāi 'lefthand', ləpòʔ 'blister', ləphàʔ 'shoulder', ləphàn 'palm, sole', ləphùm 'forearm', ləpùt 'knee', ləphō 'upper arm', ləsēŋ 'carpus and metacarpus', ləsīŋ 'wrist', ləšīn 'wash the hands', ləšūm 'a hold, a grip', lətáʔ 'hand', lətùm 'be amputated, as a limb', lətúp ~ lətsúp 'close the fist', lətón 'stretch out the arm', lətsā 'fingers and toes', lətsī 'be footsore', lətsòn 'keep the legs straight', ləthīn 'heel', ləthō 'leg just above the ankle', ləthóp 'have a white band around the leg (as an animal)', ləyūŋ 'digit', ləʔyót 'limp'.

Similarly, in Phunoi (S. Loloish) there are many examples of secondary lə- < *lak 'hand / arm' (the prefixal syllable lacks a distinctive tone): ləpu¹¹ 'arm', ləʔum³¹ 'biceps', ləshi³³ton³³ 'elbow', ləhjã⁵⁵ 'finger', ləsʰiɲ¹¹ 'fingernail', ləsup¹¹ 'fist', ləkhə¹¹ 'foot', ləkho³³ 'forearm', ləwoa³³ 'palm', ləbɑ³³ 'thumb', ləko³³ 'wrist'. In Phunoi this prefix has evidently been generalized to several other bodyparts than the limbs: ləpã¹¹ 'deaf' (*cf.* the prefixless WB pâŋ, Lahu pɔ̂)[106], ləbɑ³³si¹¹ 'heart', ləkã⁵⁵ 'nose'[107], ləkuɑ³³ 'tendon', ləkho³³ 'upper back'.

4.4.3   ***b-***

(1)   With nouns

A handful of nouns are reconstructed with this prefix at the PTB level (*STC* pp. 111-2), including: 'cotton' *b-la,[108] 'forest' *b-liŋ, and 'rat' *b-yəw.[109] In addition, the prefix occurs with two consecutive numerals: 'four' *b-ləy[110] and 'five' *b-ŋa.[111]

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105. For a discussion of the possible etymologies of these unique numerals, see JAM 1994e. Here too the practice of counting on the fingers makes it possible that the lateral prefix is a reduction of the morpheme for 'hand'.

106. This is an interesting case where Jingpho agrees with Phunoi in having a lateral prefix (Jg. ləpháŋ 'deaf'), so that one allofam of this root should probably be set up as PTB *l-paŋ or *l-baŋ. See below 7.1(3).

107. Again Jingpho has a word for 'nose' with the same prefix (lədî), but attached to a totally different root.

108. This root is declared to be confined to Kuki-Naga in *STC* (pp. 111, 202, 212), though it seems to occur in many Loloish languages (*e.g.* Lahu šá-*lâ*, Yi Xide sa⁴⁴*lɯ³³*, Hani sa³¹*la³¹*), as well as in Dulong (sɑ⁵⁵*la⁵³*). See *ZMYYC* #199. The morphemic identity of the first syllable in these words is still obscure, and perhaps we are dealing with an ancient loanword into TB.

109. It is possible that the b- in this root (as well as in 'snake', below) is a reduction of PTB *bəw (*STC* #27) 'insect / vermin / bug / snake'.

In many Bodo-Garo and Naga languages there is a 3rd person pronoun with labial initial, *e.g.* Bodo **bi**, Dimasa **bo**; Angami (Khonoma) **po**, (Kohima) **puo**; Chokri **pu**, Kezhama **pu**, Mao **pfo**, Phom *bü*-pa.[112] This seems to have become generalized into a noun-prefix in some languages: *e.g.* Dimasa **bu-gur** 'skin' (general term), vs. specified compounds like **sao-gur** 'human skin', **mi-gur** 'animal skin, hide', *etc.*

(2)   With verbs

Like **g**- (below 4.4.4.), **b**- is an important prefix in the transitive paradigm of WT verbs.[113] Intransitive WT verbs only have two forms, Present and Past, typically marked by the *a-chung* prefix **ḥ**- and the -**s** suffix, respectively:

PRESENT	PAST
ḥ———	———s

e.g., **ḥthig-pa** 'drop, fall in drops' *(present)* / **ḥthigs** *(perfect)*.

Transitive verbs have a maximum of four distinct forms, Present, Past, Future, and Imperative (called respectively **de-lta**, **ḥdas-pa**, **ma-oŋs-pa**, and **skul-tshig** by Tibetan grammarians). These "principal parts" are marked by means of various combinations of four affixes, the prefixes **ḥ**-, **g**- and **b**- and the suffix -**s**. Although there are many exceptions and special morphophonemic adjustments which must be made to the underlying forms, Beyer (1992:164) has succeeded in reducing the underlying inflectional classes of WT verbs to four:[114]

CLASS		PRESENT	PAST	FUTURE	IMPERATIVE
I		ḥ———	b———s	b———	———s
II		ḥ———	b———s	g———	———s
III		g———	b———s	b———	———s
IV		g———	b———s	g———	———s
EXAMPLES					
I	'gather'	ḥthu	btus	btu	thus
II	'lift up'	ḥdegs	bteg(s)	gdeg	theg

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110. See §3 below for the atypical WB reflex of this etymon.

111. As we have seen (above 4.4.2), WT **lŋa** has a lateral prefix with this numeral instead of a labial one.

112. See Marrison 1967, Appendix I, p. 118.

113. For an excellent discussion of WT verbal morphology, see Beyer 1992:161-85.

CLASS		PRESENT	PAST	FUTURE	IMPERATIVE
III	'kill'	gsod	bsad	bsad	sod
IV	'cut'	gtśod	btśad	gtśad	tśhod

As the chart indicates, prefixal **b-** is characteristic of both the Past and Future forms in the transitive paradigm, though intransitive verbs never take **b-** as the perfective prefix.[115]

Only a handful of verb-roots are set up with the ***b-** prefix at the PTB level, including: ***b-rey** 'buy' (*STC*:112); ***b-laːp** 'forget' (*ibid.*); ***b-ray** 'fear' (*STC* #450); and ***b-riŋ** 'bark (of dog)' (*STC*:n. 245). Also probably to be reconstructed this way is ***b-rəy** 'draw / write' (*STC* #429), on the basis of Tibetan allofams like ḥbri-ba 'draw, write', **bris** 'a picture' on the one hand, and **ris** 'figure, form, design' and **ri-mo** '*id.*' on the other, as well as Jg. **mərì** 'to mark, line, rule'.[116]

In many Kamarupan languages, a labial causative prefix has arisen secondarily through reduction of an auxiliary verb meaning 'give' < PTB ***bəy** (*STC* #427),[117] *e.g.* Dimasa (Bodo-Garo) **nu** 'see', **phu∘nu** 'show, point out'; Mikir **me** 'good / well', **pe∘me** 'heal/make better' (Mk. **pi** 'give')[118] < ***maːy** 'good' (*STC* #300). In Angami Naga, a causative prefix **pə-** has become extremely productive, occurring with scores of verbs, both action verbs and adjectives[119]:

	SIMPLEX		CAUSATIVE
tū	'be burning'	pətū	'set on fire'
bá	'sit'	pəbá	'seat smn'
kra̱	'weep'	pəkra̱	'make smn weep'
ŋū	'see'	pəŋū	'show'
ze̱	'sleep'	pəzē	'put to sleep'
nə̀	'laugh'	pənə̌	'make smn laugh'

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114. Among these adjustment rules is the deletion of the -s suffix of the Past and Imperative after dental finals, as well as certain ablaut changes in the vowel of the root ('kill' and 'cut' exemplify both of these phenomena). Such complications are only to be expected in inflectional paradigms, as *e.g.* in the many subclasses of Germanic strong verbs.

115. This is in line with Wolfenden's suggestion (1929:33ff) that the WT **b-** prefix with verbs represents an "acting subject".

116. This Jg. form is mis-cited as **məriʔ** in *STC* #429.

117. This suggestion goes back as far as Wolfenden (1929:166).

118. Contrast the cognate forms in Jingpho: **māi** 'good', **šəmái** 'heal' (note tone-change), with the more ancient ***s-** causative prefix (above 4.2.1).

	SIMPLEX			CAUSATIVE	
lɛ̀	'warm'		pəlɛ̌	'warm sthg up'	
vī	'good'		pəvī	'make good'	
ljò	'fat'		pəljǒ	'fatten'	
mè	'ripe'		pəmɛ̌	'ripen'	
ti̱	'black'		pəti̱	'blacken'	
mū	'sweet'		pəmū	'sweeten'	

*(3)   Relationship between *b- and *m-*

There has been considerable confusion between the labial stop and labial nasal prefixes in several branches of TB, with Kachin-Nung and many Kamarupan languages showing mergers of the two, either in favor of the stop or the nasal:

	*b-	*m-
JINGPHO	mə-	mə-
NUNG	phə-	phə-
MEITHEI	mə-	mə-
RANGKHOL	mə-	mə-
S. KHAMI	mə-	mə-
LAKHER	pə-	pə-
N. KHAMI	phə-	phə-

In several roots, WB has shifted an original *b- to **m**- before liquids:[120]

	PTB	*STC#*	*WB*	*Insc. Bs.*	*Other*
'arrow'	*b-la	449	hmrâ	mlā	Bahing **bla**, Newari **bala**, Garo **bra**
'grandchild'	*b-ləy	448	mrê	mliy	Mikir **phili-po** 'nephew'

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119. The independent Angami verb 'give' is **bi**. A **p**- causative prefix is also found in Khumi (S. Chin) [p.c. David Peterson 2001]. Hartmann (2001a) cites a similar prefix in Maraa (Lakher): **ahrei** 'lives', **apahrei** 'causes to live'; **athi** 'dies', **apathi** 'causes to die'; **achi** 'is bad', **apachi** 'makes bad'.

	PTB	*STC#*	*WB*	*Insc. Bs.*	*Other*
'snake'	*s-b-ruːl	447	mrwe	---	WT sbrul, Magar bul, Mikir phurul
'submerged / overflow'	*brup	151	mrup	---	WT ḥbrub-pa, Garo brip

However, a number of languages do keep the two labial prefixes quite distinct, *e.g.*:

	*b-	*m-
WT	b-	m-
Mikir	phi-, phe-, phu-	iŋ- [a]
Ao Naga	pe-	me-
Sema Naga	pe-, po-	me-

    a. See above 4.2.2(2), and 4.3.2.

	*b-	*m-	*m-	*m-
	*s-b-ruːl 'snake'	*m-liːt 'leech'	*m-krəw 'dove'	*m-sin 'liver'
WT	sbrul			mtśhin
Mikir	phurul	iŋlit		iŋthin
Ao Naga	əpəyü	melet	ki-metsü	temesen
Sema Naga	apeɣü		mekedu	

4.4.4   *g- vs. the Lolo-Burmese animal prefix *k-

(1)   With nouns

A number of semantically disparate nouns are reconstructed with a velar prefix at the PTB level in *STC*, including: ***g-pa** 'bamboo' (#44), ***g-na ⪥ *r-na** 'ear' (#453), ***g-la** 'moon' (#144), ***g-məw** 'mushroom' (#455), ***g-ryum** 'salt' (#245), ***g-wa** 'village' (#444), ***g-ləy** 'wind' (#454).

The word for 'righthand' (***g-ya ⪥ *g-ra** #98) is also reconstructed with this prefix, but in this case the velar element is undoubtedly fusional, a reduction of the morpheme ***lak**

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120. An exception to this tendency is WB lê 'four' (< PTB ***b-ləy**), where WB has simply dropped the prefix altogether.

'hand' in compounds like ***lak-ya** or ***lak-ra**. Note that ***lak** shows "reduction on the right" (> **-k**) in this formation, whereas the same morpheme displays "reduction on the left" in those cases where it has been reduced to prefixal **lə-**, as in Jingpho verbs referring to action with the limbs (above 4.4.2).

Wolfenden (1929:73) recognized a *3rd person pronominal function* of the velar prefix before nouns, as exhibited, *e.g.* with Jingpho kinship terms: **šī àʔ kəwà** 'his father', **náʔ ǹ-wà** 'your father'.

It is this pronominal function which *STC* (p. 113) posits as the source of the use of the velar prefix with *bodypart* words in many Kuki-Chin-Naga languages, though only one form is cited: Tangsa (Moshang) **kəmul** 'body hair'. To these we may add: Wancho (Northern Naga) **kereŋ** 'bone', **kao** 'hair of head', **kara** 'chin', **koroŋ** 'horn, antlers' (note the tendency toward harmony of the prefixal vowel with that of the root); Kom Rem (Kukish): **kəču** 'armpit', **kəbiŋ** 'cheek', **kədəŋ** 'palate', **kəphər** 'scab', **kor kətaŋ** 'temple'; Sulong (an aberrant language of Arunachal Pradesh): **kə³³maŋ³³** 'face', **kə³³kiɛ³³** 'lip', **kə³³tuaŋ³³** 'tooth', **kə³³tse⁵³** 'waist'; Mikir (close to the KCN nucleus) **keho** 'bile', **ketèng** 'fist', **kehot** 'glans penis', **kechèng** 'jaw', **ketwàr** 'shoulder blade'.

Perhaps to be related to this usage with bodyparts is the appearance of the velar prefix with *animal* names in a few languages: Sulong **kə³³vit³³** 'flea', **kə³³mot³³** 'honeybee', **kə³³vat⁵³** 'leech'; rGyalrong (Qiangic) **kəbyam** 'bird', **kəwɐs** 'fly', **kəthui** 'fox', **kətsu** 'monkey', **kəʃtʃək** 'leopard'.[121/122]

Two numerals are set up with the velar prefix at the PTB level: 'two' ***g-nis** and 'three' ***g-sum**. Since extreme variability in numeral prefixes is the norm in TB,[123] it is not surprising that certain languages have generalized this prefix to other numerals, *e.g.* rGyalrong, where all the numerals from 1 to 9 have the velar prefix (except for **wərjat** 'eight'): **kətɛk** 'one', **kənɛs** 'two', **kəsam** 'three', **kəwdi** 'four', **kəmŋo** 'five', **kətşok** 'six', **kəʃnəs** 'seven', **kəngu** 'nine'.

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121. As we shall see, this is a favorite rGyalrong prefix, massively used with numerals and verbs as well as common nouns. *Cf.* the numerous examples in the Caodeng and Benzhen dialects, studied by Jackson Tianshin Sun (1994).

122. I believe the famous "velar animal prefix" of Lolo-Burmese to have a quite different origin. See §3 below.

123. See JAM 1995b.

(2)   With verbs

Several verbs (both transitive and intransitive) are reconstructed with PTB prefixal ***g-**, including: ***g-yak** 'ashamed' (*STC* #452), ***g-lwat** 'free / release' (#209), ***g-ya** 'itch' (#451), ***g-sat**'kill', ***g-ryap** 'stand'.[124]

As we have seen (4.4.3), the **g-** prefix plays an important role in WT verbal morphology, occurring in the Present of Classes III and IV, and in the Future of Classes II and IV. On rather slim evidence, **g-** with the present form is interpreted by Wolfenden (1929:40-3) as "directive" (presumably conveying the meaning "highly transitive") in verbs like **gtug-pa** 'reach', **gtum-pa** 'wrap up', **gśo-ba** 'pour out'.[125]

Wolfenden in fact recognized another preverbal use of the velar prefix (contradictory to the "directive" one) with *stative verbs or adjectives*,[126] and it turns out that this is much more widespread in TB, occurring in West Himalayish (*e.g.* Pattani), Jingpho, Qiangic (*e.g.* rGyalrong, Queyu), Bodo-Garo (Kokborok), and Kuki-Chin-Naga (*e.g.* Kom Rem, Mikir, Tangsa, Tangkhul, Daai Chin):

·   Pattani (West Himalayish): **kəʈeg** 'bitter', **kəca** 'raw';

·   Jingpho[127] has **gə-** / **kə-** /**khə-** with many verb roots. While a few of these are transitive (**kəkāŋ** 'roast, toast'; **kəpà** 'mend, patch'), most are stative or otherwise intransitive: **kəgàt** 'run, flee',[128] **khərà** 'be indifferent', **kəjì** 'be small', **kəjòŋ** 'be startled', **kəkōm** 'itch', **kəkhàm** 'yawn', **kəlèŋ** 'lie down', **kəmùn** 'suffer (as from stomach-ache)', **kənūŋ** 'to delay', **kəpòŋ** 'be full of holes', and many others;

·   rGyalrong: **kəmbrɐt** 'break (as a rope; v.i.)', **kəmtʃɐt** 'collapse', **kərnak** 'deep', **kəli** 'heavy', **kəndzi̯** 'melt', **kətʃər** 'narrow', **kəmbəm** 'overflow', **kəʒglɐt** 'set (of the sun)', **kəlɐt** 'rain', **kəjak** 'thick', **kəmba** 'thin';

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124. Here, as elsewhere, Benedict's reconstructive method (not always followed rigorously) was to reconstruct a given root with a prefix at the PTB level if it so appears in at least two separate branches of TB. By this reasoning, the root 'long' (*STC* #279) would be an excellent candidate, since the velar prefix occurs in both Kachinic and Bodo-Garo (Jg. **gəlù**, Dimasa **galau**), yet it is reconstructed simply as ***low**, not ***g-low**, perhaps because Benedict regarded the prefix as morphological in this root.

125. Hartmann (2001a) points out a similar 'intensive, causative, directive' function of the **k-** prefix in Daai Chin (**bäü** 'be/do wrong', **kbäü** 'blame'; **pou** 'appear', **kpou** 'bring out').

126. Apparently he regarded this stativizing function of the prefix as related to the pre-nominal 3rd person pronominal usage, though this is far from obvious.

127. The velar prefix, freely varying between **gə-** and **kə-** (and rarely) **khə-**, is one of the commonest in Jingpho, occurring with roots that occupy about 46 pages of Hanson 1906/1954 (pp. 178-88, 243-78). See above 4.1.3.

128. Dai *et al*. 1983 have **gəgàt**.

- Queyu: kə³³dʐa⁵⁵ 'crawl', kəthũ⁵⁵ 'drink', kətɐ⁵³ 'eat', kəɳ̩u⁵³ 'listen', kəɕe⁵⁵ 'look', kəʐe⁵⁵ 'sleep';

- Kokborok: **kətor** 'big', **kəkha** 'bitter', **kəšəŋ** 'black', **kəbəŋ** 'be blown away', **kəcaŋ** 'cold', **kəbər** 'crazy', **kələʔ** 'drown', **kəcal** 'far', **kəta** 'new', **kəba** 'vomit', **kəphu** 'white', **kərmu** 'yellow';

- Kom Rem (Kuki): **əbo kəsuk** 'ejaculate',[129] **kəsip** 'full', **kəkhop** 'satiated', **kənə** 'be sick', **kəčəp** 'weep', **kəkhui** 'wrinkled';

- Mikir: **kethe** 'big', **kethor** 'bitter', **keklŏ** 'fall', **kephé** 'fart', **keden** 'late', **keong** 'many', **keri** 'rich', **kemèn** 'ripe', **kediŋ** 'tall', **kelok** 'white';

- Tangsa Moshang: **kathot** 'go out', **katen** 'rise'.

In Daai Chin, prefixal **k-** serves as a relativizer when attached to a stative verb: **däm** 'big' > **nga kdäm** 'a big fish'. A related prefix **ak-**, serves to nominalize stative verbs: **do** 'good' > **akdo** 'something good'; **thi** 'dead' > **akthi** 'corpse' (Hartmann 2001a:130-1).

Angami Naga also has a verbal prefix **ke-** which is used in nominalizations and relativizations (including relative clauses consisting only of an adjective), *e.g.*:

> **lesüda ke- ti**
> book PREF black
> 'black book'

> **mhi ke- zhivi**
> eye PREF beautiful
> 'beautiful eyes'

> **themie ke- dukhri vi mo**
> people PREF kill good NEG
> 'killing people is not good'

The preverbal velar prefix reaches its apogee in Tangkhul Naga, where **k(h)ə-** is prefixable to virtually every verb root, whether or not it already had another prefix: **kəkap** 'shoot' < *gaːp, **kəthur** 'sour' < *suːr, **khəyap** 'fan' < *yaːp, **kətśap** 'weep' < *krap, **khəmələk** 'lick' < *m-lyak, **kəkhəyək** 'be ashamed' < *g-yak, **khəŋənəm** 'smell' <

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129. Evidently conceived of as an involuntary phenomenon.

*m-nam, *etc*. (See Pettigrew 1918:268-326).[130] This prefixed form is used for nominalizations (including citation forms) and relativizations, but does not appear with ordinary finite main verbs.

(3)   The velar animal prefix *k- in Lolo-Burmese

Etymologically distinct from the cases discussed above, where the PTB velar prefix occurs in Kuki-Naga animal names, is an interesting set of Lolo-Burmese animal names, where WB has initial **k-** which is absent from its Loloish cognates.[131] In all these sets, the root initial is a resonant (liquid or semivowel), so that this prefixial WB **k-** could form clusters with it. While direct consonantal traces of this prefix are almost totally lacking in Loloish (except perhaps for 'ant'; see below), if the etymon in question happened to be a PLB stopped syllable (< */ -p -t -k /), the prefix has left an unmistakable tonal effect, causing the syllable to be shifted from the **LOW**-checked tone typical of syllables with voiced resonantal initials into the **HIGH**-checked tone characteristic of stopped syllables with voiceless initials. This animal prefix must therefore be reconstructed as ***voiceless** at the PLB level. There are at least 6 good examples:

	PLB	*TSR*	*WB*	*Lahu*
'cat'	*k-roŋ[1]	---	**krauŋ**	g̈ɔ̀ 'wildcat' a
'fowl'	*k-rak[H]	#184	**krak**	g̈ấʔ b
'leech'	*k-r-wat[L]	#167	**krwat**	vὲʔ c
'rat'	*k-r-wak[H]	#188	**krwak**	fâʔ
'tiger'	*k-la[2]	---	**kyâ** d	lâ

a. *Cf.* Jg. šəro(ŋ) 'tiger'.

b. Contrast Lahu g̈àʔ (low-stopped) 'weave' < PLB *rak (WB **rak**).

c. In this case the velar prefix evidently did not survive into Loloish, which reflects simple ***wat** (hence the Lahu voiced initial and **LOW**-stopped tone). The PTB reconstruction is *r-pat (*STC* #45), modified to *k-r-pʷat in JAM 2000a:#13.

d. Insc. Bs. **klâ** .

The origin of this LB animal prefix is perhaps to be sought in Mon-Khmer/Austroasiatic (*cf.* Mon **kula**, Munda **kul(a)** 'tiger'), where it is probably to be

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130. The aspirated variant of the prefix occurs before nasals and resonants.

131. This phenomenon was already discussed in JAM 1969:190-99 ("Lahu and PLB") and 1972a:25-6, 68-70 (*TSR*), but had been independently observed by Benedict (*STC*, n. 301, p. 107).

derived from the etymon ***kon** 'child', a frequent initial syllable in, *e.g.* Vietnamese animal names.[132]

A somewhat different explanation is required for the fascinating etymon 'ant' (*STC* #199; *TSR* #183). Here WB has **pərwak**, where the prefix is obviously a reduction of PLB ***bəw²** 'insect' (as in the cognates Atsi **pâu-voʔ**, Maru **phyò-ɣùk**, Hani **pi-ɸu**, Lahu **pú-ğɔ̂ʔ**). Yet the ʜɪɢʜ-stopped tone of Lahu **-ğɔ̂ʔ** is good evidence for a voiceless velar prefix here too, as is the striking Sani form (Vial 1909) **ka-vu**, pointing to a PLB prototype like ***bəw-(k-)rwak** (or, if one prefers, two variant prototypes ***bəw-rwak** and ***k-rwak**). In this case, however, the velar prefix turns up in other branches of TB as well, notably WT **grog-ma**, rGyalrong **kərək**, Lohorong and Lambichong **khorok**.[133] The hypothesis of a Mon-Khmer origin for the prefix with this root is therefore not attractive, and we might as well reconstruct it as ***g-rwak** at the PTB level.

Another tricky case is 'dog', PTB ***kʷəy** (*STC* #159), where the velar root-initial has evidently been secondarily treated as a prefix, so that it has been dropped or replaced in certain languages, *e.g.* Lushai **ui**, Tiddim **ʔwi**, Karen **thwi**. See above 3.2(4).

4.4.5   **d-*

This prefix is reconstructed at the PTB level with a few nouns, as well as for the numerals 'six' and 'nine' (though 'six' presents complications; see below). Like ***g-**, it has been claimed (Wolfenden 1929:40-3) that ***d-** originally had a "directive" force with Tibetan verb roots, though this is far from evident from the comparative data. A number of TB languages, especially those of the Kuki-Naga group, have latched onto dentals as their favorite prefixes, often attaching them even to roots already preceded by an older prefix.

STC reconstructs ***d-** with only two animal names at the PTB level: ***d-wam** 'bear'(#461), where it is preserved by preempting the root-initial in forms like WT **dom**; and ***d-kaːy** 'crab' (#51), where it occurs in Lepcha **tăhi**. At the level of Proto-Kuki-Naga, the dental prefix is reconstructible with several other animal names, including ***d-kəy** 'deer (barking)' (#54), ***d-yuk** 'deer (sambar)' (#386), and ***d-key** 'tiger' (#462).

The numeral ***d-gəw** 'nine' (#13) is reconstructed with ***d-**, largely on the strength of WT **dgu** (vs. *e.g.* WB **kûi**), though the sibilant prefix seems equally well attested (Garo **sku**, Kanauri **zgŭi**, Pumi **sgiɯ⁵⁵**, Qiang Taoping **xguə³³**.[134]

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132. See JAM 1973c, "The Mon-Khmer substratum in Tibeto-Burman."

133. This eminently prefixable morpheme also occasionally occurs with the ***s-** animal prefix (< PTB ***sya** 'animal'), as in Trung **sro⁵³**. See above 4.2.1(2).

The dental prefix is also tentatively set up at the PTB level for the following miscellaneous noun-roots: ***d-ləy** 'bow' (#463) > Miju **təli**, Nung **thəli**, Garo **tśri**, Dimasa **dźili** (but Lepcha has **səli**, and Jingpho has **ləli**); ***d-baŋ** 'strength' (n. 325) > WT **dbaŋ**, WB **ʔaŋ**; ***d-bu** 'head' (*ibid*.) > WT **dbu**, WB **ʔu'** .

The reflexes of prefixal ***d-** in the various Kuki-Chin-Naga languages are interesting (see *STC* p. 116):

	PTB	*Khami*	*Lakher*	*Khoirao*	*Puiron*	*Bete*
'bear'	*d-wam	təwun	tśəveu	tśəwom	kəbom	ivom
'nine'	*d-gəw	təkɔ	tśəki	tśəku	kəkwa	ikok
'six'	*d-ruk	təru	tśəru	səruk	kəruk	iruk

Note the affrication of ***d-** to **tśə-** in Lakher (C. Chin) and Khoirao (W. Kuki), which sometimes happens in Jingpho also (Jg. **džəkhû** 'nine'), and the replacement of the dental prefix by a velar in Puiron.[135] Bete (Old Kuki) replaces the dental prefix altogether in favor of the vocalic element **i-**. Other Kuki-Chin languages replace the dental prefix in animal names by the morpheme **sa-** (< PTB ***sya** 'animal'); *e.g.* Lushai **sa-vom** 'bear', **sa-kei** 'tiger'.[136]

There are several curious etyma with resonantal root-initials, where most of TB reflects a ***dental prefix**, while a significant number of other languages (especially Lolo-Burmese) have velars:[137] The most important of these is the numeral 'six',[138] where alongside dentally-prefixed forms like WT **drug**, Kanauri **ţŭg**, Lepcha **tărăk**, Digaro **thərɔ**, Mikir **therok** (all < ***d-ruk**), we find forms with initial velars throughout Lolo-Burmese (WB **khrauk**, Zaiwa **khjuʔ⁵⁵**, Lahu **khɔ̀ʔ**, Naxi **khə˩¹³**) as well as in, *e.g.* Jingpho **krúʔ**, Trung **k'lu⁴⁴**, Newari *khu*-**guː**, and Monpa Cuona **kroʔ⁵³**. Rather different is the etymon 'sew' (set up as ***d-rup** in *STC* #456). Even though WT **ḥdrub-pa** and WB **khyup** show a similar correspondence to 'six', forms like Lahu **tɔ́** and Akha **tɔ̀ʔ** have dental initials. The Magari cognate **rup** shows that the both the dental and the velar elements could be treated as prefixal. A rather *ad hoc* way to explain the different outcomes in 'six' and 'sew' would be

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134. See JAM 1995b/1997:§4.24, "Profile of number *nine*".

135. This is reminiscent of the Lolo-Burmese development in 'six', and in several other roots in WB ('sew', 'long for' (see below).

136. See above 4.2.1(2).

137. These were already discussed in JAM 1969. See below 4.5.1(n. 153), 8.4(4), as well as *STC* n. 321, p. 115.

138. For a detailed discussion of the complications of this root see JAM 1995b/1997:§4.21.

to posit a distinction between a prefixal **d-** plus root-initial **r-** (*i.e.* ***d-r**) in 'six', versus an intrinsic cluster (***dr-**) in 'sew', as *STC* halfheartedly suggests (nn. 320, 321). Alternatively, we might simply posit proto-variation between the dental and velar prefixes at various taxonomic levels, as in *TSR* #63, where three Proto-Lolo-Burmese allofams for 'sew' are reconstructed: ***grup ≍ *ʔ-grup ≍ *ʔ-drup**. Indeed such variation is observable synchronically between dialects of a single language, as in Nung **təru** but Trung (Dulong) **k'lu⁴⁴** 'six'. In the case of the PLB etymon for 'six', *TSR* #35 takes a different approach, on tonal grounds, reconstructing an initial tri-consonantal sequence: PLB ***C-krok** < PTB ***d-krok** (see below 4.4.6).[139]

As indicated above, a good number of TB languages have shown special fondness for dental prefixes (voiced or voiceless), and have introduced them secondarily with dozens of roots, usually nouns. These odontophiliac languages are scattered through various TB subgroups including Qiangic (rGyalrong),[140] Kachin-Nungish (Jili, Nung), Burmish (the Samong dialect of Hpun), Abor-Miri, and especially Naga languages (Ao, Chokri). Many roots that elsewhere in TB have no prefix, or a different prefix, have acquired a dental prefix in one or another of these languages, though it would be going too far to claim that they show regular correspondences that would allow reconstruction of PTB ***d-**, *e.g.*: 'dog' (#159) PTB ***kwəy**, but Nung **təgi**, Jili **təkwi**, Samong **təkhwi**, Chokri Naga **tiši**; 'eye' (#402 PTB ***s-myak**, but rGyalrong **temnyak**; 'leech' (#45) PTB ***r-pat**, but Nung **dəphat**, Miri **təpat**; 'fire' (#290) PTB ***mey**, but Nung **thəmi**, Samong **təmi**, rGyalrong **timi**. Wolfenden (1929:140) gives a long list of Ao Naga body part terms with the prefix **te-**:[141] **te-ni** 'nose', **te-po** 'tooth', **te-pok** 'belly', **te-ret** 'bone', **te-kâ** 'hand'; **te-me-li** 'tongue', **te-me-sen** 'liver', **te-me-yoŋ** 'finger', **te-mo-kok** 'knee', **te-mu-luŋ** 'mind', *etc*. As several of these examples neatly illustrate, this younger dental prefix could attach itself to roots that were already preceded by the older nasal prefix; *cf.* ***m-lay** 'tongue' (#281), ***m-sin** 'liver' (#234), ***m-yuŋ** 'finger' (#355), ***m-kuːk** 'knee/angle' (*STC*, p. 120), ***m-luŋ** 'mind/heart' (*ibid.*).

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139. Other, less well-attested etyma showing possible ***d- ≍ *g-** variation are ***d-rum** 'long for / pine' (#457: WT **drum-pa**, WB **khyûm**); and 'tiger' (#462), where a tentative allofam ***g-key** is posited on shaky grounds alongside ***d-key** (above). This latter is miswritten as ***k-key** in the English-TB Index of *STC* (p. 220), and does not gibe with the reconstruction given in the Appendix of TB roots (p. 201), where the velar alternant is not recognized.

140. See Wolfenden 1936. As we have seen above (4.4.4), rGyalrong is also a stronghold of the velar prefix.

141. Another Ao stronghold of this prefix is kinship terms, *e.g.* **te-bu** 'father', **te-tsa** 'mother', **te-nu** 'younger brother', **te-yi** 'elder sister'.

Chokri Naga has two very high-frequency dental prefixes, tə- and thə-, which can sometimes be shown to derive from PTB ***d-** and ***s-**, respectively, although they have clearly been generalized to many other items in the lexicon. These dental stop prefixes are especially common in animal names (*e.g.* thəɣa 'bear', thəvə 'chicken', thəɣɔ 'frog', təkhrì 'louse', təki 'monkey', thəvɔ 'pig', thəzɔ 'rat', thəku 'sheep', təkhɔ 'tiger', thədɔ 'water buffalo'), but also occurs with natural objects and foods (*e.g.* thəzɨ 'dew', tərɨ 'rain', thəŋu 'star', təhla 'uncooked rice', təkhra 'wind'), numerals (thəna 'seven' < PTB ***s-nis**, tətha 'eight' < PTB ***b-r-gyat**), *etc.* Sometimes the prefixal vowel harmonizes with a front root-vowel, *e.g.* tiši 'dog', tiŋi 'snake', thišɛ 'chili pepper'.[142]

As mentioned above, Wolfenden claims that prefixed **d-** had "directive" force in WT, much like **g-**, though this is far from clear from his examples (1929:40-3). Elsewhere in TB there is some slight evidence of such a function, as in Nung, which has both **də-** and **śə-** as causative prefixes, *e.g.* suŋ 'be dry' / dəsuŋ 'dry sthg' (*STC* p. 114). Similarly, although the productive causative prefix in Jingpho is definitely **šə- ~ džə-** (see above 4.2.1), there are a couple of cases where **də-** is used instead, *e.g.* gùp 'be covered; wear (as a hat)' / dəgúp 'cover, envelop sthg'; gàp 'be covered' / dəgáp 'cover with sthg wide and flat' (*cf.* also məgàp 'a lid; cover').

In fact the dental prefix seems to have had several other, more important pre-verbal functions in TB languages, all of them well exemplified by Jingpho:[143]

· Nominalizing

bu 'be stubby' / dəbu 'hump on cattle'; **gyām** 'hunt (as animals)' / dəgyām 'chicken coop'; **jùʔ** 'converge at a central point' / dəjùʔ 'center' (*cf.* məjùʔ 'firmness, strength of character'; **nâŋ** 'here' (adv.) / dənàŋ 'habitation, place, position occupied'; **rén** 'have dysentery' / dərèn 'dysentery' (dərèn rén ʔai '*id.*'); **rù** 'pour into' / dərù 'a free or public rendezvous'.[144]

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142. These data are from a Field Methods class at Berkeley (1998-99); tone-marks have been omitted.

143. Jg. **də-** is relatively rare (only occupying pp. 139-42 in Hanson 1906/1954. Jg. **tə-** and **thə-** are even rarer, each with less than half a page of entries in Hanson. For relative frequencies of the Jg. prefixes see JAM 1999a ("TB Tonal typology in an areal context"), and above 4.1.3. Jg. **də-** is sometimes a reduction of **dùm-** or **dìŋ-**: dəgrɔ́ʔ 'put on sthg snug-fitting' ~ dùm-grɔ́ʔ ~ dìŋ-grɔ́ʔ (last two called archaic by Maran, in prep.; dəgrùm ~ dìŋ-grùm 'wrap oneself in a blanket'.

144. A similar nominalizing function is also performed by the ubiquitous Ao Naga prefix **te-**, already mentioned in its prenominal use: tśak-ma 'to crack' / te-tśak-ma 'a crack'; metśi 'to bud' / te-metśi 'a bud'; əmaŋ 'believe' / təmaŋ (< *te-əmaŋ) 'faith'.

· Nadverbializing (similar to nominalizing)[145]

ràm 'be sufficient' / dərám 'about, nearly, approximately' (modifies a verb or can be the head of a clause; a "limited" noun)

· Attributive-adjectival

There is at least one good example of the Jg. dental prefix used to form an adjective (rather like an English past participle) from an intransitive verb: gùm 'bend over' / dəgùm 'bent'. Interestingly, however, Jg. has a much larger set of adjectives with də- referring to animal (esp. bovine) characteristics, providing a nice example of how semantically similar words can "attract" the same prefix: kyéŋ 'be aslant' / dəkyéŋ 'be misaligned (as of a bovine's horns one of which is straight and the other curved)'; lái 'be different' / dəlái 'speckled, as cattle'; dəgùk 'curve-horned';[146] dəbòŋ 'white-legged (applied to cattle)'; dəgām 'chestnut color (applied to animals)'; dəlīŋ 'red, brown (applied to animals)'; dəmūn 'gray (of animals)'. The same prefix is used in a bovine noun: dəwài 'dewlap'.

4.4.6   Tonal reflexes of the "C-prefixes" in Loloish

None of the PTB prefixes discussed in the above sections, */ r- l- b- g- d- / , have left direct consonantal traces in Lolo-Burmese, though there are over twenty Loloish etyma where they seem to have caused special tonal developments in **stopped syllables** (*i.e.* syllables ending in PLB */ -p -t -k / .[147] These etyma all reconstruct with PLB **voiceless root initials**, either voiceless stops or voiceless spirants, yet they are under the PLB *LOW-stopped tone, instead of the *HIGH-stopped tone that one would expect from syllables with a **voiceless onset**. All that can be reconstructed in these cases is "some sort of voiced prefix", that had the power to shift the syllable from the PLB *HIGH-stopped to the *LOW-stopped tone.[148] In *TSR* the cover-symbol "C" ws used to stand for this voiced element. In favorable cases there is extra-Loloish evidence for a voiced prefix, *e.g.* 'kill' (*TSR* #124) PLB *C-sat > *e.g.* Akha seh LS (*cf.* WT gsod [pres.], bsad [perf.]; 'one' (*TSR*

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145. The term *nadverb* was introduced in JAM 1973/82 (pp. 118-40, 308-15, etc.) to characterize morphemes or constructions that have both nominal and adverbial characteristics.

146. No simplex verb *guk exists in Jingpho, though this is a widespread TB and ST etymon, which explains why this prefixed Jg. form has hitherto escaped notice. (It is cited neither in *TSR* #2, nor in *STC* pp. 72, 125, 159, 182.)

147. These are discussed in JAM 1972a (*TSR*):33-7, 55-6.

148. In Lahu the PLB *LOW-stopped tone in stop-initial syllables is reflected by Lahu low-stopped tone, symbolized by a grave accent over the vowel plus glottal stop, / `ʔ /; while PLB *LOW-stopped tone with spirant-initial syllables is reflected by Lahu high-rising tone, symbolized by the acute accent, / ´ /. In *TSR* Akha low stopped tone is symbolized by "**LS**"; this is the Akha tonal reflex of any *C-prefixed syllable, whether with a stop or a spirantal initial.

#31) PLB *C-tik > *e.g.* Akha **ti LS** (*cf.* WT **gtśig**); 'new' (*TSR* #126) PLB *C-šik > Lahu **šɪ́**, Akha **shui LS** (*cf.* rGyalrong **kəsik** < *g-sik); 'breath/life' (*TSR* #123) PLB *C-sak > Lahu **šá**, Akha **sa LS** (*cf.* Jingpho **sàʔ** 'breathe', **ǹ-sàʔ** 'breath' (perhaps < *r-sak)[149]; 'vomit' (*TSR* #38) PLB *C-pat > Lahu **phèʔ**, Akha **peh LS**, Luquan **p'ɪ**[55] (*cf.* Jingpho **ǹ-phàt**, rGyalrong **mphɐt**, Ersu **nphsɿ**[55].[150] The best example of all is 'six' (*TSR* #35). As shown above, many TB languages (*e.g.* WT **drug**) point to a dental prefix in this root, while Lolo-Burmese unanimously reflects the PLB cluster *kr-: WB **khrauk**, Lahu **khɔ̀ʔ**, Ak. **ko LS**, Lisu **tʃho**[41], Hani **khv**[31], *etc*. Since these Loloish forms also reflect the *LOW*-**stopped tone**, this root cannot be reconstructed simply as PL *krok (which would give *HIGH-**stopped tone**); the solution I adopted was to reconstruct it as PL ***C-krok**, where the "C-prefix" in this case was undoubtedly the dental element found elsewhere in TB, *i.e.* reflecting pre-Loloish ***d-krok**.

In many other cases, however, the Loloish tonal developments are the only evidence for the C-prefix. To indicate this, *TSR* usually puts a slash through the C, thus: ***ȼ-**. Exs. 'bite down on' (*TSR* #24) ***ȼ-tsat** > Lh. **chèʔ**; 'break off a piece' (*TSR* #25) ***ȼ-ket** > Lh. **qhèʔ**; 'filthy/rat' (*TSR* #26) ***ȼ-cak** > Lh. **chàʔ**; 'goat' (*TSR* #27) ***ȼ-cit** > Lh. **á-chèʔ** (*cf.* WB **chit**); 'leaf' (*TSR* #29) ***ȼ-pak** > Lh. **phàʔ** (*cf.* WB **phak**); 'pinch' (*TSR* #32) ***ȼ-tsit** > Lh. **chɨʔ**; 'return/give back/year' (*TSR* #34) ***ȼ-kok** > Lh. **qhɔ̀ʔ**; 'stir/mix' (*TSR* #36) ***ȼ-krök** > Lh. **khɔ̀ʔ**; 'day after tomorrow' (*TSR* #37) ***ȼ-pak** > Lh. *phà*ʔ-**ni**; 'draw water' (*TSR* #39) ***ȼ-kap** > Akha **k'aw LS** ⋉ *kam[1]* > Lh. **qho**; 'morning' (*TSR* #125); ***ȼ-sok** > Lh. **šɔ́**; 'pluck' (*TSR* #127) ***ȼ-šak** > Lh. **šá**; 'thirsty' (*TSR* #129); ***ȼ-sip** > Lh. **šɪ́** .

4.5 *Prefixes and syllable structure*

4.5.1 *Prefixes vs. clusters*

When the root-initial is a resonant (liquid or semivowel), it is sometimes difficult to distinguish (either by internal reconstruction or comparatively) between an intrinsic cluster (*i.e.* a sequence of initial consonant plus glide) vs. a sequence of prefix plus root-initial.[151] The first element in such sequences, even if originally part of the root, is susceptible of being reinterpreted as a prefix, and then dropped. Conversely, even if the

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149. See above, 4.4.1(3) for PTB *r- > Jg. **ŋ-** .
150. The extra-Loloish forms mostly seem to point to a PTB ***nasal prefix** with this root, though this could not have existed in Proto-Loloish, since it would have led to a Lahu voiced initial, and a Luquan prenasalized aspirate. See above 4.3.
151. See above 3.6.1, "The structural place of glides in the ST/TB syllable".

first element was originally a prefix, it may later be reinterpreted as part of an intrinsic cluster. Among the cases where "the distinction cannot be drawn with any assurance"[152] are:

'arrow'	*b-la or *bla	Bahing **bla**, WB **hmrâ**, Bhramu **pəra**, Magar **mya**, Tangkhul **məla**, Chepang **la**, Garo **bra**, Dimasa **bala**, *etc.* [*STC* #449]
'horn'	*g-ruŋ or *gruŋ [a]	Vayu and Bahing **ruŋ**, Moshang **əruŋ**, Jingpho **rūŋ** ≍ **ǹ-rūŋ**, Garo **groŋ**, Bodo **goŋ** (with prefix preemption; below 4.5.3), Dimasa **groŋ** 'horn', **goroŋ** 'side, angle', **bogroŋ** 'corner, horn' [*STC* #85 and p. 113]
'monkey'	*m-ruk or *mruk	WB **myauk**, Bs. (Intha) **mrok ~ mlok**, Lahu **mɔ̀ʔ** (with prefix preemption; below 4.5.3), Bhramu **pəyuk**, Chepang **yuk**, Bahing **moro**, Digaro **təmyu**, Gurung **timyu** [*STC* p. 112; *TSR* #133]

   a. An alternative reconstruction (not relevant to the present point) is *g-rwa ≍ *g-rwaŋ (see *STC* n. 231).

A distinction is made in the Tibetan script between the cluster **gy-** (*e.g.* **gyad** 'champion') and the prefix + initial combination **g-y** (*e.g.* **g-yas-pa** 'right hand'). No PTB roots have so far been unearthed that reflect an unambiguous intrinsic cluster *dr-;[153] in WT forms beginning with **dr-**, the stop may be shown to be prefixal on the basis of comparative evidence:

'cut'	*d-ra-t	[*STC* #458] WT **dra-ba**, Lepcha **hra**, Nung **rat**, WB **hra'**, Garo **ra ~ rat**, Dimasa **ra**
'filth / stench' [a]	*d-ri(y)	[*STC* #459] WT **dri-ma**, Bahing **ri-ku**, Lepcha **məri**
'six'	*d-ruk	[*STC* #411; *TSR* #35] WT **drug**, Lepcha **tărăk**, Digaro **thərɔ**, Mikir **therok**, Garo **dok** (with prefix preemption; below 4.5.3); WB **khrauk**, Lahu **khɔ̀ʔ**

   a. The prefixal status of the *d- in this root is further confirmed by its probable allofamic connection to *ri 'gleet/purulent discharge/rot', below 5.3.2(1); see especially Miri **təri** 'wound, ulcer, sore' cited there.

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152. See *STC*, n. 314, p. 112.

153. A possible candidate for such an etymon is 'sew' (WT **ḥdrub-pa**, rGyalrong **tup**, Magar **rup**, WB **khyup**, Lahu **tɔ̂**), though this is still speculative (see above 4.4.5 and *STC* #456 and nn. 320, 321).

A particularly clear case of contrast between a cluster *kr- and a velar-prefixed resonant *k-r- is provided by Lolo-Burmese:

	PLB	TSR	WB	Lahu	Akha	Lisu
'weave'	*rak^L	#192	rak	ğàʔ	zàq (LS)	ya^6
'crossbow'	*krak^H	#9	---	khâʔ	káq (HS)	hchya^2
'chicken'	*k-rak^H	#184	krak	ğâʔ	yā	a^1-ɣa^1

As explained above (3.6.4), the intrinsic cluster *kr- yields a Lahu front velar **kh-** (plain initial *k- becomes Lahu postvelar **qh-**). But in 'chicken', the velar prefix leaves no direct consonantal trace in Lahu, where the initial remains **ğ-** [ɣ] (< root-initial *r-); on the other hand this voiceless prefix had the power to change the *tonal class* of the syllable, pushing it into the **HIGH**-stopped /^{H}/ instead of the **LOW**-stopped /^{L}/ tone.[154]

Many etyma beginning with stop + resonant show extreme structural ambiguity, as evidenced by their disparate fates in the various TB languages. One of the best examples is 'dog', reconstructed as PTB ***kwəy** [*STC* #159]. Most TB languages treat the initial consonant sequence as a cluster (*e.g.* WT **khyi**, Chepang **kwi**, Digaro **nkwi**, Jg. **gwì**, WB **khwê**). On the other hand, the Lahu reflex **phɨ̂**, with labial initial points to a prototype where the velar and the labial semivowel were fused into a labiovelar unit phoneme, ***kʷəy**.[155] The Chin languages have treated the velar element as a prefix, and dropped it, yielding forms like Lushai and Lai **ui** (< *wəy < *k-wəy). Karenic has gone a step further, dropping the velar as if it were a prefix, and then substituting a different, dental prefix for it: Pwo **thwì**, Sgaw **thwì** (< *t-wəy < *k-wəy < *kwəy).

Even more complex is a newly discovered root, PTB ***b-raŋ ⪤ *g-raŋ** 'chest / breast'. Forms like WT **braŋ**, Cuona Menba **prʌŋ**^{13}, Tsangla *brang*-**tong**, Trung (Dulong) **pɹǎŋ**^{55}, and Apatani **há-***bjaŋ* point to an original labial cluster *br-. Other forms, however, have an initial velar element: Kaman Miju **gʁoŋ**^{35}, Queyu **ka**^{33}**rõ**^{55}. Still others reflect a simple *r- initial: WB **raŋ**, Maru **ɣɔ̃**^{31}**kɔ**^{31}, Qiang Mawo **ʁu qhuɑ**, Ersu **ro**^{33}**n̦o**^{55}**ma**^{55}. The Lai Chin cognate **traŋ** could derive from *graŋ or perhaps from *braŋ, for which Chin reflexes had been lacking. See above 3.6.4.1(2).

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154. Several other examples of LB etyma that reconstruct with a voiceless stop prefix (usually *k-) are presented in *TSR* pp. 68-70, including 'ant', 'flower', 'maggot', 'pick up', 'rat', 'shadow', and 'stone'.
155. See the discussion of these labiovelars, above 3.2(4).

Similar complexities of interpretation attach to the many etyma which show variation in reflexes between a labial stop and the labial semivowel **w-** (*e.g.* 'pig' WT **phag**, WB **wak**; 'bamboo' WT **spa ~ sba**, WB **wâ**). While arguments may be made in favor of a cluster analysis (*e.g.* ***pwak**), or a prefixal one (*e.g.* ***p-wak**),[156] I now believe that the best explanation is in terms of an originally subphonemic "extrusion" of the semivowel from the stop initial, especially before the vowel ***-a-** (so that we may write the **-w-** above the line, *e.g.* ***pʷak** < ***pak**).[157]

4.5.2   *Diachronic layers of prefixes*

From the point of view of individual TB etyma, we may distinguish roughly between *primary* and *secondary* prefixes. A primary prefix on an etymon is one which is attested in several different branches of the family. Sometimes the antiquity of such a prefix is obvious, since it is so widely distributed, *e.g.* the labial prefix in ***b-ləy** 'four': WT **bźi**, Thulung **bli**; Magar **buli**, Jg. **məlī**, Maru **byìt**, Mikir **phli**, Digaro **kəprei**, Nung **əbyi** [158], *etc*. Often, however, the evidence for primariness is more indirect. Thus, 'pillow/block of wood' is set up simply as ***kum** in *STC* #482, although forms from at least three branches of TB support a reconstruction of ***m-kum**: either overtly (*e.g.* Nung **əgɔ məkhim** (**əgɔ** 'head'), rGyalrong (Suomo) **tɐ-mkɐm** (with reprefixation), Naxi Lijiang **ku³³əŋgɯ³³** (**ku³³** 'head'), Luquan Lolo **ŋk'ɣ**), or indirectly (*e.g.* Lahu **ú-gɛ̂** (**ú-** 'head'), where the voiced initial points unambiguously to a prenasalized prototype).[159]

Secondary prefixes exhibit several different types of morphophonemic behavior:

(1)   ***Replacement*** *of a primary prefix by a secondary one.*

As still another manifestation of the power of *analogy* in morphological processes, many individual TB languages, as well as certain subgroups of the family, have developed a preference for particular prefixes, *i.e.* seem to have "favorite" prefixes (see above 4.1). Old Chinese seems to have had a special fondness for the ***s-** prefix (see Benedict 1975c "The Chinese ***s-** orgy"), as in, *e.g.* 'four' 四 OC **si̯əd** < ***s-ləy** (vs. general TB ***b-ləy**). As we have seen (above 4.4.5), secondary dental prefixes (*e.g.* Chokri Naga **tə-** and **thə-**) are

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156. This prefixal interpretation was the one I adopted in JAM 1997a ("Laryngeals"): n. 14.
157. Thirty-one etyma with initials of this type are discussed in JAM 2000a. An analogous phenomenon is observable in modern Japanese, where English words with velar initials plus /æ/ are automatically palatalized by an "extrusional" -y-, *e.g.* cabbage > Jse. *kyabetsu*. See above 3.6.1(n. 86).
158. Both the Digaro and the Nung forms show reprefixation, *i.e.* a secondary prefix superadded to the primary one (see below).
159. See my notes 123 and 387 in *STC*.

especially frequent in certain Kamarupan languages. The numerous prefixed forms of Lepcha are "largely of late origin" (*STC*:104). Prefixation in the Karenic languages "is in large part of late origin", with "only isolated instances of agreement" with the rest of TB in particular etyma (*STC*:131-2); striking examples are 'dog' (Karenic **thwi** < *t-wəy, vs. general TB *kwəy or *k-wəy or *kʷəy; see above) and 'pig' (Karenic **thɔʔ** < *t-wak vs. general TB *pwak or *p-wak or *pʷak) . See above 4.5.1.

The dental prefix is widely attested in 'six' ***d-ruk** (above 4.4.5), but several languages have replaced it with a velar, *e.g.* Magar **kruk**, Nung **təru ~ kəru**, Jg. **krúʔ**, WB **khrauk**, Lahu **khɔʔ** .[160]

Occasionally one encounters a particular form that contains a truly exceptional prefix, *e.g.* WB **phyam** 'otter' vs. general TB ***sram** or ***s-ram** (see below).

*(2)   Creation of a secondary prefix through **reduction** of a full syllable in a compound: "prefixization"*

A secondary prefix can sometimes be shown to descend from a reduced syllable in a compound, *e.g.* the many Jingpho nouns and verbs with the ***lə-** prefix (< PTB ***g-lak** 'hand' and ***g-la** 'foot') that refer to the hands and feet or action with the limbs (see above 4.4.2). Similarly, the prefixal element in WB **pərwak** 'ant' is clearly a reduction of the full syllable **pûi** 'insect' (*cf.* Lahu **pú-ɣɔ̂ʔ** 'ant') < PLB ***bəw²-rwak**, an innovation not paralleled outside of LB. (*Cf.* forms with a velar prefix, like WT **grog-ma**, Lohorong and Lambichong **khorok**, rGyalrong **kŏrŏk** < *k-rwak.) See above 4.4.4(3)

For more on this process of "prefixization", see below 4.5.4 ("The compounding/prefixation cycle").

*(3)   **Addition** of a secondary prefix to an older one: "reprefixation"*

Instead of replacing an earlier prefix, a younger prefix may simply be superadded to it, so that the form is doubly prefixed, as provided for in our PTB syllable canon (above Ch. 2). In these cases the prefix closer to the root is assumed to be historically prior (P₁), while the one further from the root is secondary (P_2):

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160. See *STC*:94-5. This etymon is reconstructed in *TSR* #35 as PLB ***C-krokᴸ**, where "C" stands for a *voiced prefix that disappeared after causing the word to acquire the **LOW**-stopped tone, hence from a hypothetical earlier sequence of prefixes < PTB ***d-k-ruk** (see above 4.4.6). If this interpretation is correct, the LB forms do not exactly illustrate replacement of one prefix by another, but rather dropping one of them from a sequence after it has left a trace in the form of a tonal effect. But at the PLB stage the prefix had already been absorbed into the root, so that ***kr-** was functioning as an intrinsic cluster (thus yielding the front velar in the Lahu form), so that ***d-krok** is more appropriate for the PLB stage than ***d-k-ruk**.

$$(P_2) \ (P_1) \ C_i \ (G) \ (V) \ (ː) \ (C_f) \ (s).$$

Sometimes each of the two prefixes has schwa vocalism, so that a form is 'doubly sesquisyllabic'. Thus Tangkhul Naga productively adds a secondary prefix **khə-** to all verb roots,[161] preposing it to any older prefix that may survive, *e.g.* TN **khəmələk** 'lick', where TB languages generally reflect only ***m-lyak** (⪥ ***s-lyak**), *e.g.* Ao Naga **məzak**, Lotha Naga **myak**, Jg. **mətáʔ**, Akha **myə̀q**, Jinuo **mɹa⁵⁵**.[162] A few Jingpho words appear doubly sesquisyllabic in Hanson's (1906) transcription, *e.g.* **lăsăwi** (p.380) 'bone marrow; kind of bamboo; whittle off'; **păsăwi** (p. 526) ⪥ **bəswi** (p. 73) 'plaid cloth'; **ʔălăwan** (p. 13) 'quickly, in haste', but these are spelled with only a single unstressed vowel (**ləsūi, pəsùi, á-ləwān**) in Dai's phonetically more accurate dictionary (1983).

Numerals show particularly complex behavior with respect to prefixes.[163] Lushai has generalized the prefix **pa-** to all its numerals from 1 to 9, but this actually represents four different morphophonemic processes:

	PTB	*WT*	*Lushai*		*PTB*	*WT*	*Lushai*
'2'	*g-nis	gnyis	pahnih	'6'	*d-ruk	drug	paruk
'3'	*g-sum	gsum	pathum	'7'	*s-nis	[bdun]	pasarih
'4'	*b-ləy	bźi	pali	'8'	*b-r-gyat	brgyad	pariat
'5'	*l/b-ŋa	lŋa	panga	'9'	*d-kəw	dgu	pakua

(a)	*retention* of a primary labial prefix: FOUR; FIVE; EIGHT
(b)	*replacement* of an older prefix by **pa-**: THREE; SIX; NINE
(c)	*reprefixation/addition* of **pa-** to an older prefix, creating a doubly sesquisyllabic form: SEVEN [a]
(d)	*replacement* of the primary prefix ***g-** by ***s-** (***s-n-** > **hn-**), then *reprefixation* by **pa-**: TWO

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161. Several dialects of rGyalrong (*e.g.* Zhuokeji, Ribu) also prefix **kɐ-, kɑ-** productively to verb roots. See Lin Xiangrong 1993.

162. Another widely attested allofam of this root is ***s-lyak**, sometimes with causative meaning (Garo **srak**, Dimasa **salau** 'lick'; Lahu **lɛ̀ʔ** 'lick' (< ***lyak**) ⪥ **lɛ́** 'cause to lick; feed an animal' (< PLB ***ʔ-lyak** < PTB ***s-lyak**). See *STC* #211 and p. 118; *TSR* #179.

163. See JAM 1995b ("ST numerals and the play of prefixes"), especially pp. 211-33. The prefixes of adjacent numerals frequently exert assimilatory attraction on each other, leading to 'prefix runs', as in Jingpho **məsūm** 'three', **məlī** 'four', **məŋā** 'five' (note also the tonal uniformity). A similar phenomenon is familiar in IE numeral sets, *e.g.* Russian *devjatj* 'nine' (< PIE ***n-**), influenced by *desjatj* 'ten' (< PIE ***d-**); Eng. *four* (instead of ****hour** < PGmc ***hʷ-** < PIE ***kʷ-**), influenced by five (< PIE ***p-**).

a. The Lushai inner prefix -**sa**- reflects the primary prefix with this numeral (*cf.* Jg. **sənìt**, Ergong **snie**, rGyalrong **kəʃnəs** [with secondary prefixation of **kə**-]). WT **bdun** is virtually isolated in TB.

The double nature of the prefixation may be camouflaged by the fusion of the older prefix with the root-initial, as in Lushai **pahnih** (above), or in the etymon for 'otter', reconstructed as PTB *__s-ram__ on the basis of forms like Jg. **šəram**, Miri **si-ram**, Mikir **serim**. Two reflexes of the latter root, Lushai **sa-hram** and Lepcha **sǎryom**, both demonstrate the cyclical nature of TB prefixation. After the primary *__s-__ prefix had fused with the root-initial **r**-, yielding a voiceless liquid in Lushai (**hr**-) and a palatalized **ry**- in Lepcha,[164] the 'animal prefix' **sa**- (< PTB *__sya__ 'animal') was reprefixed to the syllable. In this case, both the primary and the secondary prefixes seem to be etymologically identical, both representing a reduction of the root for 'animal', but at different time-depths.[165]

TB speakers seem to be quite aware of their prefixes as objects of wordplay. Jingpho children use reduplicated numerals when counting at play, where the second number of each pair has its prefix replaced by the "preformative" **dùm**-, along with certain alternations in the initial of the major syllable:

ləŋâi	'one'	>	ləŋâi dùm-bâi
ləkhôŋ	'two'	>	ləkhôŋ dùm-brôŋ
məsūm	'three'	>	məsūm dùm-brūm
məlī	'four'	>	məlī dùm-dī
məŋā	'five'	>	məŋā dùm-dā

The reduplicated prefix may also be **khə**- or **ŋə**- : ləŋâi khəbâi ~ ləŋâi ŋəbâi, ləkhôŋ khəbôŋ ~ ləkhôŋ ŋəbôŋ, *etc*. (See Hanson 1906:126-7).

In a number of interesting cases, reprefixation in languages like WT and WB has led to complex consonant sequences, which were probably broken up phonetically by a single

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164. Prefixal *__s-__ is regularly reflected by medial -**y**- in Lepcha. See Benedict 1943 and above 4.2.1.
165. As noted above, WB **phyam** 'otter' shows replacement of the primary *__s-__ by a different prefix (*__p-ram__).

schwa; *i.e.* an older prefix first joined with the resonant root initial to form a cluster, after which a younger prefix, presumably followed by schwa, was preposed to it.[166]

'eight'   ***b-r-gyat ≍ *b-g-ryat**   WT **brgyad** [brəgyat]; rGyalrong **warzhet**

The reflexes of this phonologically complex numeral are predictably varied.[a] WT and rGyalrong reflect a doubly prefixed allofam; other languages have simple velars (Gangte **giet**, Tiddim **giat**); still others have reflexes of simple **r-** or a cluster of C + **r** as the root-initial (PLB ***ʔ-rit**[L] [*TSR* #171] WB **hrac**, Lahu **hí**); Serdukpen (an obscure language of northern Arunachal Pradesh) has a doubly-prefixed form like WT and rGyalrong, but its first prefix is **s-**, not **b-** (**sargiat** < ***s-r-gyat**); finally, Chinese 八 shows preemption of the initial cluster (below 4.5.3) by the labial prefix (OC **pwăt** [*GSR* #281]).

'leech'   ***k-r-pʷat**   WB **krwat** [kərwat]

Forms reflecting the bare root ***wat** include Lahu **vèʔ**, Akha **yèq**, Chang Naga **wat**, Lushai **vaŋ-*vat***. The liquid prefix is attested in forms like Magar **ləwat**, Garo **ruat**, Angami Naga **reva**, Rangkhol **ervot**. The aberrant Kamarupan language Sulong has a velar prefix (**kəvat**[53]), but only WB has both a velar and a liquid prefix in sequence. Several other prefixes are also attested with this root. (See *TSR* #167 and JAM 2000a (***p-/w-**) #13.)

'rat'   ***k-r-wak**   WB **krwak** [kərwak]

Some forms reflect the unprefixed root ***rwak** (*e.g.* Chepang *rok*-**yu**, Pumi (Taoba) **ɣo**[53], Maru **ɣuk**[31]). The velar animal prefix (see above 4.4.4) superadded to the Burmese form is also reflected indirectly by the **HIGH**-stopped tone in Loloish forms like Lahu **fâʔ**.[b/c]

'snake'   ***s-b-ruːl**   WT **sbrul** [səbrul]

The labial prefix ***-b-** is possibly a reduction of the same PTB morpheme ***bəw** 'insect; vermin' as in 'ant' (§2 above). Many reflexes of this etymon reflect the naked root ***rul** (*e.g.* Tangkhul **rɯ**, Lushai **ruul**, Tiddim **guːl**, Palaychi (Karen) **rù**. Most others reflect only the labial prefix ***b-rul** (*e.g.* Thebor **brul**, Maring **pharul**, Paangkhua **marúul**, WB **mrwe**), with the labial occasionally preempting the liquid root initial (*e.g.* Magar **bul**). Only WT has superadded another prefix, **s-**, presumably the animal prefix < PTB ***sya** (see above, and below 9.3.2).

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a. For more details, see JAM 1995b ("Numerals"), pp. 203-7. For some modern forms it is hard to be sure of the relative order of the underlying prefixal elements; but metathesis is only to be expected with complicated consonantal sequences like these, especially since a liquid is involved.

b. Evidently the PLB sequence ***krw-** developed into Lahu **f-**, merging with the reflexes of ***ʔ-w-** and ***hw-**. See above 3.4.2(5).

c. See *STC* pp. 2, 107; *TSR* #188; *ZMYYC* #134; also 'chicken' (above 4.5.1) and 'leech' (above).

166.See above 3.6.5 "Double glides".

Distinct from the phenomenon of reprefixation, whereby a new prefix is superadded to an older one, is the tendency to expand the distribution of a prefix preexistent in a language to new sets of words. Under favorable circumstances the diachronic layers of its occurrence can be traced, so that it makes sense to speak of 'primary' vs. 'secondary' distribution of the prefix. This has been documented for the syllabic-nasal prefix in Mpi (S. Loloish),[167] where the oldest stratum includes etyma with extra-LB cognates that reflect PTB **m**- ('pillow', 'dove', 'door', 'kidney'), while more recent strata comprise "prefixized" compounds where the first constituent began with a nasal ('sunlight', 'smoke', 'hair of head', 'nose', 'face', 'ear'), and loanwords from Tai that begin with nasal initials ('teak', 'lime', 'eggplant', 'watch / clock', 'well', 'scorpion', 'percussion cap'). Not all occurrences of a given prefix in a particular language are of equal antiquity.

The existence of multiple prefixes on a given root has led some scholars to consider the inner prefixes to be 'infixes'. Such is the analysis presented in Wolfenden (1929:38-49) to account for the -r- and -s- in such WT consonant combinations as **brg**-, **brgy**-, **brt**-, **brd**-, **brts**-, **br**-, **brn**-, **brny**-; **bsg**-, **bsgr**-, **bst**-, **bsd**-, **bs**-, **bsn**-, **bsny**-. To speak of 'infixes' in such cases is an abuse of terminology, however, since a true infix intervenes in the middle of a root.[168] It would be equally inappropriate to consider non-final versatile verbs in a concatenation (or non-final particles in a string of clause-final particles) to be 'infixal', since they are all independent morphemes in their own right, and could well occur alone in their clause.

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167. See above 4.3.4 and JAM 1978b:13-17.

168. True infixes are a hallmark of the Mon-Khmer language family, *e.g.* the causative infix -r- in Semai (Aslian branch): **sɔh** 'be afraid', **srɔh** 'frighten someone'; **tlaːs** 'escape', **trlaːs** 'deliver someone'. See JAM, to appear. Several pairs of Khmer loans in Thai preserve a MK infixational pattern, *e.g.* **trùat** 'examine, control' / **tamrùat** 'police', with the nominalizing infix -**am**-. For a "secondary infix" in Lepcha, see Benedict 1943 and above 4.2.1.

4.5.3   Prefix preemption[169]

'Prefix preemption' refers to a change in syllable structure whereby an original prefix 'drives out' a weak root-initial (liquid, nasal, or semivowel), and comes to play the role of the root-initial itself. Among the numerous examples that could be cited are the following:

	PTB	*Reflexes*
'four'	*b-ləy	Maru **bìt** [a] (vs. Cuona Menba **pli**[53], WB **lê**)
'lick'	*m-lyak	Akha **myə̀q**, Lotha Naga **myak**, Jinuo **mɹa**[55] (vs. Ao Naga **məzak**, Jg. **mətáʔ**, WB **lyak**)
'louse'	*s-r(y)ik	Hayu **sek** (vs. Bunan **śrik**, Lushai **hrik**, Mikir **rek**, Kanauri **rik**)
'penis'	*m-ley	Lahu **nī** (vs. WT **mǰe**, Jg. **mənē**, WB **lî**)
'put to sleep'	*s-yip	WB **sip**, Sani **ši**[55] (vs. WB **ʔip** 'sleep', Lahu **í** 'put to sleep')
'seven'	*s-nis	PLB *s-ni-t > Lahu **šɨ̄** (vs. Jg. **sənìt**, rGyalrong **kəʃnəs**, Cuona Menba **nis**[55], Ergong **snie**)

a. -it is the regular Maru reflex of *-əy (see below 5.3.2).

4.5.4   The compounding / prefixation cycle

Prefixation in TB is closely related to the morphological process of compounding: still another manifestation of the key role played by prefixes in determining and changing syllable structure.

(1)   *Prefixization: from disyllabic compound to sesquisyllable*

Compounding has been a pervasive morphological process for at least the past two millennia of the history of the ST family, as part of the languages' response to the ever-present danger of homophony among their monosyllabic morphemes. Once a dissyllabic compound has been created, however, it is subject to phonological reduction of

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169.This term was introduced in JAM 1972b ("Tangkhul Naga"). See also JAM 1979 ("QV"):24, and above 4.1.2(5).

its first syllable, a process which is readily observable synchronically throughout the family, *e.g.* in Prinmi (Pumi Dayang):

ɸpǐ 'belly' > ɸpə-tʃóu 'navel'	
tʃɨ́ 'water' > tʃə-ɸpá 'boiled water'	

The unstressed vowel of the first syllable in such a compound is typically schwa; the tone loses its original contour and becomes "neutral"; if there is a final consonant it tends to drop; and eventually its semantic identity is likely to become obscured. This is the process of "prefixization", whereby a fully meaningful morpheme is reduced to a prefix, in such a way that the original disyllable becomes a sesquisyllabic unit. Some additional examples:

'ant'	PLB *bəw^2-rwak (*bəw 'insect') > WB **pərwak** > Mod. Bs. **pəywéʔ**
'gall / bile'	PTB *sin-kri (*cf.* Jg. **sìn** 'internal organ', **məsìn** 'liver') > Jg. **šəgrì ~ səgrì**
'sandal'	Mod. Bs. **phənáʔ** < WB **phi' nap** (**phi'** 'press, flatten') [a]
'son-in-law'	PTB *za-mak (*za 'child/son') > WB **səmak** > Mod. Bs. **θəméʔ** [b]

a. For the semantics, *cf.* Lahu **khí-nôʔ** 'shoe' < **khɨ** 'foot' + **nôʔ** 'pinch, squeeze'.

b. Similar examples may be cited from Tai, *e.g.* Siamese **sədɨ** 'navel', **sə-** < **săaj** 'line, cord'; also many names for fruits and vegetables with the prefix **mə-** (*e.g.* **məmûaŋ** 'mango', **məphráaw** 'coconut', **məkhɣ̌a** 'eggplant', a reduction of Proto-Tai *hmaak. (See Li Fang-Kuei (1977:75, 92).

Sometimes the reduction of the first syllable goes so far that it results in a complex monosyllable without even a schwa to break up the initial consonant sequence:

'elder sibling'	PLB *ʔu^2-(y)ik^L (*u 'head; honorific for elder kin' < PTB *d-bu) > Proto-Loloish *ʔ-wyik^L > WB *ʔac*-**kui**, Lahu **ví**, Akha **yɨ̀q** (see *TSR* #172 and p.72)

(2)   Dimidiation of prefixes: from sesquisyllable to dissyllable

In a way the mirror image of prefixization is a rarer process that we could call *syllabization* or *dimidiation,* whereby a formerly non-syllabic prefix becomes strengthened into a full syllable.[170] This replacement by or alternation with "preformatives" or fully syllabic forms is especially characteristic of Jingpho.[171] Thus the

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170.The term 'dimidiation' is due to Peter Boodberg, who used it to refer to the graphic rendering of an initial consonant cluster in Old Chinese by two separate characters, each of which was pronounced with one member of the cluster as initial. Yang (1985) is a detailed study of OC binomes representing putative velar clusters *k-l- and *k-r-, where the initial of the first character reconstructs with a velar and the second with a liquid.

Jg. velar prefixes **kə-** and **gə-** vary with **kum-**, **gin-** or **gum-**; while the nasal prefixes **n̩-** and **mə-** alternate in many words with **niŋ-**, **nam-**, **num-** (*e.g.* **nùm-gá ~ məgá** 'side'; **nìŋ-mà ~ nùm-mà ~ n̄-mà** 'a sore', **nùm-phrà(ŋ) ~ n̄-phrà(ŋ)** 'wild, ferocious', **nùm-rí ʔ ~ mərí ʔ** 'dew').

There is a certain chicken-and-egg problem when confronted with such pairs of variants. Are the Jg. syllabic nasal and **Cə-** type prefixes reductions of former full syllables (via prefixization), or are the full syllables secondary dimidiations of former prefixes? The second interpretation seems preferable in view of cases like 'horse'. This etymon was originally reconstructed with an initial intrinsic cluster as ***mraŋ**, largely on the basis of WB **mrâŋ** (*STC* #145), but this was later modified to a prefixal reconstruction, ***m-raŋ ⋉ *s-raŋ**, to accommodate forms beginning with **r-** (Kanauri **raŋ**, Hakha **raŋ**) as well as some Himalayish forms reflecting a younger, sibilant "animal" prefix (Bunan **śraŋs**, Manchad **hraŋ**, Chepang **səraŋ**). The Jg. cognate **gùm-rà(ŋ)** is fully dissyllabic,[172] and Benedict is tempted to explain it by invoking a double prefixation, ***k-m-raŋ**, relating it to the verbal root ***m-raŋ** 'high' (Kanauri **raŋ**, WB **mraŋ**'), *i.e.* "the high / noble [beast]" (*STC*, n. 139; JAM 1979 ("QV"):26). I think it more plausible that Jg. simply added the syllabic prefix **gùm-** to the root for 'phonological bulk', as in many other words (*e.g.* **gùm-phrò** 'silver' < PTB ***plu**).

(3)   The cyclicity of changes in syllable structure

The following schematic diagrams[173] are an attempt to graphically summarize the diachronic interrelationships of types of syllable structure attested in TB:
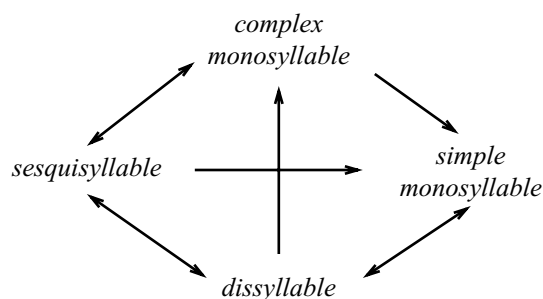
FIGURE 9. **Directionalities of diachronic changes in syllable structure.**

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171. See *STC* p. 104; Hanson 1906:178, 242, 474.
172. The variant with final nasal is characteristic of the Hkauri dialect.
173. Reproduced from JAM 1990d:3-8.
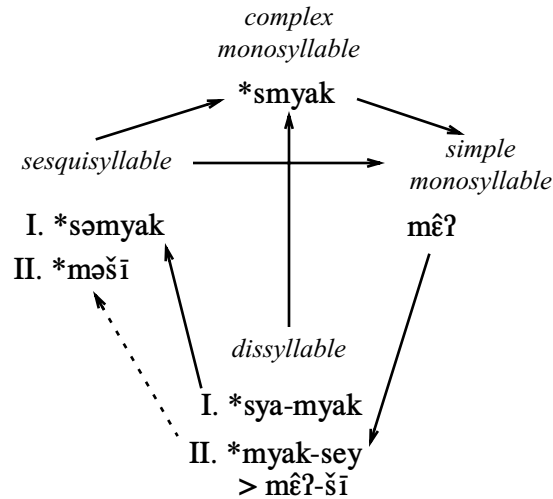
FIGURE 10. **Possible fates of a word meaning 'eye'.**

We can imagine an original PTB/PST morpheme for 'eye' of the shape ***myak** (this is in fact the actual WB form), that became at an early date elaborated into the dissyllabic compound ***sya-myak**, where the first element meant 'flesh; meat; body-part'. This compound could then be reduced to a sesquisyllable (***səmyak**) or even to a complex monosyllable ***smyak**. By processes of phonological attrition this complex syllable simplified, *e.g.* to mɛ̂ʔ (the actual Lahu form, where the HIGH-stopped tone reflects a Proto-Loloish *s- prefix before the nasal; see *TSR*:24,58-61). Repeating the cycle, this simple monosyllable was later reinforced by another morpheme, šī 'round object' (< PTB ***sey** 'fruit'), to yield the new binome mɛ̂ʔ-šī (the actual binome in modern Black Lahu). One might guess that sometime in the future this compound might be reduced to a monosyllable again, perhaps via a sesquisyllabic form like ***məšī**.[174/175]

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174. If the Lahu of the future (unlike the present-day language) permits sesquisyllables!

175. Similar examples of change in syllable structure are readily found in English. The word *police* is normally pronounced sesquisyllabically [pəlíːs] in a American English, but monosyllabically in many British dialects [pliːs], as if it were spelled "pleece". The dissyllabic word *barrette* 'small hair clasp' is from the diminutive of French *barre* 'bar', but is usually pronounced as a sesquisyllable [bərét], so that the morphemic identity of the first element is lost.

Rhymes: monophthongs and diphthongs

5.1 Overview of TB vowel systems

Systems of open rhymes in TB languages range in complexity from 5 or 6 to several dozen.[1] On the simpler side of the spectrum are languages like Written Tibetan (Modern Tibetan dialects have many more), Nocte, or Jingpho, with 5-vowel systems:

i		u
e		o
	a	

Written Burmese has a rather more complex array:[2]

i	ui	u
e		
ai		au
	a	
we	wa	wai

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1. For inventories of the vowel systems of hundreds of TB languages and dialects, see Namkung, ed. 1996.

2. For the phonemic interpretation of the WB vowels "**ui**" and "**aw**", see below 5.3.1 and 5.4. For an account of how these WB vowels are indicated in writing, and how they have developed into the rhymes of Modern Burmese, see JAM 1976b.

The most complex vowel systems occur in those subgroups with the greatest degeneration of syllable-final consonants, *e.g.* Loloish, Qiangic, Naga, Baic. Lahu has a nine-vowel system quite typical for a Loloish language:[3]

i	ɨ	u
e	ə	o
ɛ	a	ɔ

The Qiangic language Pumi (= Prinmi), along with an extremely complex system of initials, also has a rich vowel inventory, including both oral and nasal monophthongs and diphthongs, as in the Dayang dialect (JAM 1998a).[4] See Table 11.

Monophthongs

Oral

i	ɨ [a]	ʊ	u
e	ə		o
ɛ	a		ɒ

Nasal

ĩ		ũ
ẽ	ə̃	õ
ɛ̃	ã	ɒ̃

Diphthongs

Oral

iw	ɨw		
ey			ow
	əw		ɒw

Nasal

ĩw		
ẽy		õw

TABLE 11. **Pumi Dayang monophthongs and diphthongs**

a. This phoneme has the allophones [ɻ] and [ʐ] under certain conditions.

Pioneering attempts to reconstruct the vowels of PTB were made by Shafer (1940, 1941), but the foundations of further work in this area were laid by Benedict's brilliant

3. As always, however, the apparent symmetry of such a vowel system may be misleading, in that some vowels are of much higher frequency than others. The rarest Lahu vowel is /ə/, since it descends from a limited set of prototypes (mostly in words with initial *r- or *Cw- clusters, and with a special affinity of initial /m/). There is also much variation between /ə/ and the (much higher frequency) central vowel /ɨ/. See JAM 1973d/1982 (GL), Ch. I. By far the most common Lahu vowel, as is widely true of TB languages in general, is -a (below 5.2).

4. In many languages (*e.g.* of the Qiangic, Northern Loloish, Naga groups), the apparent complexity of the vowel systems may be aggravated by overtranscription (underphonemicization), non-recognition of free variation, or a failure to distinguish the native vowel system from sounds occurring only in recent loanwords.

reconstructions in *STC*. In the original (1942-3) version of *STC*, the following array of PST monophthongs and diphthongs was posited. See Table 12.

(-i)				(-u)
	-iy		-uw	
(-e)				(-o)
	-ey		-ow	
	(-ew)		(-oy)	
		-ay	-aw	
		-aːy	-aːw	
		-a		

TABLE 12. **PST monophthongs and diphthongs**

By the time *STC* was published (1972:n. 188), Benedict had reinterpreted the high diphthongs */ -**iy** -**uw** / as */ -**əy** -**əw** /, a change which introduced schwa into the system as a medial vowel (see below 5.3).

As the parenthesization implies, these rhymes are not all on a par, but may be categorized into high frequency or *primary* rhymes, and rare or *secondary* ones:

Primary			*Secondary*	
əy	əw		i	u
ey	ow		e	o
ay	aw		(ew)	(oy)
aːy	aːw			
a				

It is notable that the only monophthong of high frequency is *-**a**. Although *-**i** and *-**u** (especially *-**u**) are reconstructible, in many languages (*e.g.* WB and Lahu) they have merged with ***ey** and *-**ow**, respectively. The evidence for monophthongal *-**e** and *-**o** is very weak.[5] The core of the system is *-**a** plus a set of falling diphthongs.[6] (For the purposes of exposition, for now we consider all syllables not ending in a nasal or stop to

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5.   This state of affairs is of course very reminiscent of Chinese. It is possible, *e.g.* to analyze Mandarin as having only two underlying monophthongal vowel rhymes, /-a/ and /ə/. See Hockett 1947, "Peiping phonology".

6.   Rising diphthongs like *-**wa** and *-**ya** are mentioned in several places below (*e.g.* 5.2.2, 5.2.3, 7.1), but they have already been discussed in more detail in the sections on medial -w- and -y- (above 3.6.2, 3.6.3).

be "open"; *i.e.* diphthongal syllables ending in **-y** or **-w** are included in the "open" category.[7])

The original reconstruction of high diphthongs ***-iy** and ***-uw** was tantamount to conceiving the oppositions ***-iy/*-i** and ***-uw/*-u** as one of vowel length, *i.e.* ***-iː / *-i** and ***-uː / *-u**. Although Benedict himself never went this far, this approach could have been carried to an extreme, so that the other non-low diphthongs ***-ey** and ***-ow** would also be reinterpreted as long vowels, ***-ē** and ***-ō**, yielding a system like this:

	Primary			*Secondary*	
ī		ū		i	u
ē	(-ə)	ō		e	o
	a				
ay		aw			
āy		āw			

The high and mid diphthongs ***/ iy uw ey ow /**, alias ***/ əy əw ey ow /** are here reinterpreted as long vowels ***/ ī ū ē ō /** , with rarer monophthongal counterparts.[8] In this scheme, the long/tense vowels are primary, and the short monophthongal ones are secondary. (The short diphthongs ***-ay** and ***-aw** are already tense/long by virtue of their occupying two morae.) The vowel /a/ would be tense by nature, and its lax counterpart could be interpreted as the schwa that occurs in atonic syllables (or, in Benedict's revised scheme, as the first element in the diphthongs ***-əy** and ***-əw**).

In reality, however, it seems to make little difference whether one "phonemicizes" these oppositions as lax/tense, monophthongal/diphthongal, or short/long, since the phonetic reality behind the oppositions was undoubtedly as complex as that, *e.g.* between the vowels in English *heat* (higher, fronter, diphthongal, tenser) vs. *hit* (lower, backer, monophthongal, laxer).[9]

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7. We will modify this interpretation in the context of contrastive vowel length (below 5.10, 6.3), since syllables with final **-w** and **-y** behave like those with final nasals or stops in tolerating a length contrast in the nuclear vowel.

8. See JAM 1973d ("How to move your vowels").

9. *Cf.* also the many possible phonemic interpretations of the contrast between Siamese long vowels in open syllables vs. short vowels which are always automatically followed by glottal stop.

Against the length-based interpretation is the problem of assuming a typologically rare and counter-intuitive length contrast in open syllables.[10] Mainly for this reason we follow *STC*'s revised interpretation of the high diphthongs as ***-əy** and ***-əw**.

Benedict worked out the basic vowel correspondences by relying principally on his five criterial languages: WT, WB, Lushai, Garo, and Jingpho (Kachin).[11] While there is no reason to doubt the fundamental soundness of these correspondences, it must be stressed that in detail vowel correspondences are always complex and riddled with exceptions.[12] Variational phenomena abound within individual languages, as well as cross-linguistically, and we cannot always be sure that we have selected the correct allofam of a given etymon for comparison. Even when allofamy is not at issue, vowel correspondences are highly dependent on conditioning by initials, medials, and/or finals (even by tones), so that it is essential to operate with *rhymes,* rather than individual vowels.[13] It makes no sense, *e.g.* to ask globally "what happens to ***a** in Lahu?" Rather we must ask questions like "what happens to ***-yak**, ***-wat**, ***-aŋ**...?" In fact, of the nine basic Lahu vowels, seven occur as reflexes of the various rhymes with nuclear vowel ***-a-**:

PTB	*Lahu*	*PTB*	*Lahu*	*PTB*	*Lahu*
*-a	-a	*-am	-o	*-ap	-oʔ
*-wa	-u	*-an	-e	*-at	-eʔ
*-ya	-ɛ	*-aŋ	-ɔ	*-ak	-aʔ
				*-wak	-ɔʔ
				*-yak	-ɛʔ

For most branches of TB, reconstruction of vowels at the subgroup level remains to be achieved. Shining exceptions include Karenic, Northern Naga, Tani, and especially Lolo-Burmese.[14]

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10. See below 5.9, "Vowel length contrasts in open syllables".

11. For an overview of the basic vowel correspondences in open rhymes for these five criterial languages, see below 5.10.

12. This is especially true of inherently unstable features like vowel length. See below 5.9, 6.3.

13. The concept of *rhyme* is fundamental to the phonology of monosyllabic languages. The term may be defined as "the nuclear vowel of a syllable plus any preceding glide and/or following consonant".

14. For Karenic, see Haudricourt 1942-45, Jones 1961, Burling 1969; for Northern Naga, see French 1983; for Tani (a branch of Mirish) see J. Sun 1993; for Lolo-Burmese, see Burling 1969; Bradley 1979; Hansson 1989; JAM 1969, 1972a, 1978b, 1979, 1994, 1997b.

5.2   PTB *-a

-a is by far the best attested and most stable open vowel rhyme. Of the approximately 500 numbered cognate sets in *STC*, well over a tenth (about 58) are reconstructed with this rhyme, including:[15]

Gloss	PTB	STC #	Gloss	PTB	STC #
'bitter'	*ka	8	'hundred'	*b-r-gya	164
'put / place'	*s-ta	19	'flesh / meat'	*sya	181
'thin'	*ba	25	'fish'	*ŋya	189
'bamboo'	*g-pʷa	44	'borrow'	*r/s-ŋ(y)a	190
'knife / axes / sword' [a]	*s-ta	p. 22	'salt'	*tsa	214
'child'	*za ≍ *tsa	59	'I / me'	*ŋa	406
'eat'	*dzya	66	'vein / sinew'	*r-sa	442
'five'	*l/b-ŋa	78	'rain'	*r-wa	443
'ill'	*na	80	'ear'	*r/g-na	453
'nose'	*s-na	101	'god / soul / beautiful'	*m-hla	475
'moon'	*s/g-la	144	'negative imperative' [b]	*ta ≍ *da	p. 97

a. *Cf.* WT s*ta*-re 'axe'; WB th**à** 'knife, sword'; Lalo á-t**h**à 'knife'; Ahi mi-*tho* '*id.*'. See SB 1998.

b. This etymon is widely distributed in TB, occurring in Himalayish, LB, BG, Qiangic, and Nungish. See *e.g.* ZMYYC #1004.

At the subgroup level, where cognates are more abundant and the correspondences can be worked out in great detail, the number of sets that reconstruct with *-a is even larger.[16]

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15. The reconstructions here given are sometimes slightly different from those in *STC*, based on subsequent reanalysis.

16. Inga-Lill Hansson and I long ago (1979/1990) managed to reconstruct over 80 Proto-Lolo-Burmese etyma with *-a just on the basis of Akha, Lahu, and WB. More recently, in a seminar on Lolo-Burmese (Spring 1999), utilizing among other materials the work of Björverud (1994) on Lalo (W. Loloish), about 120 PLB roots in *-a were reconstructed. The total number of etyma in the STEDT database that reconstruct with *-a (at all taxonomic levels) is now about 175.

The following is a sampling of Proto-Lolo-Burmese roots in ***-a** that do not appear in *STC*:[17]

	PLB			PLB
'antelope'	*ʔ-ya²		'help' [a]	*m-ga³
'all'	*ka¹		'interrogative prt.'	*la²
'between' [b]	*ʔ-gla²		'jewsharp'	*ta²
'box'	*ʔ-da¹		'nearby place / vicinity' [c]	*ba²
'buckwheat' [d]	*g-ra²		'patch'	*ʔ-ba¹
'bright / shine'	*m-ba³		'rice / paddy'	*dza¹
'cheek'	*ba²		'sow (seeds)'	*ka³
'civet cat' [e]	*ʔ-ba²		'stick (n.)' [f]	*da¹
'fern / bracken'	*m-da¹		'teach'	*ʔ-ma^(1/2)
'fontanelle'	*ra²		'time / when' [g]	*ta²
'get / obtain'	*ra³		'trap' [h]	*wa³
'good / permissible'	*ʔ-na¹		'trousers'	*ʔ-la²
'grain of rice'	*ka¹		'want / think / love' [i]	*m-ga²
'hear / listen'	*gla²		'winnow'	*ʔ-ra¹

a. See also Akha **gā djā djā-ə** 'hire someone to work'. This root aparently has extra-LB cognates as well: Jg. **gā** 'laborer called for joint or communal work' (Hanson 1906:145).

b. *Cf.* Jinuo **khlo⁴⁴lo⁴⁴**, Tavoyan **klà**; also WB **krâ** 'have a space between, be apart' ≍ **khrâ** 'be between, divide; different', Lahu **ɔ̀-kā** 'space between' . This root is also found in Karenic: Pa-o **khrà**, Kayah Li **klē**, Kayaw **klá má**, Blimaw **klέ**, Pwo **ʔəklā**, Sgaw **klá** (all glossed 'among' in Solnit, in prep.) See above 3.6.4.1.

c. *Cf.* WB **ʔəpâ** 'space near a thing', Lh. **(ɔ̀-)pâ** 'place nearby'.

d. *Fagopyrum esculentum. Cf.* Lh. **ɣ̂â**, Lalo **ɣà**, Hani **ɣa²¹**, Lisu **gua²¹**.

e. Also known as 'tree civet, palm civet' [*Viverridae*]. *Cf.* Lh. **pā-vî**, WB **krauŋ-*bhâ*** 'weasel'. Both Lh. syllables are cognate to Akha **phjà-ǔ** (ILH), **pya˛i˛** (Lewis).

f. *Cf.* Lh. **á-tà**, Akha **dá**.

g. *Cf.* Lh. **thâ** 'temporal particle', Lalo **th*à*-sì** 'time'.

h. Likely extra-LB cognates include Milang **o**, Kulung **wo-mo** (see JAM 1997a).

i. *Cf.* Lh. **gâ** 'desiderative particle', Lalo **gà** 'want'.

17. Many of these etyma have extra-LB cognates as well.

PTB ***-a** is preserved as such in most TB languages, including the five criterial languages of *STC*:

	PTB	*WT*	*WB*	*Jg.*	*Lushai*	*Garo*
	*-a	-a	-a	-a	-a	-a
'bitter'	*ka	kha-ba	khâ	khá	kha	kha

5.2.1   **-a > back vowels*

In a number of languages, however, PTB ***-a** has developed into a back vowel: /ɒ/, /ɔ/, /o/, /ɯ/, or even /u/. These "a-backing" languages are scattered randomly all over TB, including some members of the Lolo-Burmese, Himalayish, Kamarupan, and Baic[18] groups. A similar development has occurred in Mandarin after velar initials [see below §5.2.1(3), 5.2.4].

(1)   Lolo-Burmese[19]

A number of forms for 'bitter' with back vowels in Loloish languages are to be found in *ZMYYC* #889: [Loloish] Yi Xide **khɯ³³**, Yi Dafang **khu³³**, Yi Mojiang **khɒ³³**, Lisu **khuɑ³¹**,[20] Hani (Biyue) **khɔ³¹**, Haoni (Shuikui) **xɔ³¹**, Jinuo **a³³khɔ⁵⁵**; [Burmish] Achang **xɔ³¹**, Zaiwa **kho²¹**, Langsu (Maru) **khɔ³⁵**. Particularly interesting is the Luquan dialect of Lolo (Ma Xueliang 1949), where ***-a** regularly becomes **-u**:

	PLB	*Luquan*	*Lahu*
'fern'	*n-da¹	ntʼu¹¹	dà
'many'	*mra²	ŋu³³	mâ
'moon'	*s-la³	ŋū²²	ha-pa
'soul / spirit'	*s-la¹ᐟ³	ŋu¹¹	ɔ̀-ha

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18. *Cf.* Bai (Dali, Jianchuan) **khu³³**, Bai (Bijiang) **qhu³³** 'bitter'. There is a similar reflex for 'bitter' in the unclassified Tujia language: *khɯ³⁵* tsi⁵⁵.

19. In JAM 1972a (*TSR*:21-22) I used the fate of PLB ***-a** (*i.e.* whether it was maintained as **-a** or became a back vowel) as one way of subgrouping the Loloish family.

20. This interesting diphthongal form simultaneously preserves the original ***-a** and shows an innovative high back segment **-u-**.

The Maru reflex may be taken as exemplary in its regularity, as illustrated by the following forms (extracted from Sawada 1999):

	PTB	*Maru*			*PTB*	*Maru*
'arrow'	*b-la	myò [a]		'hundred'	*b-r-gya	təyô
'child / son'	*za ≍ *tsa	tsò		'I / me'	*ŋa	ŋô
'dumb'	*ʔ-ga² (PLB)	səkô		'moon / month'	*s/g-la	ló̩
'ear'	*r/g-na	nò		'nose'	*s-na	nô̩
'eat / food'	*dzya	tsò		'righthand'	*g-ya	lôʔ-*yô*
'father'	*pʷa	əphó		'salt'	*tsa	tshò
'fish'	*s-ŋya	ŋò		'tongue'	*s-l(y)a	šô
'five'	*l/b-ŋa	ŋó		'trousers'	*s-la	lò̩
'flesh / meat'	*sya	šò				

a. Tonemarks: v̀ low; v̂ falling; v́ 'high; v̩ constricted.

(2)   *Himalayish and Kamarupan*

Languages in these groups that have developed back vowels from *-a include Lepcha (Himalayish of Sikkim), where *-a > -o, and a number of Kamarupan languages: *-a > Mikir -o, Abor-Miri -o, Chang Naga -au ~ -ou ~ -o[21]:

	PTB	*Lepcha*	*Mikir*	*Chang*	*Abor-Miri*
'bird / feather'	*wa	fo	vo	au	---
'child / son'	*za ≍ *tsa	---	o-so	shou	---
'come / arrive'	*la	---	lo	lo	---
'ear'	*g/r-na	---	nò	nou	*nyo*-rung
'eat'	*dzya	zo	chō	śau	do
'fall'	*k/gla	klo	klo	---	---
'father'	*pʷa	---	po	apou	---
'fish'	*ŋya	ŋo	---	ŋau	---
'five'	*l/b-ŋa	fəngo	pho	ŋau	a-ŋo
'I / me'	*ŋa	---	---	ŋo	ŋo
'moon'	*s/g-la	---	chik-*lo*	---	po-*lo*
'night'	*ya	---	a-jo	---	yo

	PTB	Lepcha	Mikir	Chang	Abor-Miri
'sinew / vein'	*r-sa	a-so	artho	hau	---
'tooth'	*swa	---	só	hau	---

Cf. also the following:

Lepcha	wó-bo 'dumb' < *m-ʔa; u-*kró* 'hair of head' < *s-kra; əvo 'husband / man' < *wa; tho 'put / place' < *s-ta
Mikir	phelo 'ashes' < *pla; pijo 'bee' < *bya; bo 'bring/carry' < *ba; phelo 'cotton' < *b-la; cho 'flesh' < *sya; so, kəso 'hot / sore' < *tsa; paro 'hundred' < *b-r-gya; mo 'negative' < *ma; nò-kàn 'nose' < *s-na
Chang	wo 'axe' < *r-pʷa; ŋʌu 'cattle' < *ŋwa; *kau*-shang 'chin / jaw' < *s/m-ka; gʌu 'crow' < *ka; ŋʌu 'fish' < *ŋya; hau 'go' < *s-wa; gau ~ kau 'land / earth' < *r-ka; mʌu 'lose' < *ma; *shau*-bu 'maize' < *sya (*cf.* Lahu ša-ma); mʌu 'wound/injury'
Abor-Miri	o 'rain' < *r-wa; -bo 'masc. suffix', as in mak-*bo* 'son-in-law' < *s-mak-*pa*

A group of little known Western Kukish languages, including Empeo (=Zeme), Kabui (= Rongmei), Maram, and Kwoireng, have developed high back vowels from *-**a**, presenting what *STC* (p. 58) calls "a bizarre set of correspondences":

	PTB	Empeo	Kabui	Maram	Kwoireng
'eat'	*dzya	teu	tu	tu	tyu
'father'	*pa	əpeu	əpu	əphu	əpyu
'five'	*b-ŋa	miŋeu	pəŋu	miŋu	məŋyu

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21. These transcriptions in earlier sources probably all represent the same diphthong. Weidert (1987) transcribes this Chang rhyme more accurately as -ʌu.

(3)   Old Chinese

These Western Kukish developments are of course no more "bizarre" than the development of Proto-Sino-Tibetan ***-a** > Old Chinese **-o** (> Mandarin **-u**) after velars (*STC*:186); see below 5.2.4(1).

	PST/PTB		*OC*	*GSR#*	*Mandarin*
'bitter'	***ka**	苦	k'o	49u	kǔ
'fish'	***ŋya**	魚	ngi̯o	79a-c	yú
'five'	***l/b-ŋa**	五	ngo	58a-d	wǔ
'fox'	***gwa**	狐	g'wo	41i	hú
'I / me'	***ŋa**	吾	ngo	58f	wú

5.2.2   Special reflexes of *-wa*

Languages like Chang and Mikir, which already reflect ***-a** by a back vowel, are unlikely to have different reflexes of ***-a** and the prelabialized rhyme ***-wa**. Some languages, however, including WT, WB, and Lahu, do have special reflexes of ***-wa**:[22]/[23]

	PTB	*STC*	*WT*	*Jingpho*	*WB*	*Lahu*
	*-wa	---	-o	-a	-wa	-u
'cattle'	***ŋwa**	#215	---	ŋā	nwâ	nû
'handspan' [a]	***m-twa**	#165	mtho	---	thwa	thu
'tooth' [b]	***s-wa**	#437	so	wā	swâ	-šū [c]

a. *Cf.* also Lalo **thʏ́**.

b. *Cf.* also Lalo ʃỳ-ɣɔ́.

c. This Lahu morpheme only occurs in compounds referring to tooth-like parts of tools, for example, **pɨ-kâʔ-šū** 'teeth of a comb', **gâʔ-šū** 'teeth of a rake', **lîlə-šū** 'saw-tooth'. The ordinary Lahu word for 'tooth' is **cì** , cognate to WB **cwai** 'canine tooth' < ***m-dzway** (see below 5.5.2).

Since WT **-o** is also the reflex of PTB ***-o** and ***-ow** (see below 5.4, 5.6.1), the WB evidence is more valuable in reconstructing the ***-wa** rhyme.

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22. For a general discussion of medial ***-w-**, see above 3.6.2. For a good example of alternation between ***-wa** and ***-wan**, see 'garlic', below 11.2.

23. An interesting analogy to the WT development is provided by the Scandinavian proper name *Ingvar* which was borrowed into Russian as *Igor* during the period of intense Viking activity between the Baltic and the Black Sea in the late first millennium A.D.

The presence or absence of the glide *-w- may also affect the reflexes of rhymes with nuclear *-a- plus final consonant, *e.g.* *-ak vs. *-wak. See below 8.2(1).

5.2.3   *-a > front vowels

Solnit (in prep.) has noted the development of *-a into mid front vowels in the Central Karenic languages Kayah Li and Blimaw:

	Proto-Karen	Pwo	Pa-o	Kayah Li	Blimaw
'bitter'	*ka	khâ	khá	khe	khɛ
'moon'	*la	lā	là	lē	lɛ́
'star'	*cha	šâ	chá	che	ʃɛ

A curious evolution of *-a to a high front vowel is characteristic of several languages of the Qiangic group. The Dayang dialect of Pumi (=Prinmi) has complicated reflexes of *-a largely conditioned by the initial consonant, though the "default" reflex seems to be -i (see JAM 1998).

(1) *-a > -i	PTB	Pumi Dayang
'borrow / lend'	*r/s-ŋ(y)a	də-*nǐ* [a]
'ear'	*g-na ⪊ *r-na	*ɳí*-dʐó
'listen'	*ʔ-na [b]	thə-*nǐ*
'moon'	*s/g-la	ɬí
'month'	*s-(g)la	ʐí
'hundred'	*r-gya	ʃí
'salt'	*tsa	tshǐ
'ill / hurt'	*na	ɳí
'rest'	*na	khə-*ní*
'wear clothes'	*gwa	gwǐ
'buckwheat'	*g-ra[2] [c]	(Taoba tõ³⁵ *tɕi³⁵*, Jinghua tãu *tʃə¹³*)
'sparrow'	*m-tsa [d]	(Taoba guɛ³⁵ *tɕi³⁵*, rGyalrong pa-*tsa*)
'rice'	*dzya [e]	dzí 'cooked rice'

a. See also Ergong ʐŋi, N. Qiang ŋuə, Muya ŋɯ⁵⁵, Guiqiong ŋi⁵⁵, Namuyi ɳi³³.

b. PLB (*DL*:726).

c. PLB; *cf.* Lahu ɣâ, Hani ɣa²¹, Lisu gua²¹ (*DL*:1116).

d. *Cf.* Lahu jà, WB ca < PLB *m-dzya¹ (*DL*:563).

e. *Cf.* Lahu cà 'paddy', Wancho tza, Newari ja (*DL*:443).

(2) *-a > ɨ [a]	*PTB*	*Pumi Dayang*
'bee'	*bya	bɨ́
'thin'	*ba	bɨ́
'edge / side'	*m-dzya [b]	dzɨ̌ [dzʲ̌]
'eat'	*dzya	dzɨ́ [dzʲ́]
'rightside'	*g-ya	ʐɨ́
'trousers'	*s-la	ʐɨ̌
'meat'	*sya	ʃtʃɨ́
'child'	*za ≍ *tsa	tʂə̌N [c]
'fish'	*s-ŋya	dʒɨ́
'many'	*mya ≍ *mra	ʐɨ́

a. Mostly after *palatals. Exception: 'laugh' *rya > Pumi ʂǒ (see §3 below).

b. *Cf.* Lahu jâ, Akha dzà, Limbu ja (*DL*:563).

c. This form apparently reflects the suffixal *-n that sometimes appears on kin-ship terms, as in Dhimal tsàn 'son', Lepcha a-zon 'grandchild' (see below 11.2.3). *Cf.* 'five' for a different source of a nasalized vowel.

(3) *-a > -ɒ [a]	*PTB*	*Pumi Dayang*
'bitter'	*ka	qhɒ̆ [b]
'chin'	*m-ka	mə̀-qɒ́
'open'	*ka	tə-qɒ́
'cattle'	*ŋwa	qwɒ́
'strength / win'	*k-ra [c]	qɒ̆
'hoof'	*kwa [d]	ʒdʒwìN ɸpɒ̆
'throw'	*s/m-ba ≍ *s/m-baːy [e]	βbɒ́ (Jinghua Pumi sba⁵⁵)
'hammer'	*m-t(w)a ≍ *s-ta [f]	stɒ̆
'box / cabinet'	*ta [g]	tɒ́
'father'	*pa	bɒ́
'five'	*l/b-ŋa	wɒ̆N [h]
'laugh'	*rya	ʂɒ̆

a. Mostly after Pumi postvelars, labials, and dental stops. Exceptions: ***ka** 'ditch' (*cf.* Lahu **qhâ** > Dayang **qhá**); 'thin' ***ba** > **bɯ́** ,above (§2).

b. Two other Qiangic languages do have -i as a reflex of this etymon: Guiqiong **khi⁵⁵mu⁵⁵**; Ersu **tʃhi⁵⁵** (*ZMYYC* #889).

c. *Cf.* WB **ʔâ** 'strength', Lahu **ɣâ** 'strength; to win' (*DL*:1116), Lalo **ɣà** 'win'. This seems certainly to be the same root as ***ra** 'humans (classifier)', above 3.4.2. *Cf.* English expressions like '20 men strong'.

d. *Cf.* Written Burmese **khwa**.

e. See JAM 1995a ("Palatal suffixes"):47-8.

f. *Cf.* Lahu **tha** 'strike with flat hand, slap, strike a sharp blow', **tha-tu** 'hammer' (*DL*:671); also Written Tibetan **(m)tho-ba** 'large hammer' < ***-twa**.

g. *Cf.* Lahu **ta-qō** 'box', Naxi **tɒ⁵⁵**, Tujia **tho⁵³**, Karen **dø⁵⁵**.

h. With nasalization of the vowel, apparently reflecting the original ***nasal root-initial**. *Cf.* 'child' for a different source of a nasalized vowel.

The PTB ***-wa** rhyme also has multiple Pumi Dayang reflexes, presumably conditioned by the initial consonant:

*-wa > -i	*PTB*	*Pumi Dayang*
'handspan'	***m-twa**	tɕhwí
'rain'	***r-wa ⋊ *s-wa ⋊ *g-wa** [a]	gwí
'satiated'	***k-wa** (*cf.* WB **wa'**)	kwǐ
*-wa > ɨ		
'axe'	***r-pʷa**	ɸpɨ́
'snow'	PLB ***wa²** [b]	ɸpɨ́
*-wa > ou		
'tooth'	***swa**	ʂóu

    a. Other reflexes of this root include WB **rwa**, Lotha **erú**, Laker **sua**, Lepcha **so**, Digaro **kəra** (see *STC* #443). The final glottal stop in Lushai and Lai **rwaʔ** is unexplained, perhaps pointing to a variant in final ***-s** (see below Ch. 10).

    b. *Cf.* Lahu **vâ** 'hail', **vâ-məy** 'snow' (*DL*:1323). This root is actually to be reconstructed as ***s-pʷal** at the PTB level. However, PTB ***s-bal** 'frog' > Dayang **ɸpɔ́**. See below 9.3.1(1,3).

In at least one case, the rhyme ***-ya** is reflected by Pumi Dayang **-ɛ**:

	*-ya	> -ɛ
'tongue'	PTB ***s-lya** (*cf.* WB **hlya**)	> Dayang **ɬɛ̌**

This is very similar to the fate of ***-ya** in Lahu:

	PTB	*STC #*	*WB*	*Lahu*
'bee / bird'	***bya**	177	pyâ	pɛ̂
'swidden'[a]	***hya**	---	ya	hɛ

    a. *Cf.* also Daai Chin **jah** 'mountain field' (Hartmann 2001b:146).

The presence or absence of the glide ***-y-** may also affect the reflexes of rhymes with nuclear ***-a-** plus final consonant, *e.g.* ***ak** vs. ***yak**. See above 3.6.3; below 8.2(1b).

The extinct Xixia (= Tangut) language is now definitely considered to have belonged to the Qiangic group. As demonstrated by Nishida (1973, 1976), both Xixia and a presumed modern descendant known from Chinese bilingual texts, Tosu, have also often developed -i from PTB ***-a**, *e.g.* ***sya** 'flesh / meat' > Xixia **tshi**; ***za ⋊ *tsa** 'child / son' >

Xixia rifi. More recently, Gong Hwang-cherng (1999) has compiled a list of his own Xixia reconstructions,[24] many of which confirm this finding:

	PTB	Xixia		PTB	Xixia
'axe'	*r-pᵂa	wjị̥¹	'negative'	*ma	mji¹
'child'	*za ⋊ *tsa	zjị̥¹	'neg. imperative'	*ta	tji¹
'come'	*la	ljị̥¹	'nose'	*s-na	njii²
'eat'	*dzya	dzji¹	'put / place'	*s-ta	tjị̥¹
'god / beautiful'	*m-hla	sji²	'salt'	*tsa	tshjɨ²
'laugh'	*rya	djiij¹	'snow'	*s-pᵂa(l)	wjị̥¹
'listen'	*g/r-na	nji²	'tooth'	*s-wa	śjwi¹
'flesh / meat'	*sya	tśhji¹	'trousers'	*s-la	ljii¹
'moon / month'	*s/g-la	lhjị̥²	'wear clothes'	*gwa	gjwi²

5.2.4 Chinese comparanda to PTB roots in *-a

(1) Where OC has -o, -i̯o, -i̯wo

Chinese is definitely to be included in the ranks of those languages that have developed back vowels from earlier *-a (see above 5.2.1). The great majority of good OC comparanda to PTB etyma in *-a are reconstructed with -o in *GSR*.[25] When the etymon had medial *-w-,[26] the reconstructed OC rhyme is usually -i̯wo.[27]

PTB			GSR	OC	Chinese Gloss
*r-pᵂa	'axe'	鈇 斧	101e 102h-i	pi̯wo	'*id.*'
*ka	'bitter'	苦	49u	k'o	'*id.*' [a]
*s-na	'crossbow'	弩	94z	no	'*id.*'
*pᵂa	'father₁'	父	102a-e	b'i̯wo	'*id.*' [b]
*s-grwa	'feather' [c]	羽	98a	gi̯wo	'*id.*'
*ŋya	'fish'	魚	79a-c	ŋi̯o	'*id.*'

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24. These are correlated to the 267 tentative Qiangic cognate sets presented in JAM 1999b.

25. Benedict observes (*STC*:161,187) that the *-a > -o shift must have occurred not long before the OC period since the original vowel is reflected in an early Chinese loan in Tai-Kadai: 'five' Proto-Tai *ha (< *hŋa; see Li Fang-Kuei 1977:249), Ong-Be ŋa.

PTB			GSR	OC	Chinese Gloss
*g-ra	'fishbone / spine' [d]	呂	76a	gli̯o	'spine'
*l/b-ŋa	'five'	五	58a-d	ŋo	'id.'
*gwa	'fox'	狐	41i	g'wo	'id.'
*s-wa	'go'	于	97a-g	gi̯wo	'proceed / go to'
*ŋa	'I / me₁'	吾	58f-i	ŋo	'id.' [e]
*pʷa	'man / person / husband'	夫	101a-b	pi̯wo	'man / husband'
*m-na	'mother₁ / older sister / daughter-in-law'	女	94a-e	ni̯o	'woman / lady / girl'
*m-ka	'open(ing) / mouth / door'	戶	53a-b	g'o	'door / opening'
*g-la	'pay / give for' [f]	與	89b	zi̯o	'give to, give for'
*pʷa	'palm₁'	扶	101f	b'i̯wo ~ p'i̯wo [g]	'breadth of four fingers'
*s-ra	'place'	所	91a-c	si̯o [h]	'place where'
*srya	'yam / potato'	薯	--- [i]	di̯o	'bulb, tuber / potato'
*r-wa	'rain'	雨	100a-c	gi̯wo	'id.'
*la	'salt₁'	鹵	71a-b	lo	'salty / rock salt'
*m/s-twa	'spit / spittle₁'	吐	62d	t'o	'vomit / spit out' [j]
*gra	'stranger / guest; enemy' [k]	旅	77a	gli̯o	'guest, stranger; traveller'
*grwa	'taro / potato' [l]	芋	97o	gi̯wo	'taro (*Colocasia esculenta*)'
*k-la	'tiger'	虎	57b-e	xo [m]	'id.'
*nya	'woman' [n]	女	74a	ni̯o	'woman, lady, girl'

a. This word is allofamically related to 肝 'liver', with suffixed -**n** (see below §5).

b. This is undoubtedly the same morpheme as 'man / person / husband', below.

c. *Cf.* WT s-gro 'large feather'. See Gong 2001:28.

d. *Cf.* WT **gra-ma** 'fishbone'; Jg. ǹ-rút-ñ-rā̀ 'bones, skeleton'; Tangkhul ā-ra 'bone', Wancho ho-ra, Nocte a-ar '*id.*' See Gong 2001:27.

26. *I.e.*, when it was *hé-kǒu* 合口 'closed mouth' in traditional Chinese terminology.

27. See below: 'axe', 'father₁', fox', 'man / husband', 'palm₁', 'rain', 'taro / potato'.

e. This word has an allofam in OC -â (see below §2).

f. *Cf.* WT **gla** 'pay, wages, fee'. See Gong 2001:31.

g. This word has an allofam in OC -å (see below §3).

h. This OC reconstruction was revised to **śrio** in *STC*:171.

i. Not in *GSR* #45.

j. This word has an allofam in -**wâ** (see below §2).

k. Cf WT **dgra** 'enemy, foe'. The same association of ideas is found in IE: PIE ***ghos-ti-** > PGermanic ***gastiz** 'guest', Latin *hostis* 'enemy' (< 'stranger'). Cf also the opposed meanings of English *host*: (a) 'entertainer of guests', (b) 'army of foes'. See Gong 2001:27.

l. *Cf.* WT **gro-ma** 'medicinal herb; potato'. This comparison is from Gong 2001:28.

m. This OC reconstruction was revised to **xlo** in *STC*:107,178.

n. *Cf.* WT **nya-ma** 'mistress of the house, housewife'. Also apparently in this word family are WT **nyag-mo** 'woman', and Chinese 孃 / 娘 'lady, woman, mother' OC **n̮iang** (not in *GSR* #730); *AD* 541 reconstructs **n̮iang** for MC.

(2)   *Where OC has -â, -wâ*

Karlgren's "-â" represents a low back vowel. The available PTB comparisons to OC etyma with this rhyme are fewer and less persuasive than those for OC "-o". Two of them ('I / me$_2$' and 'spit / spittle$_2$') have allofams in -**o**.

PTB			*GSR*	*OC*	*Chinese Gloss*
*p^{w}a ⋊ *b^{w}a	'grandmother'	婆	25q	b'wâ	'old woman / grandmother'
*ŋa	'I / me$_2$'	我	2a-g	ŋâ	'*id.*'
*tsa	'salt$_2$'	鹺	5m	dz'â	'*id.*'
*m/s-twa	'spit / spittle$_2$'	唾	31m	t'wâ	'spit'
*m-ba	'wave (in water)'	波	25l	pwâ	'wave / surge'[a]
*ka	'word / speech'	歌	1q	kâ	'sing / song'

a. This root was variably prefixable in TB. WT has a doublet **rba-(kloŋ)** ~ **dba(-kloŋ)** 'wave, eddy', with both the **r-** and the **d-** prefix. Lolo-Burmese often reflects the nasal prefix, as in Lahu **ğɨ-bâ**, **í-kâʔ-bâ** (**ğɨ** and **í-kâʔ** both mean 'water'), **ɔ̀-chu-bâ-nâ** 'roll of fat'; and Yi Xide **ẓ̩^{33}mbo^{33}** (**ẓ̩^{33}** 'water'). (For the nasal-prefixal source of the Lahu voiced series of obstruents, see above 3.1.) Shixing (Qiangic group) **dʑɛ^{33}tɛ^{33}nbu^{53}** also has the nasal prefix, but Pumi (also Qiangic) **tʃə^{55} ɸpa^{55}** reflects the ***s-** prefix instead. This etymology is due to RSC:2000, who cites all the cognates mentioned here.

(3)   Where OC has -å [ɔ]

Karlgren's "-å" represents a back vowel intermediate in height between "-o" and "-â", something like IPA [ɔ].[28] The few available TB comparanda to OC words in -å almost all have ***labial initials**:

PTB			*GSR*	*AD*	*OC*	*Chinese Gloss*
*g-pʷa	'bamboo'	芭	39c	683	**på**	'kind of fragrant herb' [a]
		笆	(not in 39)	683	**på**	'kind of bamboo' (*AD*)
*pʷa	'father₂'	爸	(not in 39)	683	**på**	'*id.*' (*AD*)
*gra	'long (time)' [b]	遐	33j	---	**g'å**	'far, distant'
*ma [c]	'mother₂ / fem. suffix'	媽	(not in 40)	592	**må**	'mother, old woman' (*AD*)
*pʷa	'palm₂'	巴	39a	683	**på**	'palm of hand' [d]
		把	39b	683	**på**	'grasp, handful'
*grwa	'birch' [e]	樺	---	---	**g'wå**	'kind of birch'
*d-ŋa [f]	'tooth'	牙	37a-b	---	**ŋå**	'*id.*'

a. Glossed 'banana; fragrant plant' in *AD* #683.

b. *Cf.* WB **kra** 'be long in doing, be long in time'. See Gong 2001:26.

c. The 'universal' shape of this etymon makes it virtually useless for comparative purposes.

d. This is one of the glosses in *AD* #683. The *GSR* gloss is 'snake'.

e. *Cf.* WT **gro-ga** 'birch tree or its bark'. This comparison is from Gong 2001:28, but the OC reconstruction is JAM's guess based upon the other characters in *GSR* #44; the Chinese character is not in *AD* #94 and not in *GSR* #44.

f. This root is very rare in TB, attested so far only by Pa-o Karen **tǝŋa** (*STC*:137).

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28. See the table *Karlgren's Transcriptional Conventions for Chinese* in the front matter.

(4)   With miscellaneous OC correspondences

PTB			GSR	OC	Chinese Gloss
*ŋwa	'cattle'[a]	牛	998a-c	**ŋi̯ŭg**	'bull / cow / ox'
*m-ʔa [b]	'dumb'	啞	805f	**ʔăg**	'*id.*'
*r-na	'ear'	耳	981a-b	**ńi̯əg**	'*id.*'
*sa [c]	'earth'	沙	16a-c	**sa**	'sand'
*gla	'musk deer' [d]	麝	not in 807	**dzi̯ăg** [e]	'*id.*'
*g-ya	'right side'	右	995i-j	**gi̯ŭg**	'right (hand)'

a. *STC* (n. 164) considers the TB root to be an early loan from Tai (PTai ***ŋwa**^A2 ; see Lɪ Fang-Kuei 1977:239), although this is far from certain.

b. This root undoubtedly has an imitative component. The nasal prefix is attested in Jingpho (**məʔà**) and Nung. Lolo-Burmese shows variation between ***ʔa³** (> WB **ʔa'**) and ***ʔ-ga²** (> Lh. **qā**). *Cf.* also Lushai **a**. See *STC* #105.

c. This comparison dates from Benedict 1939, where he compared WT **sa** 'earth' with the Chinese word for 'sand', although he never reconstructed a general PTB or PST root with this shape. Baxter (1992) reconstructs the OC form as ***srāj**. See the detailed discussion in the context of the PTB "palatal suffix" in JAM 1995a:68-70. See also below 11.6.3.

d. *Cf.* WT **gla-ba** 'musk dear'. See Gong 2001:32.

e. *AD* 865 reconstructs MC **dź'i̯a**. This OC reconstruction is a guess based upon the other characters in *GSR* #807.

(5)   Where suffixes are involved

There are many TB/OC comparanda with nuclear vowel ***-a**, where TB and/or Chinese reflect(s) suffixal ***-n**, ***-t**, or ***-k**. These are almost all presented in more detail in Chapter VIII below, in the context of suffixation in general,[29] but are listed together here briefly for ease of reference.

PST		X-Ref.		GSR	OC	Ch. Gloss
*ka-n	'bitter'	11.2.4(2)	苦	49u	**k'o**	'bitter'
			肝	139l	**kân**	'liver'
*tsa-n ⚡ ***za-n**	'child'	11.2.4	子	964a-j	**tsi̯əg ~ dzi̯əg**	'*id.*'
			親	382o-p	**ts'i̯ĕn**	'parents / relatives' [a]
*mwa-t [b]	'curse'	---	罵	40h	**må**	'revile / curse'

---

29. See the *Cross Reference* column in the following table.

PST		X-Ref.		GSR	OC	Ch. Gloss
*dzya-n/k	'eat / food'	---	飮	921e-f	dzi̯əg	'food / give food to'
		11.2.4(2)	餐	154c	ts'ân	'eat / food / meal'
		11.5	食	921a-c	d̑'i̯ək	'eat'
*s(y)a-n	'animal / flesh / body'	---	獸	1100a-f	śiôg	'animal'
		11.2.4	身	386a-c	śi̯ĕn	'body'
*swa-n	'garlic / onion'	11.2.4	蒜	175b	swân	'garlic'
*ŋa-n	'goose'	11.2.4	鵝	2p	ŋâ	'domestic goose'
			雁	186c	ŋan	'wild goose'
*r-tswa-n	'grass'	11.2.4	草	1049b-c	ts'ôg	'grass / plants / herbs'
*m-ka-n	'heavens / sun'	11.2.4(1)	乾	140c	g'i̯an	'heaven / heavenly'
			天	361a-c	t'ien	'heaven'
*s/m-ra-ŋ [c]	'horse'	---	馬	40a-e	må	'*id.*'
*tsa-t [d]	'hot / pain'	---	疾	494a-c	dźi̯ət	'sickness / pain'
*kwa-n ⪥ *gwa-n	'net (casting)'	11.2.4(1)	罔	41d	kwo	'net'
*nya-n [e]	'red₁'	---	赧	216b	nan	'blush'
*tya-n	'red₂'	11.2.4(2)	朱	128a-c	t̑i̯u	'red'
			丹	150a-b	tân	'red / vermilion / cinnabar'
			綪	812t'	ts'i̯ən	'dark red'
			縉	378g	tsi̯ĕn	'pale red'
*gwa-n ⪥ *kwa-n	'wear / dress'	11.2.4(2)	冠	160a	kwân	'cap / put on cap'
*na-ŋ [f]	'you'	---	汝	94j-k	ni̯o	'thou'

a. For an alternative etymology for this Chinese form, see below 12.6.1(b).

b. This root is rare in TB. WT **dmod-pa** 'curse' reflects the *-t suffix. See *STC*:189.

c. *Cf.* WB **mrâŋ**, Jg. **gùmrà(ŋ)**. See *STC* #145 and n. 139. Coblin (1974) cites an archaic Tibetan form **rmaŋ** 'horse, steed'. See Gong 2001:24. The usual WT word for horse, **rta**, seems completely unrelated.

d. *Cf.* WT **tsha** 'hot; illness', **tshad-pa** 'heat; fever'; WB **cha** 'hungry'; Lahu **cha** 'shine, be bright (of the sun)'; Garo **sa** 'ache; sick'; Lushai **ša ~ šat** 'hot'; Tangkhul **khə-kə-*tsa*** 'ill'; Mikir **so** 'hot, excessive; be ill, sore'. See *STC* #62.

e. This rare root has so far only been found in Pa-O (Karenic) **ńa** 'red'.

f. For the alternation between plain and suffixed variants of this root in pronominal paradigms, see JAM 1994b ('Sangkong') §3.3:592-4.

5.3 *High vowels*

In this section we discuss the four rhymes originally reconstructed with high vowels in *STC*: the two relatively rare monophthongs *-u and *-i, and the much better attested diphthongs *-uw and *-iy, now reinterpreted as *-əw and *-əy.[30]

5.3.1 *-u and *-uw/-əw

While monophthongal *-u is much less well exemplified than *-uw/*-əw, there are several widespread roots in which it does occur, and it is certainly better attested than monophthongal *-i (below 5.3.2). Still, most languages, including four of the five "criterial" languages in *STC*, do not have distinct reflexes of these two proto-rhymes. *-u is poorly attested in WT, and there is no clear example of a Garo reflex of *-u. The chief evidence for the contrast is provided by Lolo-Burmese and Nungish, with the most crucial evidence provided by WB itself. The reconstruction *-u has been reserved for roots showing -u in Lolo-Burmese (or Nung), providing that *-ow (which also > WB -u; see below 5.6.1) can be ruled out.[31]

PTB		STC#	WT	WB	Jingpho	Lushai	Garo
*-u			-u	-u	-u	-u	(-u)
'bloom / bud'	*bu ⪥ *pu	260	ḥbu-ba	phû	pù	--	--
'dig'	*tu ⪥ *du	258	--	tû	thù	tu	--
'howl / grumble'	*wu	261	--	u	wū	u	--
*-uw / *-əw			-u	-ui	-u	-u	-u
'bug'	*bəw	27	ḥbu	pûi	ləpú [a]	--	tśi-pu
'carry on back'	*bəw	28	--	pûi	--	pu	--
'grandfather'	*pəw	23	phu-bo	ʔəphûi	phu [b]	pu	bu
'nine'	*d/s-kəw	13	dgu	kûi	džəkhû	ku-a	sku
'smoke'	*kəw	256	--	mî-kûi	khú	mei-khu	wal-ku
'steal'	*r-kəw	33	rku	khûi	ləgú	--	--

a. 'snake'

b. 'older brother'

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30. This reinterpretation of the high diphthongs was singled out for particularly harsh criticism in the tendentious review of *STC* by Miller (1974). In my reply to Miller (JAM 1975a:157-8) I downplayed the significance of the reinterpretation, though now I do consider it to be preferable to the original reconstruction. See JAM 1985a (*GSTC*), note 33, p. 20.

The transcription of this latter WB rhyme as "**ui**" goes back to the pioneer epigraphers Blagden (1914) and Duroiselle (1916) — a highly reasonable interpretation, since the graph is a combination of the superscript symbol for "**-i**" and the subscript symbol for "**-u**". Other scholars have experimented with other transcriptions, *e.g.* "**iu**", or even "**ɨ**" (the latter interpretation uniting -**i** and -**u** "horizontally" on the front/back dimension, rather than as two morae in syntagmatic sequence). Wolfenden (1920:197) attempted even greater phonetic precision, guessing that this WB vowel might have approximated the Dutch diphthong written "**-ui**", as in *huis* /höüs/ 'house'. In Inscriptional Burmese (attested since the early 12th century), this vowel was in fact written as "**-uw**", with the symbol for consonantal -**w** following the vowel sign for -**u**- (just as the rhyme now reconstructed as *-**əy** was written as "**-iy**").[32] See Figure 11.
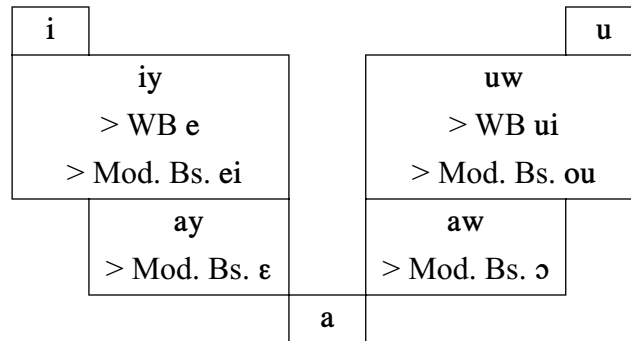
FIGURE 11. **Inscriptional Burmese open rhymes**

In any event, there was certainly a robust contrast between the two high back vowels in WB.

Many other Loloish and Burmish languages also have distinct reflexes of *-**u** vs. *-**əw**, as does Nungish, furnishing valuable confirmation of the WB contrast:

· *Lolo-Burmese*

The reflexes of these two rhymes in the modern LB languages are more complex than in WB, since the modern languages have had time to develop complex conditioned

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31. See 'thick' (below) for an example of a case where it is impossible to distinguish between *-**u** and *-**ow** just on the basis of Lolo-Burmese evidence.

32. This was certainly a major factor in Benedict's original reconstructions of these rhymes. In the etymologies in my Lahu dictionary (JAM 1988b), I adopted the convention of using *-**iy** and *-**uw** for the PLB level, and *-**əy** and *-**əw** for the PTB stage.

reflexes of the rhymes (especially of ***-əw**) after different initials. First, some examples of PLB ***-u**:

	PLB [a]	WB	Maru	Lahu	Akha	Lisu	Ahi [b]	Nyi
*u		u	u / au	u	u	u	o	u
'brood / incubate' [c]	*ʔ-mu²	---	---	mū	---	---	---	---
'crazy'	*ru²	rû	---	ɡ̈û	ù	vu³³	---	ɣ¹¹
'egg / lay egg'	*ʔu³	ʔu'	a̱u⁵⁵	u	úʔ	fu⁴⁴	---	---
'fry' [d]	*ʔ-lu³	---	---	hu	---	---	---	ɬẓ⁴⁴
'intestine' [e]	*wu¹	ʔu	---	ɔ̀-ɣù-ɛ̂ʔ	bɔ-ú	wu⁴	---	---
'irrealis particle' [f]	*du¹	---	---	tù	dú	du³	---	---
'awn (of grain) / panicle' [g]	*ʔ/s-nu¹	---	---	cà-nu	---	---	---	---
'porcupine'	*ʔ-blu¹	phru	pju̱³¹	fâʔ-pu	ho-pú	hɛ̃³⁵pū³³	po³³	pu³³
'prepare / practice / rehearse'	*m-gu¹ᐟ³	ku ⸓ ku' [h]	---	gu	---	---	---	---
'pumpkin / gourd' [i]	*pu²	bhû	---	*phə̂-mə́*	---	---	---	o-*phu*-ma
'resemble' [j]	*su²	---	---	šū	---	---	---	---
'soot / acrid (smoke)' [k]	*ʔ-mu²	---	---	mū	---	---	---	---
'squirrel (flying)' [l]	*s-ru²	hrû	---	fâʔ-šū	---	---	---	---
'take'	*yu¹	yu	ju³¹	yù	yú	ʒu³³	yo	yu
'white'	*plu¹	phlu > phru	phju³¹	phu	pyú	phu⁴⁴	tho	ślu
'who / remote 3rd person pronoun' [m]	*su¹	su	---	šu	---	---	---	---
['thick' [n]		thu	thau	thu	tʼú	thù	thò	thù]

a. It is particularly striking that two of these LB roots reflecting ***-u** have excellent cognates in the genetically distant Bai group: Bai (Jianchuan and Dali dialects) vu⁴⁴ 'sit on eggs'; vu²¹ 'mad person', vɣ⁴² 'go crazy', implying PTB ***ru**. This is difficult to explain for those (*e.g.* L. Sagart, S. Starostin) who wish to banish Bai from TB entirely by calling it "a dialect of Chinese"! While 'sit on eggs' may indeed be a borrowing < Chinese 孚/孵 (Mand. fū), 'crazy' has no plausible Chinese source. See below 5.3.3(2). For an attempt to disentangle Chinese loans in Baic from possible cognates with Lolo-Burmese see JAM 2001d.

b. These Ahi forms are taken from several different sources, where the tones are indicated differently.

c. *Cf.* Lalo ʔmù For the identical Lahu/Lalo correspondence, see 'soot / acrid (smoke)' (this chart).

d. *Cf.* also Yi Xide ɬ̩ ~ ɬu³³ (*DL*:1072).

e. For additional LB and Qiangic cognates, see ZMYYC #271 and JAM 2000a:#23c. This etymon should be reconstructed as ***pʷu** at the PTB level. There is also a good Chinese comparandum below 5.3.3(1).

f. The Lahu particle indicates 'unrealized, hypothetical, future, intended, purposive, or goal-oriented action'. The Akha particle is "used with statements where one is not sure ... that sthg will happen" (Lewis 1968:87). See *DL*:614.

g. *Cf.* Lalo ʃá-nɣ́ (SB 1998).

h. WB **ku** 'help', **ku**' 'give medicine; cure' (*DL*:405).

i. See STC:22 and Lalo phỳ (SB 1998). The -ə in the Lahu reflex is probably due to assimilation to the second syllable of the compound.

j. *Cf.* Lalo ʃ̀ỳ, Sani sẓ⁵⁵, and many forms from Yi dialects (Xide su²¹, Weishan çy²¹, Nanjian sʅ⁵⁵). See TBL:#1729 and SB 1998. There is also a likely Chinese comparandum below 5.3.3(2).

k. *Cf.* Lalo ʔmù-ʃ̀ìq. The second syllable of this Lalo form reflects PLB ***C-sak**ᴸ 'breath(e) / life'.

l. *Petaurista alborufus*. For the same Lahu reflex /š/ < ***s-r**, see 'otter' and 'gold / yellow', below 5.3.2(2b).

m. This is a general TB root. *Cf.* WT **su** 'who; indefinite pronoun'; Cuona Menba su⁵³; Guiqiong sʉ⁵⁵; Hani a³¹so⁵⁵; Jinuo kho³³su³³; WB **su** 'he', **bhai-su** 'who'; Lahu šu 'indefinite, remote, or contrastive 3rd person pronoun', a-šu 'who'. This etymon undoubtedly underlies the last syllable in many TB language names, *e.g. Lisu, Nasu, Moso, Bisu*, and perhaps also the last syllable of *Lahu*. The /h/ in the latter name could well point to a proto-type ***s-lu** (*cf.* WB **lu** 'person'). This etymology was first suggested in JAM 1969.

n. The LB reflexes of this etymon are totally consistent with the reconstruction ***tu**, though extra-LB evidence (Jg. dāu) points rather to ***tow** �height ***dow** at the PTB level. *STC* treats this etymology inconsistently (see below 5.6.1).

Examples of PLB *-əw are even more numerous, *e.g.*:

	PLB	*STC#*	*WB*	*Maru*	*Lahu*	*Ak.*	*Lisu*	*Ahi* [a]	*Nyi* [b]
*-əw			ui	uk	ɔ / u	ø	u / i / ɿ	ɯ / i / ɿ	ɯ / i / u
'awake(n) / conscious' [c]	*s-nəw²	---	nûi, hnûi	---	nɔ̂, nɔ̄	---	---	---	---
'horn'	*krəw¹	37	khrui	khjuk³¹	khɔ	oɕ̆	o⁵⁵tʃʰi⁴⁴	o⁵⁵tʂhɿ²	khɯ³³
'nine'	*gəw²	13	kûi	kuk³¹	qɔ̂	ɣɕ̆	ku⁵⁵	kɯ⁵⁵	kɯ⁵⁵
'rat'	*b-yəw	93	---	ɣuk³¹ [d]	---	---	---	---	---
'smoke'	*kəw²	256	khûi	mji³⁵-khuk⁵⁵	mû- qhɔ̂	ù-xɕ̆	mu³¹ khu³¹	khɯ²¹	khɯ²¹
'steal'	*kəw²	33	khûi	khuk⁵⁵	qhɔ̂	xɕ̆	khu³¹	khɯ²¹	khɯ²¹
'sweet'	*kyəw¹	p.60	khyui	tʃhuk³¹	chɔ	oɕ̆	tʃhɿ⁴⁴	tʂhi²²	tʂhi³³
'testicles / virility' [e]	*səw¹/²	---	sui, ʔəsûi	---	šɔ̄, ɔ̀-šɔ̄	---	---	---	---
'weep'	*ŋəw¹	79	ŋui	ŋuk³¹	---	ŋɕ̆	ŋu³³	ŋɯ³³	ŋu³³
'widow' [f]	*tšəw²	---	mut-chûi	---	mɛ̂-chɔ̂-ma	tjhö [g]	---	---	---
'wither'	*s-nəw²	---	hñûi	---	nɔ̄ [h]	---	---	---	---

a. The Ahi vowel /ɯ/ (as per Chen Kang 1986) is transcribed "ö" in the older sources used in *STC*. The apparently exceptional reflexes in 'sweet' and 'horn' are both transcribed with this same vowel in *STC*, viz. tśhö and tśhö. Note similar conditioned reflexes after these two affricate-initialled roots in Lisu.

b. The Nyi (=Sani) vowel /ɯ/ in the modern sources is transcribed as "ə" in the older sources used in *STC*, even in the apparently exceptional forms for 'sweet' and 'weep'.

c. This is a simplex-causative pair in LB. WB nûi and Lahu nɔ̂ reflect the unprefixed simplex *nəw² while WB hnûi and Lahu nɔ̄ descend from the causative allofam *s-nəw². *Cf.* also Yi Mile nɯ²¹, Naxi Lijiang no³³, Hani nø³¹, Jinuo nø³³ (*ZMYYC*:#583).

d. The disyllabic form is ɣuk³¹nɔʔ³¹. Benedict was not aware of this Maru form (to be found in *ZMYYC* #134), and considered the rhyme of this etymon to have been reconstructible "on the basis of the Nung evidence alone" (*STC* p. 61). See the section on Nungish below.

e. WB sui 'penis of animal' < PLB *səw¹, ʔəsûi 'virility, testicles, uncastrated animal' < PLB *səw²; Lahu (ɔ̀-)šɔ̄ 'potent male, intact male, stud male' < PLB *səw² (*DL*:208).

f. *Cf.* also Lalo ʔmɛ̀-*tjhə̀*-pàq.

g. Glossed 'poor, miserable' by ILH. See *DL*:553.

h. 'Wilt, wither, be past the prime (of crops, leaves)'. Cf *DL*:795.

After labials, *-əw > Lahu -**u**, merging with the reflex of monophthongal *-**u**. Akha retains its regular reflex -**ǿ** in this environment, while Lisu vacillates among -**i**, -**u**, and -**ɯ**:

	PLB	STC#	WB	Maru	Lahu	Akha	Lisu [a]
'carry on back'	*bəw²	28	pûi	---	pû	bǿ	pi⁵⁵
'grandfather'	*ʔ-bəw²	23	ʔəphûi	a³¹phuk⁵⁵	ɔ̀-pū	---	a²¹phi²¹
'insect / vermin'	*bəw²	27	pûi	puk⁵⁵	pû	bǿ	bɯ³¹
'mushroom'	*ʔ-məw¹	45 [b]	hmui	muk³¹	mù [m̀]	á-hm̋	mɯ³³
'price'	*pəw²	41	ʔəphûi	a³¹phuk⁵⁵	ɔ̀-phû	á-pǿ	e⁵⁵phu³¹
'sky'	*məw²	488 [c]	mûi(gh)	muk⁵⁵	mû [m̂]	m̀	mu⁴⁴

a. In at least one root, Lisu has developed -**i** after a non-labial initial:'wake / awaken' PLB *ʔ-nəw² > WB nûi ⋊ hnûi; Lahu nɔ̂ ⋊ nɔ̄; Akha nǿ, Lisu (Fraser 1922) yi⁶*nyi¹*.

b. Forms for 'mushroom' shows alternation between a *plain nasal (Lahu) and a *glottalized nasal (WB, Akha).

c. The -**gh** in the WB form is a non-etymological "learnèd" spelling influenced by Sanskrit *megha* 'cloud'. The Lahu phonemic syllable /**mu**/ ('sky', 'mushroom') is realized as a syllabic labiodental nasal (see JAM 1973/1982:3-4). The Akha vowel is similarly "swallowed up" after initial **m**-.

After labials, Ahi and Nyi (=Sani) have both developed -**u** < *-əw, paralleling the Lahu reflex. In the case of Ahi, this -**u** is distinct both from the reflex of *-**u** (> Ahi -**o**) and the reflex of *-əw after other initials (> Ahi -**ɯ**).[33] In Sani, however, this -**u** after labials represents a merger with the reflex of *-**u**:

	PLB	STC#	Ahi	Nyi (=Sani)
'carry on back'	*bəw²	28	bu²¹	bʐ̩¹¹
'grandfather'	*ʔ-bəw²	23	---	ɒ⁴⁴bʐ̩⁵⁵
'insect / vermin'	*bəw²	27	bu²¹	bu²¹
'mushroom'	*ʔ-məw¹	45	mo³³	mu³³
'price'	*pəw²	41	phu²¹	phu²¹
'sky'	*məw²	488	mu²¹	mu²¹ ⋊ m̩¹¹

The interesting and perfectly regular Maru (= Langsu) reflex -**uk** < *-əw (as well as the equally regular and parallel development of *-əy > Maru -**it**; see below 5.3.2) have attracted the attention of scholars since the 1930's, with some (especially Miller 1968, 1970) ridiculing the notion that a final stop could arise *ex nihilo* from an open syllable.[34] Such a development has obviously occurred in these rhymes, however, and there can be no

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33. Note, however, the Ahi reflex -**o** in 'mushroom' (below).

doubt whatsoever that these final consonants have been "extruded" secondarily from the vocalic nuclei of their syllables.

· *Nungish*

Although we have considerably less data on Nungish than on LB, the Nungish branch has reliably distinct reflexes of ***-u** and ***-əw**, with monophthongal ***-u** developing into Nung **-u**, while diphthongal ***-əw** becomes **-ö** or **-ü**.[35/36]

	PTB	STC#	*Nung*	*WB*	*Lahu*
*u			u	u	u
'bud / open'[a]	*s-bu	260	phu	phû	pū
'dig'	*s/m-du	258	du	tû	dû (v.i.) �end tū (v.t.)
'nephew / grandchild'	*m-du	259	phədu	tu	ɔ̀-dù
'porcupine'	*s-blu	---	bɹu³³	phru	fâʔ-*pu*
'silver / white'	*plu	p. 60	phu⁵⁵	phru	phu
'take'	*yu	p. 60	ɹŭʔ⁵⁵	yu	yù

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a. *Cf.* WT ḥbu 'open (of flower)', Lisu bu²¹, Hani by²¹.

	PTB	STC#	*Nung* [a]	*WB*	*Lahu*
*əw			ɯ	ui	ɔ / u
'dark / faded / withered'	*ŋrəw	156	ŋyö ⋈ əŋyü	ŋrui ⋈ ñui [b]	---
'horn'	*krəw	37	xɹɯ⁵⁵	khrui	khɔ
'insect / vermin'	*bəw	27	bɯ⁵⁵	pûi	pû
'mushroom'	*g/s-məw	45	mɯ³¹kham⁵⁵	hmui	mù
'nine'	*d/s-gəw	13	dɯ³¹gɯ³¹	kûi	qɔ̂
'price'	*pəw	41	phɯ⁵³	phûi	phû
'sky'	*məw	488	mɯʔ⁵⁵	mûi(gh)	mû
'smoke'	*kəw	256	mɯ³¹ɯ⁵⁵ [c]	mî-*khûi*	mû-*qhɔ̂*
'steal'	*r-kəw	33	khɯ⁵⁵	khûi	qhɔ̂

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34. See Wolfenden 1938; Benedict 1939 and 1948; Burling 1966; Lyovin 1968; Miller 1968 and 1970. See also *STC*, notes 192 and 193. Chinese actually has four similar examples of a secondary dental stop in cognates to PTB etyma in ***-əy** (see below 11.3.6).

	PTB	STC#	Nung [a]	WB	Lahu
'sweet'	*kyəw	p. 60	dʑɯ⁵³	khyui	chɔ
'weep'	*ŋəw	79	ŋɯ⁵³	ŋui	---

a. This Nung vowel is written "ü" or "ö" in the older sources cited in *STC*. The forms cited with "ɯ" are from *ZMYYC*, *TBL*, or Sun Hongkai 1982.

b. The Jingpho form **nyui** cited in *STC* #156 (from Hanson 1906) looks like a loan from Burmese; it is absent from Dai *et al.* (1983).

c. The loss of the initial velar in this Nung form is unexplained. The first syllable in all these words means 'fire'.

Occasionally we may reconstruct ***əw** largely on the basis of Nungish evidence:

	PTB	STC#	Nung	Other
'eagle / hawk'	*məw	257	thəmö	Mikir **vo-mu**, Lushai **mu**, *etc.*
'rat'	*b-yəw	93	yü	Jg. **yú** ⪦ **yūn**, Lushai **sa-zu**, *etc.*[a]

a. Actually Maru (Burmish) does confirm this reconstruction, contra *STC* (see note c in the chart of LB reflexes of *-əw above).

When other TB languages point to a ***high back vowel**, but both Lolo-Burmese and Nungish forms are lacking, *STC* conventionally uses parentheses to show that we cannot decide between a proto-monophthong or -diphthong, *e.g.* ***yu(w)** 'liquor' (#94), ***su(w)** 'cough' (#423), ***bu(w)** 'wear' (#428), **sru(w)** 'aunt' (p. 108).[37]

5.3.2   *-i and *-iy/-əy*

The distinction between ***-i** and ***-əy** is considerably shakier than that between ***-u** and ***-əw**. The crucial evidence is from WB, and to a lesser extent from other Lolo-Burmese languages like Lahu and Maru. (Unlike the case of ***-u** vs. ***-əw**, Nungish is powerless to

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35. Unlike LB, however, Nungish unfortunately seems to be of no help in distinguishing ***-i** from ***-əy** (below 5.3.2).

36. Although quite close to Nungish on the TB family tree, Jingpho does not have distinct reflexes of these rhymes. Thus we are unable to decide on the proto-rhyme of the newly discovered etymon ***s-gu** 'sheep / goat' on the basis of the two reflexes found so far: Jg. **səgû** 'sheep', Sulong (Lhoba) **sə³³ɣu³³** 'goat'. See *ZMYYC* #11 and #117.

37. This is a situation where the old reconstruction "**-uw**" works better than ***-əw**!

distinguish the two rhymes.) *-i is reconstructed when WB has -i, provided that *-ey (which also > WB -i) can be ruled out. When WB has -e, the reconstruction is *-əy:

PTB	WT	Jg.	Nung	WB	Lahu	Maru	Garo	Lushai
*-i	-i	-i	-i	-i	-i	-i	-i	-i (?)
*-əy	-i	-i	-i	-e	-ɨ / -i /- ɔ	-it / -a	-i	-i

*(1)   Etyma with *-i*

There are many fewer examples of etyma with *-i than with *-u. In fact, only four are unambiguously set up in *STC*, and all of them are somehow problematic, involving tonal and suffixal morphology. Furthermore, no single etymon with *-i has reflexes in all 5 criterial languages.[38]

'gleet / purulent discharge / rot'	***ri**　　*STC* #263 WB **ri'** ≍ **yi'** 'be rotten (of cloth), to gleet (of pus)', **ʔəri'** 'slimy discharge'; Jg. **rìʔ**, **ʔərìʔ** 'gleet' ≍ **ǹ-yī** 'pus' (glossed as 'vomit from a corpse' in Dai *et al.*, 1983); also Vayu (= Hayu) **ri** 'decay'; Miri **təri** 'wound, ulcer, sore'. The final glottal stop in some of the Jg. forms, as well as the creaky tone in WB, "possibly reflect a glottal accent" (*STC*, n. 198), or perhaps an allofam with *-k. As RSC points out, there is also a probable allofamic connection with ***d-ri(y)** 'filth', above 4.5.1.
'existence'	***s-ri-t**　　*STC* #264 WB **hri'** 'to be'; WT **srid-pa** 'existence'. Here again the WB cognate is under the creaky tone, while WT reflects a variant with final stop. This latter allofam also directly underlies the Lahu copula **hêʔ** < ***s-riːt**. See below 8.3(2).[a]
'armpit / tickle'	***g-li**　　*STC* #265 WB **kəli'** 'tickle', **lak-*kəli'*** 'armpit'; Lahu **pὲ-*lí*-kā** 'armpit', **g̈ɨ̀-*li* yá** 'tickle', **g̈ù-*lí lí*** '*id.*' (< PLB ***ʔ-li³**; see *DL*:1363); Lakher **kili** 'tickle', **ba-*kəli*** 'armpit'; Nung **khri** 'tickle', **ra-*kyi* tɕip** 'armpit'. Again WB has creaky tone, supported by the mid-tone Lahu variant (-li-) as reflecting PLB Tone ***3**. This root seems imitative in origin, a hypothesis strengthened by very similar forms in Austronesian and Tai: *e.g.* Proto-Indonesian ***gəli** 'ticklish', ***kili** 'shoulder', ***kilit** 'carry under the arm'; Tai Khamti **kap *kəle*** 'armpit', **tɕuŋ *kəri*** 'tickle' (*STC*, n. 199).

'urine' *ts(y)i *STC* #77

WB **chî** [polite]; WT **gtśi-ba** ≍ **gtśid-pa** 'urinate', **gtśin** 'urine'; Jg. **tśí** ≍ **dží** 'urinate', **džìt** 'urine'; Nung **tsi** 'urine, urinate'; Dimasa **si-di** (**di** 'water') '*id.*' Note that this etymon was suffixable by both *-**n** and *-**t** (below 11.2, 11.3). An allofam of this root, well attested in Lolo-Burmese, might be set up as PLB *z**əy²** or *ž**əy²**, underlying the vulgar WB synonym **sê**, as well as forms like Lisu **rzi**. However, a problem is presented by Lahu **jî**: although Lahu -**ɨ** is indeed the regular reflex of *-**əy** (see below), *z- or *ž- > Lahu **y-**, not **j-** (see above 3.3). This suggests that the immediate ancestor of the Lahu form was *N-**džəy²** (the Lahu voiced initial affricate **j-** reflects the nasal prefix; above 4.3), so that a better PLB reconstruction would be *tši² ≍ *N-(d)žəy².

a. Much of JAM 1985a (*GSTC*) is devoted to exploring the complicated phonosemantic allofamy of ST copular morphemes.

Several additional roots reflecting monophthongal *-**i** have been uncovered:

'anvil' PLB *bi¹ (*DL*:822)

WB **pe**,ᵃ Maru **byi**, Lh. *pì*-tɛ̄, Akha (PL) *bi* ˇnah ˇ

'dew' ᵇ PLB *ʔ-dzi² (*DL*:465; *ZMYYC* #14)

WB **chǐ**, Lh. *cī̄*-ɣɨ̀, Yi (Xide) tʂɯ⁵⁵, Yi (Mile) tɕi⁵⁵ʑi³³, Naxi (Lijiang) ndʐəɹ³³, Achang tshe³¹, Lalo *tsỳ*-ɣə́

'female / girl' *mi > PLB *mi²ᐟ³ (*DL*:985)

WB **ʔəmi'** (again under creaky tone < Tone *3) 'mother; miss; madam; daughter'; Maru mji³⁵ 'wife', mji³⁵ɣɛ³⁵ 'daughter';ᶜ Lahu -*mî*- (< Tone *2), as in ɔ̀-*mî*-ma 'wife', yâ-*mî* 'girl; daughter', *mî*-yâ 'wife and children' (see *DL*:985). This root seems also to occur in Qiangic (rGyalrong tə*mi*, Pumi (Taoba) m̥ɒ̃³⁵ba³⁵, Pumi (Jinghua) m̥i¹³by⁵⁵bɑ¹³, Ergong smɛ-ŋa, Namuyi zɻ³³*mi*⁵⁵, Shixing ɑ³³-*mi*⁵⁵əɹ⁵⁵-*mi*⁵⁵)ᵈ and perhaps also in Mirish (Darang me³⁵ja⁵³ɑ³¹, Idu *mi*⁵⁵juŋ⁵⁵, Bokar Adi ȵe *mə꞉* , Sulong a³³*mui*⁵³ (see *ZMYYC* #291).

38. So far no Lushai reflexes of such etyma have been discovered at all, though there is one in the closely related Central Chin language Lakher (=Maraa). See 'armpit / tickle'.

187

'ride (horse)'	***gyi ≽ *dzyi** (*DL*:461)
	WB **cî** < Insc. Bs. **ki**; Lahu **cî**, Lisu **dzi**, Ahi **dze**, Nyi **de** (see *STC*:184). Again this root is also to be found in Qiangic (Ergong **tɕi**, Ersu **ndzɛ⁵⁵**, Namuyi **tsɛ³³**, Shixing **dzɛ³⁵**), as well as in Tujia (a so far unclassified language) **tɕi⁵³** (*ZMYYC* #571). There is also an obvious Chinese cognate 騎 [*GSR* #1u] OC ***g'ia**, Mand. **qí**. However, this is a "cultural" word that may well be an old loan into PST, perhaps from Austro-Tai (*cf.* Siamese **khìi**).ᵉ
'lift up / raise'	***kyi¹ᐟ²** (*DL*:526-8)
	WB **kyi** 'promote, exalt' (< Tone *1) ≽ **kyî** 'lift, raise' (< Tone *2); Lahu **chî** (< Tone *2). Here again there are promising extra-LB candidates for cognacy, including Qiang (Taoping) **tsi³³** and several dialects of Baic: Dali **tsi⁴²**, Jianchuan **tsɛ⁴²**, Bijiang **tʂheᴵ⁴²tʂeᴵ⁴²** (see *ZMYYC* #556).

a. This WB reflex is irregular, possibly indicating that this is a loanword into LB.

b. It is possible that this was a liquid-final root, perhaps *(d)zil at the PTB level: *cf.* WT *zil*-pa 'dew'. For a similar case, *cf.* PTB *zril > PLB *di¹ 'worm' (below 9.3.2(1)).

c. These forms establish that *-i > Maru -i (as opposed to *-əy > Maru -it/-ik; see below).

d. Several of these Qiangic forms (rGyalrong, Pumi, Ergong) reflect the *s- prefix (< *s-mi), which may in fact be a reduction of the morpheme *za 'child', as in Lahu yâ-mî 'girl; daughter'.

e. See Benedict 1975:252.

(2)   Etyma with *-əy

PTB	WT	Jg.	Nung	WB	Lahu	Maru	Garo	Lushai
*-əy	-i	-i	-i	-e	-ɨ / -i / -ɔ	-it / -a	-i	-i

This rhyme is abundantly attested throughout TB. It may be unambiguously reconstructed when WB has -e (written as "iy" in the Old Burmese Inscriptions). The most interesting reflexes of this rhyme so far discovered are shown by Maru (Burmish) and Lahu (Loloish). In Maru (=Langsu) *-əy has developed in most environments to -it (transcribed "-ik" in Chinese sources), with an "extruded" final consonant, exactly parallel to the fate of the corresponding back diphthong *-əw > Maru -uk (above). In Lahu *-əy usually becomes -ɨ, with other reflexes (-i, -ɔ) conditioned by the initial consonant of the syllable.

(a) Where Lahu has -ɨ

	PTB/PLB	STC/DL	WT	Jg.	WB	Lahu	Maru [a]	Lu.
'barking deer' [b]	*d-kəy	#54	---	khyī	khye	chɨ	ʃɔ^{35}tʃhik^{55}	sa-khi
'barley' [c]	*zəy² (PLB)	---	---	---	---	yɨ	---	---
'copper' [d]	*grəy	#39	gri [e]	məgrī	krê	kɨ̂	kyít, kyik^{55}	---
'cough' [f]	*ʔ-dzəy² (PLB)	---	---	---	---	cɨ̄	---	---
'die'	*səy	#232	śi-ba	sī	se	šɨ	ʃik^{31}	thi
'excrement'	*kləy	#125	ltśi	khyí	khyê	qhɛ̂ [g]	khjik^{55}	---
'foot'	*krəy	#38	khri [h]	---	khre	khɨ	khyìt, khyik^{31}	---
'gall / bile'	*m-krəy-t	#412	mkhris-pa		khre	kɨ	kjik^{31}	---
'grass' [i]	*s-yəy² (PLB)	---	---	---	---	yɨ̂	---	---
'liquor' [j]	*m-dzəy¹ (PLB)	DL:583	---	---	---	jɨ̀	ik^{31}	---
'medicine / juice / paint'	*r-tsəy	#65	rtsi	tsì	chê	nâʔ-chɨ̂	tʃhik^{55}	---
'melt' [k]	*s/m-grəy	---	---	---	---	kɨ̀	---	---
'moon / moonlight' [l]	*krəy	---	---	---	---	ha-pa-*khɨ*	---	---
'parrot'	*gyəy² (PLB)	DL:506	---	---	kyê	cɨ̂	cìt	---
'rot / disintegrate' [m]	*pəy² (PLB)	---	---	---	---	phɨ̂	---	---
'run' [n]	*b-ləy	DL:1141	---	---	prê	γɨ̂	---	---
'sap' [o]	*dzəy² (PLB)	---	---	---	---	*šîʔ-cɨ̂*	---	---
'skin / outer covering' [p]	*m-k-rəy¹	DL:418	---	---	re	gɨ̀	---	---
'urine'	*m-(d)zyəy²	DL:582			sê	jɨ̂	ik^{55}	---
'wash' [q]	*tsəy	DL:556			chê	chɨ̂	tʃhik^{55}	
'water'	*rəy¹	DL:1143			re	g̈ɨ	rìt, γək^{31}	

a. Forms cited with "-**ik**" are from *ZMYYC* or *TBL*. The fact that the sources disagree in the way they record the final consonant is an indication of how weak and unreleased it must be. (I have never heard Maru spoken myself.) Reconstructions with tonemarks are at the PLB level, cited from JAM 1988b (*DL*).

b. *Cf.* also Lalo t∫hə́.

c. *Cf.* Lalo **zi**; Lisu **zu³³**; Yi Xide **zu²¹**; Yi Nanjian **zʐ³³**; Yi Mile **zo³³**. See *ZMYYC*:#187 and SB 1998. Disyllabic forms like Jinuo **mə⁴²tsi³³**, Naxi Lijiang **mɯ³³dze³³**, Namuyi **mu⁵⁵dzʐ⁵⁵**, Bai Dali **mi³⁵zo²¹** are apparent loans from Chinese 麥子 (Mand. *màizi* 'wheat').

d. *Cf.* also Lalo **gɜ̀**.

e. WT 'knife'.

f. *Cf.* Lalo **tsì**; Hani **tshy³¹**; Lisu **tsʐ⁵⁵**; Yi Xide **tsʐ²¹**; Jinuo **tshi⁴⁴**; Gazhuo **tsʐ⁵⁵**. A group of Qiangic forms may also be related: Daofu **ʂtshə**; Muya **tə⁵³tshə⁵⁵qo⁵³**; Guiqiong **tɕhy³⁵**; Shixing **tsuʌ⁵³**; Lüsu **tshe⁵³**. See *DL*:509 and *TBL*:1477.

g. The irregularity of this Lahu reflex is explained by the fact that the syllable "**qhɨ**" does not occur in the language.

h. 'chair'

i. *Cf.* Lalo **ʃɜ̀**; Lisu **ʃʐ⁵⁵**; Naxi Lijiang **zɯ³³**; Yi Xide **ʐʐ³³**; Yi Dafang **sʐ³³**. A likely extra-LB cognate is Tujia **si²¹**. See *ZMYYC*:#218.

j. *Cf.* also many cognates in ZMYYC #420, and Lalo **djə́**.

k. Other Loloish cognates include Akha **gý**; Lalo **gə́** (v.i.) ~ **kə́** (v.t.); Naxi Lijiang **ndʐəɹ³¹**; Hani Dazhai **gɯ⁵⁵**, Jinuo **tɕi³³**; Yi Xide **dzʐ³³**; Yi Nanhua **dzi³³**; Yi Mile **tɕi³³** (all < PLB *s-grəy¹). The Lalo forms are a simplex/causitive pair. Qiangic cognates include Qiang Mawo **dʑi**; Qiang Taoping **dzyi³¹**; rGyalrong **kə-ndʑi**; Ergong **dzyɯ**; Muya **ndzyi⁵⁵**. See ZMYYC:#772 and DL:351.

l. *Cf. Lalo* **xa-ba-khə́** 'moonlight' (< PLB *krəy¹). The first two syllables of the Lahu and Lalo forms mean 'moon'. A number of Naga cognates meaning 'moon' establish *krəy as a general TB root: Angami (AW) ⁴**krhɯ**, Chokri **khri**, Khezha **e-krü**, Mao **o-khro**, Sema **a-khi**, Zeme (AW) ¹**he⁵kei**.

m. *Cf.* Lalo **phɜ̀**.

n. *Cf.* also Lisu (Frazer) **rgh⁵**, Luquan **ji⁵⁵**. This root may be established for PTB on the basis of Lai Chin **tlī**, Cho (S. Chin) **bli** (p.c. KVB). For the initial correspondence, see above 3.6.4.1(2).

o. *Cf.* Lalo **dzì** (SB 1998). The first syllable of the Lahu form means 'tree'. This root is possibly allofamic with ***r-tsəy²** 'medicine / juice / paint' (> Lahu **nâʔ-chî**, Lalo **ʔnɛ-tshì**), above, this table..

p. *Cf.* also Yi (Dafang) **ndʑi²¹**, Yi (Nanjian) **gɯ⁵⁵tʂu²¹**, Naxi (Yong Ning) **ɣɯ¹³**, Hani **sa³¹gɯ⁵⁵**, Achang **a³¹ʐʐ⁵⁵**.

q. Extra-LB cognates include several Qiangic forms: Queyu **lə³⁵*tsi⁵³***, Namuyi **tshʐ³³**, Ersu **tshɛ³³**.

Another root with this rhyme which may be established at the PTB level is ***dzəy** 'seed' > WB **ce'**, Lai Chin **tsi**, Lu. (AW) **tsî**, Lu. (GEM) **chi** (p.c. KVB).

The following root shows variation between PLB *-əy and *-i:

PLB ***k-ri(y)²** 'big' > WB **krî**; Achang **kʐə³¹**; Langsu **ɣə³⁵**; Lalo **ɣɜ̀**; Lahu **ɨ**; Lisu **vu**; Hani **xɯ³¹**; Nusu Bijiang **ʑi⁵⁵**, Yi Dafang **ɣə³³**; Yi Mojiang **ɣɛ³³**. See ZMYYC:#1172 and SB 1998.

(b)   *Where Lahu has -i (after labial stops, the labial nasal, and **n**-)* [39]

	STC#	*PTB*	*WT*	*WB*	*Lh.*	*Maru*	*Other*
'earth'	152	*mləy	---	mre	mì	mjik³¹	Nung məli
'give'	427	*s-bəy-n	sbyin-pa	pê	pî	pjik³¹	Mikir pi
'grandmother'	36	*ʔ-pəy ᵃ	ʔa-phyi	ʔəphê	ɔ̀-pi	a³¹phjik⁵⁵	Lushai pi
'sun / day'	81	*nəy	nyi-ma	ne 'sun' ⚔ ne' 'day'	ni	nɛʔ³¹ 'day' ⚔ na⁵⁵ 'sun' ᵇ	Jg. ní

a. The glottal element apparently derives from the kinship/vocative *ʔa- prefix below 4.2.2(1a).

b. The irregularity of these Maru forms is unexplained. The reflex -a in 'sun' is otherwise characteristic of most etyma in *-əy with complex lateral initials (below).

For an example of an etymon in *-əy with labial initial that also had medial *-w-, see 'bamboo rat', below 5.3.2.1.

Exceptions and special cases include:

	PTB	*STC*	
'borrow'	*s-kəy	31	(> WT skyi-ba) > PLB *kəy² > WB khyê, Lahu chî, Maru tʃik⁵⁵.
			Again Lahu has -i instead of the expected -ɨ, suggesting that this word has been borrowed from Modern Burmese chêi.
'gold / yellow'	*s-rwəy¹ (PLB)	---	WB hrwe, Yi (Xide) ʂ1³³, Lisu ʃ1⁴⁴, Lh. ši, Jinuo ɕɯ⁴²
			The WB reflex is irregular. The same Lh. initial reflex is found in 'otter' (PTB *s-ram > Lh. ɣɪ̀-šo) and 'squirrel (flying)' (PLB *s-ru² > Lahu fâʔ-šū), from the same sequence of *s-r.
'little / small'	*zəy	60	(> WT zi, Jg. zī) > PLB *ʔ-zəy¹/² > WB sê, Lahu i
			PLB plain *z- regularly develops into WB s-/Lahu y- (above 3.3), but the syllable "yi" does not occur in native Lahu syllables, so the initial became zero in this case.ᵃ The glottal prefix is reconstructed for PLB on the basis of the Lahu mid-tone (unmarked in the transcription).ᵇ

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39. The syllable "nɨ" does not occur in Lahu.

a. As for the Lahu vowel, a similar example is the causative member of the pair of verbs 'sleep / put to sleep' (PLB *yip 'sleep' > WB ʔip / Lahu yìʔ; PLB *sip > *ʔ-yip^L 'put to sleep' > WB sip / Lahu í). Here too Lahu has developed zero initial from *ʔ-y-, along with a fronting of the vocalic reflex from the expected /-ɨ/ to -i.

b. The unusual PLB initial sequence *ʔ-z- seems to have led to tonal instability in this root, with the WB form reflecting Tone *2, while the Lahu form points rather to Tone *1.

(c)   Where Lahu has -ɔ (after complex laterals)

After ***prefixed lateral initials**, the *-əy rhyme has the interesting Lahu reflex -ɔ (six examples), paralleled in three cases by the Akha reflex ø.[40] These developments have been discussed repeatedly in the literature as examples of unexpected but regular correspondences:[41]

	PTB	*WT*	*WB*	*Lahu*	*Akha*	*Jingpho*
'boat'	*m-ləy	---	hle	hɔ-lòʔ-qō	---	lī
'bow / sling'	*d/s-ləy [a]	gźu [b]	lê	hɔ̂-ma	ca-ø̀	ləlī
'four'	*b-ləy	bźi	lê	ɔ̂	ø̀	məlī
'grandchild'	*b-ləy	---	Insc. mliy > WB mrê	hɔ̄-ɛ̄	ø̀-pà	məlī [c]
'heavy'	*s-ləy-t [d]	lći	lê	hɔ̂	---	lī
'wind'	*g-ləy	rdzi	le	mû-hɔ	---	būŋ-*lī*

a. The *STC* is inconsistent in its reconstruction of prefixes. There is just as much evidence for the prefixability of *s- to this root as there is for *d-.

b. I have often wished that this WT form were **gži** ! Yet after palatal initials WT fairly regularly has -**u** corresponding to front vowels in other languages (*cf.* 'ten' Dakpa **chi**, Lahu **chi**, WB **chay** < *ts(y)aːy, but WT **bću**. See Michailovsky and Mazaudon 1994 ("Preliminary notes on the languages of the Bumthang group"), pp. 550,553.

c. 'young man'

d. Many forms from Kamarupan languages point to a dental suffix in this root. *Cf. STC* #95.

Unfortunately there are no Lahu or Akha cognates[42] to the following:

	PTB	*WT*	*WB*	*Jingpho*
'flea'	*s-ləy	ldźi-ba	khwê-*hlê*	khələwī

---

40. The Lahu "darkening" of the vowel in the environment of a lateral is somewhat analogous to what has happened to the -*a*- in English words like *walk, talk, balk.*

41. See, *e.g.* JAM 1969:142 ("Lahu and PLB"); 1982a:22 ("Proto-Sprachgefühl"); 1994a:46-50 ("Regularity and variation").

In five of these etyma, Maru also has a special reflex (-**a**), while Karen dialects have leveled several different proto-prefixes to **k**-:

	STC#	WB	Lahu	Maru	Pwo Karen	Sgaw Karen
'boat'	474	hle	hɔ-	la̱³¹	khli	klili
'bow'	463	lê	*hɔ̂*-ma	la³⁵	khli	khəli
'flea'	440	khwê-*hlê*	---	khə³¹*la̱³⁵*	khli	kli
'heavy'	95	lê	hɔ̂	la³⁵	---	---
'wind'	454	le	mû-*hɔ*	la³¹	li	kəli

In two cases, Maru has fused a ***prefix** with the root-initial ***lateral**, with the latter becoming medial -**y**-. The modern absence of the conditioning lateral permits these words to develop the "normal" reflex -**it** (= "-**ik**"):

	STC#	WB	Lahu	Maru	Pwo Karen	Sgaw Karen
'four'	410	lê	ɔ̂ [a]	byìt, pjik³¹	li	lwi
'grandchild'	448	mliy > mrê	hɔ̄-ɛ̄	myik³¹	li	li

a. The loss of the initial **h**- here is unexplained. A similar "cockneyism" is said to have occurred, yielding the irregular Latin form *ānser* 'goose', instead of the expected ****hanser** (< PIE ***ghans-er**).

(d)   *Where there is no WB cognate*

Without evidence from WB (or other LB languages), we are helpless to distinguish between ***-i** and ***-əy**.[43] *STC* reconstructs such etyma with ***-i(y)**,[44] *e.g.*:

		STC#
'water'	***ti(y)**	55
'aunt'	***ni(y)**	316
'sour'	***kri(y)**	413
'fear'	***kri(y)**	416
'dirt / ordure'	***ri(y)**	459
'comb / rake'	***m-si(y)**	466

42. Instead both these languages have compounds for 'flea' meaning "dog-louse": Lh. **phî-še**, Akha **kɨ̀-šɛ́** (< PLB ***kʷəy²-san²**). The WB, Jg., and Lushai (**ui-hli**) forms similarly have the morpheme for 'dog' as their first element.

5.3.2.1   *With medial *-w- : *-wəy*

There are a surprising number of etyma that are to be reconstructed with the labialized version of this rhyme, ***-wəy**.[45] Key reflexes are WB **-we** and Lushai **-ui**. WT lacks a "**-wi**" cluster, but reflects this rhyme with **-yi** in at least three excellent examples ('yam'; 'dog'; 'bamboo rat'). Jingpho usually has **-wi** (often spelled "**ui**", "**oi**", or "**wi**" in the sources). Maru has developed the rhyme ***-a** from ***-wəy** (see 'blood', 'far', 'dog'), the same Maru reflex we have just seen for ***-əy** after lateral initials:

```
┌─────────────────────────────────────┐
│  *-əy > Maru -a       / l_____       │
│                       / w____        │
└─────────────────────────────────────┘
```

This seems reasonable enough, since **l**- and **w**- are so similar in articulatory terms (see above 3.6.3, 3.6.4).[46] The usual Lahu reflex of ***-wəy** is **-ɨ**; but after PTB ***labial stops** or **nasals**, ***-wəy** > Lahu **-i**.

(1)   *After non-labials*

	STC#	*PTB*	*WT*	*Jingpho*	*WB*	*Lahu*	*Garo*	*Lu.*
		*-wəy	-yi	-wi (-i, -ai)	-we	-ɨ	-i	-ui
'blood' [a]	222	*s-hywəy	---	sài	swê	šɨ	an-tśi	thi [b]
'flow / suppurate'	167	*twəy	---	twī	twe	---	---	---
'rot / pus'	183	*tswəy	---	mətswī	chwê	---	---	---
'son / da.-in-law' [c]	244	*krwəy	---	khrī [d]	*khrwê-ma'*	ɔ̀-*khɨ̂-*ma	---	---

43. Karenic is an example of a subgroup which is apparently of no help in this connection. Both rhymes give Pwo and Sgaw **-i** (*STC* pp. 147-8):

	PTB	Pwo	Sgaw
'die'	*səy	θi	θi
'urine'	*ts(y)i	shi	shi
'water'	*ti(y)	thi	thi
'wind'	*g-ləy	li	kəli

44. Again the older reconstruction works better with this parenthesized notation. See above, n. 37.

45. This rhyme sometimes has reflexes with lower nuclear vowel (**-ay**, **-oy**), which may merge with the reflexes of ***-ay**, ***-way**, or ***ey** in a given language (below 5.5.2, 5.5.3). *Cf.* *s-hywəy 'blood' > Jg. sài; *sywəy 'scrape / shave' > Tiddim Chin taːi 'plane', Mikir sòy 'chisel, plane, shave'. See JAM 1985a (*GSTC*), note 34 (pp. 20-1).

46. Maru **-a** cannot be from ***-a**, since that proto-rhyme developed into a Maru back vowel (above 5.2.1).

	STC#	PTB	WT	Jingpho	WB	Lahu	Garo	Lu.
'scrape / shave'	180	*sywəy	---	ləswí	swê	---	si	sui
'slant / slope'	200	*s-rwəy	---	rwì	hrwe	---	---	---
'sleep'	196	*r/s-mwəy	rmi-ba [e]	śəmwí	mwê	yɨʔ-mɨ́ [f]	---	---
'spindle / twirl'	195	*s-mwəy	---	---	hmwe'	---	---	hmui
'sweat'	--- [g]	*ʔ-grwəy² (PLB)	---	---	khrwê	kɨ	---	---
'water / egg / spit'	168	*t/dwəy	---	məthwí	--- [h]	---	---	tui [i]
'yam'	238	*kywəy	skyi-ba	---	kywê	---	---	---

a. *Cf.* also Maru **sa** 'blood'.

b. We would expect ***thui** here, since **-ui** is the normal Lushai reflex in all other roots of this type.

c. The basic meaning of the plain root is 'son-in-law', with the meaning 'daughter-in-law' derivable by means of the feminine suffix -**ma**.

d. This Jg. word is actually a kinship term with complex polysemy, covering such relationships as "paternal aunt's daughters", "sister's children"; 'son-in-law'; 'young girl' (**khrī-mà**), etc. See the elaborate glosses in Hanson (1906:322) and Dai (1983:254).

e. WT lacks the syllable "**myi**".

f. The tone of the second syllable is irregular; we would expect /**mɨ̂**/.

g. Contra *STC* (pp. 202, 220), this root is not confined to Lolo-Burmese; the PLB form descends from a widespread PTB etymon to be reconstructed something like *s-**krul** ≍ *s-**ŋrul**. See above 3.6.5(1) and below 9.3.2(4).

h. WB has two allofams, **thwê** 'to spit' (< *twəy) and **tam**-*twê* 'spittle' (< *dwəy), the latter being directly cognate with the Lushai form.

i. There is a tonal difference between Lushai **tui**³⁵ 'water' and **tui**⁵⁵ 'egg'.

(2)   After root-initial w-

The above correspondences are the same at the PLB level even when the labial semivowel functions as the root-initial. Thus PLB *wəy² 'far' > WB **wê**, Lahu **vî**, Maru **wa**. (There is actually some evidence that this root had an initial velar at the PTB and PST stages, as suggested by the following Qiangic forms: Qiang Mawo *guəˈχe*; Qiang Taoping χuɑ³³; Muya qhuɐ⁵⁵rɐ⁵³; Queyu kua⁵⁵kua⁵³; Shixing qhuɑ⁵⁵ [*ZMYYC* #817], all perhaps < PTB *g-wəy. There is also an attractive comparison with Chinese 遠 OC gi̯wǎn [*GSR* #256f-g] (Mand. **yǔan**), perhaps with suffixal *-**n**.) See below 11.2.4(2).

(3)   After original labials

As we have seen, Lahu has developed the rhyme -i from *-əy after original PTB/PLB labial stops. This holds true even if the labial stop was followed by the semivowel *-w-:

	STC#	PTB	WT	Lushai	WB	Lahu	Akha
'bamboo rat'	173	*bwəy	*byi*-ba	bui	pwê	fâʔ-*phî*	ho-*pì*

This root shows voiced ⋛ voiceless variation of the initial stop in Lolo-Burmese, with WB (like WT and Lushai) pointing to the voiced variant ***bwəy**, while the Lahu and Akha forms come rather from ***pwəy**. (See *DL*:1307).

(4)   After original *labiovelars

As indicated above (3.2-3.4), Lahu has developed secondary labial stops in several roots that reconstruct with ***labiovelar initials**. By chance three of these etyma have the rhyme *-əy. In these words Lahu has the regular reflex -ɨ (rather than -i):

	PTB	STC#	WT	Lushai	Jg.	WB	Lahu	Maru	Mpi
'dog'	*kʷəy	159	khyi	ui		gwì	khwê	phî	kha	khɯ²
'nest' [a]	*kʷəy	---	---	---	---	---	phɨ	---	khɯ⁶

    a. See JAM 1978b:6 ("Mpi").

The following root shows variation between *-i and *-əy at the PLB level:

'comb'   PLB *ʔ-gʷi(y)² > WB phî ⋛ phrî; Lahu pɨ

The WB vowel points to monophthongal *-i, while the Lahu vowel reflects *-əy. The correspondence between a WB aspirate and a Lahu plain initial, as well as the Lahu tone, point to a ***preglottalized** PLB **initial**. (It is not clear why WB, like Lahu, has a labial here, as opposed to the WB velar in 'dog'.) Other TB languages have unambiguous labiovelar initials (Dimasa **se-kwi**, Lushai **khuiʔ**; see *STC* #480). The variation in the rhyme is probably due to the fact that this etymon should really be reconstructed as PTB ***kʷis**, with the final *-s attested by Karenic (*e.g.* Pa-o **khút**) as well as by the final glottal stop in the Lushai form.[47]

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47. See below Ch. 10, and Benedict 1979:13, correcting *STC* #480.

The Lahu reflexes of ***-əy** after labials are summarized here:

*-əy	Reflex	After	Examples
	-i	• simple labial stops or labial nasal	'give'; 'grandmother'; 'earth'
		• labial stops plus -**w**-	'bamboo rat'
	-ɨ	• secondary labials < ***labiovelars**	'dog'; 'nest'; 'comb'
		• root-initial **w**-	'far'
		• consonant plus medial -**w**-	'son- / daughter-in-law'; 'sweat'

(5)   When there is no WB cognate: *-wi(y)

When Lolo-Burmese cognates are lacking, the rhyme is to be reconstructed conservatively as ***-wi(y)**:

	PTB	*STC#*	*Jingpho*	*Lushai*	*Garo*	*Dimasa*
'cane / rattan / rope' [a]	*s-rwi(y)	201	---	hrui	---	Digaro tərui
'female'	*pwi(y)	171	šəwī	-pui	---	---
'flow / stream'	*lwi(y)	210	lwī	lui	---	---
'laugh'	*m-nwi(y)	191	mənī	nui	---	mini
'sweet / tasty'	*twi(y)	166	dwì	tui	tśi	gidi

a. See below 5.5.4.

5.3.3   *Chinese comparanda to PTB high back vowels*

*(1)   Where OC has -**u**, -i̯**u**

	PTB		GSR	OC	Chinese Gloss
'aunt'	*sru(w)	嫂	133e	si̯u [a]	'older sister'
'body / corpse'	*s-kəw	軀	122g	k'i̯u	'body, person'
'breast / milk'	*nəw	乳	135a	ńi̯u	'nipple, milk, suckle'
'head'	*d-bu	頭	118e	d'u	'*id.*'
'intestine'[b]	*pʷu	腑	[not in 136] [c]	pi̯u	'the bowels'
		胕	136o [d]	b'i̯u	'intestines'
'mouth'	*ku(w)	口	110ac	k'u	'*id.*'
'steal'	*r-kəw	寇	111a-b	k'u	'rob'
		偷	125u	t'u [e]	'steal'

---

a. This reconstruction was revised to ***sri̯u** in *STC*:171,184,197.

b. See *VSTB*:126 and *DL*:1130.

c. This root is to be found in *AD*, character group #45.

d. This character is glossed 'foot' in GS, but as 'intestines' in GSR.

e. There are also several roots showing shifts in OC to palatal or dental initial from ***velar stops**:

PTB			GSR	OC	Chinese Gloss
*g(y)ip	'ten'	十	686a-d	d̂i̯əp	'*id.*'
*kap	'needle'	鍼	671o	t̂i̯əm	'needle'
*n-glun	'kidney'	腎	368h	d̂i̯ĕn	'kidney'
*m-kum ≍	'pillow / block'	椹	658f	ti̯əm < *-im	'chopping block'
*m-kim		枕	656g	t̂'i̯əm < *-im	'pillow / use as pillow'

See *STC* n. 464, p. 175.

(2)   Where OC has -(i̯)ôg/-(i̯)ug/-i̯əg

	PTB		GSR	OC	Chinese Gloss
'carry on back'	*bəw	負	1000a	b'i̯ug	'*id.*'
'cough'	*səw [a]	嗽	1222s	sug	'*id.*'
'dove'	*m-k(r)əw	鳩	992n	ki̯ôg	'pigeon, turtledove'
'egg / sit on eggs'	*ʔu [b]	孚	1233a	p'i̯ug	'to hatch' (孵)
'hand'	*tsyəw	手	1101a-b	śi̯ôg	'*id.*'
'liquor'	*yəw	酒	1096k	tsi̯ôg	'spirits, wine'
'nine'	*d-kəw	九	992a-d	ki̯ug	'nine'
'owl'	*gu ⪥ *ku	舊	1067c-e	g'i̯ug	'*id.*'
		鵂	1070i	xi̯ôg	'*id.*'
		梟	1070m	ki̯ôg	'kind of bird (owl?)'
'resemble' [c]	*su² (PLB)	似	976h	dzi̯əg	'*id.*'
'send on an errand / causative'	*ʔ-dzəy¹ (PLB) [d]	使	975n	sli̯əg	'command / cause / send'
'thread / plait' [e]	*krəw	糾	1064b	ki̯ôg	'twist, plait; unite'
'womb' [f]	*pru(w)	胞	1113b	pộg ~ p'ộg	'placenta'

a. This root is reconstructed conservatively as ***su(w)** in STC #423.

b. *Cf.* PLB ***ʔu³**; Nusu (Bijiang) **ʔu³¹**; Bai (Dali) **vu⁴⁴** 'sit on eggs' (the latter perhaps a loan from Chinese).

c. This comparison was suggested by DRM.

d. *Cf.* WB **ce** 'send on business, employ; causative aux.'; Lh. **cɨ** '*id.*'.

e. *Cf.* WB **krûi** 'thread, string, chain'. See Gong 2001:25.

f. *Cf.* WT **pru-ma** 'uterus, matrix of animals'. See Gong 2001:22.

*(3)   Where OC has -**n** suffix [48]*

	PTB		GSR	OC	Chinese Gloss
'grandchild'	*syu(w)	孫	434a-c	swən	'*id.*'
'rabbit / hare / rat'	*b-yəw-n	兔	468s	tsi̯wən	'hare'
'smoke'	*kəw-n	熏	461a-c	xi̯wən	'to smoke, to steam; aflame'

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48. For more details, see below 11.2.4.

(4)   Where OC has -iət or -iəd

	PTB		GSR	OC	Chinese Gloss
'four'	***b-ləy**	出	518a-d	si̯əd	'*id.*'
'give'	***bəy**	四	521a-b	pi̯əd	'*id.*'
'nephew'	***m-tu ⩘ *m-du**	甹	496a-e	ʔ'i̯wət	'*id.*'
'sleep'	***r/s-mwəy**	寐	531i-j	mi̯əd	'sleep, lie down to sleep'

5.3.4   *Chinese comparanda to PTB high front vowels*

(1)   Where OC has -ia, -i̯o, -i̯u

	PTB		GSR	OC	Chinese Gloss
'count'	***r-tsyəy**	數	123r	sli̯u [a]	'*id.*'
'elephant'	***m-gwi(y)**	為	27a-e	**gwia**	'elephant (obsolete)'[b]
'foot'	***krəy**	疋	90a	si̯o [c]	'*id.*'
'ride (horse)'	***gyi ⩘ *dzyi** [d]	騎	1u	**g'ia**	'*id.*'
'son / d.-in-law'	***krwəy**	婿	90i	si̯o [e]	'son-in-law'

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a. This OC reconstruction is revised to śri̯u in *STC*:170,171,186.

b. The oracle-bone graph is supposedly of an elephant and a hand 豪. The use to mean 'make / do' is probably a graphic loan (假借 *jiǎjiè*). Karlgren notes in conection with the 'make / do' meaning of 為 that "The inference of some scholars that the archaic Chinese had tamed the elephant, causing it to 'make, work' is perhaps somewhat bold."

c. This OC reconstruction is revised to śri̯o in *STC*:178,186.

d. This root is so far attested only in LB. It is also widespread in Tai and Hmong-Mian; see above 5.3.2(1).

e. This reconstruction is revised to sri̯o in *STC*:178,186,194.

(2)   *Where OC has -t or -d* [49]

	PTB		GSR	OC	Chinese Gloss
'blood'	*s-hywəy	血	410a-c	xiwet	'*id.*'
'grandchild'	*b-ləy	姪	413o-p	d'iet ~ d'i̯ĕt	'nephew, niece (nibling)'
'heavy'	*s-ləy-t	輕	413e	ti̯ĕd	'carriage low and heavy in front'
'juice / paint'	*tsəy	漆	401b	ts'i̯ĕt	'varnish tree'
'sun / day'	*nəy	日	404a-d	ńi̯ĕt	'*id.*'

(3)   *Where OC has suffixal -n* [50]

	PTB		GSR	OC	Chinese Gloss
'dog'	*kʷəy	犬	479a-d	k'iwən	'*id.*'
		狗	108d	ku	'*id.*'
'man / person'	*r-mi(y)	民	457a-b	mi̯ĕn	'people'

(4)   *Where GSR has OC -r*

	PTB		GSR	OC	Chinese Gloss
'die'	*səy	死	558a-c	si̯ər	'*id.*'
'dung'	*kləy	屎	561d	śi̯ər	'*id.*'
'earth / country'	*mləy	泥	563d	niər	'mud / mire'
'female (animal)'	*pwi(y)	牝	566i-j	b'i̯ər ~ b'i̯ən [a]	'*id.*'
'foot / stool' [b]	*krəy	几	602a-b	ki̯ɛr	'stool, small table'
'grandmother'	*ʔ-pəy	妣	566n-o	pi̯ər	'deceased mother or ancestress'
'fine / delicate'	*mwəy [c]	微	584d-e	mi̯wər	'minute / small'
'snot'	*sna-ti(y) [d]	涕 洟	551f	di̯ər	'mucus from the nose'

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49. See below 11.3.6.
50. See below 11.2.4 for more details.

a. This Chinese etymon could also be included in category (3) above, since it apparently could take the **-n** suffix.

b. See above 5.3.2(2a). Also cognate is Xixia ***khjɪ¹** 'leg, foot' See Gong 2001:25.

c. *Cf.* WB **mwe'**.

d. Literally "nose-water"; *cf.* Dhimal **hna-thi** 'snot'. See above 5.3.2.1(1).

5.4   The marginal mid vowels *-e* and *-o*

The monophthongal mid vowels */ e o / are found synchronically in many TB languages, but can usually be shown to be secondary. Only a handful of etyma have so far been reconstructed with these rhymes, so that only partial correspondence charts may be constructed.[51]

PTB	WT	WB	Lahu	Jg.	Lushai	Garo	Digaro	Dimasa
*-e	e	ai	?	e	e	e	e	ai
*-o	o	au	ɔ	o	o	?	?	?

Comparing these reflexes with those of the PTB falling diphthongs (to be discussed in detail in 5.5-5.7 below), we see there is much overlap between *-e and */ -ay -ey /, on the one hand, and between *-o and */ -aw -ow / on the other.

PTB	WT	Jingpho	WB	Garo	Dimasa	Lushai
*-aw	-o	-au	-au	-o	-au	-ou
*-aːw	-u / -o	-au	-au	-o	-au	-au
*-ow	-o	-u / -au	-u	-o	-au	-ou
*-ay	-e	-ai	-ai	-e	-ai	-ei
*-aːy	-e	-ai	-ai	-e	-ai	-ai
*-ey	-e	-i	-i	-e	-ai	-ei

Thus WT and Garo have **-e** as the reflex of all three front-vowel rhymes */ -e -ay -ey / , while WT **-o** represents the merger of */ -o -aw -ow / . WB has merged */ -e -ay / to **-ai** as well as */ -o aw / to **-au**.[52] This leaves only Jingpho and Lushai[53] as key languages that

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51. WT final **-o** is often from *-**wa**, as in 'tooth' and 'handspan' (above 5.2.2). Similarly, medial **-o-** in WT and Jg. frequently derives from rhymes with medial *-**w-**, *e.g.* PTB *g-**lwat** ≍ *s-**lwat** 'release, loosen; undress; slip' (#209) > WB **k(h)ywat** ≍ **(h)lwat**, WT **glod-pa** 'loosen, relax, slacken' ≍ **hlod-pa** 'loose, relaxed'; Jg. **lòt** 'be free', **šəlòt** 'set free'. See below 8.2(2).

largely preserve distinct reflexes: *-e > Jg. -e, Lu. -e; *-ay > Jg. -ai, Lu. -ei; *-ey > Jg. -i, Lu. -ei; *-o > Jg. -o, Lu. -o; *-aw > Jg. -au, Lu. -ou; *-ow > Jg. -u, Lu. -ou.

5.4.1   Etyma with *-e

There are problems with most of the tiny number of etymologies set up with this rhyme:

'slip'	***ble**	*STC* #141
	Kanauri **ble**, Digaro **ble** 'slippery'	
	Neither of these languages has been shown to have an unambiguous reflex of *-e, so that this reconstruction is called "provisional" (*STC* p. 59). [a]	
'punish'	***nye**	*STC* #252
	WT *nye*-źo 'mishap', *nyes*-**pa** 'calamity, punishment'; Jg. **nyé** 'punish, cause woe', **dìŋ**-*nyé* 'punishment, woe'	
	I suggest revising this reconstruction to ***nye-s** [b] (*cf.* 'break off piece', below).	
'bean / legume'	***be**	*STC* #253
	Lushai **be**, Dimasa **sabai**, WB **pâi**	
'break off a piece'	***be ⪥ *pe**	*STC* #254
	Lushai **peʔ**, WB **pai'** 'be broken off' ⪥ **phai'** 'break off a piece'; Garo **be** 'break; broken' ⪥ **pe** 'break down; Dimasa **bai** 'break, get broken, **sabai** 'break', **gabai** 'broken', **phai** 'hatch', **do-phai** 'break with an instrument'.	

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52. The WB rhyme here transcribed "-au" is written "-o" in some sources (including the *WB Rhyming Dictionary* (Benedict/Matisoff 1976), though *STC* also writes it as "-au". The same goes for the transcription of the WB rhymes with this vowel and velar final consonants, with some authors preferring "-ok" and "-oŋ", while we here (as in *STC*) write them as "-auk" and "-auŋ". See below 7.3(3), 8.4(1).

53. Lushai is actually less reliable than Jingpho on this score, since Lushai -e is said to interchange with -ia, as well as with -ia, -iat, -iak, and -ial; while Lushai -o varies with -ou, as well as with -wa, -wat, -wak (no examples are given in *STC*, p. 58).

Again there is reason to revise this reconstruction to ***be-s** ⋊⋉ ***pe-s**, because of the Lushai final -ʔ (see below Ch. 10) and WB creaky tone / ' /. On the other hand, additional data from Northern Naga languages (Konyak **pai**, Chang **pei-ñin** [W. French 1983:458]) induced Benedict to change the reconstruction to ***bay** ⋊⋉ ***pay** (see *GSTC* #74).

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a. This root actually has a number of other reflexes: (Karenic) Pa-o **ple**, Pwo **phle** (< PKaren ***p(h)le**) ⋊⋉ Sgaw **ble**, Palaychi **bli** (< PKaren ***ʔble**); see *STC*:148 and Jones 1961:#128. (Himalayish) Thulung Rai **phele phele**; PTamang (Mazaudon 1993-4) ***plja** > Gurung *phle*-**baq**, Tamang Risiangku **pleː**, Thakali *pli^{55}*-**mu^{44}**. (Kamarupan) Taraon **ble**; Apatami **buːle**; Angami **beje**. A variant with final *-l is also well attested: PTamang **pljal**; Pattani (W. Himalayish) *brel*-**phi** 'slip', *brel*-**cha** 'slippery'; Lushai **pelʔ**. These forms suggest that the proper reconstruction of this word family at the PTB level is ***b/plya-l**. Cuona Menba **plek^{35}** might reflect a further variant with a velar suffix.

b. See below 11.4.1 for the nominalizing suffix -s in WT. This root is allofamically related to ***s-nyen** 'hurt/oppress', below 7.3(2).

*5.4.2   Etyma with *-o*

Thanks to Jingpho, this rhyme is somewhat better attested than *-e, with several good comparisons available between Jg. -**o** on the one hand, and WT -**o** and/or WB -**au** on the other:

'delight'	***pro**	*STC* #130
	Jg. **prō** ⋊⋉ **pyō**; WT **spro-ba** 'delight in, wish'; WB **pyau** 'be pleased, enjoy oneself'	
'high'	***m-to**	*STC* #247
	Jg. **məthō** 'high, pinnacle'; WT **mtho-ba** ⋊⋉ **mthon-po** 'be high'	
'be related (as kin)'	***do**	*STC* #249
	Jg. **dō**; WB **tau**	

Besides these, a couple of roots in *-**o** may be set up at the Proto-Kuki-Chin level, (*e.g.* 'shield' ***d-po** > Lushai **pho**, Lakher **veu-phɔ**, Bete **ipho**), for which cognates remain to be discovered elsewhere in TB.

Two more sets presented in *STC* (***pro** #248 'come out' and ***ke** #251 'neck'), were revised to ***pro(k)** and ***ke(k)** on the basis of better Jingpho data[54] that revealed the

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54. *STC*, n. 190, pp. 58-9. See below 11.5, "Velar suffix".

presence of final -ʔ (Jg. próʔ, kéʔ). To these we may add another set where Benedict did not have access to the Jingpho form:

*pryo(k) (#250)'boiled and soft' > Jg. **pyóʔ** 'boiled and soft; tender', **šəpyóʔ** 'to boil'; WB **prau ≩ pyau** 'quite ripe, very soft', **prau'** 'soft, tender', **phrâu** 'parboil' (Jg. forms from Dai *et al.*, pp. 679,773).

Finally, there does exist one promising etymology where Jingpho -**o** corresponds to Lahu -**ɔ**, thus providing the only solid example of the Lahu reflex of PTB *-**o**: Jg. **džò** 'harmonize; be proper, fitting, by right or chance' (Hanson 1906:218; Dai *et al.* 1983:352) / Lahu **cɔ̂** 'be fitting, proper, suitable; be right, correct; fall to by chance' (JAM 1988b [*DL*]:289-91) / Bola **tšɔ²¹** < PTB ***džyo**.

5.5   *The non-high palatal diphthongs *-ey, *-ay, *-aːy* [55]

Although there are a number of cases of inter- and intra-lingual variation between the rhymes *-**ey** and *-**ay** (see below 5.5.3), and many languages (*e.g.* WT, Garo, Dimasa, Lushai, Karen) have merged their reflexes entirely, the contrast clearly did exist at the PTB level, as attested by languages like Jingpho, WB, and Lahu:

PTB	WT	Jg.	WB	Lahu	Garo	Dimasa	Lushai
*-ey	-e	-i	-i	-i	-e / -i	-ai	-ei
*-ay	-e	-ai	-ai	-e	-e	-ai	-ei
*-aːy	-e	-ai	-ai	-e	-e	-ai	-ai

5.5.1   **-ey*

This well-attested rhyme is reconstructed for at least a dozen roots in *STC* and/or *GSTC*, including:

	PTB	STC#	GSTC#			PTB	STC#	GSTC#
'buy'	*b-rey	293	54		'know'	*syey	182	48
'eat'	[*they [a]]	---	144		'language'	*rey [b]	---	132
'fire'	*mey	290	47		'leg'	*pey [c]	---	142

55. *GSTC* (JAM 1985a:20-54) is devoted to a detailed discussion of these rhymes. The whole thrust of this article is a reconstruction of the morphosemantics of the ST copula, which happens to be a morpheme with *-**ay** (PTB *way ≩ *ray). *-**ay** is also discussed in JAM 1995a in the context of TB palatal suffixes. See the discussion of *-**ay** vs. *-**a-y**, below 5.5.2.

	PTB	*STC#*	*GSTC#*			*PTB*	*STC#*	*GSTC#*
'fruit / rose'	***sey**	57	46		'look / try to'	***ney**	---	145
'get / have'	***r-ney-t**	294	50		'rattan / cane'	***rey**	478	53
'hair (head)'	***ney**	292	51		'younger sibling'	***nyey**	---	146

a. Reconstructed for PNN (French 1983:477), probably ultimately < PTB ***dzya** (q.v.).

b. Attested so far only in Kamarupan: Lakher **rei** 'language, tongue, dialect, speech'; Boro **ray** 'language, speech'

c. Attested so far only in Kamarupan: Tiddim **phei** 'thigh'; Lushai **phei** 'foot, leg'; Lakher **phei** 'leg'; Tangkhul (Pettigrew) (ā)**phei** 'foot, leg', (Bhat) **phə́y**.

The crucial correspondence here is WT **-e** / WB **-i**, with Lahu and Jingpho agreeing with the WB **-i** reflex:

	PTB	*WT*	*Jg.*	*WB*	*Lahu*	*Garo*	*Lushai*
'fire'	***mey**	me	*myiʔ*-phràp [a]	mî	mī	---	mei
'fruit / rose'	***sey**	se-ba	sì	sî	šī	the	---
'get / have'	***r-ney-t**	rnyed	---	---	---	---	nei
'know'	***syey-s**	śes-pa [b]	šì [c]	si'	šī	ma*si*	---
'look / try to'	***ney**	---	---	---	ni	ni	---

a. 'lightning'

b. Note the -s suffix, shared by Vayu (= Hayu) **ses**, and perhaps also reflected by the creaky tone of the WB form. See below Ch. 10, 11.4.

c. 'news'

New etyma reconstructible with this rhyme at the PLB level include:

	PLB	*Lahu*	*Lalo*	*Other*
'lump / hunk / slab' [a]	***m-dey¹**	šā-*dì*	xa-*dɛ*	---
'plant (v.)' [b]	***ʔ-dey¹**	ti	tɛ́	Yi Dafang tə³³; Yi Mojiang tɛ⁵⁵; Lisu tɯ⁴⁴; Naxi Lijiang tv³¹

a. These Lahu and Lalo compounds both mean 'hunk of meat'. *Cf.* PTB ***sya-m** 'animal / body / flesh / meat'.

b. See *ZMYYC*:598 and SB 1998. For the same Lahu/Lalo correspondence as in these two etyma, *cf.* ***sey** 'fruit / rose / round object' > Lahu **šī**, Lalo **sè**.

5.5.2   *-ay and *-aːy : contrastive length in a low diphthong

As the following correspondence chart indicates, Lushai is the crucial language in distinguishing the short vs. long versions of the ***-a(ː)y** rhymes: the reflexes of short ***-ay**

and *-**ey** have merged to yield Lushai -**ei**, while long *-**aːy** has preserved the quality of its nuclear vowel and become Lushai -**ai**. Other languages do not distinguish the reflexes of short vs. long *-**a(ː)y** at all. (The multiple reflexes in Lahu are conditioned by the initial consonant, not by original vowel length.)

	WT	*WB*	*Lahu*	*Jg.*	*Mikir*	*Garo*	*Dimasa*	*Lushai*
*ay	e	ai	e / i / ɨ	ai	e	e	ai	ei
*aːy	e	ai	e	ai	e	e	ai	ai

When a Lushai cognate is not available, *STC* adopts the convention of reconstructing the etymon with a short vowel.[56]

*(1) Etyma with short *-**ay**

(a) Reconstructed in STC (Benedict 1972)

STC sets in short *-**ay** may be divided into three groups:

· Etyma for which a Lushai cognate in -**ei** is lacking, so that the short vowel in the reconstruction is "short by default" (*i.e.* there is no *positive* evidence for its shortness):

	PTB	*STC*	*GSTC*
'big'	*tay	#298	#68
'fear'	*b-ray-t	#450	#66
'good / well'	*may [a]	#300	#65
'this / that'	*day	#21	#67

a. This reconstruction is amended to *maːy in *GSTC* #65, with the addition of the Lushai cognate **maih** 'be in good condition; plump, well-favored', perhaps ⋇ *moy 'beautiful' (below 5.7).

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56. In *GSTC* (JAM 1985a) I distinguish between cases where there is no Lushai evidence for a short vowel from those where such evidence does exist, writing the latter reconstructions with a breve: *-**ăy**. We shall return to the topic of vowel length in general below (5.9, 6.3).

- Etyma for which a Lushai cognate in **-ei** is available (*i.e.* the shortness of the vowel has contrastive status). In such cases, we add a breve / ˘ / to the reconstruction:

	PTB	Lushai	STC#	GSTC#
'change / exchange'	*g/m/s-lăy	lei	283	69
'I / me / self'	*ŋăy	ŋei	285	70
'navel'	*s-tăy	tei	299	71
'self'	*tăy	tei	284	71 [a]

> a. The two separate *STC* roots (#'s 299 and 284) are combined into a single etymon 'self / navel' ***s-tăy** in *GSTC* #71, as already implied in *STC* p. 65.

- Etyma where Lahu, Burmese, and/or Lushai have "irregular" reflexes, and some kind of "vowel gradation" or allofamic variation is to be posited.[57]

	PTB	Lushai	STC#	GSTC#
'pass / exceed'	*lay ⪴ *ley	lei	301	58
'tail'	*r-măy	mei	282	72
'ten'	*ts(y)i(y) ⪴ *tsyăy	--	408, n.272	73
'tongue'	*m/s-lăy	lei	281	56

(b)   Reconstructed in GSTC (JAM 1985a)

Since a major portion of this article was devoted to ***-ay**, it is not surprising that a large number of new etyma with this rhyme were discovered[58]:

	PTB	Lahu	GSTC#
'laugh' [a]	*ray (PLB)	ğɨ	1
'spleen'	*r-pay	ɔ̀-pe	94
'encircled / ringed / striped'	*pay ⪴ *bay	làʔ-*pē* [b]	96
'mother / grandmother / maternal aunt'	*(y)ay	ɔ̀-e	100
'do / make'	*dăy	te	103
'quotative particle'	*dzay ⪴ *tsay [c]	cê	104
'repeat / practice'	*bay	---	107

---

57. For details on these irregularities, see below 5.5.3-5.5.5.

	PTB	*Lahu*	*GSTC#*
'bold / heroic'	*s-ray ⋈ *s-yay ⋈ *s-way	---	110
'small / inferior / offspring'	*ŋay	---	111
'languid / leisurely'	*nay	---	113
'plant (v.)'	*kay ⋈ *gay	---	114
'noisy / agitated'	*syay	---	115
'effaced'	*bray	---	117
'shallow'	*day	---	120
'lead / tend / watch / guard'	*s-r-way	---	121
'leaf / paper'	*lay	---	123
'fall' [d]	*gla-y ⋈ *kla-y	ce	125
'flaring'	*bray² (PLB)	pé ɛ̀	127
'go / directional particle' [e]	*ʔay	e	128
'cattle / domestic animal' [f]	*dzay	*cê* -cà	129
'interrogative particle' [g]	*lay	le	131
'come / go'	*pay [h] (Kmrp)	---	139
copula-related morphemes			
'nominalizer'	*way	ve	pp. 59-63
'things / stuff'	*ray	g̈ɨ	*ibid.*
'pluralizer'	*s-ray	hɨ	*ibid.*
'God'	*g-ray	g̈ɨ -ša	*ibid.*

a. This root is reconstructed as ***rya-t** in *STC* #202, passing over the WB reflex **ray** in silence. This form is certainly to be reconstructed ***ray** at the PLB level. The variation is to be explained either in terms of metathesis or by invoking the "palatal suffix" (below 11.6).

b. 'a ring'

c. This reconstruction is revised from *GSTC* *džay ⋛ *tšay.

d. This root is certainly related to ***gla ⋛ *kla** (*STC* #123). These variants in -y illustrate one of the principal functions ("motion away") of the PTB palatal suffix (JAM 1995a). See below 11.6.

e. *Cf.* also Lalo **jí**.

f. *Cf.* also Lalo **djì**. Ultimately the same etymon as *GSTC* #106 and #143 (qq.v.). See below §2.

g. The final -y in this etymon has been shown to be suffixal (JAM 1995a).

h. Accidentally homophonous with a Tai root, PTai ***pay** 'go'.

58. The forms tabulated below are sorted by *GSTC* set number.

(2)   Etyma with long *-aːy

These etyma are reconstructed with a long vowel because of their Lushai (or other Kuki-Naga) supporting forms in -ai:[59]

	PTB	*Lushai, etc.*	*Lahu*	*STC*	*GSTC#*
'crab'	*d-k(y)aːy	ai	á-ci-ku	#51	59
'whirl / brandish / wave'	*waːy	vai	---	#90	60
'twist / knead'	*m-naːy	[khənai] ᵃ	---	#286	61
'middle / center / navel'	*laːy	lai	le 'trigger'	#287	62
'dig up'	*laːy	lai	---	#288	63
'play'	*r-tsyaːy	tśai	---	#289	64
'good / well' ᵇ	*maːy	mai	---	#300	65
'sting / scold'	*taːy	tai- ᶜ	dê	---	93
'belt / zone / waist' ᵈ	*m/s-taːy	tai	ɔ̀-de	---	95
'lie / deceive / dissemble'	*haːy	hai	hē	---	99
'pound / crush'	*taːy ⋊ *daːy	[dai; khəŋətai] ᵉ	tē	---	102
'pus'	*s-naːy	hnai	---	---	105
'temperament / talent'	*(t)saːy ⋊ *(d)zaːy ᶠ	zai	---	---	106
'rust / dross / stain / shit'	*(t)saːy	tai	---	---	108
'face'	*s-maːy	hmai	---	---	109
'scoop / dip out'	*(t)saːy	[sai-] ᵍ	---	---	112
'retaliate / bear a grudge'	*m-taːy	tai	---	---	118
'lame / limp / askew' ʰ	*paːy ⋊ *baːy	bai ⋊ pai	---	---	124
'love / make love' ⁱ	*ŋ-(w)aːy	uai ⋊ ŋāi	---	---	126
'mango'	*haːy *(Kmrp)*	hai	---	---	136
'dew'	*daːy *(Kmrp)*	dai	---	---	137
'pull / drag / lead'	*kaːy *(Kmrp)*	kai	---	---	138
'conceive / pregnant'	*paːy *(Kmrp)*	pai	---	---	140
'pumpkin'	*maːy *(Kmrp)*	mai	---	---	141

a. This form is not from Lushai, but rather from Tangkhul Naga. The long vowel is confirmed by W. French's PNN reconstruction *ñaːy 'soft' (1983:550).

b. See the note in §1a, above.

c. In the compounds *tai*-ṭêm ~ *tai*-ṭêng 'name of a stinging nettle' and *tai*-vâng 'name of a large ant (that presumably inflicts a sting)'.

d. Lh. **de**, ɔ̀-**de** 'belt of land between the high rain-forest and the plains; large expanse of terrain' and Luquan Lolo **nt^he**[11] 'plain / flat expance', point to PLB *m-day[3]. The s- prefix is reflected in WT **sde** 'part, portion (e.g. of a country), province, district, territory'. Lushai **tai** 'waist', **tai-von** 'wear in the belt' descend from the prefixless root. There is a good Chinese cognate, below 5.5.7.

e. The first of these forms is from Lakher (Central Chin, like Lushai); the second is from Tangkhul Naga.

f. I have discussed this etymology (which is actually to be combined with *GSTC* #143 'elephant / cattle' and *GSTC* #129 'cattle / domestic animal' (below) in a separate article devoted to semantic ramifications of word-families (JAM 1988a "Property / livestock / talent").

g. This form is from Lakher (**sai-kyu** 'dipper, ladle', **thai** 'dip out, ladle out'). *Cf.* also WB **chai** 'take out of water, save from drowning' and Mikir (Grüssner) **chày** '[perform action] in sthg liquid'.

h. This root is to be related to *STC* #47 'leftside' *b(w)ǎy, where Lushai has a reflex in -ei (5.5.2.1 below). It is misreconstructed with a short vowel in *GSTC* #124, not taking account of the Lushai cognates in -ai. This is really an instance of allofamic variation between long and short vowels. There is a possible Chinese comparandum (below 5.5.7).

i. This etymon is misreconstructed with a short vowel in *GSTC* #126, not taking account of the Lushai cognate in -ai.

(3)   *Lahu conditioned reflexes of *-a(ː)y*

The most general Lahu reflex of these rhymes is definitely -**e** (see exs. above), though this is impossible to deduce from the forms cited in *STC*. By a strange coincidence, only three of the sets reconstructed in *STC* with *-**ay** or *-**aːy** have known Lahu cognates ('ten', 'crab', 'tail'),[60] none of which have the most common Lahu reflex: Lh. **chi** 'ten', **á-ci-ku** 'crab', **mē-tu** 'tail'. There are actually three conditioned reflexes of these rhymes in Lahu:[61]

59. The following forms are sorted by their *STC* and/or *GSTC* set numbers. An additional example, noted first by KVB, is PTB *graːy 'scatter / sow / disperse' > WB **krâi**, Lushai **trai** (for the initial correspondence, see above 3.6.4.1(2). I believe that this etymon also underlies WB **krai** and Lahu **mɔ̀ʔ-kə** 'star' (the scattered spots of light in the night sky). An allofamically related root is *glay 'wide apart'. See JAM 1980 and below 5.5.7.

60. Two more ('chaff / husks', 'leftside') are reconstructed with medial -**w**- (below 5.3.2.1).

61. Other, problematic Lahu reflexes, including the -ɛ in 'tail', are discussed in *GSTC* pp. 49-52 (#'s 156-165).

5.5.2: *-ay and *-aːy : contrastive length in a low diphthong

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(a)   *After palatals*

PTB/PLB *-ay > Lahu i / c-, ch- _____ [62]

	PTB	WB	Lahu	Jg.	WT	STC#	GSTC#
'crab'	*d-k(y)aːy		á-ci-ku⨯ á-cè-gu	---	---	51	4; 59
'ten' [a]	*tsyay	chai	chi	śī	bću	408	73
'tooth / tusk' [b]	*m-dzyway	cwai	cì	---	*mtśhe*-ba	---	3; 160

   a. For vowel gradation in this root, see below 5.5.5; for the WT reflex, see note in §5.3.2(2c) above.

   b. This root does not appear in *STC*; despite its labial glide, for convenience we include it here instead of under 5.5.2.1.

(b)   *After *r-*

PTB/PLB *-ay > Lahu ɨ or ə / *r- _____ [63]

	PTB	WB	Lahu	Jingpho	STC#	GSTC#
'god'	*g-ray	---	ğɨ̀-ša	kərài-kəsāŋ	---	pp.59-62
'insert / put into' [a]	*ʔ-gray[1] (PLB)	---	kə			
'laugh'	*r-ya-y	rai	ğɨ̀	---	202	1
'pluralizer' [b]	*s-ray	---	hɨ	---	---	*ibid.*
'things / stuff'	*ray	---	ğɨ̀	rái	---	*ibid.*
'star' [c]	*graːy	krai	mə̀ʔ-*kə*	---	---	(JAM 1980)

   a. *Cf.* Lalo ki; Yi Xide kɯ²¹; Sani kɒ³³; Lisu kɯ³³; Naxi Lijiang khɯ⁵⁵. The initial cluster is reflected by affricates in Yi Weishan cɛ³³; Yi Nanhua dʑi³³; Yi Wuding tɕɛ². See *TBL*:#1315.

   b. *Cf.* also Lakher (= Maraa) hrai.

   c. See above n. 59.

---

62. Note that after dental affricates, Lahu has the regular reflex -e (see above, 'quotative particle'; 'cattle'). In any case there is a good deal of synchronic variation in Lahu between -e and -i, as there is between -o / -u and -ɨ / -ə. See GL:pp. 10*ff.*

63. The regular Lahu reflex of *r- is ğ- [ɣ], but there is no synchronic Lahu syllable *[ğe]. Voiceless *hr and preglottalized *ʔ-r- both become Lahu h-. See above 3.4.2. The -ə reflex in 'star' is not a big problem, since Lahu shows considerable synchronic variation between -ɨ and -ə. See n. 62.

In this post-rhotic environment *-**ay** merges with the Lahu reflex of *-**əy**:

	PLB	WB	Lahu	Lalo
'run'	*b-ləy²	prê	g̈ɨ̂	gə̀
'water'	*rəy¹	re	g̈ɨ	ɣə́

5.5.2.1 *-way and *-waːy

The most direct evidence for reconstructing medial -w- in these rhymes is provided by the WB reflex -**wai**. When a Lushai cognate is available, it can distinguish between the short and long versions, with short *-**way** becoming Lu. -**ei** (thus merging with the non-labialized short rhyme *-**ay**, above), while long *-**waːy** develops into Lu. -**oi** or -**uai**. So far no cognates have been found for etyma with these rhymes in languages like WT, Garo, or Dimasa:

PTB	WT	Jingpho	WB	Garo	Dimasa	Lushai
*-way	?	-ai / -oi	-wai	?	?	-ei
*-waːy	?	-ai / -oi / -we	-wai	?	?	-oi / -uai

Six etyma with these rhymes are reconstructed in *STC*, three of which have a Lushai cognate in -**oi** or -**uai**, and are thus reconstructed with a long vowel:

	PTB	STC#	GSTC#	WB	Lushai	Jingpho
'buffalo'	*lwaːy	208	75	kywai	loi	wəlōi
'dammer-bee'	*kwaːy	157	76	kwâi	khuai ~ khoi	---
'husks / chaff'[a]	*pwaːy	170	77	phwâi	phuai	šəpói

a. Lahu has a good reflex of this etymon: **cà-***phî* 'paddy-chaff', **vàʔ-***phî* 'powdery chaff fed to pigs' (*cf.* also Mpi koʔ²*phɯ*²). Lahu shows a similar central vowel /ə/ in two other sets in this rhyme-group, also with labial initials, 'finish / past' and 'yam' (below). Another root probably to be reconstructed with the *-**wəy** rhyme is PLB *pwəy¹ 'gray / pale' > Lahu **phɪ**, Lalo **phɛ́**.

Two other etyma have no Lushai cognate, and are reconstructed in *STC* with a short vowel "by default", though the Jg. cognates seem to suggest an original long vowel:

	PTB	STC#	GSTC#	WB	Jingpho
'conceal / shun'	*kwa(ː)y	303	79	kwai	kōi, məkōi
'easy'	*lwa(ː)y	302	78	lwai	lòi ~ lwè

The remaining etymon in this group ('left') actually belongs to a complex word-family, comprising allofams both with and without medial -**w**-, and with semantic ramifications into the semantic area of "awkward, misaligned; lame, limp" [64]:

	PTB	*STC*	*GSTC*	*WB*	*Lushai*	*Jingpho*
'left / lame / askew'	***b(w)ăy**	#47	#124	**bhai** 'left' [a]	**vei** 'left'	**əpāi** 'awkward'

  a. Other WB allofams include **lak-wai** 'left hand' and **wâi** 'speak with a brogue'.

Nine additional roots with ***-wa(ː)y** are reconstructed in JAM 1985a (*GSTC*). Three of these have Lushai reflexes, and are set up with a long vowel:

	PTB	*GSTC#*	*Lushai*	*Jingpho*	*Lahu*
'wither / fade' [a]	***hwaːy**	98	**uāi ~ vuāi**	**wái ~ wói**	**hwē**
'flurried / dazed / foolish' [b]	***h(w)aːy**	135	**hāi** 'dizzy, giddy' �england **văi** 'bewildered'	---	---
'hang' [c]	***k(w)aːy**	134	**khai** 'suspend' ⋍ **kuăi** 'droop'	---	---

  a. *Cf.* also Tangkhul **khəŋəhui** (Pettigrew), **hùy** (Bhat). This set presents a perfect TN/Lahu parallel to ***way** 'copula' > TN **wui**, Lh. **ve**. See above §1b.

  b. This etymon is so far attested only in Chin languages. *Cf.* Tiddim **hai** 'foolish'.

  c. This is another Kamarupan root, misreconstructed in *GSTC* #124 with a short vowel. Confirming the long vowel are Tiddim Chin **kaːi** 'be suspended', **xaːi** 'hang something up'.

Most of the other etyma in this group are reconstructed with a short vowel "by default". Several show variation between labialized and non-labialized prototypes:

	PTB	*GSTC*	*Jingpho*	*WB*	*Lahu*
'cohesive / elastic'	***s/ʔ-n(w)ay**	#97	**ʔnāi** ⋍ **ʔnōi**	---	**nê**
'divert / push aside'	***s/ʔ-lway** ⋍ ***s/ʔ-rway**	#101	---	**hrâi** ⋍ **lwâi**	**hē**
'put together; be even with / up to' [a]	***dway**	#116, #119	**tōi** ⋍ **tòi**	**twâi**	---
'hang from / cling to / creeper' [b]	***dway** ⋍ ***nway**	#153	**nói**	**twai** ⋍ **nwai**	**te**

	PTB	GSTC	Jingpho	WB	Lahu
'yam' [c]	*m-n(w)ay	#165	ʔəʔnài	---	mə̄

a. This root was split into two sets in *GSTC*, though only a single etymon is involved, as the glosses of the individual forms make clear: Jg. tōi 'put together', tòi 'be even with', tòi-tòi '*id.*' (as in ləphút tòi-tòi 'knee-deep'), Lakher tai 'as far as; up to; all the way to'.

b. The interesting *d- ⪥ *n- variation in this etymon makes it worthwhile to cite the supporting forms in detail: WB twai 'cling to, attach', twâi 'be pendent, hang', twai' 'hang suspensively', nwai 'stretch along, as a creeper', ʔənwai 'creeper'; Lahu te, ɔ̀-te 'creeper'; Jg. nōi 'cling to, depend on', nói 'suspend, hang', ʔənōi 'hang on to', mənói 'cling to, be united', mənōi rù 'a variety of creeper'.

c. *Cf.* also Lotha Naga mání, Sgaw Karen nwɛ; the Lahu form shows preemption by the prefix.

In one case, Lushai cognates in -**ei** permit the definite reconstruction of a short vowel:

· 'finish / past' ***bwăy** (*GSTC* #164) > Jg. **bōi** 'be ended'; WB **pwâi** 'be past the season'; Lushai **pĕih** 'finish, complete', **vêi** 'come to an end'; Tangkhul **kəpəy** 'be complete'. [65]

For the similarity between the reflexes of *-**way** and *-**oy**, see below 5.7.

In the following sections (5.5.3-5.5.6), I list the considerable number of diphthongal roots with front vowels that display "vowel gradation".[66] However, as *STC* (pp. 68-9) makes clear, "Generally speaking, TB vowel gradation is sporadic and irregular, and can hardly be compared with that found in Indo-European..."[67]

*5.5.3   *-ey and *-ay interchange*[68]

		STC	GSTC
'near'	*s-ney ⪥ *s-naːy	p.68	#55
	*ney > Jg. nì, WB nî		
	*s-naːy > Lushai hnai, Tangkhul khəŋənai, Tiddim naːi, Lahu nê.		
'tongue'	*s-ley ⪥⪥ *s-lay ⪥ *s-l(y)a	#281	#56
	This highly variable root displays both *-ey ⪥ *-ay and *ay ⪥ *a variation [a] :		
	*m/s-lay > WT ltśe, Jg. lài (couplet form), Dimasa salai, Lushai lei, Mikir de		

65. For the similarity between the Lahu -ə reflex in 'yam' and its -ɨ reflex in 'chaff', see notes 62, 63 above.

66. Allofamic variation involving diphthongal roots with back vowels will be discussed below (5.6.3-5.6.4).

67. See below Ch. 12.

		STC	*GSTC*
	*C-ley (PNN) > Yogli li, Wancho le, Konyak yi, Phom yei; also Tiddim Chin lei, Jg. śiŋli (another couplet form)		
	*s-lya > WB hlya, Lahu ha-tɛ̄.		
'pass / exceed'	*s-lay ≽ *s-ley	#301	#58
	*s-lay > Jg. lài ≽ šəlài, Dimasa lai, Mikir le, Lushai lei ≽ hlei, Tiddim laːi, Lakher lai-pa 'leftovers'		
	*s-ley > Lakher hlei 'more than others'.		
'buy / barter'	*b-rey ≽ *r-ley	#293	#54
	Contra *STC* (n. 205, p.64) this root certainly seems allofamically related to *g/m-lay 'change / exchange' (*STC* #283). [b]		
'tail'	*r-may ≽ *r-mi or *r-mey	#282	#72
	*r-mey > WB ʔəmrî, Akha dɔ̀-mì *r-may > Jg. ǹ-mài Lushai mei is consistent with either reconstruction; Mikir has a doublet: arme ≽ -mí. French (1983) reconstructs PNN *C-meːy. The Lahu reflex mɛ̄(-tu) is not regular for either proto-rhyme (see also 'left', below 5.5.5).		
'rice / paddy'	*may ≽ *mey	pp.65,192	#57
	The rhyme of this etymon (attested mostly in Bodo-Garo) is not reconstructed with certainty in *STC*: "*m[a/e]y". There is also evidence for a monophthongal allofam *ma. [c]		
'bamboo strip (for tying)'	*ʔ-nay[1/2] ≽ *ʔ-ney	---	#130
	*ʔ-nay > Lahu vâ-ne (vâ 'bamboo') [< PLB Tone *1]; Akha á-nè [< *2]; Bisu nɛ́-phɔ̀ *ʔ-ney > WB hnî; Proto-Karen *ñai 'fiber' (Mazaudon 1984); Proto- Tamang hnãi (*ibid.*)		
'bridge / ladder'	*s-lay ≽ *s-ley	---	#133 & n.78
	*s-ley > Lushai lei, Tiddim lèi, Lakher hlei-ri		

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68. For more details on these etymologies, see JAM 1985a (*GSTC*), §4.211 (pp. 26-7).

	STC	*GSTC*

*s-lay > Chepang **hlayʔ**; Tangkhul **śay** 'small bridge', **śay-ron** 'ladder' [d]

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a. See below 11.6 ("Palatal suffixes").

b. Benedict claims that ***b-rey** ⪥ ***r-ley** is a loan from Austro-Tai (PAT ***(m)baḷi**).

c. See JAM 1995a "Palatal suffixes", and below 11.6.

d. There is also an excellent Chinese comparandum, 梯 OC ***ti̯ər** (*GSR* #591-L), Mand. tī. See below 5.5.7.

These two proto-diphthongs seem to have largely fallen together in Karenic, with rampant intralingual variation (see *STC*:149-50; *GSTC* p.23), though much more data collection and comparative work remains to be done on Karen dialects:

	PTB	*Pwo*	*Sgaw*	*Palaychi*	*Pa-o*[a]
	*-ey	-e	-e	-i / -e / -ə	-i / -e
'fire'	*mey	me	me	mi	mi ⪥ me
'get / obtain'	*ney	ne	ne	ni ⪥ ne	---
'know'	*syey	θe	θe	---	---
'rattan'	*rey	ɣe	ɣe/ɣi	ɣi	re
'rice'	*mey/*may [b]	me	me	mə	---
'tiger'	*d-key	khe	khe	---	---
	*-ay	-ai / -e / -ɛ	-ɛ / -e	-ɛ / -ə / -i / -e	-e
'exchange'	*g-lay	lai	lɛ	---	---
'navel'	*s-tay	de	de	di-	pəde
'tail'	*r-may	me	mɛ	mə	me
'tongue'	*s-lay	phle	pəle	ple	phre
'yam'	*m-n(w)ay	nai ⪥ nɛ́ʔ	nwɛ	nwɛ	nwe
	*-aːy	-ai / -e	-ɛ / -e	-ɛ / -ə	-e
'bee'	*kwaːy	kwe	kwɛ	---	---
'chaff'	*pwaːy	phe	phe	---	phe
'crab'	*d-kaːy	shwai ⪥ shwe	shɣɛ ⪥ shwɛ	shwɛ	tshwe
'love'	*ŋ-waːy	ai	ɛ	ʔə	ʔe

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a. This Karen dialect was formerly known as "Taungthu" (< Burmese "mountain-folk"), an exonym now felt to be pejorative.

b. See above for the indeterminate reconstruction of this root.

Summary of fates of *-**ey** and *-**ay**:

	WT	*WB*	*Lahu*	*Bahing*	*Jg.*	*Mikir*	*Garo*	*Dimasa*	*Lushai*
*-**ey**	e	i	i	i	i	e	e	ai	ei
*-**ay**	e	ai	e / i / ɨ	e	ai	e	e	ai	ei

5.5.4   *-i(y) and *-ey interchange[69]

There are several cases of alternation between *-**ey** and short *-**i** or long *-**əy** (= *-**iy**). The reflexes of *-**i** and *-**ey** are identical (*i.e.* -**i**) in any case for many languages, including WT, WB, Jingpho, and Lahu.

		STC#	GSTC#

'aunt'	**-**ney** ⋟ **-**ni(y)**	316	---

-ney** > WT **ʔəne**, Tsangla **ənye**, Kanauri **əne**
-ni(y)** > Lushai **ni**, Garo **ma-ni**, Mikir **ni**
Jg. **nī** could descend from either variant.

'cane / rattan / rope'	**-**rey** ⋟ **-**s-rwi(y)**	478, 201	

-rey** > Magari **ri** 'cane'; Jg. **rì** 'rattan, cane, cord, string, thread', **sūm-rī** 'a cord or rope', **sùm-rì** 'be tied, united, as by cords of friendship' (Hanson 1906:596, tones from Maran, in prep.); Nung **thə*ri*** 'cane', **ban-*ri*** 'rope, string', **sə*ri*** 'thread'; Garo **re**; Dimasa **rai** 'rattan, cane'; Abor-Miri **ri-bui** 'cane, creeper'.

-s-rwi(y)** > Lushai *hrui*; Digaro **tə*rui*** ~ **tə*roi***, Abor **tə*rü*** 'cane'.

'earth'	**-**m-ley** ⋟ **-**m-ləy**	152	152 [a]

-m-ley** > Lushai **lěi**, Tangkhul **ŋərəy**, Lahu **mì**
-m-ləy** > Mikir **mili** ⋟ **meli** 'sandbank', Muya (Qiangic) **məli**, WB **mrɛ**, Hpun (Samong) **təmli**

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69. As observed above, "*-(i)y" is a convenient abbreviation for "*-i or *-əy"; it does not work to write "*-ə(y)", since there is no open-syllable rhyme *-ə.

		STC#	*GSTC#*
'penis'	*m-ley ⋟ *m-li	262	49

*m-ley > WT **mdźe**

*m-li > Kanauri **kut**-*li*, Bahing **bli**, Garo *ri*-**gaŋ**, Dimasa **li**
WB **lî** and Lahu **nī** (with preemption by the prefix and assimilation
of the prefix to the original root-initial) could descend from either
variant. Jg. **mənè ~ məné?** (with similar assimilation of the initial to
the prefix) seems to reflect neither of these allofams, but could
descend from PTB *m-le (see above 5.4).

'tiger'	*d-kəy ⋟ *d-key	p.116	52

*d-key > Mikir **teke**, Lakher **tśəkei**, Proto-Kiranti *key-**ba** 'tiger',
Miri **si-ke** 'species of civet'
*d-kəy > WB *khye*-**sac** 'leopard cat'

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a. *STC* does not recognize the variant in *-ey. By coincidence these sets are numbered the same in *STC* and *GSTC*!

5.5.5   *-i(y) and *-ay *interchange*

A few etyma (most importantly the numeral 'ten') show this variation:

		STC	*GSTC*
'ten'	*ts(y)i(y) ⋟ *tsyay	#408	#'s 2 and 73

*ts(y)i(y) > Jg. **(t)śī**, Garo **tśi**, Dimasa **dźi**, *etc*.
*tsyay > WB **?əchai**, Lahu **chi** [a]

'left'	*r-bi(y) ⋟ *b(w)ăy	#47; p. 68	#'s 80 and 124

*r-bi(y) > Mikir **arvi**
*b(w)ay > WB **bhai** 'left' ⋟ **lak-wâi** 'left hand', Jg. **pāi**, Lushai **vei**, *etc*.
The -ɛ vowel in the Lahu reflex **làʔ-mɛ̄** 'left hand' is irregular, like 'tail', above
5.5.3; the Lahu initial is also irregular in this complex etymon. See above 5.5.2(2),
5.5.2.1, and below 5.5.7.

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a. For more discussion see JAM 1995b ("Numerals"), §3.22, pp. 134-5.

Finally, alongside the basic copular morpheme *way ⋟ *ray reconstructed in *GSTC*,
there is a group of others with *-i or *-əy vocalism : *rəy, *s-ri, *s-rin, *s-rit (JAM
1985a:pp. 63-4).

5.5.6   *-ey and *-eN interchange

STC (pp. 79, 171, 183) sets up a PTB root ***sre[ŋ]** 'squirrel; weasel', on the basis of WT **sre-moŋ** 'weasel', Mikir **iŋren** 'mongoose', and WB **hrañ** 'squirrel'.[70] Several additional forms cited in *GSTC* #151 point to a variant in ***-ey** (Lushai **hlĕi** 'squirrel', Abor-Miri **lí-po**, Tangkhul Naga **saŋri**, **khərəy**, **cireŋ**), leading to a pan-allofamic formula like ***s-ley ≍ *s-leŋ ≍≍ *s-rey ≍ *s-reN**.[71]

5.5.7   *Chinese comparanda to PTB palatal diphthongal roots*

Chinese is of little help in differentiating these TB rhymes, though *STC* makes nine specific comparisons of Chinese forms with PTB roots in ***-ay**, ***-ey**, or ***-oy**, and *GSTC* (n. 42) goes on to add several more:

	PTB		*OC*	*GSR*	*STC#*	*GSTC#*
'beautiful'	*moy	美	mi̯ər	568a-e	304	81
'belt / zone'	*m/s-taːy	帶	târd	315a	---	95
'big'	*tay	泰	t'âd	316a	298	68
		大	d'âd	317a-c		
		太	t'âd	317d-e		
'bridge / ladder'	*s-lay ≍ *s-ley	梯	ti̯ər	591*l*	---	133
'come'[a]	*la-y	來	ləg	944a	---	185
'crab'	*d-k(y)aːy	蟹	g'ĕg	861d	51	4; 59
'love'	*ŋ-(w)aːy	愛	ʔəd	508a	pp.150,192	126
'near'	*s-ney ≍ *s-naːy	邇	ńi̯ăr	359c	291	55
'repeat / practice'	*bay	倍	b'wəg	999c'	---	107
'rhinoceros'	*b-sey	犀	siər	596a-b	p.193	---

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70. *STC* sets up the nasal-finalled allofam with *-ŋ, even though *-n seems equally likely, probably because the putative Chinese cognate, OC *sri̯ĕŋ 'weasel' (*GSR* #812t-u) has -ŋ.

71. This alternation between final semivowel and nasal is similar to the much better attested *-ay ≍ *-an, below 12.4.

	PTB		*OC*	*GSR*	*STC#*	*GSTC#*
'rice'	*may/*mey	米	miər	598a-c	p.65 *etc.*	57
'spleen'	*r-pay	脾	b'iə̆g	874h	---	94
'tail'	*r-may	尾	mi̯wər	583a-b	282	72
'talent / aptitude' b	*(t)saːy ≋ *(d)zaːy	才	dz'əg	934a	---	106
'vegetable'	*r-tsaːy	菜	(MC) ts'âi' c	*AD*1025	---	161
'wide apart' d	*glay	侈	t̂'ia	3t	---	---
'younger sibling'	*doy ≋ *toy	弟	d'iər	591a-c	309	86

a. *Cf.* JAM 1995a ("Palatal suffixes").

b. *Cf.* JAM 1988a ("Property, livestock, talent").

c. In *AD*, Karlgren marks MC *qùshēng* tone with " ' " at the end of the syllable.

d. *Cf.* Lai Chin (KVB) **tlay** 'be apart, be separated; be weaned', WB **kyai** 'wide, broad', **kyâi** 'wide apart'. This root seems to be allofamic with ***graːy** 'scatter, sow, disperse; star' (above n. 59). The Chinese form means 'wide, extend'. See Gong 2001:30-1.

Another attractive comparison is PTB ***paːy ≋ *baːy** and Chinese 跛 'walk lame', OC **pwâ** (*GSR* #25m), reconstructed by WHB as OC **pajʔ**. See above 5.5.2(2).

Perhaps the most important ST etymon with a palatal diphthongal rhyme is ***way ≋ *ray** 'copula', the main topic treated in *GSTC* (JAM 1985a).[72] On the TB side, forms reflecting the ***way** allofam include:

· (*Loloish*) Lahu **ve** 'nominalizer; marker of citation form of verbs; subordinator'; Akha **ø ~ ø̀** 'subordinator; citation-form marker; terminator of utterances in declarative mood'; Lisu (Fraser 1922) **rgh⁵** (*i.e.* /ɤ⁵/); Phunoi and Mpi **ø**; Bisu **hɯ́**; Luquan **ve³³ ~ ve⁵⁵** 'subordinator; final particle' (Ma 1949)

· (*Jingpho-Nung*) Jg. **ʔai** 'relativizer; marker of citation form of verbs; nominalizer'; Dulong **e⁵³** 'copula' (Sun Hongkai 1982)

· (*Himalayish*) Sherpa **wəy ~ wye** 'final particle in VP's in certain tenses and persons'; Khaling **we** 'past tense suffix after negated verb', **e** 'evidential particle marking

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72. See esp. *GSTC*:57-8. This paper revised the reconstruction ***wəy** offered in Thurgood 1982. See also Bradley 1979:#'s 838, 844.

reported speech'; Newar **ye** ~ **e** 'marker of citation form of verbs; of non-past conjunctive verb stems ending in -**n** or -**l**'

· (*Kamarupan*) Lushai **e** ~ **ve** 'verbal expletive or verbal ending'; Gallong **ye** ~ **re** 'future indefinite or negative; question marker; incompletive past'; Abor-Miri **ai** 'clause final particle, **ái** 'interrogative particle' (Lorrain 1907); Tangkhul Naga **wui** 'genitive particle'; Meithei *oi*-**ba** 'copula' (Thoudam 1980:48); Garo -**e**- 'marker of adverbial clauses'; Nocte -**e**- 'continuous action; stativity'

· (*Karenic*) -**wέ**- 'reported speech'

· (*Qiangic*) Xixia **vi̯e** (Kepping 1975), **wji** 'do, make, be; act as' (Nishida 1964/1966).

On the Chinese side, Benedict (1981) cited several likely comparanda, especially a copular morpheme written variously as 隹 唯 維 惟 , OC **di̯wər** (*GSR* #575n-o) > Mand. **wéi**, changing the reconstruction to a doubly prefixed form ***s-g-wəy** (better: ***s-g-way**) on the basis of *xiéshēng* evidence.[73]

5.6   *The non-high labial diphthongs: *-ow, *-aw, *-aːw*

   The mid-vowel labial diphthong ***-ow** is reconstructed when WT has -**o** and Lushai has -**ou**, corresponding to WB and Jingpho -**u**. In the absence of WT and/or Lushai cognates, WB and Lahu alone are powerless to distinguish between ***-ow** and ***-u**, both of which give -**u** in both languages.[74] On the other hand, WT and Lushai by themselves cannot distinguish between ***-ow** and short ***-aw**, both of which become -**o** in WT and -**ou** in Lushai. The contrast between short ***-aw** vs. long ***-aːw** is reflected best in Lushai. See the following charts:

PTB	WT	Jg.	WB	Lahu	Garo	Dimasa	Lushai
*-ow	-o	-u / -au	-u	-u	-o	-au	-ou
*-aw	-o	-au	-au	-o	-o	-au	-ou
*-aːw	-u / -o	-au	-au	-o	-o	-au	-au

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73. In his appendix to *GSTC* (p. 66), Richard Kunst cites another Chinese copular form written 叀 (inscriptional form), or 惠 (received text form) OC **g'iwəd** (*GSR* #533a-d) > Mand. *huì*, found in the oldest (Western Zhou) stratum of the *Yìjīng* 易經 .

74. In the etymologies given in my Lahu dictionary ("*DL*"; JAM 1988b), I did not invoke PLB ***-ow**, since PTB ***-u** and ***-ow** merged in both WB and Lahu, *e.g.*: Lh. **chu** 'fat' < PLB ***tsu**[1] < PTB ***tsow** (*DL*:530); Lh. **chû** 'thorn' < PLB ***tsu**[2] < PTB ***tsow** (*DL*:531); Lh. **thu** 'thick' < PLB ***tu**[1] < PTB ***tow** (*DL*:679). Maybe this decision should now be revisited in the light of other LB languages, especially since *DL* does recognize PLB ***-ey**, which has similarly merged with ***-i** in WB and Lahu.

Compare these reflexes to those of the high back monophthong and diphthong (above 5.3.1):

PTB	WT	Jg.	WB	Lahu	Garo	Lushai
*-u	-u	-u	-u	-u	(-u)	-u
*-uw / *-əw	-u	-u	-ui	-ɔ / -u	-u	-u

These correspondences are beautifully paralleled by the reflexes these languages display for the corresponding palatal diphthongs, so that we can express the relationships in exactly the same way. As shown above (5.5), the mid-vowel palatal diphthong *-ey is reconstructed when WT has -e and Lushai has -ei, corresponding to WB and Jingpho -i. In the absence of WT and/or Lushai cognates, WB and Lahu alone are powerless to distinguish between *-ey and *-i, both of which give -i in both languages. On the other hand, WT and Lushai by themselves cannot distinguish between *-ey and short *-ay, both of which become -e in WT and -ei in Lushai. The contrast between short *-ay and long *-aːy is again reflected best in Lushai:

PTB	WT	Jg.	Nung	WB	Lahu	Garo	Dimasa	Lushai
*-ey	-e	-i	-i	-i	-i	-e / -i	-ai	-ei
*-ay	-e	-ai	-ɛ	-ai	-e	-e	-ai	-ei
*-aːy	-e	-ai	-ɛ	-ai	-e	-e	-ai	-ai

We may similarly compare these reflexes to those of the high front monophthong and diphthong (above 5.3.2):

PTB	WT	Jg.	Nung	WB	Lahu	Maru	Garo	Lushai
*-i	-i	-i	-i	-i	-i	-i	-i	-i (?)
*-əy	-i	-i	-i	-e	-ɨ / -i / -ɔ	-it / -a	-i	-i

5.6.1   *-ow

STC reconstructs 14 etyma with *-ow:

		STC#			STC#
'tender / soft'	*now	274	'arise / awake'	*m-sow	295
'boil / bake'	*tsyow	275	'blue / green'	*s-ŋow	296
'thorn'	*tsow	276	'female relative'	*mow	297

		STC#				STC#
'fat'	*tsow	277	'hammer'	*tow ≍ *dow	317
'nit' [a]	*s-row	278	'cross over'	*gow	318
'long'	*low	279	'thick'	*tow	319
'work / move' [b]	*mow	280	'pine / fir'	*row	320

a. To the two reflexes of this rare etymon cited in *STC* (Central and West Tibetan *sro*-ma, Jg. tsíʔ-*rù*) may now be added forms from several dialects of rGyalrong: Puxi ʃvə̱ʷ, Caodeng ⁿdʒruʔ, Muerzong srəʔ (data from Jackson Sun).

b. *Cf.* Jg. **mú** 'work, affair, matter'; WB **mu** 'do, perform', **ʔəmu** 'deed action'; Lalo **ʔmú**; Garo **mo** 'move', Dimasa **mau** '*id.*' The Lalo preglottalized initial is a reduction of the nominalizing prefix *ʔə-.

A few examples in detail:

	PTB	WT	Jingpho	WB	Lahu	Garo	Dimasa	Lushai
	*-ow	-o	-u	-u	-u	-o	-au	-ou
'boil / bake'	*tsyow	ḥtsho	dźù	chu	---	so	sau	śou
'fat'	*tsow	tsho	---	chu	chu	---	---	---
'hammer'	*t/dow	mtho	sùm-*dū*	tu	---	---	*dau*-bu	---
'long'	*low	---	gəlū	lu	---	ro	galau	---
'tender / soft'	*now	---	nù	nû ≍ nu'	nû	---	---	nou
'thorn' [a]	*tsow	---	dźú	chû, cû	í-chû	su	su	seu

a. *Cf.* also Lepcha dźu; Mikir **su** 'thorn, sting, panji (spike planted in ground in warfare)', **iŋ-su** 'thorn'; Tangkhul **kəsui**; WB **chû** 'thorn, string of an insect', **cû** 'prick, pierce; piercer, awl'; Garo and Dimasa **su** 'pierce, thorn'; Lushai **seu** 'panji'. KVB suggests a connection with Lai **tsow**, Lushai **cho** 'dig', as well as with Proto-Bodo *cauʔ 'dig' (> *e.g.* Garo **coʔ**; see Burling 1959).

5.6.2 *-*aw* vs. *-*aːw* : contrastive length in a low diphthong

In general, the low labial diphthongs *-**aw** and *-**aːw** are less well attested than their low palatal counterparts *-**ay** and *-**aːy**. As indicated above, Lushai is the only criterial language capable of distinguishing vowel length in these rhymes:

PTB	WT	Jingpho	WB	Lahu	Garo	Dimasa	Lushai
*-aw	-o	-au	-au	-o	-o	-au	-ou
*-aːw	-u / -o	-au	-au	-o	-o	-au	-au

Etyma reconstructed with short *-aw include:

	STC#	PTB	WT	Jingpho	WB	Lushai
'basket (a kind of)'	266	*kaw	---	---	khâu	khou
'call'	14	*gaw	---	gāu	khau [a]	kou
'dig out / weed'	269	*klaw	---	krāu	---	thlou
'risk / defy / hostile'	267	*daw	sdo-ba	---	---	dou
'withered / residue / corpse'	268	*raw	ro	---	rau	rou

   a. There is a clear Lahu cognate **qho** 'summon by calling' (*cf.* ɔ̀-ha qho ve 'call back a soul', ğâʔ qho ve 'call chickens'), which establishes -**o** as the regular Lahu reflex of *-aw. Lahu **kù** 'call, shout' reflects a distinct etymon; the front velar implies cognacy or allofamy with WB **krau** 'shout, call out' < PLB *gru[1] or *graw[1] (*cf.* my note 67 in *STC*).

Also: 'bark / outer covering' ***s-graw** (#121); 'swim / float' ***pyaw** (#176); 'mix' ***ryaw** (#207); 'roast / bake' ***r-ŋaw-t** (#270); 'head' ***m-gaw** (#490).

The few etyma reconstructible with long *-aːw include:

	STC#	PTB	WT	Jg.	WB	Lushai
'oil / grease'	272	*saːw	---	sāu	---	thau
'shout'	273	*ʔaːw	---	---	ʔau	au
'younger brother'	271	*naːw	nu-bo ⋈ no-bo	nāu	---	nau

The grammaticalized closed class of Lahu "spatial demonstratives"[75] (**chò** 'here', **ô** 'there', **cô** 'way over there', **mô** 'down there', **nô** 'up there') shows fusion of various locative morphemes with a deictic element *-aw : *e.g.* **nô** 'up there' < **na** 'in front of and above' + *-aw; **chò** 'here' < **chi** 'this' + *-aw.[76]

5.6.3   *-ow and *-a(ː)w : contrast and interchange

As we have seen, Lushai has merged *-aw and *-ow to -ou, although it distinguishes between short *-aw and long *-aːw, reflecting the latter as -au. In fact, other

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75. See JAM 1973/82 (GL), pp. 51-2.

76. See JAM 1995a:82-84 ("Pal. suff."), which takes sharp issue with the unmotivated analysis of these morphemes in Benedict 1983a ("*This* and *that* in ST/TB").

Kuki-Chin-Naga languages also seem to reflect the contrast between ***aw** and ***ow** on the one hand, and ***aːw** on the other:[77]

	PTB	*Lushai*	*Lakher*	*Thado*	*Bete*	*Empeo* [a]	*Tangkhul*
'call'	***gaw**	kou	---	kou	koi	gu	---
'fly' (n.)	***m-tow**	thou	mətheupa	thou	ithoi	---	---
'field'	***low**	lou	lo	lou	loi	lu	lui
'grease'	***saːw**	thau	thɔ	(thou)	thai	pəthau	thau
'y. sibling'	***naːw**	nau	nɔ	nau	nai	---	nau
'grasshopper'	***kaːw** [b]	khau	khɔ-śu	khau	---	---	khau

a. This Naga language is now usually called Zeme.

b. Contra *STC* (pp. 201, 214), where the reconstruction is given with a short vowel ***kaw**.

Despite the merger of *-**aw** and *-**ow** in Lushai, evidence from WB and/or Jingpho can usually distinguish the two rhymes:

	WT	*WB*	*Lahu*	*Jg.*	*Mikir*	*Garo*	*Dimasa*	*Lushai*
*ow	o	u	u	u	u	o	au	ou
*aw	o	au	o	au	u	o	au	ou

Jingpho seems less reliable than WB in this respect, however, since there are several roots where Jg. has -**au** corresponding to WB (and Lahu) -**u**, pointing to proto-variation between *-**aw** and *-**ow**:

'cross over'	***gow** (#318) > Jg. **gāu**, but WB **kû**
'thick'	***tow** (#319) > Jg. **dāu**, but WB **thu**, Lahu **thu**
'pine / fir'	***row** (#320) > Jg. **mərāu**, but WB **thâŋ-*rû***

At least one TB etymon with a rhyme that might be either *-**aw** or *-**ow** has a likely Chinese cognate:

'bird'	Garo **do** (pronounced with echo-vowel as **doʔo**), Dimasa **dau**, Pwo and Sgaw Karen **tho** < PTB ***daw** or ***dow** (*cf.* also ***m-tow** 'a fly'); *cf.* Chinese 鳥 OC ***tiôg** (*GSR* #1116a; see *STC* pp. 149, 192) [a]

5.6.4 **-ow and *-əw (= uw) interchange*

There are also a few roots where variation must be posited between ***-ow** and the diphthong reconstructed as ***-əw** or ***-uw** (above 5.3.1; *STC* p. 69):

'hammer'	general TB ***tow** (#317), but Lushai **tu-bauʔ** < ***tu(w)**
'steal'	general TB ***r-kəw** (#33), but Dimasa has **khau** < ***kow**
'thorn'	general TB ***tsow** (#276), but Dimasa[a] has **busu** < ***tsu(w)**

a. Dimasa regularly has **-u** < *-u or *-əw, and **-au** < *-ow.

5.6.5 *Chinese comparanda to PTB labial diphthongal roots*

As *STC* observes (p. 192), "Our comparative material on these finals is still scanty," with several reconstructed OC rhymes corresponding to each PTB ***labial diphthong**. Among the best examples are the following:

(1) OC comparanda to PTB *-a(:)w

PTB			GSR	OC	Chinese Gloss
*ŋaːw	'ape'	禺	124a-b	ŋi̯u	'monkey'
*daw or *dow [a]	'bird'	鳥	1116a	tiôg	'*id.*'
*zyaːw ⩗ *zyu(w)	'decay'	疛	1096h	zi̯ôg	'*id.*'
*saːw	'fat'	臊	1134e	sog	'fat of swine or dog'
*r-ŋaw	'roast'	熬	1130h-i	ngôg	'fry / roast'
*ʔaw	'vomit'	嘔	122i	ʔu	'*id.*'

a. This root is confined to Bodo-Garo. See *STC*:149,192.

(2) OC comparanda to PTB *-ow

PTB			GSR	OC	Chinese Gloss
*tsyow	'boil / cook'	煮	45m	t̂i̯o	'*id.*'
*tsow	'thorn'	楚	88a-c	tṣ'i̯o	'thorny trees / thorns'
*mow	'woman'	母	947a-e	məg	'mother'

PTB			GSR	OC	Chinese Gloss
*syow [a]	'rat'	鼠	92d	śi̯o	'rat'
*tow ≽ *dow	'thick'	篤	not in 1116	tiog	'deep / profound'
		敦	464p-q	twən	'solid / thick / lie thick on' [b]

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a. This PTB form is derived by Benedict from the binome **ša-yəw where the first element meant 'animal'.

b. An alternative (and probably better) etymology derives this word from a prototype with liquid final. See below 9.3.4 and JAM 1994d.

5.7 PTB *-oy and the new rhyme *-uy

Like English, PTB had *-oy but not the symmetrical diphthong *-ew.[78] *STC* reconstructs *-oy in a series of 12 consecutively numbered roots (#'s 304-315), on the basis of forms from Jingpho, Lushai, and Burmese. The reflexes tend to be variable, and there is some overlap with the rhymes *-way and *-wəy:

PTB	WT	Jingpho	WB	Garo	Dimasa	Lushai
*-waːy	(?)	-oi / -we	-wai	(?)	(?)	-oi / -uai
*-wəy	-(y)i	-ai / -(ə)wi	-we	-i	-i	-ui / -i
*-oy	(?)	-oi / -we / -wi	-we	-e	-ui / -i	-oi / -ui / -uai

STC reconstructs *-oy when Jingpho and Lushai have -oi but WB has -we; when a WB cognate is lacking, *-oy is conventionally reconstructed instead of *-way.

	PTB	STC#	GSTC#
'beautiful / perfectly'	*moy [a]	304	81
'bud / blossoming'	*(r-)moy	305	82
'graze / passing close'	*soy	306	83
'bend / curved'	*koy	307	84
'cowlick'	*boy	308	85
'younger sibling'	*doy ≽ *toy	309	86
'crow / howl'	*groy	310	87
'shellfish'	*kroy	311	88

---

78. However, this latter diphthong is apparently reconstructible at the level of Proto-Kuki-Chin-Naga (below 5.7.1).

	PTB	STC#	GSTC#
'borrow / debt'	*kroy	312	89
'surround'	*kroy	31	90
'monkey'	*b-woy	314	91
'gentle / quiet'	*ŋoy	315	92
'propitiate / appease'	*tway *or* *toy	---	122

    a. This root is probably allofamically related to *maːy 'good' (above 5.5.2).

To these we may possibly add ***woy** 'fart', on the basis of Lahu **vî**; Xixia (Nishida 1964/1966) **wiN**, rGyalrong **wu-**; as well as a group of Chin forms: Hakha Lai **vɔiʔ**; Womatu **veiʔ**; Ahraing Khumi **vɔ**; Awa **vü**.[79]

    Several of the verbal roots among these etyma may be interpreted as having had a stative or inchoative component, indicating an emergent or permanent quality, one of the semantic roles posited for PTB "palatal suffixes", suggesting that the final -**y** in the ***-oy** rhyme may sometimes have been suffixal.[80]

    An additional diphthongal rhyme ***-uy** is reconstructed in "Following the marrow" (JAM 1992:171-3), in order to accommodate the distinctive yet similar reflexes shown by etyma for 'follow' and 'marrow' in Chinese and various TB languages:

'follow'	*Chinese*	隨 OC***dzwia** [*GSR* #11g] (Mandarin suí)
	Kamarupan [a]	Lushai **zui**, Siyin **yui**, Konyak **woi**-lak, Sangtam i-**vü**, Sema **athiu**-*wu*, Mao **fü**, Chokri **mü**-*zwi*, Angami **me**-*dzi*, Mzieme **sui**, Liangmai **shai**-*shwi*, Zeme **chai**-*sui*, Tangkhul **athi**-*shur*
	Lolo-Burmese	WB **sui**' 'thus, in this way; towards, into, unto'; Lahu **šɔ̄** 'arrange, channel, follow'

This etymon may be reconstructed as a simplex/causative pair, ***m-yuy ⋇ *s-yuy**. As the WB (-**ui**) and Lahu (-**ɔ**) reflexes show, the rhyme ***-uy** merged with ***-əw** at the Proto-Lolo-Burmese level.[b]

    a. *STC* (p. 51) sets up in passing a root ***ywi** 'follow' on the basis of the Lushai and Siyin forms, but mistakenly claims that it is restricted to Kuki-Naga.

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79. *Cf.* Luce 1985, *DL*:1329, and JAM 1997a.

80. See JAM 1995a:57. These stative/inchoative roots include ***moy**, ***(r-)moy**, ***soy**, ***koy**, and ***ŋoy**.

b. In the absence of extra-LB data, we cannot tell which of these two PTB rhymes is represented by sets like the following: WB **sui** 'penis of animal' (< PLB *səw[1]), **ʔəsûi** 'virility; testicles; uncastrated animal' (< PLB *səw[2]) / Lh. **šɔ̄** 'intact male animal', as in **nû-šɔ̄** 'bull', **í-mû-šɔ̄** 'stallion' (< PLB *səw[2]) < PLB *səw[1/2] 'testicles; virility' (*DL*:1225).

'marrow'	*Chinese*	髓 OC ***swia** [*GSR* #11h] (Mandarin suǐ)
	Jingpho	**lăsăwi** (Hanson 1906), **ləsūi** (Dai *et al.*, 1983:418) [a]
	Other	Darang Deng (N. Assam) **ru⁵³*su*⁵³** (**ru⁵³** 'bone'); Chang (N. Naga) **hʌi**, Kham (C. Nepal) **suː** ; Dulong (SW Yunnan) **mɯ³¹*siʔ¹³***

This etymon may be reconstructed as PST ***suy**. It seems certainly related allofamically to the widespread root for 'blood', PTB ***s-hywəy**.[b] Chinese reflects a dental suffix < PST ***s-hywəy-t** .

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a. Another example of Jingpho **-ui** corresponding to Karlgren's reconstruction of OC **-wia** is 'elephant': Chinese 為 OC ***gwia** [*GSR* #27a-e], Jg. **məgūi** < PST ***m-guy**.

b. I first proposed the semantic association in Sino-Tibetan between 'marrow' and 'blood' in JAM 1978a (*VSTB*):183-4. Chinese 血 'blood' (OC ***xiwet** [*GSR* #410a-c]; Mand. **xuě**) reflects a variant with dental suffix, PST ***s-hywəy-t**. Jingpho **sài** 'blood' reflects still another prototype, perhaps ***s(w)ay**.

Another good candidate for an etymon in ***-uy** is attested in Jingpho and Bodo: 'sweet / tasty' Jg. **dùi ~ dəwì**; Bodo **dóy**. Several other forms with the same meaning have zero-initial (Milang **ai**; Achang Longchuan **uai³¹**, Achang Xiandao **oi³¹**), but the Achang forms might be loans from Tai; *cf.* Proto-Tai ***ɔi** 'sugar-cane' (Li Fang-Kuei 1977:244-7, 287-8).

The reflexes of this marginal rhyme may be summarized as follows:

PST/PTB	OC (GSR)	WT	Jg	Lushai	PLB	WB	Lahu
*-uy	-wia	(?)	ui	ui	*-əw	ui	ɔ

As might be expected, ***-uy** was prone to merge in one or another language with the similar finals ***-wəy** and ***-əw**. In Lolo-Burmese ***-uy** merged with ***-əw** at an early date. In Jingpho, PTB ***wəy** and ***uy** merged to **-ui**[81]; but these rhymes had a different fate from ***əw**, which became Jg. **-u** (*e.g.* 'stale' Jg. **tsù** / WB **sûi** < PTB ***(t)səw**; see JAM 1974:#220).

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81. Jingpho forms unambiguously reflecting PTB ***-wəy** include 'dog' (Jg. **gùi** / WB **khwê**) and 'suppurate' (Jingpho **tūi** 'fester', **mətsəwī** 'pus' / WB **twe**). The Jg. form "**məthwi**" 'spit' cited and compared to WB **thwê** in Benedict 1972 (#168) is not to be found in Hanson or Dai, which give the form **məthó**.

5.7.1　The marginal rhyme *-ew*

Another marginal diphthong ***-ew** (the front diphthong analogous to the relatively well-attested ***-oy**) is set up in a few roots (*STC*:68), but only at the level of Proto-Kuki-Naga, since cognates have yet to be identified elsewhere:

	PTB	*Lushai*	*Lakher*	*Mikir*
	*-ew	-eu(ʔ)	-ei / -ua	-e
'burrow'	*hrew	hreuʔ	rei	---
'lean back'	*ʔew	eu	əua	---
'scratch'	*d-kew	kheuʔ �england khei	tśəkhei	ar-ke
'spoiled / wasted'	*m-hew	heu	pəhua	---

5.8　Secondary/fusional diphthongs (across morpheme boundary)

In the course of a study of the PTB rhymes ***-an** and ***-ay** (JAM 1985a, *GSTC*), it became apparent that many etyma displayed variation between the monophthongal ***-a** rhyme and diphthongal ***-ay**, motivating the reconstruction of allofamic prototypes that recognized both variants, *e.g.*:

	PTB	*GSTC#*
'big'	*ta ⋎ *tay	68
'come'	*la ⋎ *lay	185
'fall'	*kla ⋎ *klay ⋎⋎ *gla ⋎ *glay	125
'I / self'	*ŋa ⋎ *ŋay	70
'interrogative particle'	*la ⋎ *lay	131
'rice / paddy'	*ma ⋎ *may *or* *mey	57
'throw'	*ba ⋎ *baːy	147

It soon became clear that these diphthongal allofams were actually bimorphemic in origin, incorporating a "palatal suffix".[82] Eventually this vague entity was explained as a

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82.　See JAM 1989a, "The bulging monosyllable, or the mora the merrier" and below, 11.6.

phonological falling together of three originally separate morphological elements, each derived from a full syllable that had both stressed and unstressed variants, and each well exemplified in Lahu:[83]

	Stressed (less fused)		*Unstressed (more fused)*	
	PTB	Lahu	PTB	Lahu
Transitive motion	*ay	e	*-ăy	/-y/
Diminutive	(*za �done) *ya	ɛ	*-yă	/-y/
Nominalizer / subordinator	*way	ve	*(w)ăy	/-y/

One consequence of this analysis was a reinterpretation of a widespread process of doublet formation in Lahu,[84] where forms with simple back vowels / u o ɔ / may also be pronounced with rising diphthongs consisting of /w/ plus the front vowel of the same height / i e ɛ /, *e.g.* ŋâ-ku ~ ŋâ-kwi 'dried fish', co ~ cwe 'era; period of time', yɛ̀-mí-tɔ̄ ~ yɛ̀-mí-twɛ̄ 'bear'.[85] However, instead of considering these to be "prelabialized" forms, it is now apparent that they are rather "postpalatalized", with incorporation of the diminutive palatal suffix and concomitant loss of syllabicity of the original back vowel.

5.9   *Vowel length contrasts in open syllables*

Contrastive vowel length is characteristic of West Himalayish languages.[86] This is apparently carried to an extreme in Manchad (=Manchati=Pattani), for which S. R. Sharma (1997) gives several specific minimal pairs between long and short vowels in open syllables:

lhi-pi	'be heavy'	lhiː-tsi	'abduct'
rhi	'white mongoose'	rhiː	'field'

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83. This theory was developed in JAM 1995a ("Sino-Tibetan palatal suffixes revisited"), where some 30 roots and word-families involving these suffixes are presented.

84. First discussed in GL:19.

85. The diphthongal variants sometimes convey a more colloquial or vivid tone than the monophthongal ones. In a few cases the monophthongal form has been completely displaced, *e.g.* chɨ-pí-qwɛ̀ʔ 'barking deer' (but not *chɨ-pí-qɔ̀ʔ); mû-tí-pwèʔ 'lightning' (but not *mû-tí-pòʔ). The last syllable of the latter form is directly cognate to that of Jingpho myìʔ-phráp (*-ap regularly > Lh. -oʔ; see below 8.2(3)).

86. Length contrasts are marked systematically in *e.g.*, the Kanauri forms in Bailey (1911) and D.D. Sharma (1988).

Often, however, this vowel length seems to be morphological rather than purely phonological, serving *e.g.* to mark possession:

dù	'he; she'	dùː	'his / her; curd'
d̥ù	'cloud'	d̥ùː	'of cloud'

Sharma also cites a few examples of length contrasts in closed syllables (*e.g.* **ar** 'towards'/**aːr** 'desire to eat'), but here too vowel length is pressed into grammatical service, *e.g.* to signal the first person singular future form of verbs:

kog	'feed for birds'	koːg	'I shall speak'
dog	'grace, splendor'	doːg	'I shall meet'
jog	'leech'	joːg	'I shall walk'

In any case, vowel length contrasts (especially in open syllables) seem quite marginal in this language, and are plausibly to be attributed to contact influence from Indo-Aryan. Certainly no length contrast in open syllables can be posited for TB in general.

An interesting case of secondary vowel length in open syllables is provided by Tamang (Mazaudon 1978), where the loss of final stops has left long vowels, whether or not the the proto-vowel was long to begin with:

PTB	*Tamang*
*s-maːk 'son-in-law'	maː
*sak 'breath(e)'	saː

5.10   Summary of reflexes of PTB open rhymes

The following charts display the system of PTB open rhymes, and their reflexes in some key TB languages.

(1)   Monophthongs

-i		-u
(-e)		(-o)
	-a	
	-wa	

PTB	WT	Jingpho	WB	Lahu	Garo	Dimasa	Lushai
*-a	-a	-a	-a	-a	-a	-a	-a
*-wa	-o	-a	-wa	-u	-a	-a	-a
*-i	-i	-i	-i	-i	-i	-i	-i
*-u	-u	-u	-u	-u	-u	-u	-u
*-e	-e	-e	-ai	(?)	-e	-ai	-e
*-o	-o	-o	-au	-ɔ	(?)	(?)	-o

TABLE 13. **PTB open rhymes**

(2)   Diphthongs

Palatal		Labial	

Palatal:

		-uy
-ey	-əy	-oy
	-wəy	
-ay	-aːy	
-way	-waːy	

Labial:

(-ew)	-əw	-ow
	-aw	-aːw

PTB	WT	Jingpho	WB	Lahu	G.	Dim.	Lushai
*-əy	-i	-i	-e	-ɨ / -i / -ɔ	-i	-i	-i
*-wəy	-yi	-ui	-we	-ɨ [a] / -i [b]	-i	-i	-ui
*-ey [c]	-e	-i	-i	-i	-e	-ai	-ei
*-ay	-e	-ai	-ai	-e	-e	-ai	-ei
*-aːy	-e	-ai	-ai	-e	-e	-ai	-ai
*-way	(?)	-ai / -oi	-wai	-e / -i / -ɨ / -ə	(?)	(?)	-ei
*-waːy	(?)	-ai / -oi / -we	-wai	-e / -i / -ɨ / -ə	(?)	(?)	-oi / -uai
*-oy	(?)	-oi / -we / -wi	-we	(?)	-e	-ui / -i	-oi / -ui / -uai
*-uy	(?)	-ui	-ui	-ɔ	(?)	(?)	-ui
*-əw	-u	-u	-ui	-ɔ / -u [d]	-u	-u	-u
*-ow	-o	-u / -au	-u	-u	-o	-au	-ou
*-aw	-o	-au	-au	-ɔ	-o	-au	-ou
*-aːw	-u / -o	-au	-au	-ɔ	-o	-au	-au

TABLE 14. **PTB diphthongs**

a. The usual Lahu reflex of *-wəy is -ɨ, with numerous examples: 'blood' WB swê / Lh. šɨ; 'comb' PKaren *khwis / Lh. pɨ (see Benedict/Matisoff 1979:13); 'daughter-in-law' WB khrwê-ma' / Lh. ɔ̀-khɨ̂-ma; 'dog' WB khwê / Lh. phɨ̂; 'far' WB wê / Lh. vɨ̂; 'snake' WB mrwe / Lh. vɨ̀ < PLB *m-r-wəy[1] < PTB *s-bruːl; 'sweat' WB khrwê / Lh. kɨ̄.

b. Lahu has -i instead of -ɨ in at least three etyma, under conditions that are not yet understood: 'bamboo rat' WB pwê (< *b-) / Lh. fâʔ-*phî* (< *p-) [the WB and Lh. forms also disagree in voicing]; 'gold' WB hrwe / Lh. ši; 'rub; polish; whet' WB swê / Lh. šɨ̄.

c. Nung has developed -i < *-ey, but -ɛ < *-ay. Mikir has merged *aw and *ow to -u, and *-ay and *-ey to -e.

d. Lahu reflects this rhyme as -u after labial initials, e.g. 'big' (WB pûi / Lh. pû); 'carry on back' (WB pûi / Lh. pû); 'grandfather' (WB ʔəphûi / Lh. ɔ̀-pū); 'high' (WB mui ≍ mui' 'elevated; raised in the center' / Lh. mu 'high' (the conventional wisdom identifies the Lahu form with PLB mraŋ' 'high', though the rhyme correspondence is off; a parallel is provided by 'horse' WB mrâŋ / Lh. í-mû, but against this are 'see' (WB mraŋ / Lh. mɔ̀), 'mushroom' (WB hmui / Lh. mù), 'price' (WB ʔəphûi / Lh. phû), 'sky' (WB mûi(gh) / Lh. mû).

Closed rhymes and the
role of vowel length

As indicated by the PTB syllable canon (above Ch. 2), the following final consonants are reconstructible for PTB:

-p	-t			-k
-m	-n			-ŋ
	-s			
-w	-l	-r	-y	

The semivowels **-w** and **-y** have already been discussed from the point of view of their diphthongal combinations with the preceding vowel (above 5.3-5.8). Final liquids and *-s will be treated below, Chs. 9 and 10.

No manner contrasts are posited for PTB final stops. In conformity with an East and SE Asian areal feature (exemplified in all language families of the region except for Austronesian), final stops in TB are always unreleased, voiceless unaspirated, and lenis.[1] Unlike Mon-Khmer, PTB had no final palatal stop or nasal **/ -c -ñ / , and no final **-h.[2]

Direct evidence for PTB final stops and nasals is abundantly provided by languages like WT, Lepcha, the Kiranti group of E. Nepal, Jingpho-Nung, the rGyalrong-Ergong branch of Qiangic, Lushai and other Chin languages, Mikir, Meithei, Bodo-Garo, and WB

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1. This lenis quality has led to their being written with voiced symbols "-**b** -**d** -**g**" in WT orthography, and in other writing systems influenced by Tibetan, like Kanauri (Takahashi 1999) and Manchad (S.R. Sharma 1997; see above 5.9). The well-known transcription of Thai devised by Mary R. Haas also uses the voiced symbols for final stops (despite the fact that Thai lacks a /g/ in initial position).

2. The palatal finals -**ñ** and -**c** in WB, from proto-rhymes like *-**iŋ** and *-**ik**, are secondary developments undoubtedly encouraged by Mon contact influence. See below 7.2(4), 8.3(1).

and the other Burmish languages. Even in other branches of the family where most final consonants have disappeared (*e.g.* Loloish, Naga, Qiangic proper, Karenic, and Baic), they have usually left differential traces in their influence on the vocalic nucleus, so that these languages provide equally good indirect evidence of their former presence.

The northern dialects of the Qiang language have developed a number of highly atypical final consonants like -z or -ʐ, due to the reduction of the second element in many compounds,[3] *e.g.*:

	S. Qiang	*N. Qiang*
'earth'	**zuə-pə**	**zəp**
'seed'	**zuə-za**	**tśhaz**
'water buffalo'	**tsuə-zɿ-ŋu**	**tsəʐ**

The final consonant clusters in the Kanauri dialect studied by D.D. Sharma 1998 (see Namkung, ed. 1996:155), are secondary combinations of root-final consonant plus suffixal *-s (see below 11.4), or else are to be found in loanwords from Indo-Aryan:

-ms	-nṭ	-ŋs	-ŋč	-ŋk
			-lč	-lk
		-rz		-rk
			-kč	-šk

The Sino-Tibetan languages display a continuum of final stop and nasal preservation that we may roughly break down into four stages:

· *Stage I:*

All six final stops and nasals / -p -t -k; -m -n -ŋ / are preserved as such, as *e.g.* in WT, Dzongkha, Lepcha, Lushai, Kanauri, Mikir, Garo, Cantonese.

· *Stage II:*

Final stops and/or nasals remain at one or two points of articulation, but one or more have been reduced or dropped altogether. The velars may bethe first to go, often replaced by glottal stop, as in Jingpho and Nung, which have / -p -t -ʔ / (while maintaining all the final nasals).[4] Alternatively, as in Thebor

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3.   See Benedict 1983b, JAM 1991a:493.

or Dimasa, the final velars may drop entirely, leading to a system of finals like / -p -t -m -n /.

Sometimes it is the final labials that merge with another position. Such is the case *e.g.* with Mandarin and Achang Lianghe (Burmish group), but the patterns of merger were quite different. In Mandarin the ***labial nasals** became dentals, while all final stops disappeared, giving a system / -n -ŋ /. In Achang Lianghe both the ***labial nasals** and the ***labial stops** became velars, yielding a system / -t -k -n -ŋ /.[5]

· *Stage III:*

All final stops are reduced to glottal stop or glottal constriction, while final nasals may lose their oral occlusion and transfer their nasality to the preceding vowel. This is what has happened in Modern Burmese and Pwo Karen. Other Karen dialects,[6] as well as Loloish languages like Lahu, have developed glottal stop (*i.e.* checked tones or constricted vowels) in words with original final oral stops, but have no nasalized vowels.

Different degrees of constriction may sometimes be distinguished,[7] as in Modern Burmese, where "tone 3" is characterized by creaky voice (or a "glottal catch"), while "tone 4" (from former syllables with final stops) has a sharp postvocalic glottal stop and an extra-short vowel.

· *Stage IV:*

At the extreme of final consonant decay, neither of the sets of final ***stops** or ***nasals** has left any segmental or phonational trace (*i.e.* neither glottalization nor nasalization), so that their former presence can only be deduced by the changes that their different positions of articulation have caused in the quality of the vowel of the syllable.

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4.   Final -ʔ went untranscribed in earlier sources on Jingpho (*e.g.* Hanson 1906), and the same is doubtless true for many other TB languages. Modern Jingpho words with final -k are loans from Shan, Burmese, or Pali (via Shan or Burmese), e.g **nàm-mùk-tərā** 'ocean', **ʔəyàk-ʔəkhàk** 'with great difficulty'.

5.   See JAM 1991c ("Jiburish"):94-5.

6.   For more details on Karen see *STC*:144-6 and Benedict 1979. In the latter work, Benedict (pp. 6-7) ascribes some instances of the loss of Karenic final stops to "glottal dissimilation" (see JAM 1970).

7.   R.B. Jones' reconstruction of Proto-Karen (1961) goes a bit overboard in this direction, by recognizing both a fortis and a lenis final glottal stop (symbolized by -ʔ and -q respectively) for PK. For this, and for much else, his analyses are criticized in Burling 1969.

Sometimes, but not always, there is parallelism in the reflexes of homorganic nasal and stop rhymes. Thus the Lahu reflexes of ***-am** and ***-an** are parallel to those of ***-ap** and ***at**, but this is not true of the reflexes of ***ak** and ***aŋ**:

PLB	Lahu	PLB	Lahu	PLB	Lahu
*-am	-o	*-an	-e	*-aŋ	-ɔ
*-ap	-oʔ	*-at	-eʔ	*-ak	-aʔ

For actual cases of variation (inter- and intra-lingual) between homorganic stop and nasal finals, see below 12.5.

6.1   Differential reflexes of closed rhymes

In general, final consonants are best attested after -a-, and next best after the high vowels -i- and -u-. As we would expect, they are least well exemplified after -e- and -o-, since the mid vowels are also far less frequent lexically in open syllables (see above 5.4).

Medial ***-a-** is generally preserved before final consonants in the five criterial TB languages of *STC* (WT, WB, Jingpho, Lushai, and Garo [8]) as well as in most other TB languages that preserve final stops and nasals. In the numerous languages where final consonants have largely disappeared, or have been reduced to nasalized or constricted vowels, *e.g.* Loloish, Karenic, Qiangic (except for rGyalrongic), Baic, and Naga, medial ***-a-** is subject to fronting or backing and/or raising according to the position of articulation of the original final consonant, *e.g.*:

PTB/PLB	Lahu	PTB/PLB	Lahu
*-am	-o	*-ap	-oʔ
*-an	-e	*-at	-eʔ
*-aŋ	-ɔ	*-ak	-aʔ

Languages that preserve final consonants, yet have developed mid vowels from medial ***-a-** include Lepcha, Kanauri, and Mikir, with occasional examples from other languages, *e.g.* WT and Jingpho (see below 7.1, 8.2).

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8.   Actually medial *-a- does often shift to -i-, -e-, or -o- in Bodo-Garo, especially in the rhyme *-aŋ after liquids; see below.

The high medial vowels ***-i-** and ***-u-** are well maintained in WT, Jingpho, and Lushai, but partial or complete replacement by lower vowels (-**o**-, -**e**-, or -**a**-) is characteristic of Burmese, Garo, Mikir, and many other TB languages (*STC*:75).

Length contrasts are recoverable in some closed syllable rhymes with high vowels (below 6.3). There are many instances of inter- and intra-lingual allofamic variation between the two high vowels in closed syllables, especially in the environment of a labial consonant (below 7.2(1), 8.3(3b), 12.1). Several languages systematically reflect ***high medial vowels** by secondary -**a**-, including (Himalayish) Magari, Lepcha;[9] (Kamarupan) Digaro, Chang Naga; and (Burmish) Maru. Mikir shows parallel but not entirely regular developments of the high vowels in closed syllables before final stops, nasals, and liquids, sometimes retaining the high vowel, but sometimes lowering it to -**e**- or -**o**-.

6.2   *The symbolization of phonational contrasts*

It is in the nature of phonational features like glottal constriction or breathiness to be "suprasegmental", so that it is somewhat artificial to localize them in a particular part of the syllable. A constricted syllable in a given language might be transcribed with a glottal stop at any of several points, *e.g.* ʔmaŋ vs. mʔaŋ vs. maʔŋ vs. maŋʔ, so that it is often hard to determine exactly what is going on phonetically. Historically glottal constriction or creakiness may arise from consonantal perturbations at either end of the syllable: either from the influence of a "glottogenic prefix" (*ʔ- or *s-; see above 4.2), or through the reduction of a final stop */ -**p** -**t** -**k** / or root-final or suffixal *-s; see below Ch. 10, 11.4).

Prefix-induced creakiness is characteristic of several closely related Burmish languages, including Bola, Atsi (= Zaiwa), and Maru (= Langsu), where *ZMYYC* symbolizes the phonation by a line under the vowel, sometimes with the addition of a final glottal stop:[10]

	PLB	*WB*	*Lahu*	*Bola*	*Zaiwa*	*Maru*
'porcupine'	*ʔ-blu¹	phru	fâʔ-pu	pju⁵⁵	pju̱⁵¹	pju³¹
'teach'ᵃ	*ʔ-ma¹ᐟ²	hma	mā	ma³⁵	mo̱ʔ⁵⁵	mo̱ʔ⁵⁵

a. The WB form reflects PLB tone *1, while the Lahu unambiguously points to tone *2. See above 3.4.1(2).

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9.   Some examples from Lepcha: 'two' ***g-nis** (*STC* #4) > Lp. **nyăt**; 'gums' ***r/s-nil** (*STC* #3) > Lp. **nyăl** ⋊ **nyel**; 'joint' ***tsik** (*STC* #64) > Lepcha **tśak**.

Usually a post-vocalic glottal stop symbol does represent the direct reflex of a former final stop (*e.g.* 'eye' PLB ***s-myak^H** > Lahu **mɛ̂ʔ**; 'vomit' PLB ***C-pat^L** > Lahu **phɛ̀ʔ**; 'stroke' PLB ***sap^H** > Lahu **šô ʔ**),[11] even though synchronically it is better to regard this glottal constriction as a tonal feature.[12]

Occasionally, however, secondary glottal constriction serves a grammatical function, as is the case with Lahu "imperative glottal stop", symbolized by a hyphen plus "-ʔ": **mɨ ve** 'to sit', **mɨ-ʔ** 'Sit down!'; **câ ve** 'to eat', **câ-ʔ** 'Eat!'.[13]

Constricted syllables in Mpi (S. Loloish) are written with -ʔ (Srinuan 1976), though they do not all have the same historical status. Some do reflect original PTB final consonants, but others are secondary results of feature displacement triggered by assimilatory or dissimilatory impulses from elsewhere in the syllable. Most interestingly, there are nine examples of PLB etyma with the rhyme ***-ak** and an onset consisting of a glottogenic prefix plus nasal, which have undergone a "double suprasegmentalization" in Mpi, whereby the syllable has become simultaneously nasalized and creaky, symbolized by the post-vocalic sequence " -ŋʔ ":[14]

	PLB	*Mpi*
'banana'	***s-ŋak^H**	ɲaŋʔ⁴-sɯ²
'black'	***s-nak^H**	naŋʔ³
'deep'	***ʔ-nak^L**	naŋʔ¹
'open wide'	***ʔ-ŋak^L**	ŋaŋʔ¹

10. See JAM 1991c ("Jib. revisited"), p. 93. Burling (1967/68) writes such constricted syllables in Atsi and Maru with a glottal stop after the initial consonant, *e.g.* **pʔju, mʔo**.

11. Some authors prefer the more typable symbol "-q" to indicate the glottal stop, as in the Egerod/Hansson transcription of Akha, *e.g.* **myáq** 'eye', **pɛq** 'vomit', **sɔ́q** 'stroke'.

12. Burmese "Tone 3" is usually called "creaky tone", though in this case it does not derive from a final consonant, but rather from prefixal ***s-** (Thurgood 1981). See the discussion of "phonation-prominent tone systems" in JAM 1999a:16-20 ("TB tonology").

13. This is actually a brusque intonation that shortens the vowel (see GL:353-4). It was profoundly misunderstood by Jin Youjing (1988), who was led by this marginal phenomenon to posit a whole system of Lahu creaky vowels parallel to the modal ones.

14. See JAM 1978b:22 *ff.*

In a number of languages, a final glottal stop is merely an optional concomitant of an open tone. In the Dayang dialect of Pumi, a few words under the high tone acquire a final glottal stop or constriction of the vowel in some repetitions:

'face'	zíw	~	zíwʔ
'invite to eat'	dzyú	~	dzyúʔ
'mouth'	khwá rǎ	~	khwą́ rǎ
'soybean'	ɳé	~	ɳéʔ
'sweat'	ʃtʃhí	~	ʃtʃhíʔ

Similarly in Hpun (Burmish group), G.H. Luce recorded -**h**, glottal catches ['], or glottal stop [ʔ] in many otherwise open syllables, but doubted whether they were significant. Henderson (1986:112-3) believed that they were merely "prepause features, ways of rounding off the utterance, but not meaningful as segments in themselves", and pointed to an almost identical phenomenon in Bwe Karen.[15]

In syllables with final nasals, liquids, or semivowels, Chepang (C. Nepal) has a thoroughgoing contrast among clear, breathy, and creaky phonations, with the latter two symbolized by -**h** and -**ʔ** respectively:[16]

-mh	-nh			-ŋh
-wh	-lh	-rh	-yh	-yŋh
-mʔ	-nʔ			-ŋʔ
-wʔ	-lʔ	-rʔ	-yʔ	-yŋʔ

In other languages, especially in the Kuki-Chin group (*e.g.* Lushai, Lai, Liangmei), the missionary-devised writing systems often use the symbol "-**h**" to stand not for breathiness, but rather for final glottal stop.[17]

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15. A Pwo Karen dialect recently described by Phillips (2000:104-5) displays a rather analogous propensity for secondary *nasalization*, especially with high vowels: 'grandmother' **phîn** < *pəy; 'wind' **lìn** < *g-ləy; 'urine' **chín** < *tʃi; 'four' **lín** < *b-ləy; 'medicine' **θín** < *tsəy; 'grandfather' **phûn** < *pəw; 'mouse' **jun** < *b-yəw.

16. See Caughley 1972, 1990; Namkung, ed. 1996:77. These Chepang phonational distinctions correlate to some degree with tonal contrasts in Kuki-Chin, a fact which greatly impressed Weidert (1987). See also Joseph and Burling (1999), where Bodo-Garo phonational/tonal correspondences are described that I have shown informally to be roughly relatable to tonal distinctions in PLB.

17. The most frequent source of final -**ʔ** in these languages is *-s (below Ch. 10). See also Ostapirat 1987.

6.3   Vowel length contrasts in closed syllables

Contrastive vowel length in closed syllables[18] is posited for PTB, according to the proto-syllable canon presented above Ch.2:

$$\text{(P2) (P1) Ci (G) V (ː) Cf (s)}$$

The evidence offered in *STC* for length contrasts in closed syllables (as in diphthongs) is mostly from Kuki-Chin, especially Lushai and its close relatives in the Central Chin group, with occasional confirmatory evidence available from other languages (*e.g.* Lepcha, Mikir, Tangkhul Naga, rGyalrong/Ergong, Written Burmese, Bodo-Garo). Such evidence is all but completely lacking in the rest of TB, including Tibetan, Jingpho, Qiangic proper, Loloish, Karenic, and Baic.

In general contrastive vowel length must have been an inherently unstable feature in TB, even in Kamarupan, with much inter- and intra-lingual allofamic variation. In fact it seems reasonable to suppose that length contrasts have come and gone cyclically in the history of TB, with the effects of later changes largely obscuring the results of earlier developments.[19/20] Since the default or unmarked length of vowels in closed syllables was short, *STC* concentrates on those sets where there is positive evidence for a long vowel.

There is always a temptation to abuse putative proto-vowel length contrasts as wildcards or *dei ex machina*, in order to multiply the number of valid patterns of correspondence. Nevertheless, even a conservative approach to comparative TB data does justify setting up proto-length contrasts in certain nasal- and stop-final rhymes. These will be discussed in more detail below,[21] in the context of particular nuclear vowels.

No general tendency can be determined as to whether a ***long vocalic nucleus** is more likely than a ***short** one to preserve the quality of the proto-vowel or the final consonant. Thus the short rhyme *-**it** has become -**ac** in WB, while long *-**iːt** developed into WB -**it**, preserving both the vowel quality and the original final consonant; on the other hand, short

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18. In the present context a "closed syllable" is defined as one ending in a nasal or stop. For convenience we have considered syllables ending in a semivowel to be open. The length contrasts in the low diphthongs *-**ay** / *-**aːy** and *-**aw** / *-**aːw** have been discussed above (5.5.2, 5.6.2). For long vowels before final liquids, see below 9.4.

19. See JAM 1985a (*GSTC*):22-3 *ff.* A similar cyclical viewpoint appears to be the best way of looking at the history of *tones* in TB (see JAM 1994c "Protean prosodies").

20. Under favorable circumstances the source of a secondary vowel length contrast in a particular language may be traced with confidence, *e.g.* the marginal long vowels in Lahu that have resulted from the fusion of an echo-vowel in certain adverbial expressions. See JAM 1989a.

21. See, *e.g.* 7.2(2), 8.3(2), 8.4(1).

*-**ap** has remained -**ap** in Garo, while long *-**aːp** has evolved to Garo -**o**, with both the vowel and the final consonant undergoing change.

Final nasals

As observed above (3.4.1), nasalized vowels occur in many TB languages, either due to rhinoglottophilia after laryngeal initials (above 3.5); or through the spreading of the feature from a nasal root-initial (as in Mpi; above 6.2);[1] or, most commonly, through the decay of a syllable-final nasal (Modern Burmese, Akha, Pumi, *etc.*).

More unusual is the occasional exploitation of a nasalized vowel for sound symbolic purposes, as in a restricted class of Lahu vivid adverbials formed by nasalizing the vowel of a verb and postposing the particle **kàʔ** : **ŋá** 'spread open' > **ŋán kàʔ** 'wide open'; **thê** 'straight' > **thên kàʔ** 'straight as an arrow'.[2]

Sometimes a final nasal is of demonstrably secondary morphophonemic origin, as in some Lai Chin collocations where the second syllable begins in a labial stop, and an originally open first syllable acquires the homorganic final nasal:[3]

thli 'wind'	(< PTB *g-ləy)	+ **pii** 'big	>	**thlim pii** 'storm'
chu 'vagina'	(< PTB *s-tu) [a]	+ **puːr** 'dig'	>	**chum puːr** 'masturbate (of a female)'

a. This root is widespread in TB, e.g. WT **stu**, rGyalrong **təɕtu**, Thulong Rai **thiu**, Lushai **chhu**, Tiddim Chin **sú**, Mei-thei **thù**, Nocte **¹thu**, Lisu **tu⁵⁵bi²¹**, Lalo **tẁ**.

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1.   There is at least one example in Portuguese of a nasal vowel having arisen from a nasal initial: **muĩto** 'very much' (pers. comm. 1997, M. Juge).

2.   See JAM 1973/82:302-3 and 1989b ("Sound symbolism"):125.

3.   Pers. comm. 2000, KVB.

The PTB nasal rhymes exemplified in *STC* are as displayed in Table 15:

-iŋ	-iːŋ		-uŋ	-uːŋ
-eŋ			-oŋ	
	-aŋ	-aːŋ		
	-waŋ			
-in	-iːn		-un	
-en			-on	
	-an			
	-wan			
-im			-um	-uːm
(-em)				
	-am	-aːm		
	-wam			

TABLE 15. **PTB nasal rhymes**

The nasal rhymes with **-ŋ** are the most numerous, followed by those with **-n**, with the smallest number before **-m**. (***-em** occurs in only in one etymon where it varies with ***-yam** : ***nem ⋝ *nyam** (#348) 'low'.) There are no examples at all of ****-om**. Length contrasts (often sparsely attested) are demonstrable only with **-a-**, **-i-**, **-u-**, never with the mid vowels.

Even if a language should completely lose its final nasals, before or during their departure they may have left unmistakable traces by their differential influence on the vowel quality of the syllable. Black Lahu has nine basic vowels:

i	ɨ	u
e	ə	o
ɛ	a	ɔ

Of these nine, all except **i** and **a** may reflect a prototype with final ***nasal**, *i.e.*:

Lahu	*PLB proveniences*		*PLB*	*Lahu*
-e	*-an, *-wan	'filter/strain'	*kyan[1]	che
		'slave'	*gywan[1]	cè
-ɛ	*-iŋ, *-um, *-im	'name'	*ʔ-miŋ[1/3]	mɛ

Lahu	PLB proveniences			PLB	Lahu
		'pillow'		*m-kum²	ú-gɛ̂
		'set (of sun)'		*gim¹	qɛ̀
-u	*-aŋ (after *mr-), *-waŋ	'horse'		*mraŋ²	í-mû
		'high'		*mraŋ³	mu
		'well (water)'		*dwaŋ²	g̈ɨ̀-tû
-o	*-am, *-wam	'fathom'		*lam¹	lò
		'swollen / plump'		*m-pwam²ᐟ³	bô ɛ̀
-ɔ	*-aŋ, *-waŋ (after labials), *-oŋ	'you'		*naŋ¹	nɔ̀
		'open'		*pwaŋ³	phɔ
-ɨ	*-in	'weigh'		*kyiːn¹	chɨ
		'time'		*kriːn¹	khɨ
-ə	*-un	'powder'		*ʔ-mun¹ᐟ³	mə
		'finish'		*bun¹	pə̀

In the following sections, the discussion is organized according to the particular nuclear vowel, paying special attention to those nasal rhymes for which length contrasts may be determined.

7.1   Nasals after *-a-

The reflexes of nasal rhymes with the vowel *-a- are quite regular in the criterial languages:

PTB	WT	Jg.	WB	Lahu	Lushai	Bodo-Garo
*-am	-am	-am	-am	-o / -u	-am	-am
*-an	-an	-an	-an	-e	-an	-an / -en
*-aŋ	-aŋ	-aŋ	-aŋ	-ɔ	-aŋ	-eŋ / -iŋ

(1)   *-am

STC reconstructs about two dozen etyma with this PTB rhyme, *e.g.*:

	STC#	PTB	WT	Jg	WB	Lahu	Lushai	Bodo/Garo
'road'	87	*lam	lam	lām	lâm	lo [a]	lam	ram-a (G)
'smell'	464	*m-nam	mnam	mənām	nâm [b]	nû [c]	nam	manam (B)
'otter' [d]	438	*sram	sram	šərām	phyam [e]	ğɨ-šo-lo	sahram	matram (G)

a. This word has been grammaticalized to a locative particle in Lahu, and no longer retains its full nominal meaning. It reflects PLB Tone *3, while the WB form is from Tone *2.

b. WB has two allofams, **nam** 'have a smell' (v.i.) < Tone *1 and **nâm** 'smell sthg' (v.t.) < Tone *2. The Lahu cognate reflects *2.

c. The usual Lahu relfex of *-am is -o, but the regular reflex after **n**- is -**u** (*cf.* also 'ear of grain' PLB *s-nam[1] > Lh. **nu**; 'sesame' PLB *s-nam[2] > Lh. **nū**.

d. *Cf.* also Kham (Nepal) **rih-sərəm**; the first syllables of the Kham and Lahu forms mean 'water' and are cognate, allowing us to set up *rəy at the PTB level.

e. The WB labial initial is unexplained. It has been suggested that it derives from fusion with a Mon-Khmer root of similar meaning (JAM 1989d, "Otter and jackal").

Other etyma reconstructible with this rhyme include ***s-lam** 'womb / placenta' > Lushai **hlam**, Lahu **lò**, Thulung Rai **wām** (*VSTB*:225-7, *DL*:1380) and ***m-gam** 'ladder / ramp' > Jg. **ǹ-gàm**, Lh. **go**.[4]

In several languages that preserve final *-**m** (*e.g.* Lepcha, Mikir, Kanauri), the low vowel of the *-**am** rhyme has been raised to mid and/or high:

Lepcha:	PTB *-am > Lp. -om :
	*tsam 'hair' > Lp. ă*tsom* [a]
	*lam 'road' > Lp. lom
	PTB final *-a also > Lepcha -o (above 5.2.1):
	*s-ta 'put / place' > Lp. tho
	*wa 'husband / man' > Lp. əvo
Mikir:	PTB *-am > Mk. -im *or* -em :
	*s-nam 'sesame' > Mk. nem-po
	*sram 'otter' > Mk. serim

4. The Lahu voiced initial reflects the nasal prefix still overtly present in the Jingpho form. See above 3.1.

Lepcha:	PTB *-am > Lp. -**om** :
	*m/s-**nam** 'smell' > Mk. i**ŋnim** 'to smell' �france nem-so 'slight stink'

Lepcha: PTB *-am > Lp. -**om** :

               *m/s-**nam** 'smell' > Mk. i**ŋnim** 'to smell' ⩍ **nem-so** 'slight stink'

           PTB final *-a also > Mikir -**o** (above 5.2.1):

               *b-**la** 'cotton' > Mk. **phelo**

               *b-r-**gya** 'hundred' > Mk. **paro**

Kanauri: PTB *-am > Kanauri -**em** *or* *-am :

               *s-**nam** 'daughter-in-law' [b] > Kan. **stem**

               *d**zam** 'bridge' > Kan. **tshamm**

               *m/s-**nam** 'smell' > Kan. **stam**

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a. WT has also exceptionally developed -**om** from *-am in this root: WT **ʔag-tshom** 'beard of chin'.

b. Reflexes of this etymon include other forms from Himalayish languages (e.g. Byangsi and Chaudangsi **nam-sia**, Lepcha **nyom** 'daughter-in-law', Magar **ar-***nam* 'maiden'), Jingpho-Nung (Jg. **nām**, Nung **ənam-mɛ** 'sister'), Qiangic (rGyalrong **s-nom** 'sister'), Bodo-Garo (Garo *nam*-**tsik** 'daughter-in-law'), and Lolo-Burmese (WB **mauŋ-***hnam* 'husband and wife' [archaic], Lahu **nò** 'term of endearment usable to persons of either sex'). See *STC*:#103 and *DL*:779.

There is a parallel Kanauri reflex for the homorganic stopped rhyme (see 8.2(3) below): PTB ***kap** 'needle' > Kan. **kheb** . However, Kanauri preserves the open rhyme *-a as such: *b-r-**gya** 'hundred' > Kan. **rā**; 'five' *l/b-**ŋa** > Kan. **ŋa**; 'eat' ***dz(y)a** > Kan. **za**.

There are no unequivocal examples of the long rhyme *-aːm, though several roots show variation in Chin languages between *-am and *-aːm:

	PTB	*STC*	*Reflexes*
'fathom'	***la(ː)m**	n. 220	Lushai has **hlam** (short) but Tiddim has **laːm** (*cf.* also WB **lam**; Lahu **lò**; Jg. **ləlám**)
'bank (river) / precipice'	*r-**ka(ː)m**	#329	Lushai has **kam** 'bank, shore' ⩍ **khaːm** 'precipice' (*cf.* also Jg. **ǹ-gàm** 'precipice', WB **kâm** 'riverbank; seashore', Garo **rikam** 'bank, margin, rim')
'stay / sojourn'	***dzaːm**	[KVB]	WB **cam** 'enjoy, take delight in; (of royalty) stay' (*Myanmar-English Dictionary*:114); Lai Chin **tsaam** 'stay (as a guest)', but Lushai **cham** 'remain in a place over a day or a night; sojourn, stay for a time'

The labialized rhyme ***-wam** has developed into **-om** in several languages (WT,[5] Kanauri, Jingpho). Lushai varies between **-om** and **-uam**:[6]

	PTB	STC#	WT	Kanauri	Jingpho	WB	Lushai
'bear'	***d-wam**	461	dom	hom	[ləwàp]	wak-*wam*	sa-*vom*
'swollen / plump'	***bwam**	172	sbom-pa	----	bōm	phwam'	puam

This backing to **-om** does not occur in Jingpho and Lushai when the ***w-** is functioning as the root-initial consonant:

	PTB	STC#	WT	Kanauri	Jingpho	WB	Lushai
'dare'	***s-wam** *or* ***hwam** [a]	216	---	---	wām	wam'	huam

> a. *Cf.* also Proto-Tamang (Mazaudon 1993-4) ***wam** 'coax', Pumi Dayang wā. The STC reconstruction is ***hwam** (#216). There is a possible Chinese cognate, below 7.5(1).

The palatalized rhyme ***-yam** has developed into Jingpho **-en**, with both raising of the vowel and change of the final nasal to a dental (see *STC*, n. 171, p. 51):

	PTB	Jingpho	WB	Lahu	Ahi	Nyi
'fly' (v.)	***byam** [a]	pyēn	pyam	pò	thö	tlö
'snow / ice; cold'	***kyam**	khyēn	khyâm	---	---	---

> a. *Cf.* also rGyalrong **kabyam**, and many other cognates in *ZMYYC* #782 and *TBL* #1318. Note the lateral affricate reflex of the initial in Nyi (C. Loloish).

This same shift occurs in Jingpho in two other words where medial **-y-** cannot be invoked as an explanation:

	PTB	Jingpho	WB
'rough / coarse'	***gram**	grèn	krâm
'breath / voice'	***m-sam** [a]	nìŋsén ~ ǹ-sén	ʔəsam

---

5. All three labialized rhymes with final nasals (***-wam, *-wan, *-waŋ**) have developed -o- vocalism in WT (> -om, -on, -oŋ), just as the open rhyme ***-wa** has become WT -o (*e.g.* 'tooth' ***swa** > WT so). See above 5.2.2.

6. Although the evidence is scanty, perhaps a vowel-length difference is involved here, with short ***-wam** > Lu. -om, but long ***-aːm** > Lu. -uam.

a. The Jg. and WB forms both mean 'voice/sound'. In this case, WT has also developed an allo-
fam with mid vowel: WT **sem(s)** 'soul, spirit', **sem(s)-pa** 'think' ⋊ **bsam-pa** 'thought'. *Cf.* also
Bahing **sam** 'breath, life', Lepcha **a-sóm** 'spirit, breath'.

The Loloish and Qiangic languages provide good examples of the differential effects
that final *-m could exert on a preceding *-a- nucleus.[7] There are over a dozen
well-attested roots with *-am reconstructible for PLB, with WB faithfully retaining the
proto-rhyme:

	PLB	*WB*			*PLB*	*WB*
'bear'	*d-wam[1]/[2]	wak-wam		'fly' (v.)	*byam[1]	pyam
'belly'	*p-wam[2]	wâm		'hair (head)'	*tsam[1]	cham
'bridge'	*dzam[1]	cam		'iron'	*syam[1]	sam
'dare'	*wam[3]	wam'		'otter'	*sram[1]	phyam
'ear (grain)'	*s-nam[1]	hnam		'road'	*lam[2]/[3]	lâm
'fathom'	*s-lam[1]/[2]	lam ⋊ hlâm [a]		'sesame'	*s-nam[2]	hnâm
'fence' [b]	*kram[1]	khram		'smell'	*nam[1]/[2]/[3]	nam, nâm, ʔənam' [c]

a. The aspirated allofam means 'to stretch out the arm'; the *s- prefix is also reflected in Yi Mile **ɬɯ[33]** and Jinuo **ɬɛ[33]**.

b. This is probably a general TB root, as implied by WT **khram** 'notched wood' (Jäschke), 'tally sticks' (Róna-Tas
1956).

c. **nam** 'stink', **nâm** 'smell', **ʔənam** 'a smell'.

Reflexes of these etyma in other Burmish languages are quite regular:

	Achang	*Zaiwa*	*Langsu*	*Leqi (Lashi)*
'bridge'	tɕam[55]	tsam[51]	tsɛ̃[31]	tsam[31]
'ear / spike of grain'	tɕɔ[55] *ņam[55]*	a[21] *ņam[51]*	kauk[31] *ņɛ̃[31]*	a[55] *ņam[33]*
'otter'	sam[55]	xam[51]	xɛ̃[31]	ʃam̥[33]

---

7. Much of JAM 2002 ("Wedge issues") is devoted to the reflexes of the *-am rhyme in Loloish and
Qiangic.

However, on the Loloish side, the reflexes in the various languages and dialects are distributed all over vocalic space:[8]

	BRIDGE	EAR (OF GRAIN)	FATHOM
	n-dzam[1]	*s-nam[1]*	*s-lam[1]*
Lahu (Black)	cò	ɔ̀-*nu*	lò
Yi Xide	dzi^{33}	n̩i^{33}	li^{33}
Yi Nanjian	ɣo^{21} *dʑy^{55}*	ny^{55}	---
Yi Nanhua	dzɯ^{33}	nɯ^{33}	lɯ^{33}
Yi Mile (Axi)	tsi^{33}	---	ɬɯ^{33}
Yi Mojiang	*dzɯ^{21}* gɯ^{21}	ne^{55}	le^{21}
Yi Dafang	thɯ^{33a}	nɯ^{33}	lɯ^{21}
Lisu	kho^{31}*dze^{33}*	e^{55} *ni^{33}*, e^{55} *ne^{33}*	---
Naxi Lijiang	ndzo^{31}	---	ly^{31}
Naxi Yongning	dzo^{33}	n̩u^{31}	
Hani Biyue	tse^{33} kv^{31}	ɔ^{31} *ne^{55}*	le^{55}
Hani Dazhai (Luchun)	lɔ^{55} *dzɔ^{55}*	a^{55} *nɔ^{55}*	lɔ^{55}
Hani Shuikui (Mojiang)	tɕhɔ^{31}	tʃhɛ^{55} *nɤ̍^{55}*	lu^{55}
Akha	law˘ *dzm˘*	---	lm˘
Jinuo	khʁa^{33} *tshɛ^{33}*	ko^{33}*nɛ^{44}*	ɬɛ^{33}
Gazhuo	tsɛ^{33}	tshɛ^{33} *nɛ^{24}*	lɛ^{24}
Yi Sani	tsɤ^{33}	nɤ^{44}	lɤ^{33}
Yi Wuding	ntshe^{11}	ne^{33}	le^{11}
Yi Weishan	ɣo^{21} *dʑy^{55}*	ʔny^{55} / ʔy^{55}	---
Nusu (Bijiang)	gu^{55} *dza^{33}*	n̩a^{33}	la^{33}

a. Note the deaffrication of the initial, as in Mpi (see above 3.3).

	FLY (V.)	IRON	OTTER
	*byam[1]	*syam[1]	*sram[1]
Lahu (Black)	pò	šo	g̈ɨ̀-šo-lo
Yi Xide	dʐi³³	ʂɯ³³ du³³	ʂo³³
Yi Nanjian	by⁵⁵	xy⁵⁵	---
Yi Nanhua	dɯ³³ (also biu³³)	xɯ³³	ʑi²¹ ʂi³³
Yi Mile (Axi)	ʈi³³	---	xɯ³³
Yi Mojiang	be²¹	çe²¹	ʑi²¹ çe⁵⁵
Yi Dafang	ɖʐ²¹	xɯ²¹	ʑi²¹ sʐ³³
Lisu	dʒe³³ (also bi³³)	xo⁴⁴	---
Naxi Lijiang	mbi³¹	ʂu³¹	ʂu³¹
Naxi Yongning	dze¹³	ʂe³³	ʂuɑ³³
Hani Biyue	pe⁵⁵	se⁵⁵	ɣ⁵⁵ se⁵⁵
Hani Dazhai (Luchun)	bjɔ⁵⁵	sɔ⁵⁵	ɯ⁵⁵ sɔ⁵⁵
Hani Shuikui (Mojiang)	pu⁵⁵	ʃu⁵⁵	ɣɯ⁵⁵ ʃu⁵⁵
Akha	---	shmˇ	uiˇ shmˇ ~ iˇ shmˇ
Jinuo	pʁɛ³³	çɛ⁴²	çɛ⁴²
Gazhuo	phɣ³¹	sɛ³³	---
Yi Sani	tɬɹ³³	xɯ³³	ʑ̇³³ ʂɣ⁴⁴
Yi Wuding	ɖe¹¹	çe¹¹	ji¹¹ se³³
Yi Weishan	by⁵⁵	çy⁵⁵	---
Nusu (Bijiang)	bia³³	ʂa³³	ŋa⁵⁵ dza⁵⁵

Of the 20 Loloish languages and dialects studied, 13 have quite regular reflexes of *-am, with the conditioning for multiple reflexes largely explicable in terms of the prevocalic consonant. Thus the regular Lahu reflex is -o, with -u appearing after initial n- ('ear/spike',

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8.   Data from *ZMYYC* and *TBL*.

'sesame', 'smell'), while -ɔ is the reflex of labialized ***-wam** ('bear'). The predominant reflexes in the other well-behaved languages are as follows:

Akha [a]	-m̥		*Nusu (Bijiang)*	-a
Gazhuo	-ɛ		*Yi Dafang*	-ɯ
Hani Biyue	-e		*Yi Nanhua*	-ɯ
Hani Dazhai (Lüchun)	-ɔ		*Yi Nanjian*	-y
Hani Shuikui (Mojiang)	-u		*Yi Weishan*	-y
Jinuo	-ɛ		*Yi Wuding*	-e

    a. Akha is the only language where the reflex of ***-am** retains a direct trace of the former final consonant in the shape of a syllabic (and tone-bearing) labial nasal.

The other languages have multiple reflexes whose conditioning is still obscure:

Lisu	-o / -u / -e		*Yi Mojiang*	-e / -ɯ / -o
Naxi Lijiang	-u / -v / -o / -y / -uɑ		*Yi Sani*	-ɤ / -ɯ / -ɿ
Naxi Yongning	-o / -e / -uɑ / -v / -u		*Yi Xide*	-o / -i / -ɯ
Yi Mile (Axi)	-i / -ɯ			

In all there are no fewer than 15 Loloish reflexes of ***-am**, scattered all over the articulatory map:

i	y	ɻ	ɯ	ɣ̩	u	uɑ
ɪ			ɤ			
e					o	
ɛ					ɔ	
		a	m̩			

Equally unruly are the Qiangic reflexes of the ***-am** rhyme, as illustrated by the following four cognate sets:[9]

BRIDGE	PTB *n-dzam			(ZMYYC #477; TBL #70)		
PT	dzã³⁵	PJH	dziãu¹³	PJL	dzã³⁵	PD	dzŏuN
QM	tshi	QT	tshie³³da²⁴¹	QA	tshuɑ	RGS	ta ndzam
RGM	tɑ ndzɑm	RGB	tɐ-ndzɐm	RGC	ndzem	DF	dzo
EG	dzo	MYS	ndzo³⁵	MYG	ndzo²⁴	QYY	dzã⁵⁵
QYX	tso⁵⁵	ZB	ptsI⁵⁵	GQY	zɔ̃³³pũ⁵³	GQG	zã pɐ⁵⁵
ES	dzi⁵⁵	LS	dʑe³⁵	NM	dzo⁵⁵	SXS/SXM	zẽ⁵⁵

FLY/RUN [a]	PTB *byam > PQiangic *m-byam			(ZMYYC #782; TBL #1318)		
PT	khə³⁵ bẽ³⁵	PJH	khə¹³ bʒẽ̃¹³	PJL	bʒẽ¹³	PD	b(d)ʒĭN
QM	gzi	QT	dʑe²⁴¹	RGS	ka bjam	RGM	kɑ bjam
RGB	ka-nbjam	RGC	kɐ-qɐ-lnbjəmʔ	DF	bjo	EG	bʑo la
MYS	ndʑye³⁵	MYG	thi³³ ndʑue⁵⁵	QYY	tə³⁵ de⁵⁵	QYX	rde¹³
ZB	tə⁵⁵ mdzI⁵⁵	GQY	phɐ⁵⁵	GQG	phu³¹	LS	bʑe³⁵
SXS	bu³³ ʑĩ⁵⁵	SXM	dʑẽ⁵⁵	NMM	ndʑu⁵⁵		

IRON	PTB *syam			(ZMYYC #38; TBL #54)		
PT	çī⁵⁵	PJH	ʂɔ̃⁵⁵	PJL	ʂẽ⁵⁵	PD	ʃíN
QM	su¹mu	QT	çi⁵⁵	QA	su:¹mu	RGS	ʃam
RGM	ʃam	RGB	ʃamʔ	RGC	ʃəmʔ	DF	tço
EG	tço	MYS	çe⁵³	MYG	çe⁵³	QYY	çã⁵⁵
QYX	ço⁵⁵	ZB	çi⁵⁵	GQY	ʃɔ̃⁵³	GQG	ʃã³¹
ES	ʂɛ⁵⁵	LS	ʂɯ⁵³	NM	ʂu⁵³	SXS	ʂã³⁵
SXM	ʂõ³⁵						

OTTER	PTB *sram			(ZMYYC #133, TBL #317)		
PT	xĩ⁵⁵	PJH	skhẽ̃⁵⁵	PJL	ʂẽ⁵⁵	QM	ɣdʑi
QT	tsuə³³ma³¹n̩y³³	QA	ɣdʐəɚ	RGS	tʃə ʃram	RGM	tʃhə sram
RGB	ʃram	RGC	ʃəmʔ	DF	ʂsəm	EG	sʐɛm
MYS	dʑyɐ³⁵	MYG	dzuə²⁴	QYY	sõ⁵³	QYX	ʂsɛ⁵⁵
ZB	tʌ³³ ʂi³³	GQY	wi⁵⁵zɿ⁵³	GQG	tʃhə⁵⁵ sã⁵⁵	ES	ʂɿ⁵⁵ ji⁵⁵[b]
LS	ʂe³⁵	SXS	ʂẽ⁵⁵	SXM	ʂẽ⁵⁵		

a. This root often means 'run' in Qiangic.

b. Judging from the Lusu and Shixing forms, it is the first syllable of this compound which is the cognate; but it is apparently the Guiqiong second syllables which are cognate.

Several well-attested roots show variation between *-am and *-ap (*e.g.* 'draw water'; 'swell up/swollen'). See below 12.5.1.

(2)   **-an*

STC reconstructs relatively few (and sparsely attested) etyma with this rhyme: six with *-an and five with *-wan, and none with a long vowel. All five criterial languages of *STC* preserve *-an as such, except for Garo, which shows hesitation between -an and -en. Kanauri also reflects *-an as -en, parallel to its treatment of *-am as -em (above). The labialized rhyme *-wan becomes WT -on and Jg. -on or -un, parallel to their development of -om < *-am.

	PTB	*STC*	*WT*	*Kan.*	*Jingpho*	*WB*	*Lushai*	*Garo*
'bore / pierce'	***lwan**	p.49	---	---	gəlùn	lwan	---	---
'casting net'	***gwan**	#158 [a]	rgon-pa	---	sùm-*gòn*	kwan	---	---
'convalesce'	***bran**	#133	---	bren	brān	pran [b]	---	---
'cut'	***dan**	#22	---	---	dàn	---	tan	den
'dry up'	***kan**	p.166	---	---	kán	khân	---	---
'dry'	***tan**	p.190	than-pa	---	---	than'-than'	---	---
'hawk'	***dzwan**	p.49	---	---	---	cwan	(Lahu á-*cè*)	
'wrinkle / shrink'	***dwan ⋉ *twan** [c]	p.49	---	---	thūn	twan'	---	---

    a. Lepcha and Nung reflect *-wan as -un : 'casting net' Lepcha **kun**, Nung **gun**. There is a Chinese comparandum that lacks final -n (see below 11.2.4).

    b. The WB form means 'return, repeat; recover from fainting', *i.e.* "get back to normal".

    c. The Jg. form reflects a ***voiceless** initial, while the WB form points to a ***voiced** prototype.

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9.   Language abbreviations: PT: Pumi (Taoba); PJH: Pumi (Jinghua); PJL: Pumi (Jiulong); PLP: Pumi (Lanping); PD: Pumi (Dayang); QM: Qiang (Mawo); QT: Qiang (Taoping); QA: Qiang (Mao, Aba Prefecture); RGB: rGyalrong (Benzhen); RGC: rGyalrong (Caodeng); RGS: rGyalrong (Suomo); RGM: rGyalrong (Maerkang); DF: Daofu (= Horpa = Stau); EG: Ergong; MYS: Muya (Kangding, Shade); MYG: Muya (Kangding, Ganzi); QYY: Queyu (Yajiang) ["Zhābā"]; QYX: Queyu (Xinlong); ZB: Zhābà (Daofu County); GQY: Guiqiong (Kangding, Yutong); GQG: Guiqiong (Kangding, Ganzi); ES: Ersu; LS: Lüsu; NML: Namuyi Muli Luobo; NMM: Namuyi Muli; SXS: Shixing (Shuiluo River); SXM: Shixing (Muli, Liangshan).

Two of the roots in *STC* show variation between *-an and the open rhyme *-a, implying that the final nasal was suffixal: [10]

'dress' (#160)	PTB *gwa-n ≍ *kwa-n
	Cf. WT **bgo-ba** 'put on clothes' ≍ **gon-pa** 'clothing' ≍ **skon-pa** 'dress smn'; Lisu **gwa**, Nung **gwa**, Garo **gan**, Mikir **kan** .
'goose' (p.99)	PST *ŋa-n
	Cf. WB **ŋân**, WT **ŋaŋ-pa**; but it is a Chinese doublet that directly attests to the variation: 鵝 OC *ŋâ [*GSR* #2p] (> Mand. **é**) 'domestic goose' < PST *ŋa ≍ 雁 OC *ŋan (> Mand. (**yàn**) 'wild goose'). This is an example of the 'collectivizing' function of suffixal *-n. See below 11.2.4.

Several other roots in the above group have likely Chinese cognates (see 7.5(2) below):

'cut'	PTB *dan
	斷 OC *twân ≍ *d-wân [*GSR* #170a] (> Mand. **duàn**) 'cut off; decide; resolute'
	剬 OC *twân [*GSR* #168e] (> Mand. **duān**) 'cut'
	膞 OC *d̂i̯wan ≍ t̂i̯wan [*GSR* #231k] (> Mand. **shuān** ≍ **zhūan**) 'cut meat; slice'
'dry up'	PTB *kan
	旱 OC *g'ân [*GSR* #139s] (> Mand. **hàn**) 'to dry; dry'
'hawk'	PLB *dzwan[1]
	鳶 OC *d̯i̯wan [*GSR* #230a] (> Mand. **yuān**) 'hawk; kite'

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10. See below 11.2.

At least a dozen more etyma with ***-an** are reconstructed at the PTB and/or PLB level in *GSTC* (JAM 1985a:#'s 7-17, 37). All of them have Lahu cognates in **-e**, whether or not there was a medial glide (***-y-** *or* ***-yw-**):

	PLB	*Lahu*	*WB*	*Other*
'arrow'	*ʔ-dzan[1]	khá-*ce*	---	PNN *(la)-dzaːn (French 1983:448)
'braid / plait'	*pan[2]	phê	---	Mpi pheʔ[1] (? < *C-pat) [a]; ⋇ WB pân 'go around the end of a thing' (< PLB *ban[2]) [b]
'filter'	*ʔ-g/kyan[1]	che	kyan ⋇ khyan	---
'haze/fog'	*džan[1]	cè	---	PKaren *jan (Haudricourt 1942-5)
'object to'	*k(y)an[1]	qhe	chan	---
'sharpen'	*kywan[1/2/3]	che ⋇ chê [c]	khywan ⋇ khywân	Akha tjhɛ; Mpi tɕhe[3]
'spread wide'	*ʔ-bran[3]	phe	pran' ⋇ phran'	Jg. phyàn ⋇ phrān ⋇ yàn
'straight / upright' [d]	*tan[2]	thê	---	Achang tan[21] 'be straight', than[21] 'straighten'
'stretch out'	*ʔ-dz/tšan[3] [e]	che	can' ⋇ chan'	Lalo tjhi
'strong / firm'	*zan[1]	yè	san	WT btsan-po; [f] PNN *jan (French, p.497)

a. This form is reconstructed with the **C-** prefix because of the Mpi low-stopped tone. See above 4.4.6.

b. Kamarupan cognates include: Lushai **phân** 'knit, crochet, net', Tiddim **phan** 'weave, plait', Garo **panʔ** 'wind into a ring or spiral'; Boro **phan** 'twist'. See *GSTC* #37. This root is distinct from ***byar** ⋇ ***pyar** 'affix / plait / sew' (below 9.2.1).

c. Lahu **che** means 'make pointed / sharpen'; **chê** means 'coming to a point / pointed'. See *DL*:533-4.

d. See *GSTC*:n. 87 and *DL*:682.

e. This form is to be reconstructed with a PLB palatal affricate rather than a dental one (contra *GSTC* #11) because of the testimony Lisu tɕhɤ[33]. See Handel 2001:11.

f. This WT form implies the PTB reconstruction ***b-tsan** 'strong / firm'.

A newly reconstructed PLB root with with rhyme is:

PLB ***ʔ-wan[1]** or ***hwan[1]** 'wide' > Lahu fe; Lalo fí; Naxi Yongning fə[33]; Nusu Bijiang fhaɹ[35] (*ZMYYC*), fɹɚ (*TBL*) Yi Wuding fe[33]; Yi Xide ɑ[33]fu[33] (see *ZMYYC*:185; *TBL*:#966, #976).

Several etyma with PLB *-an descend from PTB rhymes with final liquids:[11]

'louse'	PLB *san[1/2] > Lahu še (< Tone *1); WB sân (< *2) < PTB *sar (*cf.* rGyalrong sar, sor; Geman Deng săl[53] [*ZMYYC* #162])
'scatter / pour'	PLB *swan[1/2] ⚹ *swat[H] > WB swan, swân; Lahu šē ⚹ šêʔ < PTB *sywar (*cf.* WT ḥtśhor-ba, Dimasa di-sor [*STC* #241] [a]
'wolf / dhole'	PLB *wan[1] > Lahu vè; Jinuo ø[4]; Akha xà-*yɛ́*, Lalo *ví*-pàq < PTB *kywal > Jg. tšəkhyōn; PNN *C-khyual (French 1983:576)
'slave'	PLB *gywan[1] > WB kywan, Lahu cè < PTB *k(y)wal ⚹ *g(y)wal (*cf.* WT khol-po 'servant'; see Luce 1981)

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a. For discussion of this interesting etymon, see JAM 2000b ("On 'Sino-Bodic'") and 2000d ("Three PST/PLB word families").

Intralingual variation between -al and -an is attested in WT in the following root:

'fight / quarrel'	PTB *raːl ⚹ *ran > WT ḥgran-pa 'fight' ⚹ *ral*-gri 'sword' ("war-knife"); *cf.* also Lushai raːl 'war against', Tiddim gaːl 'battle; enemy', WB ran 'quarrel' (*STC* n. 220)

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11. Good Chinese cognates exist for 'scatter / pour', 'louse', and 'slave'. See "Final liquids", below 9.2.4, 9.3.4.

Several cases of **-an** ⋇ **-ay** variation in TB word families have been identified:[12]

'crab'	PTB **d-ka:y** > Tangkhul Naga *khai*-reu, Khoirao tśəɣai, Khami təai, Lushai ai; but Jingpho tšəkhán (*STC* #51)
'single / one / whole / only'	PTB **day** ⋇ **dan** *or* **tay** ⋇ **tan** > Jg. tāi, Boro otay, Lakher dei, Lahu tê (all from *-ay); but Chinese 單 OC **tân** 'single, simple; a unit' [*GSR* #147a-d] points to a nasal variant, which might in turn go back to an even earlier **-r** (*cf.* WT thor-bu; Abor-Miri-Dafla **tur** ? < **twar**); see *GSTC* #148; "Pal. suff." #27.
'red'	PTB **t(y)a** ⋇ **t(y)an** ⋇ **t(s)a:y**. This complex etymon displays both **-a** ⋇ **-ay** (see below 11.6) and **-an** ⋇ **-ay** variation: PTB **t(y)a** > WB ta, tya 'flaming red'; PTB **t(y)an** > Lushai śen, Tiddim san ⋇ tśhan; PTB **t(s)a:y** > Lushai tâi 'rosy, ruddy, red'; Lakher sai '*id.*', sai-law 'scarlet'. Several Chinese comparanda support the nasal-final allofam, including 丹 OC **tân** [*GSR* #150a-b] red; vermilion; cinnabar'; see *STC*:pp. 17-8, *etc.*; *GSTC* #150; "Pal. suff." #7.

Several well-attested roots show variation between **-an** and **-at** (*e.g.* 'spirit / demon'; 'braid / plait'; 'run / dance'). See below 8.2(2b), 12.5.2.

(3)   **-aŋ**

The **-aŋ** rhyme is the best attested nasal-final rhyme in TB, just as **-ak** is the best attested stop-final rhyme, below 8.2(1). It is preserved as such in WT, WB, Jingpho,[13] and Lushai. In Mikir and Bodo-Garo, however, the rhyme tended to be raised and fronted to -eŋ or -iŋ. Two allofamically related roots seem to establish the Mikir reflex:[14]

	PTB	*Reflexes*	*STC*
'cold'	**graŋ**	WT *graŋ*-ba, Lushai *ṭaŋ*-tho:m 'cold weather', Mk. niŋ-*kreŋ* 'cold weather, winter'	#120 and n. 124
'freeze / congeal'	**glaŋ**	Trung glaŋ 'cold', Mikir paŋ-*kleŋ* 'freeze, congeal'	n. 124

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12. See *GSTC*:46-9; 64-6 and JAM 1995a ("Pal. suff."):54-5; 79-82. See below 12.4.

13. In one root Jingpho has exceptionally developed -oŋ from *-aŋ : **kraŋ** 'mosquito / firefly' (*STC* #322) > Jg. džìʔ-*gròŋ* (but WB khraŋ, Rawang məgaŋ, Trung kraŋ). This suggests a pre-Jingpho variant **krwaŋ**.

14. There is another allofam with final stop, PLB **m-krak** ⋇ **ʔ-krak** (*TSR* #99). See below 12.5.3.

Yet in other roots, Mikir retained the original vowel:

	PTB	*Reflexes*	*STC*
'morning'	*b-raŋ ⪤ *s-raŋ	Mikir **praŋ**, Garo **phriŋ**, Dimasa **phoroŋ**, Lahu **šɔ́-pɔ̄** 'tomorrow'	#332
'light (weight)'	*r-yaːŋ [a]	Mikir **ar-*dźaŋ***, Garo **rit-*tśeŋ***, Dimasa **re-*dźeng***, Lushai **zaːŋ**	#328

a.   In this root the *long vowel might be the reason for the conservative Mikir reflex. This suggests that 'morning' should also be reconstructed with a long vowel, even in the absence of a Lushai cognate.

As illustrated by the last two sets, Bodo-Garo languages also tend sporadically to develop front vowels in this rhyme. See also:

	PTB	*Reflexes*	*STC*
'eagle / vulture / falcon / bird of prey'	*g-laŋ ⪤ *g-lak	Garo **do-reŋ** 'falcon', Bodo **dau-*leŋ*-a** 'eagle', Dimasa **dau-liŋ** 'kite' (**dau** 'bird')	#333 and n. 225 [a]
'follow' [b]	*s-naŋ	Garo **sniŋ** 'follow, imitate'; but Dimasa **phanaŋ** 'attach to'	#334

a. This etymon is apparently an old loan into TB from Mon-Khmer (*cf.* Proto-Bahnaric ***kəlaaŋ**, Pearic **khlaŋ ~ khlaeŋ**, Khasi **kliŋ**, Mon **liŋ-liəŋ**, Proto-Wa-Lawa ***klaŋ**), and has also been borrowed into Chinese (鷹 OC **ʔiaŋ** (*GSR* #890c) and into Hmong-Mien (*e.g.* Green Hmong **tlaŋ**, I Miao **qloŋ**). A stop-finalled allofam is represented by WT **glag** 'eagle/vulture'.

b. See below 7.5(3) for other reflexes of this root.

Including etyma that show allofamic variation, there are altogether about 40 sets reconstructed with this rhyme in *STC*, including 3 with long vowel (*-aːŋ) and 7 with labial medial (*-waŋ). Some examples:

	PTB	STC	WT	Jg.	WB	Lahu	Lu.
'big / older (brother / uncle)' [a]	*maŋ [b]	p. 189	---	---	mâŋ	mɔ̂	---
'dung'	*s-baŋ [c]	p. 21	sbaŋs	---	bhaŋ	---	---
'give birth' [d]	*braŋ	#135	ḥbraŋ-ba	---	---	pɔ	piaŋ
'pine' [e]	*taŋ	n. 215	*thaŋ-śiŋ*	---	*thâŋ*-rû	thɔ̂	---
'single'	*r-kyaŋ	#34	rkyaŋ-pa	---	khyâŋ	--	---
'you'	*naŋ	#407	---	nāŋ �день nā	naŋ	nɔ̂	---

a. *Cf.* also Lalo mù.

b. *Cf.* also Trung dəmaŋ 'big (of persons); older male relative'; WB û-*mâŋ* 'uncle', mâŋ 'ruler, governor, official'; Lahu chɔ-*mɔ̂* 'elder, ancestor', jɔ̂-*mɔ̂* 'lord, chief'. There is a good Chinese comparandum, below 7.5(3).

c. *Cf.* also WB phaŋ 'anus' < *paŋ.

d. *Cf.* also Akha bɔ́ (ILH). This root is reconstructed as *braŋ[3] at the PLB level.

e. *Cf.* also Lalo *thù*-dzí, Hayu thoŋ, Tangkhul mataŋ. See *DL*:691.

Many additional roots with this rhyme can be reconstructed at the Proto-Lolo-Burmese level or higher, including:

	PLB	Reflexes
'clear away / disentangle'	*pyaŋ[1/2]	WB phyaŋ (< Tone *1) ⋦ phyâŋ 'hew off useless parts', ʔəphyâŋ 'chaff' (< Tone *2) ⋦ Lahu phɔ̂ (< Tone *2) 'clear undergrowth with heavy bush-knife'
'cooked rice / dish to eat with rice'	*haŋ[2]	WB hâŋ 'curry' [a]; Lahu ɔ̄, Lisu waw[5], Akha hò, Mpi hoŋ[2], Bisu hàŋ-tsá (all 'cooked rice')

	PLB	*Reflexes*
'corpse'	*s-maŋ (PTB) [b]	(Himalayish) Chepang **hmāng**, Newari **si-mha**; (Naga) Nocte [1]**mʌŋ**, Tangsa Moshang **mi-mang**, Lotha [1]o[1]**muŋ**; (Barish) Garo **maŋ**; (Tani) Padam-Mising **shi-mang**, Bokar Lhoba **ço-moŋ**; (Qiangic) Qiang Yadu **ʐmu**; (Jingpho) Jg. **māŋ**; (Lolo-Burmese) Lalo **mú**, Maru **mɔ̃^{31}**, Lashi **maŋ^{31}**, Achang Xiandao **tʂu^{55}moŋ^{55}**, Yi Xide **mo^{33}**, Nasu **çi^{33}mɔ^{33}**, Bola **mɔ̃^{55}**.
'earring' [c]	*raŋ² �310 *waŋ²	Lh. **nā-ɣɔ̂ ~ nā-vɔ̂**; Lalo **ʔnà-*wù***; Yi Nanjian **na^{21}-*ɣu^{21}***; Yi Wuding **nu^{11}*vɒ^{33}***.
'green vegetables / cabbage / mustard'	*raŋ²	Lh. **ɣɔ̂-cá** 'mustard greens', **ɣɔ̂-cá-ō** 'cabbage', **ɣɔ̂-ma** 'greens (general term)'; Ahi ***vu^{21}*tše^{44}**, Sani ***o^{11}*tše^{55}**, Lalo **ù**, Yi Dafang ***ɣo^{55}***, Yi Mile ***vu^{21}*tho^{33}**, Lisu ***o^{31}*phu^{44}** (*DL*:1135, *ZMYYC*:#207).
'hill / high ground'	*kaŋ¹	WB **khaŋ** 'roof, strip of high ground'; Lahu **qhɔ** 'hill, mountain' [d]
'intimate / friend'	*kyaŋ²	WB **khyâŋ-** 'mutually', **ʔəkhyâŋ** 'one who is connected with another'; Lh. **chɔ̂** 'close to, intimate with', **ɔ̀-chɔ̂** 'friend' (*DL*:553)
'lazy / tired of'	*m-baŋ¹	WB **paŋ** 'tired, fatigued', ***paŋ*-pân** 'tiresome'; Lahu **bɔ̀** 'lazy, bored, tired of' (*DL*:949-50)
'lightweight'	*laŋ¹	Lahu **lɔ̀**; Lalo **lú**; Lisu **lo^{33}**; Yi Dafang **lɔ^{21}**; Yi Nanjian **lu^{55}**; Yi Mojiang **lɒ^{21}**. [e]
'long (time)'	*ʔ-myaŋ¹ʹ³	WB **hmyan** 'draw out long', Lh. **mɔ** 'be/take a long time', Akha (ILH) **mjáŋ** 'be a long time' �310 **à-mjaŋ** 'always' (*DL*:1028)
'marrow'	*ʔ-glaŋ¹	WB ***khraŋ*-chi**, Lahu **ɔ̀-cɔ-pɔ** �310 **ɔ̀-chɔ-pwɛ** [f]
'person / human being'	*tsaŋ¹	Lh. **chɔ**, Bisu **tshán**, Mpi **tšhoŋ^6**, Lisu (Fraser) **htsaw^4**, Akha (Lewis) **tsawˇha˞**, Lalo **tshú** (*DL*:544)
'practice / train'	*m/ʔ-gyaŋ¹ʹ³	WB **kyaŋ'** 'do, perform, practice; be habituated to; teach, train, break in (as an ox or buffalo)' < *gyaŋ³; Lahu **jɔ̀** 'study, practice, drill oneself' (< *m-gyaŋ¹) �310 **cɔ** 'train someone; cause smn to practice', Lalo **dzú** (< *ʔ-gyaŋ¹; *cf.* JAM 1975c) [g]

	PLB	*Reflexes*
'river / valley'	*laŋ¹	Lahu lɔ̂, Lisu *law⁴*-hku⁵, Akha *lɔ́*-bà (*DL*:1401-4)
'spider'[h]	*m-kaŋ	Lahu a-*gɔ̀*-a-lí-pɛ̀, Zaiwa a⁵⁵*kaŋ²¹*, Achang (Xiandao) *koŋ³¹* kau⁵⁵, Leqi laʔ³¹*kaŋ³³*
'spin'	*ʔ-gyaŋ¹	Lahu cɔ 'go around; turn; spin'[i] ≈ *m-gyaŋ¹ (> WB gyaŋ 'a top (toy)'
'spread / stretch out'	*kaŋ²	WB khâŋ, Lahu qhɔ̂, Akha xhɔ̂ (*DL*:305)
'think / feel an emotion'	*m-daŋ¹/²	WB thaŋ (< Tone *1); Lh. dɔ̂, Nasu d'ɯ³⁴ (< Tone *2). See *TSR*:15, *DL*:712-19
'wait'	*lyaŋ (PTB)	PLB *ʔ-laŋ¹ > Lahu lɔ; Lalo ʔlɯ; Yi Nanjian lu³³; Yi Mile łu³³zi²¹; Lisu lo⁵⁵ȵɛ³⁵; Achang luaŋ⁵³; Maru lɔ̃⁵⁵; Bola lɔ̃⁴⁵; Zaiwa laŋ⁵⁵. Qiangic forms include: Ergong liaŋ; Guiqiong lɔ̃⁵⁵di³⁵; Ersu and Namuyi lo⁵⁵. See also Anong lã³¹; Geman Deng ɑ³¹ɹaŋ³⁵; Darang Deng kɑ³¹lioŋ³⁵; Bokar Adi (Lhoba) kə-jaŋ (see *ZMYYC* #706, *DL*:1395, SB 1998).

a. A sort of semantic flipflop has occurred in Burmese; *cf.* Siamese khâaw 'cooked rice', kàpkhâaw 'curry; dish eaten with rice'.

b. This is an extremely widespread root, occuring in at least seven branches of TB.

c. The first syllables of these forms mean 'ear'. See *ZMYYC* #742, *TBL* #484, SB 1998, and *DL*:1336.

d. *Cf.* also WT sgaŋ 'projecting hill or spur', Chinese 岡 'hill / ridge', OC kâng [*GSR* #697a] < PTB/PST *s-gaŋ; see *DL*:299-303.

e. Several forms with voiced fricative initials perhaps reflect rather PTB *r-yaːŋ (above, this section): Achang ʐaŋ⁵⁵; Naxi Lijiang ʐu³¹; Tujia ʐu⁵³;

f. The non-aspirated Lahu variant reflects *ʔ-gyaŋ¹; the aspirated WB and Lahu forms are from *kraŋ¹ and *kyaŋ, respectively; see *VSTB*:35.

g. Definitely belonging to the same word family are WB kyaŋ 'be acquainted with; be familiar, understand well' (< *gyaŋ¹) and Lahu jɔ 'experiential particle' (probably < *m-gyaŋ³, with grammatically functioning PLB Tone *3, yielding Lahu mid-tone (unmarked). If we are willing to admit a voicing contrast in non-stopped syllables after the PLB *nasal prefix, we could alternatively derive Lahu jɔ from *m-kyaŋ¹, with the voicelessness of the PLB *root-initial also yielding Lahu mid-tone, while the nasal prefix led to voicing of the modern Lahu initial.

h. Extra-LB cognates Thulung goŋ∘ga∘yoŋ∘ma 'daddy long legs', Tshona (Wenlang) kaŋ⁵⁵ prɑ⁵⁵mo⁵⁵ 'spider', Pa-O Karen jàu *kâŋ*. There are probable allofamic connections with *waŋ ≈ *pʷaŋ 'spin / spindle', and *m-ga 'spin / card fibers' (> Lh. gā 'spin / card', a-gù-na-*gá* -pɛ̀ 'spider'; Lisu ga 'spin'; Bisu gā 'spin, as a spider').

i. Lahu khɔ̄ 'a top', with atypical aspirated initial under the very-low tone, is probably an early loan from Shan màak-*khàaŋ* (*cf.* Siamese lûuk-*khàaŋ*); see *DL*:486, 384.

New roots in *-aŋ at the PTB level include:

	PTB	*Reflexes*
'be there / have'	*m-dzyaŋ	(*Loloish*) Lisu jaw⁴, Phunoi cã, Bisu tšá, Akha jó, Mpi tɕɑ³ [Bradley 1979:#610]; also Lalo djú, Yi Xide dʐo³³, Naxi Lijiang dʑy³³, Caiyuan Hani tsa̩³³, Jinuo tʃa³¹, *etc.* [*ZMYYC* #735]; (*Baic*) Dali tsɯ³³, Jianchuan tsɯ³³, Bijiang dʑi³³; (*Qiangic*) Ergong ntɕho, Muya ndʐø³⁵, Guiqiong jɛ̃⁵⁵, Ersu dʒo⁵⁵, Shixing dʑɑ̃⁵³, *etc.* (See JAM 2000c)
'deaf' ᵃ	*l-baŋ ⪤ *m-baŋ	(*Lolo-Burmese*) WB pâɲ; Lahu pɔ̂; Lisu na⁵⁵*bo³¹*; Lalo ʔnà-*bù*, Yi Dafang bɒ³³; Phunoi ləpã; Naxi xe³³*mpu³³*; (*Jingpho*) Jg. lə*pháŋ*, nà *pháŋ*; (*Qiangic*) Pumi Taoba zɐ³⁵*bõ³⁵*; Ersu na³³*nbo⁵⁵*
'word / language / sound'	*glaŋ ⪤ *klaŋ	Zhangzhung **glang ~ klang**; Lahu khɔ̂ ᵇ
'tense / tight'ᶜ	*taŋ ⪤ *daŋ	WT thaŋ-po 'tense, tight, firm'; WB tâɲ 'tighten'
'strong / firm / tense / distended'ᵈ	*kraŋ ⪤ *graŋ	WT (m)khraŋ 'hard, solid, firm'; WB kraŋ' ~ kyaŋ' 'tense, tight'; Lushai traŋ 'be distended', thraŋ 'grow'.

a. See above 4.4.2 and *ZMYYC* #301.

b. Although there is a similar Tai etymon represented by Shan khɔɔ, this now seems to be a genuine PTB root. (See *DL*:380 and JAM 1999c ("Zhangzhung"):#30).

c. See Coblin 1986:150 and below 7.5(3). Thanks to Axel Schüssler for expanding this etymology. This root is probably allofamically related to the following item in the table.

d. For the Lushai reflexes tr- / thr- < *gr- / *kr-, see above 3.6.4.1(2). For possible Chinese comparanda with both velar and dental initials, see below 7.5(3).

As illustrated by the above examples, the consistent Lahu reflex of *-aŋ is -ɔ. After the consonant group *mr-, however, the Lahu reflex vacillates between -ɔ ('see') and -u ('high'; 'horse'):

	PTB	*STC*	*WB*	*Lahu*	*Other*
'see'ᵃ	*mraŋ	#146	mraŋ	mɔ̂	Rawang yaŋ
'high / long'	*m-raŋ	p.43	mraŋ'	mu	Trung mraŋ; Rawang yaŋ
'horse'	*m/s-raŋ	#145	mrâɲ	í-mû	Chepang sĕraŋ, Jg. gùm-ràŋ ᵇ

a. This etymon constitutes a simplex/causative pair in LB. The causitive allofam ***s-mraŋ**[1] 'show' is represented by Lh. **mɔ** (mid-tone). See *GL*:3.616, *DL*:1027.

b. The ordinary WT word for 'horse' is the unrelated **rta**, but Beyer (1992:85) cites an archaic Tibetan form **rmań**, with a final palatal nasal.

Since **-u** seems to be the Lahu reflex of ***-waŋ** (see 'pit / hole' and 'uncle', below), it is possible that the Lahu forms for 'high' and 'horse' reflect pre-Lahu ***mwaŋ**. Interchange between ***r** and ***w** has been noted in several other etyma, a phenomenon that may be called the "widdle wabbit syndwome" (see above 3.4.2(1) and *VSTB*:56).

A few roots are set up with the long vowelled rhyme ***-aːŋ**, on the basis of forms from Kuki-Chin-Naga languages:

	PTB	*STC*	*Reflexes*
'light (weight)'	***r-yaːŋ**	#328	Mikir **ar-dźaŋ**, Garo **rit-tśeŋ**, Dimasa **re-dźeng**, Lushai **zaːŋ**

The following root, artificially separated into two sets in *STC* (#330 and #331) shows internal vowel length and/or tonal variation in KCN and Jingpho, and was evidently prefixed in several languages:

	PTB	*STC#'s*	*Reflexes*
'roast / toast / burn / be dry'	***ka(ː)ŋ**	330 & 331	Jingpho **kàŋ** 'be hot', **kāŋ** 'be dry', **kəkāŋ** 'roast, toast, bake'; Nung **dəgaŋ** 'toast'; WB **kaŋ** 'broil, roast, toast' (< PLB ***gaŋ**[1]); Lahu **qɔ** (< PLB ***ʔ-gaŋ**[1]) 'roast in bamboo tube; expose to heat'; Lushai **kaːŋ** 'burn', **kaŋ** 'evaporate; dry up; fry'; Lai Chin **kaaŋ** (I) / **kaʔŋ** (II) 'be burning' (v.i.), **khaaŋ** (I) / **khaʔŋ** (II) 'burn sthg' (v.t.); Tiddim Chin **kǎŋ** 'dry up', **kāːŋ** 'burn'

In many closed syllable rhymes, including ***-a(ː)ŋ**, Tangkhul Naga reflexes are sensitive to the length of the proto-vowel (see JAM 1972b:280-1): ***-aŋ** > TN **-əŋ**, ***-aːŋ** > TN **-aŋ** :

	PTB	*STC*	*Tangkhul*	*Lushai*
'dream'	***maŋ ⪥ *mak** [a]	#82	**məŋ**	**mǎŋ**
'black'	***haːŋ >**	---	**maŋ**	**màaŋ**

a. This root has an allofam with homorganic stop final; see below 8.2(1) and 12.5.3.

The presence of medial *-w- in this rhyme led to special reflexes in some languages:

PTB	WT	WB	Lahu	Lushai
*-waŋ	-oŋ	-waŋ	-u	-uaŋ

	PTB	STC#	Reflexes
'come / enter' [a]	*hwaŋ	218	WT ḥoŋ-ba; Bunan **hwaŋs** 'come out, go out'; WB **waŋ**
'encircle / fence'	*hwaŋ	217	Jg. **wāŋ**,[b] WB **wâŋ**, Lushai **huaŋ**
'hole / cave / pit / well (for water)'	*dwaːŋ	169	WT **doŋ**; WB **twâŋ** 'hole', **re-twâŋ** 'well'; Lahu ɣɨ-*tû* 'well'; Tiddim Chin **waːŋ** [c]
'lofty / elevated'	*dzwaŋ	---	WB **cwaŋ'** 'be erected, elevated, perched on high'; Lai Chin **cuaŋ** (I), **cuan** (II) 'be lofty, visible (as a banner)'

a. The direction of motion signalled by this etymon varied enantiodromically, in a way typical of deictic verbs; *cf.* the variable use of verb pairs like English *bring/take*, *come/go* according to the speaker's deictic viewpoint.

b. When the **w-** is functioning as the root-initial, as here, the Jg. reflex remains -aŋ. *Cf.* also 'spin / spindle' (*STC* #48) with secondary w- initial in Lolo-Burmese: PTB *pʷaŋ > WT **phaŋ**, Jg. **kəbāŋ**; but WB **wâŋ** 'swing around, spin', **waŋ-rûi** 'spindle'; Lahu **vô ≍ ɣɔ̂** 'spin rapidly' (< PLB *waŋ²). (For an account of the LB initial in terms of "extrusion", see JAM 1998b.) Here too, since the labial element is acting as syllable-initial, the Lahu reflex remains -ɔ instead of -u.

c. The long vowel is established by the Tiddim form, which evidently treated the dental element as a prefix.

One interesting etymon in *-aŋ displays variation between an initial labial stop and initial *w-:

'uncle / senior male relative' *bʷaŋ ≍ *pʷaŋ [a]

a. Reconstructed as *bwaŋ in *STC*:23, 174, 189; for more details see JAM 2000a:#21, and below 7.5(3). See also *ZMYYC* #321, the source for several of the forms cited here.

Forms with stop initials include WT ʔa-*baŋ*, *baŋ*-po 'parent's sister's husband'; Chepang **paŋ** 'father's brother'; Geman Deng **poŋ³⁵** 'father's older brother'. Reflecting the semivowel initial are forms like Nung **a-*waŋ*** 'father's brother'; Lashi *vaŋ*-mo 'father's older sister's husband, husband's father'; Zaiwa **a⁵⁵*va²¹*mo⁵⁵** 'father's older brother'; Yi Xide **pha⁵⁵*vu³³*** '*id.*'; Lisu **o⁵⁵ɣo⁴¹phɔ³¹** '*id.*'. The vocalism of the Lahu cognate ɔ̀-*u*-phâ ~ ɔ̀-*o*-phâ [15] is parallel to that of 'hole / cave / pit / well' (above), implying that the labial

element was treated as part of the vocalic nucleus (and not as the syllable-initial) in pre-Lahu.

In one complex word-family ('horn / angle') *STC* sets up one of several allofams with the rhyme ***-waŋ**, though their interrelationships are far from clear:[16]

(a)	***g-rwa** (> *e.g.* WT **grwa** 'angle', **rwa** 'horn')
(b)	***g-rəw** (> *e.g.* WT **gru** 'angle', **ru** 'horn'; PLB ***krəw**[1] (> WB **khrui**, Lahu **khɔ**)
(c)	***g-ruŋ**, later changed to ***(g-)rwaŋ** (> *e.g.* Jingpho **rūŋ**, **ǹ-rūŋ**; Lepcha **ăróŋ**, Garo **groŋ**, Bodo **goŋ** [with prefix preemption])

Several well-attested roots show variation between ***-aŋ** and ***-ak** (*e.g.* 'eagle'; 'dream'; 'cold'; 'ink / black'), or between ***-waŋ** and ***-wak** (*e.g.* 'speak'). See below 12.5.3.

7.2   *Nasals after high vowels* ***-i-** *and* ***-u-**

(1)   ***-im** *and* ***-um**

These two rhymes are kept distinct in many TB languages (*e.g.* WT, Jingpho, WB, Lushai, Mikir), but have fallen together in a number of others (*e.g.* Lahu), while some languages (*e.g.* Nung, Bodo-Garo) show allofamic or free variation between the two. Neither rhyme permits a preceding labial semivowel (*i.e.* ****-wim** and ****-wum** are not attested).[17] A marginal length contrast has been established for these rhymes, with only one example of ***-iːm**,[18] but three plausible examples of ***-uːm**.

PTB	*WT*	*Jg.*	*WB*	*Lahu*	*Lushai*	*Mikir*	*Bodo-Garo*
*-im	-im	-im	-im	-ɛ	-im/-in	-em	-im/-um
*-um	-um	-um	-um	-ɛ	-um	-om	-um/-im/-am

---

15. This Lahu form has a variety of related meanings: (1) 'older brother of a girl', (2) 'a girl's mother's brother', (3) 'wife's brother', (4) 'man's brother-in-law'. The basic meaning is 'guardian of a young girl'. The office of guardian is filled by an older brother, if the girl has one, otherwise by a maternal uncle or other older male relative.

16. The elliptical discussion is scattered among pp. 32, 75, and 113.

17. In Chinese terms we could say that these rhymes lack a 合口 *hékǒu* .

18. See 'rattan / cane', below.

(a)   **-im*

Only four or five roots are set up with *-im in *STC*:

	PTB	*STC*	*WT*	*Jg.*	*WB*	*Other*
'sweet / delicious'	***dzyim**	#71	źim-pa	---	chim'	Tangkhul kəšim
'threaten / terrify'	***krim**	#379	---	khrīm	krîm, khrîm	Dimasa migrim
'dark-colored'	***syim**	#380	---	---	---	Lushai thim; Dimasa sim-ba �ife sum-ba
'rattan / cane'	***ri(ː)m** [a]	p.107	---	rīm- [b]	krim	Lepcha rim

> a. *Cf.* also Maru **wram**. *STC* sets up this root with a long vowel, without explanation, probably because of the retention of the original vowel in the Lepcha form, since Lepcha tends to lower short *high vowels in closed syllables (see 'block' / 'pillow' and 'warm', below).
>
> b. This is a bound form in Jingpho, occurring in the name of rattan species like rīm-khá, rīm-šàt, rīm-šīn. The free form for rattan is an open syllable, rī.

Thanks to the forms given in *ZMYYC* (#'s 6 and 805) and *TBL* (#'s 7 and 983), to this short list we may add two more roots in *-im that are well attested in both Qiangic and Lolo-Burmese:

'cloud'	***s-dim**	
	Qiangic	Qiang Mawo **zdɤm**, Qiang Taoping **χde³³**, Pumi Taoba **zə⁵⁵rẽ⁵⁵**, Pumi Jinghua **sdĩ⁵⁵**, Pumi Jiulong **dẽ³⁵**, rGyalrong **zdɛm**, Ergong (Daofu) *zdo*-**mɛ**, Muya *ndɯ³³* **ʐe³⁵**, Queyu **ɕtie⁵⁵**, Zhaba（扎坝）**ʂtei³¹**
	Lolo-Burmese	WB **tim**, Yi Xide **mu³³***ti³³*, Yi Dafang **tie³³**, Yi Nanjian **ɑ⁵⁵mu²¹***ti⁵⁵*, Yi Nanhua **ti³³**, Yi Mile (Ahi) **tɛ³³**, Yi Mojiang **tɛ⁵⁵**, Naxi Lijiang **tɕi³¹**, Naxi Yongning (Moso) **tɕi³³**, Hani Biyue **ni̠³¹tshi³¹**, Hani Haoni **u³¹***tu⁵⁵*, Jinuo **mɯ³³***tjɐ³³*, Gazhuo **tʅ²⁴**
'shallow'	***dim** [a]	
	Qiangic	Pumi Taoba **ʐẽ³⁵ mə⁵³**, Pumi Jinghua **sdĩ⁵⁵**, Queyu **ndiɛ⁵⁵**
	Lolo-Burmese	WB **tim**, Yi Xide **i⁴⁴***di³³*, Yi Dafang **dɯ²¹**, Yi Nanhua **de³³**, Yi Mile **dɯ³³**, Yi Mojiang **de̠³³**, Yi Wuding **de¹¹**, Lisu **thɛ³¹**, Naxi Lijiang **dy⁵⁵**, Hani Dazhai **te̠³³**, Sani **tɤ³³**, Jinuo **a³³***te³³*, Gazhuo **tɛ³²³**

Note the identical Pumi Jinghua and WB reflexes of these two etyma.

(b)   ***-um***

The rhyme ***-um** is somewhat better attested, with about eight examples in *STC*, including the following:

	PTB	*STC#*	*WT*	*Jg.*	*WB*	*Lushai*
'round'	*zlum	143	zlum-pa	lùm	lûm	hlum
'salt'	*g-ryum ᵃ	245	---	dźùm	---	---
'long for / pine'	*d-rum	457	drum-pa	---	khyûm	---
'three'	*g-sum	409	gsum	məsūm	sûm	thum
'warm'	*lum ⪥	381	---	lūm, məlūm	lum	---
'make warm'	*s-lum ᵇ		---	šəlūm	hlum, hlum'	---
'block / pillow'	*m-kum	482	---	-khum ᶜ	khum	khum

a. *Cf.* also Kiranti **rum ⪥ yum**, Kadu **sum**, Moshang **śum**, Meithei **thum**.

b. The variant with the *s- prefix forms causatives/transitives meaning 'heat up; cause to be warm'. Although *STC* only recognizes the rhyme *-um for this root at the PTB level, several daughter languages have reflexes in -im (Nung **lim**; Dimasa **lum ~ lim** 'be hot, have fever', **gilim-di ~ gulum-di** 'sweat' ["heat water"]), while Lepcha, Bodo, and Garo have reflexes in -am. For the quasi-regular development of *-um to -am in certain languages, see below.

c. The Jg. morpheme occurs in several compounds, *e.g.* **bùŋ-khúm** 'pillow' (**bùŋ** 'head'), **ləkhûm ~ púŋ-khûm** 'chair, bench'. The WB form reflects PLB Tone *1, but the Lahu cognate **ú-gê** 'pillow' (**ú-** 'head') is from Tone *2. The voiced initial of the Lahu form, as well as Luquan Lolo **ŋkˈɣ³³** and Nung **əgɔ məkhim** (**əgɔ** 'head') unequivocally point to a nasal prefix with this root. Note the front vowel in the Nung form.

Other roots reconstructible with this rhyme at the PTB level include:

· PTB ***s-grum** 'contracted / stunted / dwarfish' > Lai Chin **trum** 'stunted', WB **kyum'** 'be contracted, drawn together, shrunk', Lahu **chɔ-kɛ-nɛ** 'short person, a "shrimp" ', **chɨ-kɛ-nɛ** 'barking deer' (a small species), **qhɔ-kɛ-nɛ** 'barren mountain on which nothing grows'. The Lai and Lahu forms reflect *-r-, but WB has -y-; both WB and Lahu reflect PLB Tone ***3**. See above 3.6.4.1.

· PTB *dzum ⪥ *tsum 'pair' > (Lolo-Burmese) WB **chum** 'meet, come together', Akha **tsmˇ** 'join at a spot, form a joint' (< PLB ***tsum¹**); Akha **dzm̄** 'classifier for pairs', Lahu **cɛ** 'pair, even number' (< PLB ***dzum³**); Yi Dafang **dzɯ²¹**, Lisu **dze⁴¹**, Naxi Yongning

dzɿ³³, Hani Biyue tsɔ³¹, Jinuo tsø³³, Achang tɕɔm³¹, Zaiwa **tsum**⁵⁵, Langsu (Maru) **tsam**⁵⁵; (Jingpho-Nung) Dulong **dzɯm**⁵⁵, Jingpho **tsūm**. *Cf. ZMYYC*:958, *DL*:481.

New roots reconstructible at the PLB level include:

	PLB	*WB*	*Loloish*
'numb / befuddled'	*tum[1]	thum 'numb, stupefy'	Lh. **mâ-nɔ̂-mâ-*thɛ*** 'befuddled, dazed'; **qā-bɔ̀-qā-*thɛ*** 'sheepish, all confused, foolish looking' (*DL*:687)
'taro'	*blum[2]	---	Lh. **pê**, Lisu (Fraser) **bi**⁶, Phunoi **pḿ̩**, Bisu **plùm**, Akha **bỳ** (*DL*:850)

Several important roots show *-im ⩘ *-um variation, both language- and subgroup-internally, as well as across subgroups of TB. This is a special case of the widespread variational pattern of *-i- ⩘ *-u- in closed syllables, especially in the environment of a syllable-initial or syllable-final labial (below 12.1).[19] Examples to be found in *STC* include:

	PTB	*STC*	*Reflexes*
'house'	*k-yim	#53	WT **khyim**, Bahing **khyim**, Mru **kim**, Limbu **him**, Chepang **kyim ~ tim**, Vayu **kim ~ kem**, Andro **kem**, Kadu **tyem**, Mikir **hem**,[a] Chinbok **im**, WB **ʔim**; Lushai and Lai Chin **in** (with dentalization of the final consonant) [b]
	*k-yum		Lepcha **khyŭm**, Miri **əkum**, Namsang **hum**, Meithei **yum**
	*k-yim ⩘ *k-yum [c]		Magari **im ~ yum**, Nung **kyim ~ tśim ~ tśum**, Moshang **yim ~ yüm**.
'dark / dusk'	*rum	#401	WT **rum** 'darkness, obscurity'; perhaps also WB **hrûm** 'lose, be defeated'
	*rim		Jg. **rīm** 'be dusk, dark' **ń-rím ~ níŋ-rím** 'evening', **sərīm** 'twilight'; [d] Nung **rim-rim na** 'gray', **rim-rim wɛ** 'twilight'

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19. In some languages (especially in the Bodo-Garo group) variation between medial -u- and -i- is pervasive, affecting vowels with surrounding consonants at any point of articulation.

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a. High medial vowels are frequently lowered to mid vowels in Mikir. For another example before *-m, *cf.* 'hold in the mouth' *m-u:m > Mikir om.

b. An opposite development of the *-m to the velar nasal -ŋ is postulated for the Chinese comparandum 宮 'dwelling-house; palace; temple' OC *ki̯ôŋ [*GSR* #1006a-d]. A similar Chinese development at a later time period is assumed for 熊 'bear', reconstructed in Karlgren's *Analytic Dictionary* as OC *gi̯um (*cf.* PTB *d-wam) but MC jiuŋ. See below 12.6.2(3).

c. As these forms show, sometimes there is variation within a single language. Reflexes of this root in languages with depleted final consonants are often powerless to distinguish between the front and back variants; *e.g.* Lahu yɛ̀ could come from either *yim or *yum.

d. These tones are according to Maran's unpublished dictionary. They disagree with the tones given in Dai *et al.*, 1983: rìm; n̄-rīm; nīŋ-rīm.

A new example of *-im ≋ *-um variation was proposed in JAM 2000d:[20]

'set (of the sun)' PTB *g(l)im ≋ *g(l)um		
(a) Forms reflecting a simple initial velar stop include:		
	*gim ≋ *gum	
Proto-Kiranti	*gim [a]	Dumi gi:m, Thulung gam
Lolo-Burmese	*gum	Lahu qɛ̀ [b], Nanjian Yi ɣu⁵⁵, Lisu go³³ʒe⁴⁴, Naxi (Lijiang and Yongning) gv³¹, Hani Caiyuan (Biyue) kɔ³³, Hani Shuikui (Haoni) kɔ³³ji⁵⁵
Qiangic	*gim [c]	Qiang (Mawo) a qe [*ZMYYC*], ɑ qɑ [*TBL*]; Shixing miɛ³³ɣĩ⁵⁵ [*ZMYYC*], gĩ [*TBL*]; Namuyi mi³³qæ⁵³ (*cf.* ȵi⁵⁵mi⁵⁵ 'sun')
Baic	*gum [d]	Jianchuan ɣo⁴² [*ZMYYC*], ɣu̱²¹ [*TBL*]; Dali o⁴²
(b) Forms with affricates or clusters that might point to an earlier *cluster include:		
	*glim ≋ *glum	
Nungish	*glim ≋ *glum	Anong Nu dʑim⁵⁵, Dulong glɔm⁵³
Lolo-Burmese	*glum *or* *gyum	Yi Weishan ʐᴇ⁵⁵; Yi Nanhua dʐo³³; Yi Wuding ɖɤ¹¹; Sani tɬɤ³³; Jinuo krɔ³³ [*TBL*], kɹa³⁵ [*ZMYYC*]
Qiangic	*glim *or* *glum [e]	Daofu (Ergong) nə *ndʐo*, Queyu pu⁵⁵*tɕha¹³*, Lusu ne³³*tɕu⁵³*, Pumi (Taoba) nə³⁵ dʐɛ³⁵, Pumi (Jinghua) nə¹³dzie⁵⁵, Ersu tɕho⁵⁵

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a. Michailovsky (1989).

b. The Lahu form could come from either *-im or *-um, though the other Loloish reflexes seem to point to a PLB *back vowel.

c. These Qiangic forms seem mostly to reflect a *front vowel.

d. These Baic forms seem rather to reflect a *back vowel.

e. The Daofu, Lusu, and Pumi first syllables mean 'sun' (< PTB ***nəy**).

Several languages (Bodo, Garo, Lepcha) have developed a secondary -**am** reflex from *-**um**.[21] In the case of Lepcha, this is useful in determining the length of the proto-vowel, since short *-**um** > Lepcha -**am**, but long *-**uːm** > Lepcha -**ŭm** (with preservation of the original vowel quality). Examples with short vowel include:

	PTB	*STC#*	*Reflexes*
'mortar'	**(t)sum*	#75	WB **chum**, Jg. **thùm**, Lushai **sum**; but Lepcha **tuk**-*sam*, Garo **sam**
'salt'	**g-ryum*	#245	Jg. **dźùm**, Moshang **śum**, Meithei **thum**; but Garo **khari**-*tśham*
'sweet'	**s-klum*	p. 75	Lushai **thlum**, Meithei **thum**; but Lepcha **khlyam**
'warm'	**s-lum*	#381	Jg. **lūm**, WB **lum**; but Lepcha **lyam**,[a] Garo *gram*-**tśi** 'sweat', Bodo **galam** 'to sweat'
'three'	**g-sum*	#409	WT **gsum**, Jg. **məsūm**, WB **sûm**; but Lepcha **sam**, Garo **githam**, Dimasa **gatham** [b]
'block / pillow'	**m-kum*	#482	Jg. **khúm**, WB **khum**, Lushai **khum**; but Lepcha **kam** 'block', **thyak**-*kam* 'pillow' (**thyak** 'head'), **kuŋ**-*kám* 'block used as a seat'

a. Lepcha prevocalic -**y**- is often the reflex of the *s- prefix. See above 4.2.1.

b. Note that a similar development of PST medial *-**u**- to -**a**- has occurred in Chinese 三 'three' (OC **səm** / MC **sâm**) [*GSR* #648a-c].

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20. Most of the supporting forms for this etymology are to be found in *ZMYYC* #752 and *TBL* #1512.

21. The same development is occasionally found in other languages, *e.g.* 'house' ***k-yum** > rGyalrong **ʈʂam**.

Three etyma are set up with the long vowel rhyme ***-uːm**, on the basis of a long vowel in Lushai and/or a reflex -**ŭm** in Lepcha:

	PTB	*STC*	*Reflexes*
'bud'	***muːm**	#364	WB **mum** 'begin to form, as a bud'; Lushai **kuʔ-muːm** 'to bud'
'arched / vaulted; convex / concave'	***ku(ː)m**	pp.75, 78	Lepcha **kŭm**, WB **khûm**, Lushai **kum ~ kuːm** (note the length variation in Lushai)
'hold in the mouth'	***m-ʔuːm**	#108	WT **ʔum** 'a kiss'; Lepcha **ŭm** 'receive into the mouth',[a] Miri **um-bom** 'hold inside the mouth'; Mikir **om** 'chew / mouthful'; Jg. **məūm** 'hold in the mouth'[b]

a. Despite the Lepcha reflex, this etymon was reconstructed with a short vowel in *STC* #108; this was revised to a long vowel (p.181) in the context of citing the Chinese comparandum 唵 OC **ʔəm** 'hold in the mouth' [not in *GSR*].

b. Also apparently cognate are Lushai and Lai **hmoom** (KVB), reflecting a variant with ***s-** prefix, where the **m** is treated as the root initial.

One important TB root with a good Chinese comparandum shows variation between ***-um** and ***-uŋ**:[22]

'use' ***zum ⋈ *zuŋ**	
PST ***zuŋ**	Jg. **súŋ**; Zaiwa **tʃhuŋ**[51]; *cf.* Chinese 用 , OC ***di̯uŋ** (*GSR* #1185a-e)
PLB ***zum²**	WB **sûm**; Lahu **yɛ̂**; Lisu **ze**[31]; Yi Nanhua **zɯ**[33], *etc.*

(2)   ***-in** *and* ***-iːn**

These rhymes are quite rare at the PTB level, with only a few etyma discovered so far. *STC* reconstructs just two roots[23] with short ***-in**, and only a single one with long ***-iːn**.[24] As always, the Chin languages (especially Lushai) are crucial for establishing the length

22. See below 12.6.2(3).

23. In the first version of *STC* a third root, 'claw/nail', was reconstructed with this rhyme, though this was later modified to the rhyme ***-yen**. See below 7.3(2).

24. A second etymon with long ***-iːn** 'time / occasion' is reconstructed in JAM 1978:35 (*VSTB*). See below.

difference, but for this rhyme Lolo-Burmese also provides key evidence for the distinction:

PTB	WT	Jg.	WB	Lahu	Lushai	Garo
*-in	-in	-in	-añ	-ɛ	-in	-in
*-iːn	-in	-in	-in	-ɨ	-iːn	?

As we have just seen, WB does not provide any evidence for distinguishing between short and long medial *-i- and *-u- before final -m : PTB *-um/ *-uːm > WB -um; PTB *-im/*-iːm > WB -im, *e.g.* 'mortar' *t(s)um > Lushai sum, WB chum; 'bud' *muːm > Lushai muːm, WB mum. Before final -n, however, both WB and Lahu clearly distinguish between short and long *-i(ː)- :

	PTB	STC#	WT	Jg.	WB	Lahu	Lushai	Mikir[a]
'liver'	*m-sin [b]	234	mtśhin	məsìn	ʔəsâñ	ɔ̀-šɛ̄	thin	iŋ-thin
'ripe'	*s-min	432	smin-pa	myın	hm(y)añ'	mɛ	hmin	men

TABLE 16. **Examples of PTB *-in .**

a. Note that the Mikir reflexes are unreliable clues to the proto-rhyme. This Mikir variation between -in and -en is parallel to its multiple reflexes of *-am (> -im *or* -em) and *-iŋ (-iŋ *or* -eŋ). See 7.1(1) above and 7.2(2) below.
b. *Cf.* also the Karenic reflexes, *e.g.* Pwo θüN, Sgaw θu.

	PTB	STC	Jg.	WB	Lahu	Lushai	Mru
'weigh' [a]	*kyiːn	#369	śīn �ídem (t)śēn	khyin	chɨ	kiːn	---
'time / occasion'	*kyiːn ⋍ *kriːn [b]	---	---	ʔəkhyin	khɨ	---	rin ⋍ khin

TABLE 17. **Examples of PTB *-iːn .**

a. In this root the testimonies of WB and Lushai agree perfectly.
b. *-r- ⋍ *-y- variation must be posited in this root, since the Lahu front velar derives from a *velar-plus-r cluster (see above 3.6.4). This is confirmed by the form in Mru (Arakan and E. Bengal) with initial r-, which permits this etymon to be reconstructed at the PTB level. The Mru doublet khin is perhaps a loan < Burmese.

A new PST/PTB etymon with the rhyme *-**in** has just been proposed:[25]

> 'body / owner / agentive nominalizer' PST/PTB ***sin**
>
> WB **sañ** 'owner; proprietor' (< PLB Tone *1); Lahu ɔ̀-šɛ̄ 'body', ɔ̀-šɛ̄-**phâ** 'owner; doer or performer of an action', šɛ̄-**phâ** 'agentive nominalizer' (< PLB Tone *2); Lai Chin (KVB) **sin** 'possessive particle'. An excellent Chinese comparandum is 身 'body' OC śi̯ĕn (*GSR* #386a-c).[a]

    a. *STC* (pp. 99, 158, 169, 197) attempts to relate this Chinese form rather to PTB ***sya** 'flesh / meat', via the "collectivizing suffix" -**n** (see below 11.2.3).

Still another root with this rhyme may be reconstructed for PLB:

> 'bowl / dish / cup' PLB ***krin²**
>
> Lh. **khɛ̂**; Lalo **á-kjɛ̀**.[a]

    a. For the same Lahu/Lalo correspondence, *cf.* 'nail / claw' PTB ***m-tsyen** > PLB ***sin²** > Lh. làʔ-*šɛ̄*-qú, Lalo lìʔ-kɯ̀-*sɛ̀*.

The most interesting reflex of *-**in** is WB -**añ**, with a final palatal quite atypical for TB. It represents the merger of four ***rhymes** with front vowels before dental or velar nasals, */ -**in** -**iŋ** -**en** -**eŋ** / , exactly parallel to the WB reflex -**ac** of the homorganic quartet of ***stopped syllable rhymes**, */ -**it** -**ik** -**et** -**ek** / , below 8.3(1-2), 8.5(1-2). For more on WB -**añ**, see below 7.4.

(3)   **-un*

This rhyme is extremely rare. Only a single etymon with ***-un** was reconstructed in the first version of *STC:*

> 'all' ***kun** (*STC* #10)
>
> WT **kun** 'all'; WB **kun** 'come to an end, used up', **ʔəkun** 'all'; Lepcha **gŭn** 'all' [a]

    a. This Lepcha form may well be a loan from Tibetan.

However, the discovery of a pair of Mikir forms (Mk. **koi** 'all', **iŋkoi** 'twenty') made it clear that these are all reflexes of a much more widespread etymon with liquid final, ***m-kul** (*STC* #397) 'twenty', with an original meaning like "such a large number that one

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25. See JAM 2000c and below 11.2.4.

has to use all the fingers and toes to count up to it", and which still means 'twenty; a score' in many TB languages.[26]

Another root in ***-un** reconstructible at the PTB level is ***s-mun** > WT **mun-pa** 'obscurity, darkness; obscure, dark', **dmun-pa** 'darkened'; WB **hmun** 'dim, dusky, blurred'. There are good Chinese comparanda, below 7.5(8).

Still another ***-un** etymon reflected in more than one branch of TB has been discovered:

'kidney' PTB ***m-glun** > Jg. **ǹ-khyūn**, Mpi **ŋ⁴kyo⁵**

This may indeed be the most widespread etymon with this rhyme in ST as a whole, since there is a likely Chinese cognate. See below 7.5(8).

We can further come to the rescue of this hapless rhyme by providing two fairly secure etyma that can be reconstructed with ***-un** at least as far back as the PLB level:

'powder' PLB ***ʔ-mun**[1/3]
WB **mun', hmun'** 'small, minute', **ʔə(h)mun'** 'pulverized matter, powder' (all < PLB Tone *3) ≍ **ʔəhmun** 'fine dust' (< Tone *1); Lahu **mə** 'pulverize', **ɔ̀-mə**, **ɔ̀-məy** 'powder' (with mid-tone characteristic either of Tone *3 or Tone *1 with ***glottalized initial consonant**)
'finish'[a] PLB ***bun**[1]
Phunoi **pə́n**; Bisu **pɤ́n**; Lahu **pɔ̀** Several other likely cognates are to be found in *TBL* #1702: Zaiwa (Atsi) **pan⁵¹**; Langsu (Maru) **pəŋ³¹**; Bola **pɛ̃³⁵**; Leqi (Lachi) **paːn**.

a. This root is reconstructed in JAM 2000c ("PLB fable"), where more details are given.

The Lahu reflex is schwa in both of these cases, which motivates the parallel reconstructions. It must be said, however, that the relatively rare Lahu vowel -ə is especially associated with labial initials,[27] so that more examples will be required to establish the "regular" Lahu reflex.

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26. See below 9.3.2(4) and JAM 1995 ("ST numerals"), §3.511, pp. 149-51.
27. See GL:12.

As noted, above 7.1(2), several languages (Jingpho, Nung, Lepcha) have developed secondary -**un** from PTB *-**wan** (Jingpho sometimes has -**on** instead):

'casting net'	*gwan	#158	WB kwan, Jg. sùm-*gòn*, Lepcha kun, Nung gun
'bore / pierce'	*lwan	p.49	WB lwan 'bore with gimlet, Jg. gəlùn 'thrust with spear'

Another etymon reconstructible with *-**un** displays rampant variation, affecting the initial consonant, the vowel, and the final consonant: 'skin' *pun ⪥ pin ⪥⪥ wun ⪥ wul. See below 9.3.2(6) and 12.1.

Given the paucity of the data, no length contrast can be set up for *-**un**. The same goes for the homorganic rhyme *-**ut**, below 8.4(3).

(4)   *-iŋ*

This rhyme is quite well attested, with at least a dozen etyma reconstructed in *STC*, including several with good Chinese comparanda. The reflexes in key languages are as follows:

PTB	WT	Jg.	WB	Lahu	Lushai	Garo	Mikir
*-iŋ	-iŋ	-iŋ	-añ	-ɛ	-iŋ	-iŋ	-eŋ / -iŋ

Examples from *STC* include:

'name' [a]	*r/s-miŋ (#83) > WT miŋ; Jg. myìŋ, šəmyìŋ; WB mañ, hmañ; Lahu mɛ (V), ɔ̀-mɛ (N), Lushai hmiŋ; Garo miŋ 'to name', bimuŋ 'a name'
'neck'	*m-liŋ (#96) > WT mdźiŋ-pa; WB lañ; Lushai riŋ [b]
'full'	*bliŋ ⪥ *pliŋ (#142) > Jg. phríŋ 'full', džəphríŋ 'fill'; WB prañ' 'full', phrañ' 'make full, fill', prañ 'measure of capacity'; Lahu pɛ 'plenty'; Lai tliŋ 'full, complete'; Lushai tliŋ 'attain proper height / weight', Mikir pleŋ 'full' [c/d]
'land'	*gliŋ (#128) > WT gliŋ; Jg. *kriŋ*-mun; WB krañ [e]
'tube / flute' [f]	*gliŋ (p. 41) > WT gliŋ 'flute, fife'; WB kyañ 'tube closed at one end'
'bark (v.)'	*priŋ (#377) > Jg. phrīŋ [g]
'forest / field'	*b-liŋ (#378) > WT źiŋ: Jingpho and Nung məlīŋ; Garo briŋ ~ buruŋ [h]
'long'	*s-riŋ (#433) > WT riŋ-ba 'long', sriŋ-ba 'extend, stretch'; WB hrañ [i]

a. The prefixed Jg. and WB allofams are transitive/causative verbs 'give a name to'. The solid Chinese cognate is 名 OC *mi̯ĕng (*GSR* #826a-c) > Mand. **míng**.

b. Also Lepcha tŭk-*liŋ*, Nung liŋ. With the *r- prefix, Rangkhol ermiŋ, rGyalrong termi. There are two Chinese comparanda, 領 'neck; collar', OC *li̯ĕng (*GSR* #823f) > Mand. lǐng; and 頸 'neck', OC ki̯ĕŋ ≍ g'i̯ĕŋ (*GSR* #831n) > Mand. jǐng. See below 7.5(6).

c. Also, with unexplained vocalism: Digaro bloŋ; Dimasa phuluŋ. The best Chinese comparandum is 盈 OC di̯ĕng (*GSR* #815a-b) > Mand. yíŋ. See below 7.5(6).

d. For discussion of several etyma in this semantic area, see JAM 1988a ("Straight, flat, full"), where an allofamic connection is posited among *bliŋ ≍ *pliŋ 'full', *pleŋ (#138) 'flat', and *bleŋ ≍ *pleŋ (#352) 'straight'.

e. *STC* also claims cognacy for the second syllable of Lahu mì-*g̀ɨ* 'land', but this is doubtful considering the consistency with which this rhyme has developed into Lahu -ɛ.

f. See JAM 1970 ("Glottal dissimilation") #98.

g. The other criterial languages lack reflexes of this etymon, but *cf.* Dimasa biriŋ ~ buruŋ. Contra *STC* (n. 245) Chang Naga lăŋ seems related rather to Lahu lɔ̀ (*DL*:1404) < PTB *laŋ, since -ɔ is the regular Lahu reflex of *-aŋ; see above 7.1(3). There is a Chinese comparandum, below 7.5(6).

h. Also Dimasa ha-bliŋ, Lepcha lyăŋ. The discrepancy in position of articulation of the final *nasal is against relating this etymon to Chinese 林 'forest' OC *gli̯əm (*GSR* #655) > Mand. lín. For a better ST etymology, see below 7.5(1).

i. Dhimal hrin and Jg. rèn 'long', šərèn 'lengthen' reflect an allofam with final dental nasal; the aspirated WB form reflects the causative *s- prefix (as in WT and Jg.), even though the verb is intransitive in Burmese.

Newly discovered etyma with this rhyme include:

- *riŋ 'sun / sunshine' > Bodo riŋ 'sunshine' ≍ rí 'give sunshine', Sulong kə³³*ri³³* 'sun', Taraon (Darang) ring (NEFA) '*id.*'. The Darang dialect recorded in *ZMYYC* has ɹɯn⁵³, which corresponds closely to Milang me-*ruŋ* 'sun', perhaps pointing to * -i- ≍ *-u- variation in this root.

- *liŋ² ≍ *likᴸ 'python' (PLB) > Mpi liŋ², Lh. lê; the stop-final allofam is reflected by Akha (ILH) lìq (*DL*:1390).

- *ʔiŋ 'endure / bear (suffer)' > WB ʔauŋ'-*ʔâñ* ; Lai ʔiŋ (KVB).

- *niŋ 'way / method / custom' > WB nâñ;[28] Lai niŋ (KVB).

- *dziŋ 'plant (n.) / tree' > Lh. ɔ̀-*cɛ̀* 'plant', šî̀ʔ-*cɛ̀* 'tree'; Lalo siq-*dzɨ́*; Yi Nanjian sɿ³³*dzɿ⁵⁵*; Lisu e⁵⁵*dzɿ³³*; Naxi Lijiang ndzəɹ³¹; Jinuo a³³*tsɯ³³*; Achang saŋ³¹*tseŋ⁵⁵*. Extra-LB forms include Anong sɿ⁵⁵dzɯn³¹; Bai (Dali, Jianchuan) tsɯ³³.[29]

Since WB -añ is the reflex of both PTB *-in and *-iŋ (as well as of the rarer rhymes *-en and *-eŋ), and since Lahu has consistently merged the four nasal rhymes *-um, *-im,

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28. This is deemed to be a loanword from Pali **naya** both in Judson (1893/1966) and in the *Myanmar English Dictionary*:235, but this seems unlikely in view of the Lai cognate.

29. The first syllables of most of these forms are from PTB *siŋ ≍ *sik 'tree'. Several more Loloish cognates are to be found in *ZMYYC* #178.

*-in and *-iŋ to -ɛ, we cannot be sure of the exact proto-rhyme merely on the basis of a WB -añ / Lahu -ɛ correspondence. In cases like this, it seems best to provisionally reconstruct *-iŋ, since this is by far the most frequent of the four rhymes that have led to WB -añ:

'narrow / constricted'	PLB *ʔ-gyiŋ² > WB **kyâñ** 'be narrow', **khyâñ** 'make narrow'; Lh. **cɛ̄** 'be too narrow (of an opening)' (*DL*:484)
'release / send forth'	PLB *priŋ¹/² ≍ *pyiŋ¹/² > WB **phrañ** (< PLB Tone *1), **phyâñ** 'with irregular, violent starts of heat' (< *2); Lahu **phê**, Lalo **phỳ** (< *2)
'thread'	PLB *kriŋ¹ > WB **khrañ**; Lahu **khɛ**, Lalo **khɔ́**

Mikir shows inconsistent reflexes of *-iŋ, sometimes retaining it (*e.g.* *s-niŋ 'heart / mind' (#367) > Mk. **niŋ**; *s-niŋ 'year' (#368) > Mk. **niŋ**), but more often lowering it to -eŋ :[30]

	PTB	STC#	*Mikir*
'alive / green / raw'	*s-riŋ (≍ *s-r(y)aŋ)	404	reŋ
'full / fill'	*bliŋ ≍ *pliŋ	142	pleŋ
'marrow/brain'	*r-kliŋ (≍ *r-kl(y)aŋ)	126	ar-kleŋ
'tree / wood'	*siŋ (≍ *sik)	233	theŋ

Lepcha shows similar variational tendencies, occasionally retaining *-iŋ as such (*e.g.* 'neck' (#96) *m-liŋ > Lp. **tŭk-*liŋ***), but usually developing a rising diphthongal rhyme, -yaŋ or -yan :

	PTB	STC#	*Lepcha*
'forest'	*b-liŋ	378	lyăŋ
'full / fill'	*bliŋ ≍ *pliŋ	142	ă-blyăn
'long'	*s-riŋ	433	hryăn
'marrow / brain'	*r-kliŋ (≍ *r-klaŋ)	126	(ă)yăŋ ~ (ă)yóŋ

Athough this development of -yaŋ from *-iŋ seems to be a secondary phenomenon internal to Lepcha, it does reflect a widespread TB variational tendency. Certain etyma must be reconstructed with *-i- ≍ *-ya- variation even at the PTB level.[31]

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30. This is similar to the development of *-im to Mikir -em, *e.g.* *k-yim 'house' > Mk. **hem**. See above (1).

A few roots show *-iŋ ≽ *-aŋ or *-eŋ ≽ *-aŋ variation even in the absence of a palatal semivowel at the PTB stage:

	PTB	Reflexes
'marrow / brain' [a]	*r-kliŋ ≽ *r-kl(y)aŋ (*STC* #126)	
	*r-kliŋ	Lushai **thliŋ**, Mikir **ar-kleŋ**
	*r-kl(y)aŋ	WB *khraŋ*-chi, Lahu ɔ̀-*chɔ*-pwɛ
'alive / green / raw'	*s-riŋ ≽ *s-r(y)aŋ (*STC* #404)	
	*s-riŋ	Manchati **sriŋ**, Lushai **hriŋ**, Tangkhul **khəriŋ**, Meithei **hiŋ**, Mikir **reŋ**, Jg. **tsīŋ**, Nung **məśiŋ**
	*s-raŋ	WB **hraŋ**; Garo **thaŋ**, **gathaŋ**
'leg / stalk'	*keŋ ≽ *r-kaŋ (*STC* n. 218)	
	*keŋ	Mikir **keŋ**, Thado **keŋ**; Lushai **ke**; Tiddim Chin **χe**; Chinese 脛 OC **g'ieŋ** 'leg, shank, shin' (*GSR* #831k) > Mand. **jìng** ≽ 莖 OC **g'ĕŋ** 'stalk' (*GSR* #831u) > Mand. **jīng**; see below 7.3(3).
	*r-kaŋ	WT **rkaŋ-pa**

    a. It is interesting to note the resemblant Proto-Mon-Khmer etymon ***kruaŋ** 'marrow'.

Three etyma show a secondary development from PTB *-iŋ to Proto-Lolo-Burmese *-ik.[32] The original nasality of the final is confirmed for two of these etyma ('tree'; 'year') by their Chinese cognates:

'tree / firewood'	PTB *siŋ ≽ PLB *sik (#233)	
	*siŋ [a]	WT **śiŋ**, Lushai **thiŋ**, Mikir **theŋ**
	*sik [b]	WB **sac**, Lahu **šî̠ʔ**
'year'	PTB *s-niŋ ≽ PLB *s-nik (#368)	
	*s-niŋ [c]	WT **na-niŋ** 'last year'; Jg. **nīŋ** ~ **šənīŋ**, Mikir **niŋ**, Pyu **snì**, Proto-Karen ***hneŋ**
	*s-nik	WB **ʔəhnac**
'heart / mind'	PTB *s-niŋ ≽ PLB *s-nik (#367)	

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31. The most famous example is 'eye' PTB *s-mik ≽ *s-myak. See *VSTB*:40-1 and below 12.2.1.
32. See below 12.5.3.

*s-niŋ	WT sn**yiŋ**, Kanauri st**iŋ**, Lushai **niŋ**, Mikir **niŋ**, Garo tə**niŋ**
*s-nik	WB hnac
d / e	

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a. *Cf.* Chinese 薪 'firewood' OC s**i̯ĕn** (*GSR* #382n) > Mand. x**īn**.

b. *TSR* #118.

c. *Cf.* Chinese 年 'year' OC ***nien** (*GSR* #364a-c) > Mand. n**ián**.

d. *TSR* #146.

e. Lahu *ni*-ma reflects an open-syllable variant ***s-ni** .

It is noteworthy that the Chinese cognates to 'tree' and 'year' have both developed dental nasals from original ***velars** after ***-i-**. We have observed a similar palatalizing effect of the high front vowel on final velar nasals in WB and Lepcha:

PST	OC	WB	Lepcha
*-iŋ	-i̯ĕn / -ien	-añ	-yan

(5)   **-uŋ and *-uːŋ*

This well attested rhyme is preserved as such in WT, Jg., and Lushai; it tends to be lowered to -**oŋ** in Mikir and Bodo-Garo; and it is reflected by the WB rhyme transcribed either "-**oŋ**" or "-**auŋ**" (the latter transcription is used here);[33] the consistent Lahu reflex is -**ɔ**. A length contrast can be reconstructed on the basis of the Lushai, WB, and Lepcha reflexes. The Bodo-Garo reflexes are variable, but also seem to differentiate between ***long** and ***short** varieties, with ***-uːŋ** usually developing into BG -**iŋ**:

PTB	WT	Lepcha	Jg.	WB	Lahu	Lushai	Bodo-Garo	Mikir
*-uŋ	-uŋ	-ăŋ	-uŋ	-auŋ	-ɔ	-uŋ	-oŋ / -aŋ	-oŋ
*-uːŋ	-uŋ	-uŋ	-uŋ	-uiŋ	-ɔ	-uːŋ	-iŋ / -uŋ	-oŋ

STC reconstructs about 17 etyma with this rhyme, 10 with short ***-uŋ** and 7 with long ***-uːŋ**. Examples with the short vowel include:

	PTB	STC#	Reflexes
'sword / spear'	***m-duŋ**	p.118	WT m**duŋ**; Jg. n-**dūŋ**, n**īŋ**-**dūŋ**
'sad / ill / achy'	***s-nyuŋ** [a]	194	WT sn**yuŋ**; Jg. n**yuŋ**; WB n**yauŋ**

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33. In modern Burmese this rhyme is pronounced /a̰ũ/.

	PTB	*STC#*	*Reflexes*
'finger'	*m-yuŋ [b]	355	Jg. yùŋ, ləyūŋ; WB lak-khyauŋ; Lahu là?-nɔ; Lushai zuŋ
'born/ alive / green'	*kruŋ [c]	382	WT ḥkhruŋ-ba 'be born, sprout'; Jg. khrūŋ 'alive', məkrūŋ 'fresh sprout'.

a. More accurate Jg. forms from Maran 1979 have preglottalized ?n- : ?nyūŋ-?nyūŋ 'crestfallen, dejected'; kə?nyìŋ-kə?nyūŋ 'troubled, downcast, disquieted' (note the -i- ⧓ -u- alternation in the elaborate couplet). This glottal element corresponds well to the prefixed s- in WT.

b. The first element in Jg. ləyūŋ and in the WB and Lahu forms means 'hand'; the initial velar in WB khyauŋ is best viewed as a perseveration of the final -k of the first syllable, so that the compound is underlyingly lak-yauŋ. The Lahu initial n- is paralleled by other Loloish forms, *e.g.* Bisu là-*hñuŋ*, Akha là?-*nǿ*; these seem all to have derived by preemption from the nasal prefix attested directly by Khami məyuŋ ~ məzuŋ and Ao Naga temeyong (the latter with secondary te- superadded to the original prefix). There is an unrelated PLB root (contra *STC* n. 234) *?-nyəw² 'index finger' > WB lak-*hñûi*, Atsi n?yùi, Maru n?yuk.

c. Bodo-Garo languages have unpredictable -aŋ reflexes: Bodo gakhraŋ 'firm, healthy'; Dimasa gakhraŋ 'green'.

New etyma to be reconstructed with this rhyme include the following:

	PTB /PLB	*Reflexes*
'set (a trap) / cock (a weapon)'	*tuŋ¹ (PLB)	WB thauŋ, Lh. thɔ, Akha (ILH) tháŋ (*DL*:689)
'hollow / hole / empty' [a]	*guŋ ⧓ *kuŋ	WB khâuŋ 'be hollow', ?əkhâuŋ 'a hollow, cavity' (< PLB *kuŋ²); Lahu qɔ̂ 'empty, vacant; hollow; loose (of clothes)' (< PLB *guŋ²)
'loris' [b]	*?-luŋ¹ (PLB)	WB myauk-*hlauŋ*; Akha (ILH) mjòq-*láŋ*; Lh. lɔ
'mountain'	*m/r-duŋ	WT rduŋ 'small mound, hillock'; WB tauŋ 'mountain'; Cho (S. Chin) mtuŋ [c]
'wing'	*duŋ [d]	
	Qiangic	Pumi Taoba *diã³⁵* ka⁵⁵; Pumi Jinghua dõ¹³; Guiqiong *dɔ³⁵* nphɑ⁵³; Namuyi *du⁵⁵* tʂɿ⁵⁵; Shixing *dũ⁵⁵* quɐ³³
	Nungish	Anong *da³¹* tɕhiŋ⁵⁵; Nusu ɓiɑ⁵⁵ *dũ⁵⁵*

PTB /PLB	Reflexes
Lolo-Burmese [e]	WB **tauŋ** 'measure in cubits', **ʔətauŋ** 'cubit, wing'; Zaiwa *tuŋ*[51]; Langsu a[31]*tuŋ*[55]; Lahu *tɔ̄*-làʔ-qú; Bisu ʔaŋ-*tɔ́ŋ*; Mpi mɯ²*tuŋ*⁶; Luquan dɣ̩¹¹; Lisu *du⁴*-lá⁶; Akha à-*dá̰*; Yi Dafang *do²¹*-la¹³; Naxi Lijiang *ndv³³* phi³¹; Hani Dazhai a³¹*dɔ⁵⁵* .

a. There are excellent Chinese comparanda; see below 7.5(9).

b. Specifically, a nocturnal primate known as the 'slow loris' (*Nycticebus coucang*). The first syllables of the WB and Akha forms mean 'monkey', see below 8.4(1a). The glottal prefix in this root descends from the *s- animal prefix, see above 4.2.1(2).

c. The Chin-Burmese comparison is due to KVB. For a Chinese comparison, see below 7.5(9) and Gong (2000):22. RSC suggests a group of possibly related Tibetan forms: **mtho-ba** 'high, tall, elevation'; **mthon-ma** 'high, elevated'; **thog** 'uppermost, on top of'.

d. This root is well attested in Qiangic and Nungish, as well as in LB. See JAM 1985b: §3.1 ("Arm, hand, and wing") and *DL*:640; also *ZMYYC* #171.

e. All these forms point to PLB Tone *1, except Lahu *tɔ̄*-, which has the tone characteristic of Tone *2 words with glottalized initials, *ʔ-doŋ². A variant Black Lahu form *tɔ̄*-làʔ-qú also exists.

Etyma are reconstructed with long *-uːŋ on the strength of a long vowel in Chin languages like Lushai, and/or the special WB reflex -uiŋ. This WB rhyme, paralleled by the homorganic stopped rhyme -uik, below 8.4(1), is written with the symbol for the complex vowel "ui" (above 5.3.1), so that it seems to have represented a long vowel or diphthong of some sort, but its exact phonetic nature is unclear.[34] It appears in relatively few words, but among them are several general TB roots. Lepcha is sometimes also helpful in establishing vowel length, since there is a strong tendency for short medial PTB *-u- to be lowered to Lepcha -a- or -ă-, while long *-uː- remains -u- or *-ŭ-,[35] *e.g.* 'stone' *r-luŋ (#88) > Lp. **lăŋ** vs., 'overcast' *muːŋ (#362) > Lp. **muŋ**.[36] Mikir does not differentiate length in this rhyme, usually lowering both the ***long** and ***short** varieties to -oŋ : 'stone' *r-luŋ (#88) > Mk. **ar-loŋ**; *r-guːŋ 'edge; shin' > **ar-koŋ** 'shin' (but also ≍ **kuŋ** 'side, edge').[37]

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34. It is pronounced /aĩ/ in Modern Burmese.

35. This is true not only before final nasals, but also before final stops and -s . See below 8.4(1), Ch. 9.

36. An etymon meaning 'horn' was originally reconstructed (*STC* #85) as *ruŋ, on the basis of forms like Bahing **ruŋ**, Moshang **əruŋ**, Jg. **ǹ-rūŋ**, but this was later changed to *rwaŋ partly because of the Lepcha reflex **ăróŋ** (*i.e.* neither -aŋ nor -uŋ). See above 7.1(3) and *STC* n.231.

37. A similar lowering of the vowel occurs in the Mikir reflex of *-um, *e.g.* *um 'hold in the mouth' > Mk. **om** (see 7.2(1), above). Another case where Mikir retains the original high vowel is 'back / behind' *s-nuŋ > Mk. **ənuŋ** (see below).

Examples with long vowels from *STC* include:

	PTB	*STC#*	*Reflexes*
'branch / stem'	*** kuːŋ**	359	Lepcha **kuŋ, əkuŋ**; Jg. **kùŋ, ləkùŋ**; WB **ʔəkhuiŋ, ʔəkûiŋ**; Lushai **kuːŋ**
'cage'	***kruːŋ**	389	WB **khruiŋ' ~ khyuiŋ'** ; Garo **griŋ**
'inside / middle'	***tuːŋ** [a]	390	Lushai **tshuːŋ** [b]; Bodo **siŋ**; Dimasa **bisiŋ**
'edge / shin'	***r-guːŋ** [c]	395	Jg. **ǹ-gùŋ** 'knife-edge'; Mikir **ar-koŋ** 'shin' (�done Mk. **kuŋ** 'edge').

a. Also Tiddim Chin **suŋ**; (Nungish) Rawang **əduŋ** 'in; middle', Trung **atuŋ** 'middle'. A solid Chinese comparandum is 中 'middle' OC ***ti̯əŋ** (*GSR* #1007a-e), below 7.5(9).

b. *STC* cites this form as **tśhuːŋ** but this probably represents a dental rather than a palatal affricate. In any case, there is no phonemic contrast between dental and palatal affricates in Lushai.

c. The long vowel is established on the basis of BG forms: Garo **rikiŋ** 'edge', **dźa-rikiŋ** 'shin' ("leg-edge"); Bodo **giŋ** 'side'. Dimasa retains back vowels in **ruguŋ** 'next to, beside', **burguŋ** 'rim, knife-edge' ⋈ di-**rgoŋ** 'riverbank'.

A newly discovered root with this rhyme is supported both by WB and Chin evidence:

	PTB	*WB*	*Lai Chin* [a]
'post / column'	***duːŋ**	**tuiŋ**	**tuuŋ**

a. P.c., KVB.

One root set up in *STC* with a long vowel on the basis of a WB form should actually be set up with long ⋈ short variation:

'valley / river'	***kluŋ ⋈ *kluːŋ**	*STC* #127	WT **kluŋ**; Jg. **krūŋ**; WB **khyuiŋ'**

This is an East/SE Asian *Wanderwort* ; *cf.* Siamese **khlɔɔŋ**, Old Mon **kruŋ**, Cham **krauŋ**, Chinese 江 (OC ***kŭŋ**; *GSR* #1172v).[38] The WB form **khyuiŋ'** cited in *STC* to justify the ***long vowel** means 'concave; concave piece of ground, valley', but two more WB allofams that point rather to a ***short vowel** were overlooked: WB **khyauŋ** 'stream', **khyâuŋ** 'valley'. See below 7.3(3) for a possible PTB doublet ***klyoŋ**.

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38. An alternative Chinese etymology is offered in Gong 2001:30; see below 12.5.3.

On the other hand, another root originally set up with a short vowel was later recognized to have a long variant:

'long / length'	*duŋ ≿ *tuːŋ	*STC* #20	Lushai duŋ (< *duŋ), but Lepcha (ă-)thŭŋ (< *tuːŋ)

This root also displays -u- ≿ -i- variation: Jg. dìŋ-dūŋ 'length; northward',[39] Mikir diŋ 'long'.

Variation between *-uŋ and *-aŋ is assumed in the following set:[40]

'smell / scent'	*b-suŋ	*STC* #405	*b-suŋ > WT bsuŋ 'smell, fragrance'; Jg. sūŋ 'scent, odor'
	*saŋ		WB sâŋ 'emit pleasant odor'

A superficially similar development of -aŋ from *-uŋ was noted in Bodo-Garo reflexes of *kruŋ (#382) 'born / alive / green' (above), but BG has a general tendency to lower *-u- before final nasals; *cf.* the examples of *-um > BG -am, above 7.2(1).

Several etyma show variation between *-uŋ and the homorganic stopped rhyme *-uk (see below 12.5.3), including:

'sit'	*m-d/tuːŋ ≿ *m-duk.

A root *duːŋ ≿ *tuːŋ is reconstructed in *STC* #361, on the basis of Jg. dūŋ and WB thuiŋ. This is confirmed by Bokar Adi duŋ, Sulong toŋ[33], and probably also by a number of Qiangic and Loloish forms (*ZMYYC* #574) with (often prenasalized) affricated initials, including Namuyi ndzu[55], Shixing dzũ[55], Naxi Lijiang ndzɯ[31], Hani Dazhai dʐo[55] (< *m-duŋ). But a stop-final allofam *m-duk should now also be recognized to accommodate WT ḥdug.

'stone'	*r-luŋ ≿ *k-luk.

Most TB languages point to *r-luŋ, *e.g.* Bahing luŋ, Lepcha lăŋ, Jingpho n̄-lùŋ, Magari hluŋ, Lushai luŋ, Garo roŋ, Dimasa loŋ, Mikir ar-loŋ, Qiang Mawo ʁlu, Idu ɑ[31]lɑŋ[55], Bokar Adi ɯ-lɯŋ. Burmish languages, however, reflect a stopped allofam with velar prefix, *k-luk: WB kyauk (written klauk in Inscriptions), Lashi lūk, Langsu *lauk[31]* tsaŋ[31].[a]

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39. Hanson 1906:115. This form is miscited in *STC* #20 as "dinduŋ".
40. See below 12.3.1.

'back / behind'	*s-nuŋ ⋤ *s-nuk.

The nasal-final allofam ***s-nuŋ** is reflected by WB **hnâuŋ** 'be after', **ʔəhnauŋ**' 'back of a knife'; Lushai **hnuŋ** 'the back', **hnuŋ-a** 'after, behind'; Mikir **ənuŋ** 'back'. But a stop-final allofam ***s-nuk** must also be recognized, at least for PLB, yielding forms like WB **nauk** 'space behind, past time' and Lahu **qhɔ̀ʔ-nɔ́** 'back (of body); space behind; later time'.[b]

'overcast / foggy / sullen'	*mu:ŋ ⋤ *r/s-mu:k [c]	
	*mu:ŋ	Lepcha **so-muŋ** 'cloudy weather'; Jg. **mūŋ** 'cloudy; sullen, sulky'; WB **hmuiŋ** 'dull, downcast', **hmûiŋ** 'very dark'.
	*r/s-mu:k	WT **rmugs-pa**, **smug-pa** 'fog'; Lepcha **muk** 'foggy, misty', **muk-muk** 'dullness, darkness'; WB **muik** 'dark, ignorant; Lushai **mu:k** 'dull (color); Jg. **mú ʔ** 'thunder, cloudy'; Angami Naga *hmuu*-tśa 'fog'

a. See *STC* #88, *TSR* #190, *ZMYYC* #42.

b. See *STC* #354, *TSR* #155.

c. Two separate roots, ***mu:ŋ** (#363) and ***r/s-mu:k** (#357) are set up in *STC*, though they are explicitly recognized as doublets (p. 78).

7.3   *Nasals after mid vowels *-e- and *-o-*

(1)   **-em*

Although mid vowels occur before final labial nasals synchronically in many TB languages (*e.g.* WT, Lepcha, Kanauri, Jg., Nung, Lushai, Mikir), virtually no etyma are reconstructible with such rhymes at the PTB level. Etymologizable words with the synchronic rhymes -**em** and -**om** can usually be shown to derive from PTB rhymes like *-**im** or *-**yam** (*e.g.* 'house' *k-**yim** > Mikir **hem**), or *-**um** (*e.g.* 'hold in mouth' *m-ʔu:m > Mk. **om**), or *-**wam** (*e.g.* 'bear' *d-**wam** > WT **dom**, Kanauri **hom**).

So far no roots have been reconstructed with PTB *-om, and only a single one with *-em. Even this single etymon does not display a pure *-em rhyme, but varies with *-yam:

'low'	*s-nem ≍ *s-nyam [a] (*STC* #348, *ZMYYC* #803)	
	*s-nem	*s-nem > Jg. **nèm** 'long', **šənèm** 'lengthen'; Nung **ənem**, **šənem** '*id.*'; WB **nim**; Lahu **nè**; Ersu ȵi⁵⁵ȵi⁵⁵; Yi Nanjian **ni⁵⁵**, Yi Mile **nɛ³³**; Anong tɕhi⁵⁵*ȵim³¹*; Geman Deng kɯ³¹*năm⁵⁵*
	*s-nyam	Lushai **hniam**

a. This *-e- ≍ *-ya- variation closely parallels the *-i- ≍ *-ya- pattern that has been noted for several roots (*e.g.* 'eye', 'pheasant'; see below 12.2.1).

Evidently *-em had already merged with *-im by the PLB stage, with both becoming WB -im. The Lahu reflex of *-em is -ɛ, the same as for five other nasal-final rhymes:

$$*/ \text{-im} \quad \text{-um} \quad \text{-in} \quad \text{-en} \quad \text{-iŋ} /$$

(2)   *-en *and *-on*

WB has merged *-en with *-in, *-iŋ, and *-eŋ (below), into the rhyme -añ. Once again Lahu has the reflex -ɛ. At the PTB level, the rhyme *-en is much better attested than *-em, with at least six good examples that can be established through extra-LB evidence:

PTB	WT	Jg.	Lushai	WB	Lahu	Bodo-Garo
*-en	-en	-en	-in	-añ	-ɛ	-en

	PTB	STC	*Reflexes*
'nail / claw'	*m-(t)syen [a/b]	#74	WT *sen*-mo; Miju **msen**; Dhimal **khur**-*siŋ*; WB **ʔəsâñ** 'nail'; **lak**-*sâñ* 'fingernail', **khre**-*sâñ* 'toenail'; Lahu **làʔ**-*šɛ̄*-**qú** 'fingernail', **khɨ**-*šɛ̄*-**qú** 'toenail'; Lushai **tin**; Khami **msiŋ** ~ **mseŋ**.
'mole / wen'	*r-men	#104	WT **rmen-pa**, **śa-rmen** 'gland, wen', **rme-ba** 'speck, mark, mole'; WB **hmañ'** 'mole'.
'hurt / oppress'	*s-nyen [c]	#193	WT **nyen** 'be pressed hard, toil and moil; Jg. **nyèn** 'defraud', **šənyēn** 'take by force, coerce'; WB **hñyâñ** 'hurt, oppress, bully'

	PTB	*STC*	*Reflexes*
'know'	*m-kyen [d]	#223	WT **mkhen-pa**; Jg. **tšē ≍ tšềŋ** (Hkauri dialect); also Apatani **čin**, Padam **ken** (J. Sun 1993)
'equal / line up / connect in a row'	*s-ren	#346	Jg. **rèn** 'be equal', **dìŋ-*rēn*** 'place in a long, even row'; WB *rañ*-**tu** 'be equal', **hrañ** 'put together side by side'; Dimasa **ren** 'line, Mikir **ren** 'line, range, row'; Lushai **rîn** 'a line, a scratch; draw a line'[e]
'pus / boil (n.)'	*m-blen	p.143	Lepcha **fren ~ frăn**; Pho and Sgaw Karen **phi**; WB **prañ**; Lahu **bɛ̀** 'be infected', **bɛ̀-ɠ̈ɨ** 'pus' (the voiced Lahu initial points to the nasal prefix); Mpi **pjɯ⁶ ~ pju⁶**.[f]

a. This reconstruction is a revision of a previous *m-(t)sin, made possible by Benedict's recognition of a contrast between a unit proto-phoneme *tś- and a palatalized dental *tsy- (see *STC* n. 122). See above 3.6.3.

b. This morpheme is homophonous with 'liver' (< *m-sin) in WB and Lahu.

c. This root is undoubtably allofamic with *nye-s 'punish', above 5.4.1

d. A possible Chinese cognate is 見 'see' OC *kian (*GSR* #241a-d). See below 7.5(10).

e. There seems to be a liquid-final allofam *g-ral, as well as a sold Chinese comparandum (see below 9.3.4).

f. See JAM 1978b ("Mpi") #26, and *DL*:947. Many additional cognates are to be found in *ZMYYC* #286, including: (Qiangic) Pumi Taoba **pɛ̃⁵⁵**; Ersu **pɛ⁵⁵rɛ⁵⁵**; Shixing **bɛ̃⁵³**; Namuyi **mbɛ³⁵** (note the prenasalized initial); (Lolo-Burmese) Yi Nanhua *bi³³* **ʑi³³**; Lisu *bɯ³³* **tʃhi³¹**; Naxi Lijiang **mbəɹ³¹** (with prenasalized initial); Hani Dazhai **bjɔ⁵⁵**; Jinuo **pɹɯ³¹**; Achang **pʐəŋ⁵⁵**; Zaiwa *pjiŋ⁵¹* **viŋ²¹**; Langsu *pjaŋ³¹* **kjɔʔ⁵⁵**; (Nungish) Nusu **bɔ̄ɹ³⁵**; Dulong **sɯ³¹***biɯ⁵³*

One etymon has been discovered that displays *-en ≍ *-et variation (see below 12.5.2):

'fart'	*pyen	> WT **phyen**, **ḥphyen**
	*pyet	> Jg. **phyɛ̀t**

The rhyme *-on is quite rare, with only three such etyma reconstructed in *STC*. It is preserved in WT, Meithei, and Jingpho, and (on the basis of one example each) has apparently been lowered to -an in WB, and raised to -un in Nung:

	PTB	*STC#*	*Reflexes*
'ride'	*dzyon	72	WT **źon-pa**; Jg. **džòn** 'mount, ride (animal)'; Nung **zun**
'go / come'	*byon	179	WT **ḥbyon-pa** 'go'; Jg. **byōn** 'come or go out of'

	PTB	*STC#*	*Reflexes*
'nauseated / vomit'	**ʔon*	343	Jg. òn-òn, gəòn, wòn 'feel squeamish, nauseated'; WB ʔan 'retch, vomit'; Meithei **on** 'vomit' (Chelliah 1997:316)

(3)   *-eŋ and *-oŋ

Another rare rhyme is ***-eŋ**, which is reconstructed for only five etyma in *STC*. Two of these five, ***pleŋ** (#138) 'flat / plank' and ***bleŋ ≿ *pleŋ** (#352) 'straight / straighten', are undoubtedly allofamically related to each other. WT and Bodo-Garo preserve this rhyme as -eŋ; Jingpho and Mikir hesitate between -eŋ and -en; Nung (one example) has -en; and WB has developed -añ, as with the other front vowels before dental or velar nasals. Reflexes in many other languages (*e.g.* Lushai, Lahu) are unknown. The etyma in this group show considerable inter- and intra-linguistic variation, both between -eŋ and open -e ('red / blushing'; 'squirrel'), and between -eŋ and -aŋ ('leg / foot').

PTB	*WT*	*Jg.*	*Nung*	*WB*	*Mikir*	*Bodo-Garo*
*-eŋ	-eŋ	-eŋ / -en	-en	-añ	-eŋ / -en	-eŋ [a]

a. Garo/Dimasa.

	PTB	*STC*	*Reflexes*
'red / blushing'	**kyeŋ*	#162	WT **skyeŋ-ba** 'be ashamed'; Jg. **khyēŋ ~ khyē** 'red' [a]
'squirrel'	**s-rey ≿ *s-reŋ*	p.79	WT *sre*-**mo(ŋ)** 'weasel'; Mikir iŋ-*ren* 'mongoose', WB **hrâñ** 'squirrel' [b]
'flat surface / plank'	**pleŋ*	#138	Jg. **brēn ~ byēn** 'flat and wide', **lùŋ-*byèn*** 'slab of rock', **phún-*pyèn*** 'plank' (**phún** 'wood'); Nung **śiŋ-*byen*** 'plank'; WB **pyañ** "be reduced to a level; plank; flat surface', **kyauk-*pyañ*** 'stone slab'; Mikir **kapleŋ** 'plank'; Garo **bol-*pleŋ*** '*id.*', Dimasa **bo(ŋ)-*palaŋ*** '*id.*'
'straight / straighten' [c]	**bleŋ ≿ *pleŋ*	#352	Jg. **prēn** 'straight'; Garo **diŋ-*breŋ*** '*id.*'; Dimasa **beleŋ**, **gi-*bleŋ*** 'erect', **si-*phleŋ*** 'straighten out'

	PTB	*STC*	*Reflexes*
'leg / foot'	*r-kaŋ ⪥ *keŋ	n.218	The basic form of this etymon seems to be *r-kaŋ > WT rkaŋ, Pwo Karen khã, Sgaw Karen khɔ, Pa-o Karen kaŋ-ya, though an allofam *ke-ŋ is suggested by Thado keŋ, Lushai ke, Tiddim χɛ. Mikir keŋ is consistent with either reconstruction, since *-aŋ sometimes > Mk. -eŋ [above 7.1(3)].[d]

a. WB ni kyaŋ-kyaŋ 'pale red' (< *gyaŋ) might be allofamically related.

b. *Cf.* OC *s(r)i̯ĕŋ 'weasel' 狌 (812t) or 鼪 (812u). See below 7.5(10).

c. Both of these sets ('flat' and 'straight') are in turn relatable allofamically to *bliŋ ⪥ *pliŋ 'full' (#142), with the common semantic core being "a complete or ideal realization of a quality appropriate to a particular dimensionality in space". See JAM 1988a ("Straight, flat, full"), and above 7.2(4). Good Chinese comparanda (not in *STC*) are available for both 'flat' and 'straight':

'flat' 平 OC *b'i̯ĕŋ (*GSR* #825a)

'straight' 正 OC t̑i̯ĕŋ (*GSR* #833j)

For this latter comparison see Schüssler 1975:229-30.

d. The Chinese comparanda are also not dispositive here. See below 7.5(10) and above 7.2(4).

One PTB etymon which might reflect the hitherto unattested rhyme *-eːŋ is PTB *s-leːŋ 'cart' > WB hlâñ and Proto-Kuki-Chin *leeŋ > Lai Chin leeŋ, Tiddim (Bhaskararao 1996) leeŋ, Sizang leang (Naylor 1925).

By far the best attested of the mid-vowel-plus-nasal rhymes is *-oŋ, with about ten good examples to be found in *STC*. This ***rhyme** is preserved as such in WT, Jingpho, Lushai, Bodo-Garo, and Mikir, but it does not seem to have survived in Lolo-Burmese, where it has merged with *-uŋ both in WB (to -auŋ) and in Lahu (to -ɔ):

PTB	*WT*	*Jg.*	*WB*	*Lahu*	*Lushai*	*Mikir*	*Bodo-Garo*
*-oŋ	-oŋ	-oŋ	-auŋ	-ɔ	-oŋ	-oŋ	-oŋ

	PTB	*STC#*	*Reflexes*
'thousand'	*s-toŋ	32	WT stoŋ; WB thauŋ [a]
'wild yak / buffalo'	*broŋ	136	WT ḥbroŋ 'wild yak'; WB prauŋ 'buffalo, bison'
'burn'	*ploŋ	139	Jg. prōŋ 'be burned, as a house', kəprōŋ 'parboil'; Mikir phloŋ 'burn the dead; cremation'
'run / flee'	*ploŋ	140	Jg. phrōŋ 'flee'; Lahu phɔ '*id.*' (*DL*:914); Akha phɔ́, Mpi phjɤŋ³ 'run'; Mikir arploŋ 'run', iŋ-ploŋ 'run, gallop'; perhaps also Proto-Mirish *pljoŋ ⪤ *proŋ 'steal' (J. Sun 1993) [b]
'guard / tend (cattle)'	*s-gyoŋ [c]	161	WT skyoŋ-ba 'guard; keep, tend (cattle)'; WB kyâuŋ 'feed, tend cattle'
'boat'	*m-loŋ	467	WB lâuŋ 'canoe'; Akha lɔ̀ 'boat'; Lushai loŋ; Hakha lauŋ; S. Khami mlauŋ; N. Khami phlauŋ; Kyo Chin mlauŋ; Lakher bəleu; Chang Naga loŋ
'cat / wildcat'	*s/k-roŋ	p.107	Jg. ròŋ, šərō(ŋ); WB krauŋ; Lahu ɣ̈ɔ̀ [d]
'stream / valley'	*klyoŋ	---	WT ldźoŋs 'large valley'; Lepcha kyoŋ 'river'; WB khyâuŋ 'stream', khyauŋ 'valley' [e]
'peacock / pheasant'	*m-doŋ ⪤ *daŋ	341	WT mdoŋs "eye in peacock's feather"; Jg. ù-tōŋ 'peacock'; [f] WB ʔu'-*dâuŋ*.[g]
'wait / watch for'	*dzoŋ	---	WB cauŋ 'lay by for future use, wait'; Lushai and Lai Chin tsoŋ 'wait for, watch for'

a. Many more cognates are to be found in *ZMYYC* #940, including: (Qiangic) Qiang Mawo *stuŋ*-tsu; Qiang Taoping χto⁵⁵; Pumi Jinghua stī⁵⁵; rGyalrong *stoŋ*-tso; Zhaba (=Queyu) tū⁵⁵; Namuyi tu³³; (Nungish) Anong tu³¹; Dulong tu⁵⁵; (Loloish) Yi Xide tṳ³³; Yi Dafang to³³; Lisu tu⁴⁴; Naxi Lijiang tv³¹; Hani Dazhai thɔ⁵⁵; Hani Shuikui thu⁵⁵.

b. *Cf.* perhaps Tangkhul khəyoŋ. WB hrauŋ 'avoid; shun' may also be related.

c. *STC* has *kyoŋ, but a reconstruction with voiced initial seems preferable, given the non-aspiration of the WB form.

d. The Jg. and Lahu forms mean 'wildcat' or 'tiger', while the WB form refers to the domestic cat. See also Maru rauŋ 'wildcat'. The initial k- in WB is an instance of the famous "velar animal prefix", above 4.4.4(3).

e. See above 7.2(5).

f. This Jg. form is given with a spurious voiced initial "u-doŋ" in *STC* #341; Hanson (1906) has u-tawng, and both and Dai *et al*. 1983:857 have u³¹toŋ³³.

g. A large number of other cognates exist, often glossed 'pheasant'. Pheasants and peacocks are highly similar members of the order *Phasianidae*, which also includes quails and partridges (see JAM 2000b "Three TB/ST word families" for all forms not cited in *STC*). Many of these cognates have the rhyme -aŋ rather than -oŋ: Kanauri **daŋ**; Limbu sam-*daŋ*-wa, Dulong pɯ³¹*daŋ*⁵³; Nu Bijiang dɔ̃⁵⁵ (all 'pheasant'). Several forms in languages spoken in Burma belonging to the Burmish, Chin, and Karen groups seem to be loanwords from Burmese: Tiddim Chin u¹*tong*², Lai Chin ʔoo-*too*, Leqi wo³³*toŋ*³³, Zaiwa u⁵⁵*toŋ*⁵⁵, Hpun ú-*tɔ̀ŋ*, Pa-o Karen wâ-*tɔ̃ŋ* (all 'peacock'). Several Loloish forms look like genuine cognates to (not loans from) Burmese: Hani (Luchun) sɔ⁵⁵*dø*³¹, Hani Mojiang ʃu⁵⁵*ti*³¹, Akha shɯ́m-*dœ̀* (all 'peacock'). At the moment it is hard to decide whether to set up this etymon with proto-variation as *doŋ ⋜ *daŋ, or to assume a medial -w- in order to have a single proto-form, *e.g.* *dwaŋ. The rhymes *-waŋ and *-oŋ have merged to -oŋ in both WT and Jingpho, but they have been kept apart in WB: *-waŋ > WB -waŋ, *-oŋ > WB -auŋ.

One etymon with the ***-ok** rhyme has developed a secondary nasal final in WB, due to assimilation to a nasal-initial suffix:

	PTB	*STC*	*WT*	*WB*
'poker / pudding stick'	*s-k-yok ⋜ *yoŋ	p. 14	yog-po 'poker', skyogs 'ladle'	yauk-ma' ~ yauŋ-ma' 'pudding stick'

7.4 The -**añ** rhyme of Written Burmese

As we have seen, the WB rhyme -**añ** has four major[41] sources: short *-i- and *-e- before velar and dental nasals. (Long medial *-iː- is preserved before -**n**; there is no attested PTB root with long medial ****-eː**- before such finals.)
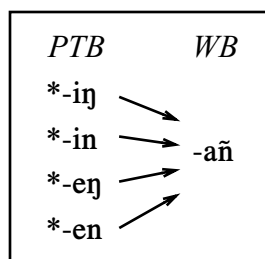
FIGURE 12. **Sources of WB** -añ

41. A rarer source for WB *-añ, attested in one instance, is *-el : 'sleepy' ***myel** (#197) > **myañ'**. See below 9.3.3.

295

	PTB	*STC*	*WB*
'full'	*bliŋ ⋝ *pliŋ	142	prañ' ⋝ phrañ'
'neck'	*m-liŋ	96	lañ
'name'	*r-miŋ	83	mañ
'long'	*s-riŋ	433	hrañ
'ripe'	*s-min	432	hmyañ'
'liver'	*m-sin	234	ʔəsâñ
'plank	*pleŋ	138	pyañ
'squirrel'	*s-rey ⋝ *s-reŋ	p.79	hrañ'
'mole / wen'	*r-men	104	hmañ'
'align'	*ren	346	rañ ⋝ hrañ
'nail / claw'	*m-tsyen	74	ʔəsâñ
'hurt / oppress'	*s-nyen	193	hñâñ

This -**añ** reflex is a striking example of "feature shuffling", whereby the palatal element of the syllable has moved from the vocalic nucleus to the final consonant. It is exactly parallel to the development of the homorganic stop-final rhymes */ -**ik** -**it** -**ek** -**et** / to WB -**ac** . In the case of the high vowel before dentals, the WB reflexes are able to differentiate between ***long** and ***short** prototypes; *i.e.* only the short rhymes */ -**in** -**it** / have developed into WB / -**añ** -**ac** / , while the long rhymes */ -**iːn** -**iːt** / have been retained as WB / -**in** -**it** / . See above 7.2(2) and below 8.3(2).

The typologically unusual development of final palatal consonants, virtually unknown in the rest of TB, was undoubtedly stimulated by prolonged contact with Mon, since final palatals are the norm in the Mon-Khmer family.

A further complication in connection with WB -**añ** is the fact that it has no fewer than four different reflexes in Modern Burmese. These multiple reflexes are not correlatable with any distinctions in PTB, so they must have arisen due to factors internal to Burmese.

The only explanation that can be given for the moment is in terms of "dialect mixture", the last refuge of scoundrels:[42]

WB	Mod. Bs.	
	STC	WBRD [a]
-añ	-i	-i
-añ	-e	-ei
-añ	-ε	-e
-añ	-ε̃	-ĩ

a. See STC n. 241 (78-9). The *Written Burmese Rhyming Dictionary* (Benedict 1976b, pp. 39-43) divides up the words ending in **-añ** according to their Modern Burmese reflexes, transcribed somewhat differently than in *STC*.

	PTB	STC#	WB	Mod.Bs.
'ground'	*g-liŋ	128	krâñ	cî
'sleepy'	*myel	197	myañ'	myi'
'nail / claw'	*m-tsyen	74	ʔəsâñ	ʔəθî
'long'	*s-riŋ	433	hrañ	hye
'full / fill'	*bliŋ ≍ *pliŋ	142	prañ' ≍ phrañ'	phye'
'mole / wen'	*r-men	104	hmañ'	hmε'
'ripe'	*s-min	432	hm(y)añ'	hmε'
'liver'	*m-sin	234	ʔəsâñ	ʔəθε̂
'neck'	*m-liŋ	96	lañ	lε
'hurt / oppress'	*s-nyen	193	hñâñ	hnyε̣̂ [a]
'plank'	*pleŋ	138	pyañ	pyε̃
'align / line up'	*ren	346	rañ ≍ hrañ	yε̃ ≍ hyε̃
'squirrel'	*s-re-ŋ	p.79	hrañ'	hyε̃'

a. For typographical reasons nasalization in this word is indicated by a subscript hook instead of by a superscript tilde, since the space above the vowel is preempted by the circumflex tone symbol. Note that all four of these examples of Mod. Bs. -ε̃ come from medial *-e-, though other roots with *-e- have other reflexes ('sleepy'; 'nail'; 'mole').

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42. A similar conundrum may be cited from the history of English. The Old English rhyme *-ōd has three outcomes in modern English, as in *good* [gʊd], *food* [fuʷd], and *flood* [flʌd], though they rhymed perfectly both in Old and Middle English: 'good' OE **gōd** > ME **god, gode**; 'food' OE **fōda** > ME **fode**; 'flood' OE **flōd** > ME **flod, flud**.

Evidently this has been an unstable area in the history of Burmese phonology. Occasionally there is even variation in the Modern Burmese reflexes of co-allofams:

	PTB	STC	WB	Mod. Bs.
'name'	*r/s-miŋ	#83	mañ 'be named' (< *miŋ¹)	mi
			hmañ' 'to name smn' (< *s-miŋ³)	hmɛ̃'

7.5   Chinese comparisons to PTB nasal-final roots[43]

(1)   Chinese comparanda to PTB *-am

The many Chinese comparanda to this PTB rhyme are reconstructed in *GSR* with OC -əm, -âm, or -am. PTB etyma with medial -y- correspond to OC -iəm, -i̯am, or -iəm (with one example of "-ɛm" in 'salty'). Cognates to the two PTB roots in *-wam are reconstructed differently in OC: -âm in 'dare', but -i̯um in 'bear'.

PTB		STC		GSR	OC	Ch. Gloss
*tam [a]	'carry on shoulder'	---	擔	619k	tâm	*id.*
*s-wam or *hwam	'dare'	#216	敢	607a-c	kâm [b]	*id.*
*ʔam	'eat / drink' [c]	#481	飲	654a	ʔi̯əm	'drink / give to drink'
*r-ka(ː)m	'edge / bank / precipice; lips / mouth' [d]	#329	埳	--- [e]	k'əm	'cliff / bank; steep'
			嶔	652k	k'i̯əm	'precipitous'
*laːm	'fathom'	p. 71	尋	662a	dzi̯əm	'a measure' [f]

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43. These comparisons are mostly to be found in the labyrinthine notes to *STC*, pp. 160*ff.* They are conveniently listed according to their *GSR* set number in Chou Fa-kao 1972.

PTB		STC		GSR	OC	Ch. Gloss
*kram	'fence / garden' [g]	---	檻	609g	g'lam	'railing; cage'
*ram [h]	'forest / jungle / field / country'	---	林	655a-d	gli̯əm	'forest, grove'
*(t)sam	'hair of head'	#73	彡	*AD* 850 [i]	sam	'hair / feather'
*g-ram [j]	'indigo'	---	藍	609k	glâm	'*id.*'
*gram	'net' [k]	---	籃	--- [l]	glam	'basket'
*gam	'put into mouth / seize with mouth; jaw / molar' [m]	#'s 50, 491	含	651*l*´	g'əm	'hold in mouth / put in mouth'
			頷	651n´	g'əm	'jaw'
			噤	655m	g'li̯əm	'shut the mouth'
*s-ryam [n]	'sharp'	p. 53	銛	621a	si̯am [o]	'*id.*'
*nyam [p]	'soft'	---	荏	667s	ńi̯əm	'*id.*'
*g-t/dam [q]	'talk / speak'	---	談	617-l	d'am	'speak'
			譚	646c	d'əm	'speak / talk about'
*s-nyam [r]	'think'	---	念	670a-e	niəm	'*id.*'
			恁	667q-r	ńiəm	'think'
*s-lyam	'tongue / flame' [s]	#211	舔 [t]	*AD* 997 [u]	t'iam	'lick / taste'
			舌	288a	d'iam < **liam	'tongue'
			甜	*AD* 862 [v]	d'iam	'sweet / savoury / agreeable'
*hyam [w]	'salty'	p. 138	鹹	671f	g'ɛm	'salt / salty'
*d-wam [x]	'bear (n.)'	#461	熊	674a-b	g'i̯um	'*id.*'

a. *Cf.* WB thâm.

b. This Chinese velar is paralleled by Chin forms with velar nasals: Lai ŋaʔm; Lushai ŋam [~ huam, above 7.1(1)].

c. *Cf.* Nung am, Pwo ā, Sgaw ɔ, Pa-o am 'eat', but Dhimal am 'drink' and Lushai (and other Kuki-Chin) in 'drink'. For the final dental in Kuki-Chin, see below 12.6.3.

d. Cf Lushai kam 'bank, shore, mouth' ≋ kha:m 'precipice'; WB kâm ~ khâm 'bank of river or sea', hnut-*khâm* 'lips' ("mouth-bank").

e. Not in *GSR* #658.

f. A more complete gloss: "an ancient measure of length equal to about eight 尺 ". See above 7.1(1).

g. Cf WB khram 'fence, enclosure'; Lahu kho 'garden, fenced-off enclosure'. See above 7.1(1) and Gong 2001:26.

h. This comparison is due to A. Schüssler. *Cf.* general Kuki-Chin ram 'forest; country' (Lushai and Lai ràm, Tiddim *gam²*-vok 'wild boar', *gam*-keel 'wild goat', Thado gam 'wild land').

i. Not in *GSR* #453.

j. *Cf.* WT rams.

k. *Cf.* WB krâm 'weighted bamboo screen pushed to drive fish into a weir' (*Myanmar-English Dictionary* 1993:45). See Gong 2001:26.

l. Not in *GSR* #609.

m. *Cf.* WT ḥgam 'put or throw in mouth', Miri gam 'seize (with teeth, as a tiger)'; also WB ʔam-swâ 'molar' (mis-cited as ʔâm in *STC*:25), Trung skam '*id.*' (< sa-kam [sa 'tooth']). The zero-initial in WB is paralleled in several other roots that have velars elsewhere, *e.g.* 'needle' WT khab, rGyalrong təkyep, but WB ʔap (< PLB *k-rap *TSR* #191) and Trung ʔuop^{12}; 'strength' PLB *k-ra² > Lahu g̈â, but WB ʔâ (*DL*:1160).

n. This TB root has so far only been found in Kuki-Chin.

o. The OC reconstruction is revised to srįam in *STC*:171.

p. *Cf.* WB ñam', Lushai nem.

q. *Cf.* WT gtam 'talk / discourse / speech', gtom-pa 'to talk / speak'.

r. *Cf.* WT snyam-pa 'think / imagine; though/mind', nyam(s) 'soul / mind / thought'.

s. This root is represented directly by forms like WB ʔəhlyam 'coruscation of flame' and Bahing liam 'tongue', and allofamically by Proto-Kiranti *lem 'sweet' (> Waling, Nachereng, Chingtang, Rungchangbung lem, Limbu ke-*lim*-ba, Yakha lim). See *STC*:172.

t. The (hidden) phonetic in this character is 舌 , reconstructed in *GSR* #288a as OC d̑'įat, although the Cantonese reading li:m led Benedict to change its reconstruction to OC liam (*STC*:n. 458, p. 172).

u. Not in *GSR* #621.

v. Not in *GSR* #621.

w. This root seems to be confined to Karenic, *e.g.* Sgaw hɔ, Pwo ɣa. *Cf.* also Siamese khem < PTai *gem (Li Fang-Kuei 1978:199), prob. a borrowing from Chinese.

x. This animal name seems especially prone to borrowing or replacement, probably due to hunter's taboo or folk-fear, which militate against using the ordinary native term (*cf.* Japanese kuma, Korean kom, both close to the OC form). In European languages the bear has been referred to by such euphemisms as 'honey-eater' (*e.g.* Russian medvedj) or 'the brown one' (*e.g.* Eng. *bear* and *bruin*, ult. < PIE *bher- 'bright/brown').

(2)   *Chinese comparanda to PTB *-an[44]*

The relatively few Chinese comparanda to this PTB rhyme are all reconstructed with -ân, except for 'hawk / kite' (-i̯wan), where the medial -w- has played a role (but *cf.* 'garlic', also with PTB *-w-).

PTB		*STC*		*GSR*	*OC*	*Chinese Gloss*
*m-dan [a]	'crossbow'	p. 190	彈	147n	d'ân	'shoot pellets at' (*GSR*); 'crossbow/bullet' (*AD* 968)
*dan	'cut'	---	斷	170a	*twân ⪤ *d-wân	'cut off; decide; resolute'
			剬	168e	*twân	'cut'
			膞	231k	*d̂i̯wan ⪤ t̂i̯wan	'cut meat; slice'
*tan	'dry'	p. 190	灘	152m	t'nân [b]	'dry up (as a river)'
*kan	'dry up'		旱	139s	*g'ân	'to dry; dry'
*g-wan [c]	'hand / wrist'	---	捥	260m	ʔwân	'wrist'
			腕	260n	ʔwân	*'id.'*
			掔	273b	ʔwân	*'id.'*
*dzwan	'hawk / kite'	p. 169	鳶	230a	di̯wan	'hawk / kite'
*swan [d]	'onion / garlic'	p. 175	蒜	175b	swân	'garlic'
*glan	'repair / mend'[e]	---	繕	205f	d̂i̯an	'repair / put in order'
		---	善	205a-c	d̂i̯an	'good; approve; make good'

   a. *Cf.* Jingpho ǹ-dān 'crossbow', (Hkauri) kūŋ-lī ǹ-dān 'bow'.

   b. The phonetic series to which this character belongs (*GSR* #152) has some members with MC dental stops and others with dental nasals, leading Karlgren to reconstruct OC *t'n̯- for the former.

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44. See above 7.1(2) for more examples.

c. *Cf.* Khoirao **wan** 'hand'; Lotha **e-won** 'arm'; Nthenyi **agwün ~ akhwen** 'hand'; Lepcha **a-gon** 'fin', **ŋo-gon** 'fin of fish' (JAM 1985b:434).

d. *Cf.* Lai Chin **kha-*tshuan*** 'onion/garlic' (**kha** 'bitter'); WB **krak-*swan*** 'onion' (**krak** 'chicken'), Lh. **šū** 'onion/garlic' (< PLB *swa-n^{1/2}).

e. *Cf.* WT **glan** 'patch, fix, mend'. See Gong 2001:32.

(3)   *Chinese comparanda to PTB *-aŋ, *-aːŋ*

There are numerous good Chinese comparanda to PTB etyma in *-aŋ. Almost all of them are reconstructed with OC *-(i̯)aŋ or *-(i̯)əŋ. In two examples with PTB medial *-w- or *-r-, the OC form has *-i̯waŋ ('see / look toward', 'uncle / older brother'). In a few roots ('dream', 'heavy / thick', 'father / grandfather'), the nuclear vowel in the OC form is, or alternates with, -u-. In the case of 'dream', a different PTB allofam is probably to be invoked (see below).

PTB		*STC*		*GSR*	*OC*	*Chinese Gloss*
*maŋ [a]	'big / older (brother, uncle)'	p. 189	孟	761e	măŋ	'eldest (of brothers); great / principal'
*graŋ [b]	'cold (weather)'	#120	涼	755*l*	gli̯aŋ	'chilly / cold'
*r-maŋ	'dream'	#82	夢	902a-b	mi̯ŭŋ [c]	'dream; darkened / blind'
*glaŋ	'elephant' [d]	---	象	728a	dzi̯aŋ	'elephant'
*kaŋ [e]	'father / grandfather'	p. 190	公	1173a-f	kuŋ	'father / prince' [f]
*s-braŋ [g]	'fly (n.) / bee'	#492	蠅 [h]	892a	di̯əŋ	'*id.*'
*s-naŋ [i]	'follow / repeat'	#334	仍	945e	ńi̯əŋ	'repeat as before / again and again; follow / imitate'
*kyaŋ [j]	'ginger'	p. 174	薑	710d	ki̯aŋ	'ginger'
*s-naːŋ [k]	'heavy / thick (of liquids)'	p. 190	瀼	730f	ńi̯aŋ	'heavy with dew'
			穰	730h	ńi̯aŋ	'rich growth (of grain)'

PTB		STC		GSR	OC	Chinese Gloss
			濃	1005i	nuŋ ~ ńi̯uŋ	'thick / rich (sc. dew)'
			穠	1005k	ni̯uŋ	'thick covering / luxurious growth'
*s-gaŋ [l]	'hill / mountain'	---	岡	697a	kâŋ	'hill / ridge'
*laŋ	'lift / raise' [m]	---	揚	720j	di̯aŋ	'*id.*'
*praŋ	'loud / bright' [n]	---	炳	757i	pi̯ăŋ	'bright'
*graŋ ≍ *kraŋ	'measure / count' [o]	---	量	737a	li̯aŋ	'measure; to measure'
*graŋ	'provide food' [p]	---	糧	737d	li̯aŋ	'grain; provisions'
*mraŋ	'see / look toward'	#146	望	743df	mi̯waŋ	'look from afar / look towards; admire; hope'
*pʷaŋ	'spin / spindle' [q]	#48	紡	740r	pi̯waŋ	'spin'
*kraŋ ≍ *graŋ	'strong / firm; tense / distended' [r]	---	梗	745e	kăŋ	'strong'
			長	721a	d'i̯aŋ ~ ti̯aŋ	'long; grow tall, increase'
			張	721h	ti̯aŋ	'give tension to a bow; stretch, extend'
*zryaŋ [s] ≍ *ryaŋ	'uncle / a superior'	#205	尚	725a-c	d̑i̯aŋ	'upwards; high / admirable; superior (used as a title)'
*bʷaŋ [t]	'uncle / older brother'	p. 23	兄	765a-e	xi̯wăŋ	'elder brother'

7.5: Chinese comparisons to PTB nasal-final roots

PTB		STC		GSR	OC	Chinese Gloss
*s-tyaŋ ⪥ *pʷaŋ [u]	'upper part / rise / raise'	p. 52	登	883e-h	təŋ	'rise / ascent; raise'
			再	894a-c	t̂i̯əŋ	'lift / hold'
			乘	895a-c	d̂i̯əŋ	'mount / ascend; ride / drive; be on top / above'
			丞	896g	d̂i̯əŋ	'lift / hold'
*glaŋ	'willow / poplar' [v]	---	楊	720q	di̯aŋ	'poplar'

a. See above 7.1(3).

b. *Cf.* WT graŋ-ba; Lahu gɔ̀ is from a variant with nasal prefix, *m-graŋ. See above 7.1(3). The reconstructed cluster in OC is established by the co-presence of MC reflexes with both velar and liquid initials in *GSR* #755.

c. A closer phonological fit with this OC form is PTB *muːŋ 'cloudy / dark / sullen' (*STC* #362). Still another allofam in this family is PTB *muːk 'fog / foggy; dark / dull' (*STC* #357).

d. *Cf.* WT glaŋ 'ox, bullock, elephant'. See Gong 2001:32. In the same article, (p. 31) Gong also compares this WT form to Chinese 羊 'sheep, ram' (OC zi̯aŋ; *GSR* #732a). I prefer relating this later form to WT gyag 'yak'. See below 12.5.3.

e. *Cf.* Trung akhaŋ 'grandfather'; WB pha'-*khaŋ* 'father', ni-*khaŋ* 'mother', *khaŋ*-pwân 'spouse' *khaŋ*-bhyâ 'sir, madam; polite second person pronoun'.

f. Reglossed as 'father' > 'grandfather (vocative; honorific)' in *STC*:n. 488, p. 190.

g. *Cf.* WT sbraŋ 'fly, bee', Lepcha sum-bryoŋ 'fly', Kanauri yăŋ 'fly, bee', WB yaŋ 'fly, insect' (*cf.* MC ʔi̯əŋ). A possible Chinese doublet is represented by 蒼 Mand. cāng 'housefly' (listed in *AD* 1036, but with no reconstructed MC or OC form).

h. Gong 2001:24 compares the WT form rather to Chinese 虻 'gadfly, horsefly' (OC măŋ; *GSR* #742s-t), reconstructing *mraŋ, with medial *-r-, because of its appearance in Division II in MC.

i. *Cf.* Jg. nāŋ 'follow', mənāŋ 'companion', šənāŋ 'adhere to, follow up'; WB hnaŋ' 'with, together with'. See above 7.1(3).

j. *Cf.* WB khyân, Methei siŋ, Nung luŋ-*zìŋ*, Dimasa ha-*jìng*. This is actually a Southeast Asian *Wanderwort*, prob. of Austronesian origin. *Cf.* Proto-Indonesian *táʔaŋ from PAN *saqaŋ; Proto-Tai *xiŋ (Li Fang-Kuei 1977: 208, 210-11; Proto-Kam-Sui *siŋ (Li Fang-Kuei 1965); Hlai khüöŋ; Proto-Hmong (DRM) *qhiŋ. See Benedict 1975 (ATLC):303.

k. *Cf.* Lushai hnaːŋ 'thick, viscous (of fluids)'.

l. See above 7.1(3).

m. *Cf.* WT laŋ 'rise, arise, get up'; WB laŋ' 'high raised frame; stage'. See Gong 2001:21.

n. *Cf.* WB praŋ 'violent, virulent; very; loud'. See Gong 2001:22-3. The semantics here might appear dubious, but *cf.* the English expression *loud colors*.

o. *Cf.* WT graŋ 'count, judge, consider', graŋs 'number', ḫgraŋ 'to number, count'; WB khraŋ 'to measure with a measure of capacity'. See Gong 2001:26-7.

p. *Cf.* WT ḫgraŋ 'satisfy with food, satiate'. See Gong 2001:27.

q. Another attractive Chinese comparandum is 罔 , 網 'net/web' OC mi̯waŋ (GSR 742*l*, 742a′). See Coblin 1986:138, Gong 1995:#238, JAM 2000a:#19.

r. *Cf.* WT (m)khraŋ 'hard, solid, firm'; WB kraŋ' 'tense, tight'. See Gong 2001:24, and above 7.1(3).

s. For the PTB initial *ź̲r or *z̲ry-, see above 3.6.4.2 "Rare or dubious liquid clusters". *Cf.* also Amdo Tibetan (Bla-Brang dial.) pẓaŋ 'maternal uncle'; Lai Chin traŋ 'father's sister's husband', Falam Chin raŋ '*id.*'.

t. *STC* (p. 174) derives *GSR*'s OC xi̱wăŋ from an earlier **plwăŋ, on the basis of a possible connection with 伯 OC păk (*GSR* #782i) 'eldest brother', as well as a putative parallel example of PST *labial-plus-w clusters becoming χw- in OC, *i.e.* PTB *bʷar ≍ *pʷar 'fire' alongside OC 燔 b'i̱wăn 'burn / roast' (*GSR* #195i) ≍ 火 χwâr 'fire' (*GSR* #353a-c). A parallel development is posited for Karenic, *e.g.* PTB *pʷa 'bamboo' > PKaren *hwa.

u. Although this TB etymon seems to be confined to Himalayish (*e.g.* WT steŋ, Ladakhi staŋ 'that which is above, the upper part, top surface', Limbu taŋ 'above'), there might well be an allofamic connection with PLB *C-tak (*TSR* #42; *DL*:676) 'upper side, top surface' (*cf.* WB ʔəthak, Lahu thàʔ) as well as Jg. kəthàʔ 'above, overhead', ləthàʔ 'upper', pointing to a PTB word family *-tak ≍ *-taŋ. See below 8.2(1).

v. Cf WT glaŋ-ma 'a large kind of alpine willow'; see Gong 2001:31.

*(4)   Chinese comparanda to PTB *-im*

The six good Chinese comparanda to PTB etyma in *-im are all reconstructed with OC -i̱əm.

PTB		*STC*		*GSR*	*OC*	*Chinese Gloss*
*s-grim	'catch / hold fast' [a]	---	禽	651j-m	g'i̱əm	'bird, animal / catch, capture'
			擒 [b]	651n	g'i̱əm	'catch / capture'
*krim	'custom / prohibition' [c]	---	禁	655k	kli̱əm	'prohibit'
*b-rim [d]	'distribute / cast away'	p. 178	稟	668a-b	bli̱əm ~ pli̱əm	'rations / to receive' (*GSR*); 'grain allowance from public granaries / receive from superiors' (*AD* 554)
*grim	'hasten' [e]	---	唫	652g	g'i̱əm	'obstruct / shut' [f]
*g-dzim [g]	'sleep'	p. 170	寢	661f-g	ts'i̱əm	'lie down to sleep'
*syim [h]	'sweep'	p. 170	寻	661a-b	ts'i̱əm	'sweep over / invade'
			侵	661c-d	ts'i̱əm	'sweep over / invade'

a. *Cf.* WT sgrim-pa 'hold fast', WB krim 'meet with, find'.

b. According to *GSR* #651m, this character represents the same word as the preceding one.

c. *Cf.* WT **khrims** 'right, law, custom'. The same association of ideas occurs in Western Hmong: Mong Leng (Green Hmong) **cai** /tɕai³³/ 'custom, law, ritual, prohibition' ≍ **caiv** /tɕai²⁴/ 'be under prohibition or taboo; be forbidden by taboo' (p.c. DRM 2002).

d. *Cf.* WT **ḥbrim-pa** 'distribute, deal out, hand out'; Nung **ərim** 'cast away'.

e. *Cf.* WT **grim** 'hasten, hurry', **ḥgrim** 'go, walk, march about'.

f. According to Gong 2001:27, the *Shuo Wen* gloss of this character is 唫, 口急也 'close-mouthed; tight-lipped; speaking hurriedly or haltingly' (*Hanyu Da Zidian:* 1.643.7).

g. *Cf.* WT **gzim-pa** 'fall asleep, sleep'.

h. *Cf.* Rawang **šim**, Trung **śyəm**, Maru **śam** 'sweep'; WB **sim** 'strike with a motion toward oneself'.

(5) *Chinese comparanda to PTB* ***-in, *-iːn***

There are only a few good Chinese comparanda to this relatively rare PTB rhyme.

PTB		*STC*		*GSR*	*OC*	*Chinese Gloss*
***sin* ᵃ**	'body / owner / agentive nominalizer'	---	身	386a-c	śi̯ĕn	'body'
***d-rin**	'compassion / love' ᵇ	---	憐	387*l*	lien	'to pity'
***dzin* ᶜ**	'exhaust / come to an end'	p. 170	盡	381a-b	dz'i̯ĕn	'exhaust / entirely'
***m-sin*' ᵈ**	'liver / bitter'	#234; p. 180	辛	382a-f	si̯ĕn	'bitter / pungent'
***miːn**	'order / command'	p. 180	命	762a-b	mi̯ĕn ~ mi̯ăŋ ᵉ	'order, command; name, designation'

a. For this newly proposed etymology, see above 7.2(2).

b. *Cf.* WT **drin** 'kindness, favor, grace', WB *râñ*-**câ** 'sweetheart'. See Gong 2001:29.

c. *Cf.* WT **zin-pa** 'draw near to an end, be at an end; be finished, exhausted, consumed'.

d. This etymon universally means 'liver' in TB, the connection with 'bitter' presumably having arisen secondarily in Chinese via the gall bladder. The same semantic association is found with the principal TB etymon for 'bitter', ***ka** (above 5.2), which has a bodypart meaning in Barish (Garo and Kachari **bi-***ka* 'liver', Garo *kha*-**khit** 'bile'. The Chinese word for 'liver' 肝 OC **kân** (*GSR* #139-l) has been shown (*STC*:154, 158, 165) to represent a suffixed form of ***ka** 'bitter', with the open syllable allofam becoming Chinese 苦 'bitter', OC **k'o** (*GSR* #49u). See JAM 1978a (*VSTB*):207, and above 5.2.4.

e. *Cf.* WB **min'** 'speak authoritatively, command'. Karlgren recognizes both of these OC readings, observing (p. 202) that **mi̯ĕn** is "an alternative reading indicated by several *Shijing* rhymes". *STC* (p. 155) claims a further relationship with 名 'name' (below §6), as well as with 令 OC **li̯ĕŋ** 'command' (*GSR* #823a), all from ***mliŋ** < ****m-riŋ**. Cf also WB **mrañ** 'find fault with, scold'.

(6)   *Chinese comparanda to PTB* *-iŋ*

The OC comparanda to PTB etyma in *-iŋ are reconstructed consistently with *-(i̯)ĕŋ, with a few examples of -ieŋ.

PTB		*STC*		*GSR*	*OC*	*Chinese Gloss*
*priŋ	'bark (as dog)'	#377	猩	812z	sieŋ ~ sĕŋ [a]	'bark as a dog / monkey' [b]
*bliŋ ⋊ *pliŋ [c]	'full / fill'	#142	盈	815a-b	di̯ĕŋ	'*id.*'
*s-riŋ ⋊ *s-raŋ	'live / alive; green / raw'	#404	生	812a-d	sĕŋ [d]	'live; bear / be born; fresh (as greens)'
*r-miŋ [e]	'name'	#83	名	826a-c	mi̯ĕŋ	'*id.*'
*liŋ	'neck'	#96	領	823f	li̯ĕŋ	'neck / collar'
			頸	831n	ki̯ĕŋ ~ g'i̯ĕŋ [f]	'neck'
*m/s-diŋ [g]	'settled / fix, establish'	---	定	833z-a´	d'ieŋ	'*id.*'
*sriŋ [h]	'sister / matrilineal lineage'	p. 108	姓 [i]	812q-r	si̯ĕŋ	'clan / family / family name'
*mriŋ	'sound / noise' [j]	---	鳴	827a	mi̯ĕŋ	'cry of birds, sounds of animals / to sound'
*bliŋ [k]	'string / cord'	p. 176	繩	892b	d'i̯əŋ	'string'
*diŋ [l]	'top / summit'	p. 180	頂	833e	tieŋ	'top of head / summit'

a. *STC* revises the OC reconstruction to srieŋ ~ srĕŋ.

b. *GSR* observes that the *Shuo Wen* defines the character as 'bark' in the first reading, but there is no textual occurrence. The character is used to mean 'orangutan' in Mandarin (xīng).

c. For semantic interconnections of this root with other adjectival etyma expressing "perfection in a certain dimension", see JAM 1988a ("Straight, flat, full"), where it is claimed that *dyam ⋊ *tyam 'full / flat' (*STC* #226) and *dyam 'straight' (*STC* #227) are actually one and the same etymon.

d. The OC reconstruction is revised to śrĕŋ in *STC*:155, 170.

e. See the allofamically related root *mi:n 'order / command', above §5.

f. The identical rhymes and meanings of these two Chinese forms, one with initial lateral and the other with a velar, are strong evidence that both are to be derived from a prefixed prototype like *g-lị̆ŋ.

g. *Cf.* Xixia ndị̆ĕ (Nishida 1966) and PLB *m-diŋ¹ ⪫ *ʔ-diŋ¹ (> Lh. dὲ 'come to rest' ⪫ tɛ 'put sthg down'). See above 4.3.3 and JAM 1978b:18.

h. *Cf.* WT sriŋ-mo 'man's sister', *i.e.* "the one carrying the matriclan name". See Benedict 1941.

i. Gong 2001:29-30 compares the WT form rather to 甥 'sister's son or daughter; son-in-law' (OC sĕŋ; *GSR* #812g).

j. *Cf.* WB mrañ 'sound, produce sound'. See Gong 2001:24.

k. *Cf.* Metu (Nungish) am-briŋ 'cord' (*STC*); other Nungish reflexes include Dulong aŋ³¹bɹɯŋ⁵⁵ and Anong a³¹xɯŋ⁵⁵. Also undoubtedly cognate are (Qiangic) Qiang Taoping bzɛ³³, Qiang Mawo biʐa, Pumi Jinghua bʐə̃¹³; (Mirish) Geman Deng bɹăŋ⁵³, Idu a⁵⁵tɕe⁵⁵mbɹɑŋ³⁵ all 'rope' (thanks to DRM for identifying these latter forms).

l. *Cf.* Jg. pūŋ-*dīŋ* 'zenith, top'.

Two TB etyma in *-i(ː)ŋ have reliable OC cognates with secondary palatalization of the velar nasal to a dental. See 'tree / firewood' and 'year', above 7.2(4) and below 12.6.1(2).

*(7)   Chinese comparanda to PTB *-um*

OC comparanda to PTB etymon in *-um are consistently reconstructed with -(ị)əm, except for Benedict's reconstruction of 'salt' (-ịam). This latter etymon has PTB medial -y-, but the exact motivation for Benedict's reconstruction is unclear.

PTB		*STC*		*GSR*	*OC*	*Chinese Gloss*
*m-kum ⪫ *m-kim	'block / pillow' [a]	#482	椹	658f [b]	tị̥əm	'chopping block'
			枕	656g	t̂ị̥əm	'pillow / use as pillow'
*rum ⪫ *rim	'dark / shade' [c]	#401	陰	651y	ʔiəm	'shade, darkness, cloudy'
*gum ⪫ *kum	'die / kill'	p. 175	戡	658q	k'əm	'vanquish / kill'
			戮	651v [d]	k'əm	'kill'
*s-brum	'pregnant' [e]	---	妊	667i-k	ńị̥əm	'*id.*'
*m-ʔuːm	'put in mouth'	#108	唵	*AD* 238 ---[f]	ʔəm	'put in mouth / hold in mouth'
*gryum	'salt'	#245	鹽	609n	glịam [g]	'*id.*'
*g-sum	'three'	#409	參	647a-b	ts'əm	'three / a triad'
			三	648a-c	səm	'three'

a. Pillows in ancient times were made of a block of wood, usually with a concavity on top.

b. This *GSR* #658 has members with OC palatal, dental, and velar initials (for an example of the latter see 'die / kill'), perhaps pointing to a Proto-Chinese **ky-** initial for most of them.

c. See below 12.1(2a) and Gong 2001:28.

d. *GSR* #651, with phonetic 今 'now' OC ki̯əm, also contains members with both OC velar and dental initials.

e. *Cf.* WT **sbrum-pa** 'pregnant, big with young'. See Gong 2001:24.

f. Not in *GSR* #614.

g. No OC reconstruction is ventured in *GSR*, but see *STC*:177.

*(8)   Chinese comparanda to PTB *-un**

Two OC comparanda to PTB etyma in **-un** have been discovered:

PTB		STC		GSR	OC	Chinese Gloss
*s-mun a	'dark'	p. 155	悶	441d	mwən	'sad / dull / stupid'
			殙	457f	mwən	'blinded / confused'
			昏	457j-l	xmwən	'dusk, evening / darkness / blinded'
*m-glun b	'kidney'	---	腎	368h	d̂i̯ĕn	'*id.*'

a. *Cf.* WT **mun-pa** 'obscurity, darkness; obscure, dark', **dmun-pa** 'darkened'; WB **hmun** 'dim, dusky, blurred'. See the next table for an allofamically related root ***muːŋ**.

b. *Cf.* Jg. ń-khyūn, Mpi ʔi̯⁴kjo⁵. See above 3.6.4.1(1).

*(9)   Chinese comparanda to PTB *-uŋ, *-uːŋ**

The OC comparanda to these PTB rhymes are reconstructed with -uŋ, -i̯uŋ, -i̯ŭŋ, -i̯ôŋ, or -i̯əŋ.

PTB		STC		GSR	OC	Chinese Gloss
*r-duŋ	'beat / strike' a	---	撞	1188f'	d'ŭŋ	'strike'
*guŋ b	'body'	p. 182	躬	1006e	ki̯ôŋ	'body / person' (軀)
*muːŋ c	'cloudy / dark / sullen'	#362	夢	902a-b	mi̯ŭŋ	'dream / darkened / blind'
		---	瞢	902d	mi̯ŭŋ	'darkened / ashamed / despondent'
		---	蒙	1181a	muŋ	'to cover / ignorant / dark'

PTB		STC		GSR	OC	Chinese Gloss
*guŋ ⪥ *kuŋ	'hollow / hole /empty'	---	空	1172h	k'uŋ	'hollow / empty / hole'
		---	孔	1174a	k'uŋ	'empty'
*dyuŋ ᵈ	'insect'	p. 182	蟲	1009c	d'i̯ôŋ	'insect / reptile, scaly creature'
*tuːŋ	'inside / middle'	#390	中	1007a-e	ti̯əŋ	'middle / midway; proper'
*m/r-duŋ	'mountain / hillock' ᵉ	---	冢	1218h-i	ti̯uŋ	'mound / tumulus / peak'
*kuːŋ	'tree / branch / stem'	#359	弓	901a-d	ki̯ŭŋ	'bow' ᶠ

a. *Cf.* WT **rduŋ-ba** 'beat, strike; cudgel, drub; smash, thrash'. *Cf.* 8.4(1d) for a probable allofam with final stop.

b. *Cf.* Rawang **guŋ** 'body, animal, self'; Jg. **gòŋ** 'body', **ǹ-gòŋ** 'corpse'; Tsangla Motuo *kʰoŋ⁵⁵* me?⁵⁵ 'lower body'; Chantyal **ɡɦio** 'body'; WB **ʔəkauŋ** 'body, animal body'; Zaiwa *kuŋ⁵¹* tu²¹ 'body'; Xixia (Tangut) **kon¹** '*id.*'. For the Sani reflex, see above 3.1. This PTB root might also be reconstructed as ***goŋ**, in which case it would belong in §10 below.

c. This root is allofamic with ***muːŋ ⪥ *muːk** 'overcast / foggy / sullen' (12.5.3), ***r-maŋ** 'dream' (§3 above), and with ***mun** 'dark' (§8 above).

d. This root is apparently confined to Bodo-Garo (*e.g.* Garo **dźoŋ**, Dimasa **yuŋ**).

e. This TB/Chinese comparison is due to Gong (2000:#22). See below 7.2(5).

f. Evidently this word referred to a curved vertically held bow, rather than the technologically subsequent 'crossbow' (see ***m-dan**, above §2). Cf WB **ʔəkʰuiŋ** 'stalk, branch', **ʔkûiŋ** 'large branch, bough', **kûiŋ** 'hand over in a curve, bend downwards'.

(10)   *Chinese comparanda to PTB mid vowels + nasal (*-eN, *-oN)*

Since -e- and -o- are the rarest nuclear vowels in PTB nasal-final etyma, it is not surprising that there are only a handful of good OC comparanda to roots of this type. On the basis of the limited material available, the correspondences seem to be as follows:

PTB	OC
*-em	-i̯əm
*-en	-i̯an, -ian
*-eŋ	-i̯ə̆ŋ, -ieŋ, -ĕŋ
*-oŋ	-uŋ

PTB		STC		GSR	OC	Chinese Gloss
*sem [a]	'soul / mind / spirit / heart'	p. 184	心	663a	si̯əm	'heart'
*ren [b]	'equal / place in a row / line / row	#346	連	213a	li̯an	'connect / unite / in a row, consecutively'
			聯	214a	li̯an	'join / bring together'
*m-kyen	'know'	#223, p. 175	見	241a-d	kian	'see'
			現	241e	g'ian	'appear'
*sre(ŋ) [c]	'weasel / squirrel'	p. 79	狌	812t	si̯ĕŋ [d]	'weasel'
			鼪	812u		
*keŋ [e]	'leg / stem / stalk'	pp. 70, 142	脛	831k	g'ieŋ	'leg / shank / shin'
			莖	831u	g'ĕŋ	'stalk'
*kyeŋ [f]	'red'	#162	經	831x	t'i̯ĕŋ	*id.*
			禎	834m	t'i̯ĕŋ	*id.*
			騂	821c	si̯ĕŋ	'red ox; red'
*b-tsoŋ	'onion'	pp. 169, 181	蔥	1199g-h	ts'uŋ	*id.*

a. *Cf.* WT **sem(s)** 'soul, mind, spirit', **sem(s)-pa** 'think'.

b. See above 7.3(2).

c. *Cf.* WT **sre-mo(ŋ)** 'weasel', Mk. **iŋ-ren** 'mongoose', WB **hrañ'** 'squirrel'.

d. The OC reconstruction is modified to sri̯ĕŋ in *STC*:171.

e. *Cf.* Mk. **keŋ**, Thado **keŋ** 'leg, foot'. An allofamically related root is *r-kaŋ > WT **rkaŋ-pa** 'foot, leg; stem, stalk', Pa-o Karen **kaŋ-ya**, Pwo **khã**, Sgaw **khɔ**.

f. *Cf.* WT **skyeŋ-ba** 'be ashamed', Jg. **khyēŋ** 'red, crimson', WB **ni kyaŋ-kyaŋ** 'bright red'.

Final stops

8.1   Overview

8.1.1   At the PTB level

The following stopped finals are exemplified in *STC*:

ik, iːk	uk, uːk	it, iːt	ut, uːt	ip, iːp	up, uːp
--- ---	ok, oːk	--- ---	ot	ep	op, oːp
ak, aːk		at		ap, aːp	

Final stops in Sino-Tibetan, as in virtually all mainland Southeast Asian languages of the Tai-Kadai, Hmong-Mien, and Mon-Khmer families, are unreleased, with no contrasts in voicing or aspiration in that position. This lenis unreleased quality has sometimes motivated the use of voiced symbols to transcribe them, as in WT (*e.g.* **khrag** 'blood', **brgyad** 'eight', **ḥdžibs** 'suck'), and in other Himalayan languages under Tibetan orthographic influence, like Kanauri, Ladakhi, and Manchati.[1]

Final stops at three positions of articulation are generally well preserved in the five criterial languages of *STC*, though in phonologically eroded branches of TB like Loloish, Karenic, and Qiangic they have left only indirect traces in the form of vowel quality differences, creaky (constricted) phonation, and/or glottal stop. This glottal stop is often best regarded as a suprasegmental or prosodic feature, so that it makes sense to speak of "stopped tones".[2] While tonal contrasts are frequent in TB stopped syllables, they are

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1.   The same convention is adopted in M.R. Haas' well known transcription of Siamese.
2.   The terms "stopped tone" and "checked tone" are used synonymously in the literarture.

seldom more than two-way (usually simply HIGH vs. LOW), in sharp distinction to non-stopped syllables which may have up to six or more phonemic tones.[3]

Similarly to the case of nasal-finalled rhymes, the best attested stopped rhymes have medial *-a- (below 8.2), while the rarest are those with mid vowels *-e- and *-o- (below 8.5-8.6). Although *STC* provides no examples at all of etyma with PTB *-ek and *-et, a few have been uncovered since then, especially at the subgroup level.[4]

Length contrasts may be established for most stopped rhymes, though examples of long-vowelled stopped etyma are relatively scanty. Among the most interesting long/short pairs are *-it / *-iːt and *-uk / *-uːk, for both of which WB provides evidence; see below 8.3(2) and 8.4(1).

8.1.2   Stopped rhymes in Lolo-Burmese

WB preserves PTB final stops quite well, with one important exception: PTB/PLB *-ik and *-it > WB -ac (> Mod. Bs. -ɪʔ); see below 8.3(1-2). However, WB itself is of no help in reconstructing stopped rhymes with ***mid vowels**; for this we must rely on the rather slender evidence that Loloish languages can provide.

The following stopped rhymes may be set up for PLB:

ik		uk, uːk	it, iːt		ut	ip		up
ek	ök	ok	et			ep		
	ak			at			ap	
yak		wak			wat	yap		wap

TABLE 18. **PLB Stopped Rhymes**

The Lahu reflexes of these rhymes (displayed in the same relative positions as their PLB prototypes) may be taken as typical of the final-eroded Loloish languages:

ɨʔ		uʔ , oʔ	iʔ, eʔ		əʔ	ɨʔ		ɔʔ
eʔ	ɔʔ	ɔʔ	ɛʔ			ɛʔ		
	aʔ			eʔ			oʔ	
ɛʔ		ɔʔ			eʔ	oʔ		oʔ

TABLE 19. **Lahu Stopped Rhymes**

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3. Perhaps partly for this reason, traditional Thai linguistic terminology distinguishes between "live" syllables (ending in a vowel, semivowel, or nasal) and "dead" syllables (ending in stops).

4. The rhymes *-ek, *-et, *-ok, and *-ök are reconstructed for Proto-Lolo-Burmese in JAM 1972a (*TSR*). See below.

PLB	Lahu		PLB	Lahu
*-ak	-aʔ, -á [a]	'weave'	*rakᴸ	ǧàʔ
		'join'	*ʔ-dzakᴸ	cá
*-wak	-ɔʔ	'emerge'	*ʔ-twakᴴ	tɔ̂ʔ
*-yak	-ɛʔ	'eye'	*s-myakᴴ	mɛ̂ʔ
*-ik	-ɨʔ, -ɨ́	'tree'	*sikᴴ	šɨ̂ʔ
		'joint'	*ʔ-dzikᴸ	cɨ́
*-uk	-uʔ / -oʔ / -ɔʔ, -ú / -ó / -ɔ́ [b]	'burn (v.i.)'	*dukᴸ	tòʔ
		'kindle (v.t.)'	*ʔ-dukᴸ	tú
		'crooked'	*gukᴸ	qɔ̀ʔ
		'bean'	*s-nukᴴ	nɔ̂ʔ
		'back'	*ʔ-nukᴸ	qhɔ̀ʔ-*nɔ́*
*-ek	-eʔ	'kick'	*tekᴴ	thɛ̂ʔ
*-ök	-ɔʔ	'shoot'	*m-pökᴴ	bɔ̂ʔ
*-at	-eʔ	'vomit'	*C-patᴸ	phèʔ
*-wat	-eʔ	'release'	*k-lwatᴴ	lêʔ
*-it	-iʔ, -í	'wipe'	*sitᴴ	šɨ̂ʔ
		'eight'	*ʔ-ritᴸ	hí
*-iːt	-eʔ	'goat'	*C-tšiːtᴸ	á-chèʔ
		'blink; shut abruptly'	*miːtᴸ	mèʔ
*-ut	-əʔ	'blow'	*s-mutᴴ	mə̂ʔ
*-et	-ɛʔ	'break off a piece'	*C-ketᴸ	qhɛ̀ʔ
*-ap	-oʔ, -ú	'layer'	*tapᴴ	thɔ̂ʔ
		'stand'	*ʔ-rapᴸ	hú
*-wap	-oʔ	'swell up'	*C-pwapᴸ	phòʔ
*-yap	-oʔ	'narrow'	*gyapᴸ	còʔ
*-ip	-ɨʔ, ɨ́ / -í	'sleep'	*yipᴸ	yɨ̀ʔ
		'put to sleep'	*ʔ-yipᴸ	í

PLB	Lahu		PLB	Lahu
		'lac'	*ʔ-grip^L	a-kí
*-up	-ɔʔ	'suck'	*C-tšup^L	chɔ̀ʔ
*-ep	-ɛʔ	'scale (of fish)'	*sep^H	šɛ̂ʔ

a. In items with **voiced glottalized initials**, the Lahu vocalic reflex is usually the same, but the syllable is in the high rising tone: -á, -í, -ú, etc. (See JAM 1970, 1979, etc.) Occasionally an etymon acquires a different vowel under this high rising tone: see below, 'burn' (tò?) vs. 'kindle' (tú) and 'sleep' (yɨ̀ʔ) vs. 'put to sleep' (í); also 'wear clothes' (vɔ̀ʔ) vs. 'dress someone' (fɨ́).

b. In my previous PLB reconstruction (e.g. in *TSR* and *DL*), I attempted to distinguish between PLB *-uk and *-ok on the basis of the Lahu reflexes (*-uk > Lh. -uʔ, *-ok > Lh. -ɔʔ), but this now seems questionable.

There are tremendous differences in the frequencies of the three final stops in Lolo-Burmese. Rhymes with final *-k are by far the most frequent lexically, and show the most contrasts in vowel quality; a distant second are rhymes with final *-t; and even less numerous are etyma that reconstruct with final *-p. The breakdown of the nearly 200 stop-finalled sets in JAM 1972a (*TSR*) according to final consonant is approximately as follows (sweeping most variations under the rug for the moment):

Final Stop	Rhyme	Examples	Total
*-k	*-ak	67	
	*-ok	22	
	*-ik	15	
	*-uk	12	
	*-ek	6	
	*-ök	6	128
*-t	*-it	16	
	*-at	12	
	*-ut	6	
	*-et	3	37
*-p	*-ap	17	
	*-up	7	
	*-ip	5	29

TABLE 20. **Distribution of stop-final rhymes in *TSR***

8.2   Stops after medial *-a-

(1)   *-ak

This is by far the best attested stopped rhyme in TB/ST. Among the most important etyma reconstructed with this rhyme are the following:

	PTB/PLB	*STC*	*TSR*	*WT*	*Jg.*	*WB*	*Lahu*	*Lushai*	*G*
'ascend / top' [a]	*l-tak	n.338	#98	ltag-ma	ləthàʔ	tak, ʔəthak	tâʔ	---	dak
'ashamed₁'	*g-yak	#452	#182	---	kəyàʔ	---	yàʔ-tɔ	zak	---
'ashamed₂'	*s-rak	#431	#182	śrag [b]	---	hrak	---	---	---
'bird'	*s-ŋak	---	#141	sŋag [c]	---	hŋak	ŋâʔ	---	---
'black / deep'	*s-nak ≍ *s-mak	p.88	#142/ #157	nag-po [d]	---	nak	nâʔ; ná [e]	---	---
'boil / cook'	*s-glak	#124	#61	---	khyā [f]	kyak, khyak	cá	tlak	---
'breath(e) / life'	*sak	#485	#123	---	ǹ-sàʔ	sak, ʔəsak	šá, ɔ̀-šá	---	---
'cockspur / hoof' [g]	*dakᴸ (PLB)	---	---	---	---	ʔətak, krak-*tak*	ɔ̀-*tàʔ*, ɣâʔ-khɨ-*tàʔ*	---	---
'descend' [h]	*zak	p.87	#121	---	---	sak	yàʔ	---	---
'expensive' [i]	*kak	p.166	#11	---	---	---	qhâʔ	---	---
'fowl / chicken' [j]	*k-rak	pp.88, 107	#184	---	---	krak	ğâʔ	va-rak	---
'graze (forage)' [k]	*ʔ-klakᴴ ≍ *glakᴴ (PLB)	---	#105	---	---	câ-*kyak* [l]	qâʔ	---	---
'hand'	*g-lak	#86	#166	lag-pa	lətáʔ	lak	làʔ	---	---
'armpit / cubit'	*g-yak [m]	p.34	---	---	---	*gyak*-kəli'	jâʔ [n]	---	dźak
'hide (v.)'	*s-pʷak	#46	#178	phag	---	phak, hwak	vàʔ, fá	---	---
'iron / iron instrument'	*l-tsyak [o]	---	---	lćags	---	jak [p]	---	---	---
'itch'	*m-sak	#465	---	---	məsàʔ	---	---	thak	---
'join'	*s-dzak	---	#44	---	---	chak	cá	---	---
'leaf'	*r-pak	#40	#29	---	phàʔ	phak	phàʔ	---	---

8.2: Stops after medial *-a-

	PTB/PLB	STC	TSR	WT	Jg.	WB	Lahu	Lushai	G
'mutually / reciprocal action' [q]	*m-dak[L] (PLB)	---	#106	---	---	---	dàʔ	---	---
'pig' [r]	*pʷak	#43	#168	phag	wáʔ	wak	vàʔ	vok	wak
'plantain' [s]	*s-ŋak	#477	#139	---	ŋàʔ	hŋak	---	---	---
'rock / stone' [t]	*b-rak	#134	---	brag	lùŋ-brá	---	há	---	roŋ-brak
'rope / cord / navel' [u]	*ʔ-kyak[H] (PLB)	---	#58	---	---	khyak	câʔ	---	---
'rough' [v]	*sak	---	#115	---	---	---	šâʔ	---	---
'scratch / rake (v.)' [w]	*m-krak	---	#96	---	---	khrak	gâʔ	---	---
'sharp'	*tak	p.87	#41	---	---	thak	thâʔ	---	---
'soldier / war'	*d-mak	---	#135	dmag	---	mak	màʔ	---	---
'weave' [x]	*t(r)ak	#17	#192	ḥthag-pa	dàʔ	rak	ğàʔ	taʔ	dak

a. A group of Chinese comparanda point to a PST allofam with final *-ŋ; see above 7.5(3).

b. Bunan.

c. 'voice / sing'.

d. WT **nag-po** 'black'. See also the WT allofam **smag** 'dark, darkness'.

e. Lahu **nâʔ** 'black', **ná** 'deep'; WB **nak** has both meanings.

f. This form, meaning 'prepare glutinous rice', is irregular, in that it lacks final glottal stop (see below).

g. *Cf.* also Akha (ILH) **ja-dàq** 'cockspur', Lalo **dìʔ** 'hoof'. The first syllable of this Ak. form, as well as those of WB **krak-tak** and Lh. **ɣâʔ- khɨ-tàʔ** mean 'fowl/chicken' (*DL*:601). See below in this chart. Possibly related is PTB *r/g-dek 'kick', with several good Chinese comparanda; see below 8.2(1).

h. A possible allofam with -u- vocalism is widely attested: Jg. **ʔyúʔ**, Lushai **zuk** < *s-yuk. *Cf.* also open-syllable forms like Limbu **yu:**, Bahing **yu**, PNN (French 1983) *yəw > Konyak **yú ~ yɨ́**, etc.

i. In TB this root has so far only been attested in Loloish, where it sometimes means 'be at its peak' (*cf.* Akha **xáq**, Lisu **kha²**). However, there is a good Chinese comparandum (see below), which makes it probable that more TB cognates will be found.

j. There are also several cognates in Tani languages, e.g. Pailibo and Abor **rok-**, Nishing **rop** (with secondary labial). See Jacquesson (1998:103).

k. See *DL*:236 and JAM 1983:#2.

l. Insc. Bs. **nwā-klak**.

m. This etymon seems allofamic to 'hand'; *cf.* also rGyalrong **təyak**.

n. Lahu **jâʔ** 'cubit'

o. *Cf.* Benedict 1939:217, quoting Houghton (1896).

p. WB **jak** 'bit (bridle)'.

q. The Lh. morpheme is a post-verb particle; see GL:4.1a, 4.61(1). *Cf.* Ak. (ILH) **tàq** 'do sthg. with smn. else'.

r. For the initial (also in 'hide') see JAM 2000a ("Extrusional approach to *p- / w-"). Lotha Naga has a curious disyllabic reflex **wókò** (with echo-vowel?), where the original final *-k has become the initial of the second syllable.

s. *Cf.* also Pa-o Karen **ŋàʔ**, PNN (French 1983) *ŋa:k > Konyak **ngao**, etc.

t. *Cf.* also Thulong Rai **broa** 'cliff, steep place', and Tujia ɣa²¹pa²¹. The lack of final glottal stop in the Jg. form is unexplained. Other Loloish forms include Lisu (Frazer) **rgha**¹, Hani *xạ³¹* **lu³³** (< PLB *ʔ-rak^L). See *DL*:1061.

u. The Lahu and other Loloish forms mean 'rope / string'; the WB, as well as other Burmish forms (*e.g.* Maru **choʔ**) mean 'navel', the semantic connection presumably having arisen via the umbilical cord. See *DL*:455. This association is confirmed by the Lalo forms: **tjhiq-pat-ja** 'umbilical cord', **tjhìq-ma-dw̃** 'navel' (SB 1998:174).

v. *Cf.* also Thulong *sak*-teor; Bokar *ça*-get; Achang **tsaʔ⁵⁵**.

w. *Cf.* also Maru **kyak**, Ak. **káq** 'rake / harrow', Lalo **káq** 'rake'. Several additional cognates are to be found in ZMYYC #555, including: rGyalrong **kə rə khrok**, Naxi (Yongning) **kuɑ³¹kuɑ¹³**, Nusu **kɹɑ⁵³**, Geman Deng **gluɑ³⁵**. Lahu has a doublet form **ɣâʔ** 'gather together, scoop together' < PLB *k-rak. See *DL*:1123.

x. Loloish languages (*e.g.* Lahu and Lalo) have also developed the meaning 'drive / chase' from this root, as indicated in *DL*:1125. The semantic association seems to be via the driving motion of the shuttle of the loom.

The reflexes of this rhyme are straightforward in key languages, with medial semivowels -**w**- and -**y**- often giving rise to special conditioned reflexes (*e.g.* in WT, Jingpho, Lahu, Lushai):[5]

PTB	WT	Jingpho	WB	Lahu	Lushai	Bodo-Garo
*-ak	-ag	-aʔ	-ak	-aʔ	-ak	-ak
*-wak	-og	-oʔ (?)	-wak	-ɔʔ	-uak, -ok	?
*-yak	-yag	-(y)aʔ	-yak	-ɛʔ	-iak, -iat	-ak

Jingpho has regularly developed -ʔ from *-**k**. Modern Jg. words in -**k** are loans from Shan or Burmese, or from Pali via Shan or Burmese, *e.g.* **ʔəyàk ʔəkhàk** 'troublesome' (< Shan); **nàmmùkdərā** 'ocean' (ult. < Pali).

The Burmish languages have also generally developed -ʔ in this rhyme, with back vowels for the most part (Modern Burmese is exceptional, with the front vowel reflex -ɛʔ):[6/7]

PTB	WB	Mod.Bs.	Achang	Hpun	Maru	Zaiwa	Bola
*-ak	-ak	-ɛʔ	-ɔʔ	-ʊʔ	-oʔ	-oʔ	-aʔ

---

5. Languages which have developed back vowels from the open rhyme *-**a** also tend to reflect *-**ak** with rhymes like -**ok**, even in the absence of a palatal semivowel, as in the following Maru examples (extracted from Sawada 1999):

	'bird'	'chicken'	'eye'	'hand'	'navel'	'pig'
PTB:	*s-ŋak	*k-rak	*s-myak	*g-lak	*ʔ-kyak^H (PLB)	*p^wak
Maru:	ŋóʔ	ɣôʔ	myôʔ	lôʔ	chóʔ	vôʔ

6. JAM 1991c ("Jiburish revisited"), discusses 42 LB and Jingpho *-**ak** cognate sets (pp. 96-104).

7. Another LB language with a front vowel reflex of this rhyme is Lalo, which almost always reflects *-**ak** by -**iq** ("q" is glottal stop in the transcription of Björverud 1998), *e.g.* *p^wak^L 'pig' > Lalo **á-vìq**; *g-lak^L 'hand' > Lalo **lìq**; *tak^H 'sharp' > Lalo **thíq**; *s-nak^H 'black' > Lalo **níq**, etc. Two roots where Lalo has developed a palatal semivowel are exceptional, yielding Lalo -**aq**: PLB *kak^H 'village' > Lh. **qhâʔ**, Lalo **kjháq** (for additional cognates, see *TSR* #22 and *ZMYYC* #362; PLB *rak^L 'weave / drive / chase' > Lh. **ɣàʔ**, Lalo **jàq**.

The Naxi reflexes of this rhyme are particularly unruly (data mostly from Rock 1963):[8]

PLB	Naxi	PLB	Naxi
-ak	-u	*-ak*	-u
'boil'	³dgyu ~ ³dtyu	'dream'	mu³³ / my̥³³ [a]
'emerge'	³t'u	'soldier'	mu³¹
'pig'	¹bu	'son-in-law'	mu⁵⁵
'rat'	³ffŭ		
-ak	-a	*-ak*	-a
'black'	¹na	'hand'	¹la
'crossbow'	³k'a	'mutual'	³dta [b]
'fowl'	¹ʔa	'sharp'	³t'a
-ak	-ɔ [c]	*-ak*	-ɔ
'breath'	³ssaw	'night'	³haw
'descend'	¹zaw	'weave'	¹ddaw
'hide'	³gkaw		
-ak	-o	*-ak*	-o
'ascend'	²ndo	'deep'	³ho
'branch'	³gko		
-ak	-ou	*-ak*	-ou
'ashamed'	³shou ¹ndou		

TABLE 21. **Naxi Reflexes of PLB** *-ak

a. 'boil', 'emerge', and 'pig', He and Jiang 1985.

b. < PLB *n-dak^L.

c. "-aw" in Rock.

The development to Naxi **-u** is the most clearly conditioned, with all the above examples (except 'boil') having a ***labial** component in the prevocalic consonant sequence, either medial *-w- or initial *m-. (In the case of 'boil', perhaps the original medial *-l- labialized

8. See Okrand 1974; JAM 1979:31 ("QV"); JAM 1991c:97.

in pre-Naxi to **-w-**.) However, at least two other examples of ***-wak** have different Naxi outcomes:

	PLB	Naxi
'ant'	*p-rwak^H	_tʂhua⁵⁵_ uɑ³³ (_TBL_), _tɕho⁵⁵_ lo³³ (_ZMYYC_)
'bowl'	*kwak^H	³kˈwua

(a) *-wak

The labialized rhyme ***-wak** is faithfully maintained as such in WB, and to a less regular extent in Lushai. The medial ***-w-** has backed the vowel in WT and Lahu. Jingpho and Bodo-Garo cognates of etyma with this rhyme have yet to be identified.

	PTB	WT	WB	Lahu	Lushai
	*-wak	-og	-wak	-ɔʔ	-uak, -ok

	PTB	STC	TSR	WT	WB	Lahu	Lushai
'ant'	*p-rwak [a]	#199	#183	grog-ma	pərwak	pú-ğɔ̂ʔ	
'bowl' [b]	*kwak	---	---	skyogs [c]	khwak	---	---
'emerge'	*s-twak	p.17	#102	--- [d]	thwak	tɔ̂ʔ	tśhuak
'half'	*pwak [e]	p. 24	---	---	ʔəwak	---	---
'leaf' [f]	*rwak	---	---	---	rwak	---	---
'rat'	*k-r-wak [g]	p. 107	#188	---	krwak	fâʔ	---

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a. _Cf._ Dulong səɹɔʔ⁵⁵, rGyalrong khǒrǒk, Miri təruk.

b. _Cf._ Benedict 1939:220, and JAM 1991c ("Jiburish"):100.

c. Glossed 'scoop, ladle; drinking cup, bowl, goblet' in Jäschke (1881:31).

d. A possible example of an unusual preservation of this proto-rhyme in WT is the morpheme **dwags** in the compounds **ri-dwags** 'animals of chase; game' (Jäschke:526; perhaps "hill-emerge") and **yi(d)-dwags** 'famished ghost' [Buddhist] (Jäschke:509; perhaps "mind-emerge"; p.c., Paul K. Benedict).

e. _Cf._ rGyalrong əphak.

f. _Cf._ also Achang (Longchuan) a³¹xʐoʔ⁵⁵, Zaiwa a²¹xaʔ⁵⁵, Maru fɔʔ⁵⁵. Extra-LB cognates include: rGyalrong təjwɐk, Tujia ɣɯe⁵⁵tha⁵⁵ (ZMYYC #224). See JAM 1991c:102.

g. _Cf._ Chepang _rok_ -yu.

The Lahu reflex **-aʔ** (rather than **-ɔʔ**) in 'rat' is to be explained by an immediate prototype ***ʔ-wak^H**, where the ***w-** functioned as the main component of the root-initial, rather than as a medial semivowel. This is similar to the Lolo-Burmese treatment of 'pig' (PLB *wak^L > WB **wak**, Lahu **vàʔ**), as well as 'hide' (PLB *s-pʷak > WB **phak** / **hwak**, Lahu **vàʔ** / **fá**,[9] where the PLB rhyme must be deemed to be ***-ak** rather than ***-wak**.[10] The

essentially ambiguous status of **-w-** is brought home by the fact that in many other TB languages it has backed the vowel, as if it were part of the vocalic nucleus rather than the initial (*e.g.* Lushai **vok**, Lotha **wókò**).

(b)   **-yak*

A similarly ambiguous status is characteristic of **-y-** before ***-ak**. Sometimes the palatal element behaves like a feature of the ***rhyme**, so that the vowel quality of the reflex is affected. In cases like this, Lahu has the special development ***-yak** > **-ɛʔ** (see 'destroyed / ruined', 'lick', 'very / real', and 'eye', below).[11] In other etyma, the ***y-** is functioning rather as the root-initial, so that any preceding consonant is to be regarded as a prefix; here Lahu has the normal development ***-ak** > **-aʔ** (see 'armpit' and 'ashamed[1]', above). Occasionally there is cross-linguistic variation between the presence and absence of ***-y-** ('spend the night / day of 24 hours'; 'very / real'). Most interestingly, there are several etymologies where ***-yak** ⋈ ***-ik** variation must be posited at the PTB level (see 'eye', 'pheasant', 'drop / drip', 'very / real', below). The Lushai reflexes of ***-yak** are unpredictable; usually one finds the "normal" reflex **-iak**, but occasionally the final velar assimilates to the palatal medial, yielding **-iat** (see 'broom', 'scratch', below).[12]

In a recently discovered etymon in ***-yak**, Jg. has the reflex **-eʔ**:

PTB	*Jingpho*	*Lahu*
*s-myak	myéʔ	mɛ́
'vanish / get lost'	'be lost, gone, vanish'	'get lost, disappear, vanish' [a]

a. Contra *DL*:1014, this word is unrelated to Lahu **mèʔ** 'shut abruptly, flicker' (> ***s-miːt**). See below 8.3(2b).

PTB	*WT*	*Jingpho*	*WB*	*Lahu*	*Lushai*	*Bodo-Garo*
*-yak	-yag / -eg	-aʔ, -eʔ	-yak	-ɛʔ	-iak, -iat	-ak

---

9.   This is a simplex / causative pair: 'hide oneself (v.i.)' / 'hide sthg (v.t.)'.

10. The regular reflex of ***-ak** in the Central Chin language Lakher (=Maraa) seems to be **-ao**, as illustrated by a pair of Lahu / Lakher cognates that has graced a blackboard at STEDT for several years now: 'pig' ***wak** > Lahu **vàʔ**, Lakher **vāo**; 'hide' ***wak** > Lahu **vàʔ**, Lakher **vāo**.

11. Several other languages seem regularly to have developed **-ek** < ***-yak**, *e.g.* Mikir, Tangkhul Naga (cf. 'lick', below). This also happens occasionally in WT, though other Bodish languages retain the original vowel quality (see 'bear', below).

12. This is analogous to the sporadic development of PTB ***-ik** > Lushai **-it**. See 'eye' and 'pheasant', and below 8.3.

Over a dozen roots are reconstructible with a palatal element *-y- before the rhyme *-ak, including:

	PTB	*STC*	*TSR*	*WT*	*WB*	*Lahu*	*Lushai*
'bear / endure' [a]	*tyak	p.52	---	theg-pa	---	---	---
'broom' [b]	*pyak	#174	---	phyag-ma	---	---	hmun *phiat*
'destroyed / ruined' [c]	*s-pyak	---	#64	---	pyak, phyak	pɛ̂ʔ	---
'fold up / turn up' [d]	*pyak (PLB)	---	#93	---	---	phɛ̂ʔ	---
'grease / oil' [e]	*s-ryak	#204	---	źag	wat-*rak*	---	sa-hriak
'lick / tongue' [f]	*m/s-lyak	#211	#179	ldźags	lyak	lɛ̀ʔ	liak
'pulverize / shatter / diminutive' [g]	*s-nyak	---	#158	---	ñak, hñak	nɛ̂ʔ, nɛ́	---
'red / gold' [h]	*tsyak	#184	---	---	---	---	raŋ-ka-*tśak*
'scratch'	*hyak	#230	---	---	yak	---	hiat
'spend night' [i]	*s-r(y)ak	#203	#174	źag	rak	há	riak
'wet' [j]	*s-nyak	---	#150	---	---	nɛ̂ʔ	---

a. This root has so far only been identified in Bodish, *e.g.* Ladakhi **thag** 'bear', Purik **thyak** 'lift', Balti **thyak-pa** 'patience'.

b. *Cf.* also Mikir **arphek**, Abor **pek**, Empeo **piag**, Chepang **phek**.

c. *Cf.* also Jg. **byáʔ** 'be destroyed', **šəbyáʔ** 'destroy sthg'. The Lahu cognate means 'lose its power; dissipate; get stale; be infertile; be good-for-nothing'.

d. The Lh. form means 'fold up, roll up (as cuffs or trouser legs)'. *Cf.* also Akha **byaˆ** 'fold over, fold up, close'.

e. The WB form means 'juice of flowers'. The voiceless Lushai initial motivates the reconstruction of prefixal *s- (contra *STC*).

f. *Cf.* also Garo **srak**, Mikir **iŋlek**, Tangkhul **khəməlek**, Jg. **mətáʔ**. There is a Lahu causative allofam **lɛ́** 'cause to lick; feed an animal'.

g. The WB forms are morphologically a simplex/causative pair, although the meanings of both are now intransitive (**ñak** 'be made fine, reduced to powder', **hñak** 'be smaller than common, undersized'. Lh. **nɛ̂ʔ** is a full verb, while both **nɛ̂ʔ** and **nɛ́** function as a diminutive element in compounds (e.g. **chɔ-tɛ̀ʔ-nɛ́** 'little guy, short person', **khɨ-tɔ̂-nɛ̂ʔ** 'stump of a leg'); see DL:783-4, 787. Extra-LB cognates include Mzieme **niak**, Lotha Naga **enhyak**.

h. *Cf.* Garo **gittśak** 'red', Jg. **džà** 'gold' (with unexplained loss of -ʔ; also perhaps WT **khrag** 'blood'. There is a good Chinese cognate (below).

i. *Cf.* also Lalo **hìq**. This root means variously 'night', 'spend the night', or 'a full day and night of 24 hours'. Prefixal *s- is reconstructed on the basis of Manchati **hrag**, as well as the initial sibilant in the Chinese cognate (below).

j. *Cf.* also Mpi ɲaŋʔ¹ (the glottalized final nasal is the regular Mpi reflex of *-k in this environment; see JAM 1978b:22-4), and above 6.2. Probably related (with fronting of the final consonant to -t) is Chepang **nyat-sa** 'become wet', **nyāt-ʔo** 'wet' ⪥ **nik-ʔo** 'cold and wet'. This root was reconstructed as *s-nek in *TSR* #150 on the basis of insufficient data.

Variation between *-yak ⪥ *-ik is attested in a number of roots at the PST or PTB level, including the following:

	PTB	STC	TSR	WT	WB	Lahu	Lushai
'eye' [a]	*s-myak	#402	#145	---	myak	mɛ̂ʔ	---
	⪥ *s-mik			mig	---	---	mit
'pheasant' [b]	*s-ryak	#403	---	sreg-pa	---	---	---
	⪥ *s-rik				rac		va-*hrit*
'drop / drip' [c]	*m-dzak	---	#82	ḥdzag / ḥtshag	cak	jâʔ	---
	⪥ *g-tyik			gtig-pa / thigs-pa	---	---	---
'very / real / certain' [d]	*tak	p.52	---	thag-pa	tak-tak	---	tak
	⪥⪥ *tyak ⪥ *tik			tig-tig	tyak-tyak	---	---

a. *Cf.* also rGyalrong **təmnyak** < *s-myak; and Jg. **myìʔ**, Limbu **mik**, Garo **mik** < *s-mik.

b. *Cf.* also Lepcha **kəhryak-fo** (< *s-ryak); and Jg. **ù-*rìʔ***, Garo **do-*grik*** (< *s-rik). Lahu **ğɔ̀ʔ** 'silver pheasant; bartailed pheasant' (*DL*:1141) points to a PLB variant *rwak.

c. *Cf.* also Tamang **syak-pa**. The nasal prefix reflected by the voiced Lahu initial is directly attested in cognates like rGyalrong **nthʊk**, Ersu **ntho⁵⁵**, Naxi **ndə³³**, Luquan Lolo **nts'aʔ²²**. There is a good Chinese cognate to the allofam with -i- vocalism (below).

d. This root has allofams both with and without *-y-, and also displays *-yak ⪥ *-ik variation. *Cf.* also Mikir **ʔəthik** (< *tik). Also probably cognate are Lahu **dàʔ** 'good' (< *mdak) ⪥ **qha-dɛ̀ʔ** 'well' < *mdyak. Another possible allofam is Lh. **tɛ̀ʔ** 'quotative particle' (*i.e.* "that is really what was said") < *dyak.

(c)   *-aːk*

A long vowel may be reconstructed in this rhyme for several etyma on the testimony of Lushai:

PTB	WT	Jingpho	WB	Lahu	Lushai	Garo
*-aːk	-ag	-aʔ	-ak	-aʔ	-aːk	-ak

	PTB	*STC*	*WT*	*WB*	*Lahu*	*Lushai*	*Garo*
'bat'	*baːk [a]	#325	---	---	---	baːk	do-*bak*
'hawk / gag / choke'	*haːk	#323	---	hak	---	haːk	---
'phlegm' [b]	*kaːk	p.71	---	---	---	khaːk	---
'son-in-law' [c]	*s-maːk	#324	*mag*-pa	səmak	ɔ̀-*má*-pā	*maːk*-pa	---
'fork / branch'	*s-kaːk [d]	#327	---	ʔəkhak	ɔ̀-qá	kaːk	---

a. This root is also well attested in Northern Naga: Chang **pak**, Wancho **ao**-*pak*, Konyak **ou**-*pak* (**ao**, **ou** 'bird'). See French 1983:454.

b. *Cf.* Mikir **tɕiŋ**-*khak* 'expectorate; cough up phlegm'. This root may be allofamic with 'hawk / gag', although one or both of them may well be sound-symbolic.

c. See *TSR* #153; also Miri **mag-bo**, Dhimal **hma-wa**.

d. The WB and Lahu forms are from PLB *ʔ-**gak**[L] (*TSR* #43).

(d)   *-ak ⪰⪯ *-aŋ*

A couple of roots display variation between *-ak and the homorganic nasal rhyme *-aŋ.[13] In both these cases the Chinese cognate reflects the nasal allofam (see the list of Chinese comparanda below):

	PTB	*Reflexes*
'cold'	*m/s-glak ⪰⪯ *m-glaŋ (*STC* p.39; *TSR* #99)	
	*m/s-glak	WT **khyag(s)-pa**; Lahu **kâʔ**; Atsi **kyoʔ**; Maru **kyòʔ**; Akha **gáq**
	*m-glaŋ	WT **graŋ-ba**; Trung **glaŋ**; Lepcha **hyáŋ**; Lushai *ʈaŋ*-thoːm; Mikir **niŋ**-*kreŋ* 'winter', **paŋ**-*kleŋ* 'freeze, congeal'; Lahu **gɔ̀**
'dream'	*r/s-mak ⪰⪯ *r/s-maŋ (*STC* #82; *TSR* #144)	
	*r/s-maŋ	WT **rmaŋ**; Jg. **ʔyúp**-*māŋ*; Nung **ip**-*maŋ*; Trung **mləŋ**; Lushai **máŋ**; Garo **džú**-*maŋ*; WB *hmaŋ*-ca-saŋ' 'walk in one's sleep'
	*r/s-mak	WB **ʔip**-*mak*; Lahu **yìʔ**-*mâʔ*; Akha **máq**

13. See below 12.5.

One etymon shows an unusual variation between *-**ak** and *-**ap**:[14]

	PTB	Reflexes
'early morning'	*m-nak ⪰ *m-nap (not in *STC*; *TSR* #131)	
	*m-nak	WB mənak; Lahu tê *nàʔ*, mû-*nàʔ*; Lisu ná⁶; Bisu ʔaŋ-*dà*
	*m-nap	Jg. mənàp; Ao Naga tənap; Mikir mənap ~ pənap

(e)   Chinese comparanda

There are over a score of likely Chinese cognates to TB etyma in *-**ak**. Over half of them are reconstructed in *GSR* with OC -(i̯)ək, -i̯ak or -(i̯)ăk. Six more reconstruct with an OC back nuclear vowel (-i̯uk, -i̯ôk, -i̯ok, -iok, -i̯og, -å [ɔ]), while the rest are scattered over a number of miscellaneous rhymes (-(w)âk, iek, ieg, ɛk). There are several reasons for this apparent inconsistency: the over-differentiation in the *GSR* rhyme categories themselves; the fact that several of the etyma show rhyme variation in TB and/or Chinese (*e.g.* 'ashamed', 'drip / drop', 'eye', 'good', 'outer covering', 'pheasant', 'pig'); and the widespread tendency for vowels to show more secondary sound changes before velars than before consonants at other points of articulation. (*Cf.* the discussion of the multiple reflexes of *-**ak** in Naxi, above 8.2.)

	PTB	STC	TSR		OC	GSR	Chinese
'armpit / cubit' [a]	*g-yak	p. 34	#100	腋	zi̯ak	800m	'armpit'
'ascend / lift / raise / top' [b]	*l-tak	p. 123	#'s 42, 98	陟	ti̯ək	916a-c	'mount / advance / promote'
'ashamed'	*s-rak ⪰ *g-yak [c]	#'s 431, 458	#182	色	și̯ək [d]	927a	'color (of face) / looks, beauty / lust'
		---	---	怍	dz'âk [e]	806r	'ashamed'
'bat'	*baːk	#325	---	蝠	pi̯uk	*AD* 52 [f]	'*id.*'
'black / ink / deep' [g]	*s-nak	p.88	#'s 142, 157	墨	mək	904c	'ink'
				黑	xmək	904a-b	'black'
'breath(e) / life'	*sak	#485	#123	息	si̯ək	925a	'breathe'

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14. See below 12.6.

	PTB	*STC*	*TSR*		*OC*	*GSR*	*Chinese*
'cord / tie / bind' [h]	*grak	---	---	絡	glâk	766o	'silk thread / cord / bridle'
'drip / drop (n.)' [i]	*m-tsak ⩍ *t(s)ik	---	#82	滴	tiek	AD 987 [j]	'a drop / to drop, drip'
		---	---	渿	gi̯ək [k]	954i	'drip'
'eye'	*s-myak ⩍ *mik	#402	#145	目	mi̯ôk	1036a-c	'*id.*'
'fear' [l]	*krak ⩍ *grak	#473	#104	雒	glâk	AD 411	'to fear' [m]
				恪	k'lâk	766g	'to respect / reverent'
				覤	χi̯ăk	789a	(= 虩) 'fear'
				嚇	χăk	779b	'scare'
				虩	χi̯ăk	787d	'fear'
'friend / assist' [n]	*grwak	---	---	佑	gi̯ŭg	995k	'assist'
				友	gi̯ŭg	995e	'friend / associate'
				右	gi̯ŭg	995i-j	'the right hand, on the right / assist'
'fowl'	*k-rak	p. 107; 187-8	#184	酉	zi̯og	1096a-g	'cock (calendrical term)'
'good / beautiful' [o]	*l(y)ak ⩍ *l(y)aŋ	p. 54	---	麗	lieg	878a-b	'elegant / beautiful / refined / good'
				良	li̯aŋ	735a-d	'good'
				易 [p]	di̯ĕk	850a	'at ease / well-ordered'
'grease / oil'	*s-ryak	#204	---	液	zi̯ăk	800n-o	'fluid / moisture'
'hand' [q]	*g-lak	#86	#166	翼	gi̯ək [r]	954d	'wing'
'lick / tongue'	*m/s-lyak	#211	#179	舌	d̑i̯at [s]	288a	'tongue'
				膵	gi̯ak	803h	'tongue'

	PTB	STC	TSR		OC	GSR	Chinese
'outer covering' [t]	*r-kwa(:)k �done≍ *kok	#342	#71	鞹	k'wâk	774i	'leather'
				革	kɛk	931a-b	'hide / skin'
'(at its) peak / expensive'	*kak	p. 166	#11	極	g'i̯ək	910e-f	'ridge of house / the highest point / extreme limit, utmost'
'pheasant'	*s-ryak ≍ *s-rik	#403	---	翟	d'iok	1124a-b	'*id.*'
'pig'	*pʷak	#43	#168	豝	på	39d	'sow / pig'
				豦	g'i̯wag [u]	803a-b	'kind of boar'
'red / blood [v] / gold'	*tsyak	#184	---	赤	t̑'i̯ăk	793a-c	'red'
'shine / flash' [w]	*glwak	---	---	爚	di̯ok	1119f	'shine'
				燿 耀 曜	di̯og	1124i-k	'shine / gleam'
'spend the night / day of 24 hrs.'	*s-r(y)ak	#203	#174	宿	si̯ôk [x]	1029a-b	'pass the night'
'weave'	*t(r)ak	#17	#192	織	t̑'i̯ək	920f	'*id.*'

a. *Cf.* Lushai **zak** 'armpit'; WB *gyak-kəli* ~ *chak-kəli* '*id.*'; Lahu **jâʔ** 'cubit'; Akha **cáq** 'length of outstretched fingers'; Garo **dᶚak** 'arm'; Dimasa **yau** '*id.*' This root is allofamically related to ***g-lak** 'hand' (below).

b. This is a complex TB word family, including ***tak** and ***tyak** as the basic allofams, with the former precedable by several different prefixes: ***l-tak** > WT **ltag-ma** 'upper part or place', Jg. **ləthàʔ** 'upper, above'; ***g-tak** > Jg. **kəthàʔ** 'above, overhead'; PLB ***ʔaŋ-tak** > Lahu **ɔ̀-thàʔ** 'top, surface', **thàʔ** 'accusative noun particle'; PLB ***ʔ-tak** 'climb / ascend' > WB **ʔəthak** 'upper part, space above', Lahu **tâʔ** 'climb, ascend'. The palatalized variant ***tyak** > WT **theg-pa** 'lift, raise; bear; endure'. Also possibly related is WT **thog-ma** 'upper end, uppermost place', perhaps < ***twak**.

c. *STC* sets up 2 separate PTB roots, ***s-rak** (> *e.g.* WB **hrak**) and ***g-yak** (> *e.g.* Lahu **yàʔ-tɔ**). Support for keeping them separate is furnished by Gong (2000:45, 2001:25), who compares WB **hrak** both to WT **khrag** 'blood' (presumably via the notion of blushing) and to Chinese 赫 'red, fiery red' (OC **χăk**; *GSR* #779a). However, Gong also compares this same Chinese character (alternatively glossed 'majestic, awe inspiring, brilliant) to WT **grags** 'fame, reputation, good name, renown, glory' and WB **krak** 'honor, glory, prosperity' (2001:26).

d. This *GSR* reconstruction is modified to **śri̯ek** in *STC*:170.

e. This comparison suggested by RSC.

f. Not in *GSR* #933.

g. Lahu differentiates between **nâʔ** 'black' (< PLB *s-nak) and **ná** 'deep' (< PLB *ʔ-nak), while WB has **nak** for both meanings. There is also a nasal-final allofam represented by WB **maŋ ~ hmaŋ** 'ink' (< PLB *s-maŋ or ʔ-maŋ).

h. *Cf.* WT **grags, ḥgrags** 'bind'. See Gong 2001:26.

i. This etymon has two well-established allofams, one with *-a-, and one with *-i- : PTB *m-tsak > WT **ḥdzags** 'drop. drip. trickle', **ḥtsag** 'cause to trickle, strain, filter, sift'; PLB *m-tsak^H > WB **cak** 'fall in drops', **ʔəcak** 'a drop'; Lahu **jâʔ** 'to drip', **ɔ̀-jâʔ** 'a drop'; Akha **dzáq** 'to drip, a drop'. Also PTB *t(s)ik > WT **thigs-pa** 'a drop', Akha **dzýq** '*id.*', Mpi **tɯʔ²**. OC **tiek** apparently descends from the latter allofam. For a coincidentally similar vowel gradation in English, *cf. drip* vs. *drop*; *dribs* and *drabs*. See JAM 1978b("Mpi"):2-3, 29.

j. Not in *GSR* #877.

k. This *GSR* reconstruction might well be revised to **tɪ̯ək**, by the same reasoning as adduced for OC 'wing', below.

l. This is another root showing vowel gradation, this time between *-a- and *-o-. The former allofam is represented by WT **skrag-pa** 'be terrified, afraid', as well as by the Chinese forms. The latter allofam (better attested in TB) underlies WT **dkrog-pa ⋊ skrog-pa** 'rouse, scare up', **dogs-pa** 'fear', as well as by PLB *m-krok ⋊ *ʔ-krok (> WB **krauk** 'fear', **khrauk** 'to frighten', Lh. **kɔ̂ʔ** 'be afraid', etc.).

m. Glossed only 'a kind of bird' in *GSR* #766q.

n. *Cf.* WT **grogs(-po)** 'assistant; friend, associate, companion'. For the semantics of the Chinese comparanda, *cf.* the English expression *right-hand man*. See Gong 2001:28.

o. This root exhibits both final stop ⋊ nasal variation (see below 12.5.3) as well as variation between initial lateral and voiced stop; see JAM 1990b and above 3.4.2(4c).

p. This comparison is due to Bodman 1980.

q. This wide-spread root is allofamic with *g-yak 'armpit / cubit' (above). See JAM 1985b ("Arm, hand, wing").

r. *STC* (p. 171) revises this *GSR* reconstruction to **dɪ̯ək** because of the presence of 趞 **t'ɪ̯ək** 'sound of marching' in the same phonetic series (954g-h).

s. For the occasional fronting of final velars to dentals after high vowels in OC, see below 12.6.1.

t. The proto-gloss in *STC* is 'bark / rind / skin'. Here, as in other cases of TB -a- ⋊ -o- variation, *STC* (n. 229, p. 74) reconstructs PST **-â-. See below 8.6(9.1.1).

u. The velar initial in this form is paralleled by a velar prefix in several Kamarupan languages: Zeme (=Empeo) **gəbak**, Liangmei **kabak**, Rongmei (= Nruanghmei = Kabui) **gəwàk**. See JAM 2000a ("p / w"):158.

v. *Cf.* WT **khrag** 'blood', isolated in this sense in TB.

w. *Cf.* WT **glog** 'lightning, flash of lightning'. See Gong 2001:31.

x. The OC reconstruction is revised to **srɪ̯ôk** in *STC*:155,171. Probably allofamic to this etymon is the root set up in *STC* #417 as *ya (better *s-ya) 'night' based on Proto-Karen *hya, Chepang and Nung *ya, Miri *yo, Mikir *dzô, etc., since there are good Chinese comparanda with final velars: 夕 'evening, night' OC **dzɪ̯ăk** (*GSR* #796a-d) and 夜 'night' OC **zɪ̯ăg** (*GSR* #800j-k).

(2)   **-at*

Etyma with this rhyme are discussed in detail in JAM 1985a (*GSTC*), especially in connection with the rhymes *-**an** and *-**ay**. The reflexes of *-**at** are straightforward in the criterial TB languages:

PTB	*WT*	*Jg.*	*WB*	*Lahu*	*Lushai*	*Garo*
*-at	-ad	-at	-at	-eʔ	-at	-at
*-yat	-yad	-at	-ac	-iʔ	-iat	-et
*-wat	-od	-ot	-wat	-eʔ	-(u)at	-uat

	PTB	*STC*	*TSR*	*GSTC*	*WT*	*Jg.*	*WB*	*Lahu*	*Lus.*
'bite down on'	*tsat [a]	---	#24	#25	---	---	---	chèʔ	---
'break / cut'	*tsyat	#185	#40	#18	gtśod-pa, btśad [b]	---	chat [c]	chêʔ	tśat
'kill'	*g-sat [d]	#58	#124	#21	gsod-pa, bsad [e]	sat	sat	---	that
'smell / odor'	*bat [f]	---	---	#30	---	bàt	---	ɔ̀-pèʔ	---
'vomit'	*m-pat [g]	---	#38	#26	---	ǹ-phàt	phat	phèʔ	---
'wind around'	*bat	---	---	#31	---	bàt	pat	pêʔ [h]	---

a. *Cf.* also Akha tsɛ̀q. This root was originally reconstructed (*TSR*, *GSTC*) only at the PLB level as ***C-tsat[L]**, but PNN ***tsat** (> Wancho tsat, Konyak jei; French 1983:455) shows that this is a general TB root.

b. These WT forms are the present and perfect.

c. This WB form means 'brittle'.

d. *Cf.* also Dimasa thai, Mikir that, and PNN ***ʔsot** (French 1983:504).

e. These WT forms are the present and perfect.

f. *Cf.* also Akha *bɛ̀q* -làq.

g. There are many cognates throughout TB, in Lolo-Burmese, Qiangic (rGyalrong mphɐt; Namuyi *mphi³³* pɛ³³; Ersu nphsŋ⁵⁵; Pumi Jinghua tə⁵⁵*sphɛ⁵⁵* ; Queyu lə³⁵*phø⁵⁵*, Shixing phi⁵⁵); Northern Naga (Nocte phat, Konyak pát), and Mirish (Padam-Mising bat; Geman Deng phɑt; Milang a-bot); *cf.* also Tujia phi³⁵.

h. This Lahu form means 'strip, slice; classifier for strips of land'; *cf.* Jg. dīŋ-*bàt* 'crossbar, beam; arch, space, as between two posts and a top-bar'; Akha bɛ́q 'rafter that goes lengthwise on posts at side of house'.

Etyma with this rhyme that have so far been attested only in Lolo-Burmese include:

	PLB	*TSR*	*GSTC*	*WB*	*Lahu*	*Akha*
'alive'	*dat[L]	#1	#24	---	tèʔ	dɛ̀q
'cut apart / cut into'	*ʔ-brat[L] ⪥ *C-prat[L] [a]	---	#27	prat, phrat [b]	phèʔ	---
'flail / flap'	*pat	---	#28	*phat*-lat	*phêʔ*-dɔ̂	---

a. Gong 2001:23 proposes WT ḥbrad, sbrad 'scratch, lacerate by scratching' as cognate, also offering Chinese comparanda. See below 8.2(2c).

b. WB prat 'be cut in two, be broken (as the skin)', phrat 'cut in two'. There is an apparent Lh. doublet pèʔ 'split, crack, get cracked' < PLB ***brat[L]**.

The palatalized version of this rhyme, *-yat, has special reflexes (with mid front vowels) in a few languages, *e.g.* Thulung Rai -et, Garo -et. By far the most important and complicated etymon with this rhyme is 'eight':

| 'eight' | *b-r-gyat ⋉
*b-g-ryat [a] | WT **brgyad**; Thulung **yet**; Jg. **mətsát**; WB **hrac**; Lahu **hí**; Garo **tśhet**; Lushai **riat** [b] | *STC* #163; *TSR* #171; *GSTC* #41 |

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a. Many other allofams of this etymon are reconstructed at various subgroup levels of TB in JAM 1995b ("Numerals"):203-7, 236.

b. Here Lushai has -**iat**, against its reflex **tśat** of *tsyat 'break / cut' (above), which is good grounds for treating the *initial of 'break / cut' as a unitary palatal affricate, rather than as a sequence of dental affricate plus semivowel *tsy-. See the discussion of the phonemic status of the PTB palatal series, above 3.6.3.

This numeral is reconstructed as *ʔ-rit at the PLB level (*TSR* #171). Evidently *-yat had already merged with *-it in PLB, yielding WB -**ac**; see below 8.3(2c). The normal Lahu reflex of *-at is -**eʔ**, but in 'eight' it is -**í** (not -**é**).[15] It is hard to say whether this is due to the palatalizing effect of the -**y**-, or just the raising effect of the high-rising tone, for which there are a few other examples (*e.g.* the simplex/causative pairs **tòʔ** 'be on fire' (< PLB *duk) ⋉ **tú** 'set on fire' (< PLB *ʔ-duk); **və̀ʔ** 'wear clothes' (< PLB *wat^L) ⋉ **fí** 'dress someone' (< PLB *ʔ-wat^L) [see below for this last example].

(a)   *-wat

The labialized version of this rhyme, *-wat, similarly has special reflexes (with mid back vowels) in several languages, including WT and Jg. Although examples are few, Lushai and Garo seem often to preserve the medial as -**uat**.

PTB	*WT*	*Jg.*	*WB*	*Lahu*	*Lushai*	*Garo*
*-wat	-od	-ot	-wat	-eʔ	-(u)at	-uat

---

15. The Lahu high-rising tone is normal as the reflex of stopped syllables with *glottalized initials. See above, 4.2.2.

There are a good number of etyma with this labialized rhyme, including:

	PTB	*STC*	*TSR*	*GSTC*	*WT*	*Jg.*	*WB*	*Lahu*
'flower'	**b/s-wat* [a]	p.24	#185	#20	---	---	wat	*šɨ́-vêʔ*
'free / release'	**g/s-lwat* [b]	#209	---	#22	glod-pa, hlod-pa	lòt, šəlòt	lwat, kywat / hlwat, khywat	lêʔ
'leech'	**r-pʷat* [c]	#45	#167	#19	pad-ma	wòt	krwat	vèʔ
'stick into'	**swat* [d]	---	---	#29	---	---	swat	šêʔ
'stiff / tough'	**rwat*	#198	---	---	rod-pa	---	rwat	---

a. *Cf.* also rGyalrong **tapat**; Nung **śiŋ-*wat*** (**śiŋ** 'tree'). *STC* reconstructs ***bwat**, and JAM 2000a:#7 reconstructs ***bʷat**, but the Proto-Loloish high-stopped tone points to a voiceless prefix at the PLB level, undoubtedly ***s-** (***s-wat**[H]), a reduction of the morpheme ***siŋ ⋊ *sik** 'tree' that is the first element of the compound meaning 'flower' in several languages (*e.g.* Nung, Lahu).

b. Jg. **šəlòt** and WB **hlwat ⋊ khywat** are causative forms. The Lahu cognate means 'slip, slide; smooth, fluent'. This root is not reconstructed in *TSR*, but it belongs to Class DD "Voiceless prefix plus resonant" (*TSR*:68-70), and should be reconstructed as PLB ***k-lwat ⋊ *s-lwat**. See *DL*:1375.

c. *Cf.* also Lushai **vaŋ-*wat*** (where the **w-** is treated as the root-initial); Lepcha **fot**; Mikir **ing-*phat***; Magari **ləwat**; Boro **luwád**; Rangkhol **ervot**; Angami Naga **reva**; Chang Naga **wat**. WB **krwat** reflects the "velar animal-prefix" (< PLB ***k-r-wat**), while the forms in Loloish languages (*e.g.* Lahu **vèʔ**, Akha **yèq**, Lisu **vé**[6]) descend from the unprefixed allofam ***wat**.

d. So far this root has only been uncovered in LB. The WB form means 'put into a small opening (as a letter into an envelope)', while the Lahu form means 'put on / wear socks or leggings' (*cf.* **khɨ́-*šêʔ*** 'leggings, gaiters, puttees').

In several *-at etyma with initial or medial *(-)w-, Lahu has developed a central vowel, -ɨʔ or -əʔ, instead of its normal reflex -eʔ. (As we have seen, in other such cases Lahu retains the regular reflex; see 'free / release', 'leech', 'stick into', above.)

	PLB	*STC*	*TSR*	*GSTC*	*WB*	*Lahu*
'pluck'	**ʔ-cwat*[H]	---	#57	#33	chwat	cɨ̂ʔ
'hungry'	**mwat*[L] ⋊ **ŋ(w)at*[L]	---	#132	#34	mwat ⋊ ŋat	mə̀ʔ
'star / moon'	**mwat*[L] [a]	---	---	#35	---	*mə̀ʔ-kə*

a. < PTB ***s-ŋʷ(y)a-t**. *Cf.* also Angami Naga **thèmvŏ** 'star' and the excellent Chinese comparandum meaning 'moon' (below). This etymon is the chief focus of discussion in JAM 1980 ("Stars, moon, and spirits"). Note the variation between **m-** and **ŋ-** induced by the medial -w- in both 'hungry' and 'star / moon'.

(b)   **-at ≽ *-an*

Variation between ***-at ≽ *-an** must be posited in the important root ***nat ≽ *nan** 'ill / suffer / hurt / evil spirit' (*TSR* #136, *GSTC* #36):

PLB	Reflexes
*nat	WB **nat**; Jg. **nát**; Akha **nèq**, *etc.*
*nan	Lahu **nê**, Sani **ni⁵⁵**, Lisu **ni⁵**, *etc.*

Both the **-t** and the **-n** in this etymon may be suffixal, ultimately deriving from ***na** 'ill / suffer / hurt' (*STC* #80) > WB **na**, Lahu **nà**. We would then have a tripartite word family of the shape ***na ≽ *nan ≽ *nat**.[16]

Another possible case of ***-a ≽ *-an ≽ *-at** variation is a word-family meaning 'wear clothes' (as a simplex intransitive) or 'dress someone' (as a causative). This etymon is reconstructed ***wat** in *STC* and *GSTC*:

	PTB	STC	TSR	GSTC	WB	Lahu
'wear / clothe'	***wat**	p.24	#181	#32	**wat**	**vɔ̀ʔ ≽ fɨ́** [a]

> a. This is one of the cases where Lahu has a central vowel (as in 'pluck', 'hungry', and 'star / moon', above. *Cf.* also Rawang **nuŋ**-*wat* 'cover breasts (**nuŋ**) with cloth', rGyalrong **wat** (Nagano 1984), **kawat** (*ZMYYC*), **tewyet** 'clothes' (CHANG Kun). Several Loloish languages have forms which point to a prototype with *high front vowel (*e.g.* Ahi **viʔ⁴⁴**, Luquan **i⁵⁵**), which led me to reconstruct PLB "***wik / *ʔwik** or ***wit / *ʔwit**" in *TSR* #181. *Cf.* also Lalo **ìq**. The rGyalrong forms **tewyet** 'clothes' and **wyan** 'I wear' show similar palatalization.

A separate root ***gwa-n ≽ *kwa-n** is set up in *STC* #160. The open-syllable allofam is well represented (some of the following are from *ZMYYC* #646):

'wear / clothe'	***gwa ≽ *kwa**	WT **bgo-ba** 'put on clothes'; Nung **g(w)a** [v.i.], **dəg(w)a** [v.t.]; Lisu **gwɑ³¹**; Qiang Taoping **guə³³**; Pumi Jinghua **tə⁵⁵gui⁵⁵**; Namuyi **ɣə³³**

16. See JAM 1978a (*VSTB*):110-11, 254-55. Chinese 難 is a comparandum to the nasal-finalled allofam (see below). For a general discussion of final variation between homorganic dental stops and nasals, see below 12.5.2.

The nasal-final variant is also well attested:

'wear / clothe'	*gwan ≍ *kwan	WT **gon-pa** 'put on clothes', **skon-pa** 'dress someone'; Jg. **khòn** 'wear (as bracelets)'; Garo **gan** 'wear, dress'; rGyalrong **wyan** 'I wear'; Proto-Karen ***kwan** 'put on a lower garment'

If we treat the initial velar in these forms as prefixal, we can accommodate everything in one large word-family of the shape ***s-g-wa-n/t**,[17] where the ***s-** represents the causative or transitivizing prefix that is directly attested in several languages (WT, Nung, Lahu). This prefix could then account for the variation in voicing of the following velar.

There are many verb roots that show allofamic variation between ***-at** and the open rhyme ***-a**.[18] These are best treated below (11.3) under "suffixal ***-t** ", even though the semantic contribution of the suffix is often unclear.

(c)   Chinese comparanda

Chinese cognates/comparanda to TB etyma in ***-at** include:

	PTB		*OC*	*GSR*	
'belly / stomach'[a]	*grwat	胃	gi̯wəd	523a	'stomach'
'break / cut'	*tsyat	絕	dz'i̯wat	296a	'cut off / break off'
		脆	ts'i̯wad	296c	'brittle'
		折	t̂i̯at	287a-b	'break / bend / destroy'
'cut apart / cut open'[b]	*brat ≍ *prat	裂	li̯at	292f	'tear asunder / divide'
		別	b'i̯ăt	292a	'divide / separate / distinguish / different'
'eight'	*b-r-gyat	八	pwăt	281a-d	'eight'
'free / release / relax' [c]	*g/s-lwat	脫	t'wât ~ d'wât	324m	'peel off / take of (as clothes) / escape / disappear'
		悅	di̯wat	324o	'pleased / glad'

---

17. A key form here is rGyalrong **wyan**, with a nasal final but lacking an initial velar, implying an allofam something like ***wan**.

18. A few examples: ***rya-t** 'laugh' (*STC* #202); ***hwa-t** 'light / brightness' (#221); ***ma-t** 'exhausted / spent' (#425);***r-ma-t** 'wound / injured' (#446).

	PTB		OC	GSR	
		蛻	di̯wat	324e	'exuviae of insects or reptiles'
'hero'	*gyat [d]	傑	g'i̯at	284b	'of a surpassing quality / hero'
'kill'	*g-sat	殺	săt	319d	'kill'
'star / moon'	*s-ŋʷ(y)at	月	ngi̯wat	306a-f	'moon'
'vomit'	*m-pat	發	pi̯wât	275c	'throw out / shoot / send forth'[e]
'cap / wear'	*g-wa-n/t	冠	kwân	160a	'cap / put on cap'
'ill / suffer / hurt / evil spirit'	*na-n/t	難	nân	152d-f	'difficult / calamity'
'travel / go through'[f]	*grwat	越	gi̯wăt	303e	'transgress / extend'

a. *Cf.* WT **grod** 'belly, stomach'. See Gong 2001:28.

b. This root may now be set up for TB as a whole. See above 8.2(2) and Gong 2001:23.

c. *Cf.* WT **glod-pa** 'loosen / relax / slacken / comfort / console / cheer up'. See above §(a).

d. *Cf.* WT **gyad-pa** 'champion / athlete' (*STC*:174).

e. This comparison is suggested in Coblin 1986:130, who reconstructs the OC form as *pjat.

f. *Cf.* WT **ḥgrod** 'go; travel', **bgrod** 'walk, go, wander; get through'. See Gong 2001:28.

(3) *-ap

Over twenty etyma are reconstructed with this rhyme in *STC*, of which five are reconstructed with long vowels. In this rhyme Bodo-Garo evidence is just as valuable as the testimony of Lushai in distinguishing vowel length. At the PLB level, seventeen roots in *-ap are reconstructed in *TSR*. The correspondences in the key TB languages are quite consistent:

PTB	WT	Jg.	WB	Lahu	Lushai	Bodo-G.	Dimasa	Kokborok
*-ap	-ab	-ap	-ap	-oʔ / -ú	-ap	-ap	-a(p)	-a
*-aːp	-ab	-ap	-ap	-oʔ / -ú	-aːp	-o	-au	-auʔ
*-wap	---	-op	-wap	-əʔ	-uap	-op	---	---
*-yap	-eb	-(y)ap	-yap	-oʔ ~ -uʔ	---	---	---	---

	PTB	STC	TSR	WT	Jg.	WB	Lahu	Lu.	Bodo-G.
'bite / snap at / mouthful'	*hap	#89	p.27	hab	---	hap	---	hap	---

	PTB	STC	TSR	WT	Jg.	WB	Lahu	Lu.	Bodo-G.
'chop' a	*ts(y)ap	---	---	btsab-pa	ʒep³¹ b	---	---	---	---
'fall over' c	*m-bap	---	#83	ḥbab	---	---	bôʔ	---	---
'fireplace₁'	*g-tap	#18	---	thab	dàp	---	---	tap	G. tśudap; B. gadap
'fireplace₂'	*g-rap d	#84	---	---	ràp, kəràp	-rap-	ğòʔ	rap	---
'fold / layer'	*g/l-tap e	#493	#51 f	ltab-pa	thàp	thap	thôʔ	---	---
'fork / groin'	*kap	#338	---	---	---	---	---	kap	Dimasa ya-khap
'join / connect'	*tsyap	#186	---	---	tšáp	cap	---	---	G. tśap-tśap
'leaf'	*lap g	#321	---	lob-ma h	làp	---	---	---	---
'needle'	*k-rap i	#52	#191	khab	---	ʔap	γòʔ	---	---
'repay'	*tsap j	#63	---	ḥtshab-pa	---	chap	---	---	---
'snot'	*s-nap	#102	#152	snabs	nèp, nyèp k	hnap	nú	hnap	---
'weep'	*krap l	#116	---	khrab	khràp	---	---	ṭap	G. grap
'wedge'	*sap m	---	---	---	---	sap	---	---	---

a. This root is fairly widely attested elsewhere in TB, including Burmish (Zaiwa tʃap²¹, Leqi (=Lashi) tʃaːp³¹, Achang Luxi tsap³¹, Langsu (= Maru) and Bola tʃɛʔ³¹), Qiangic (rGyalrong ka-cçop, Qiang Taoping tshuɑ⁵⁵, Zhaba (TBL) 扎坝 a³³ʂtsa⁵⁵, Pumi Lanping thə¹³ʃtʃɑ⁵⁵), Himalayish (Motua Menba tsap, Cuona Menba tsap⁵³). See LaPolla 1987, #111.

b. This Jingpho form, as well as Dulong a³¹tsep⁵⁵, point to a variant with medial palatal, *tsyap.

c. *Cf.* also Moso nbjʌ¹¹; the WT form reflects a PTB *voiced root-initial, but the Lahu high-stopped tone points to a PLB voiceless initial, *m-pap^H.

d. Jg. ràp 'central fireplace', kəràp 'lower screen over fireplace'; WB mî-rap-pàuŋ 'wooden fireplace' (mî 'fire'); *cf.* also Nung mərap (mə- < *mey 'fire'), Maru ɣrɛ, Mikir rap 'shelf over fire'; Lahu γòʔ 'classifier for households' (hearths and homes), γòʔ-kə 'drying rack over fireplace', γòʔ-pa 'wall'; Lalo jỳq 'household'. Benedict (*STC* p.19 n.69) suggests that both *tap and *rap are co-allofams of a single prototype *trap ≍ *drap, ultimately a loan from Austro-Tai. For a similar interplay between dental stop and *r, see *trak 'weave' above, 3.6.4.2.

e. *Cf. DL*:686. Shades of meaning of this etymon include 'repeat; place one thing atop another' (*cf.* WT ltab-ma 'a fold', ldab-pa 'do again, repeat'; Jg. kəthàp 'add, place one upon another; again and again'. There is a similar Tai root (Shan thap, Si. tháp 'place / be on top of sthg else'). Some forms reflect a *palatal semivowel: WT ldeb-pa 'bend around or back', lteb-pa 'turn down, turn in', thebs 'series, succession' < *l-tyap. There is a good Chinese comparandum, below §e.

f. *TSR* reconstructs a PLB root *ʔ-tap^H glossed 'adhere / stick together', citing the same WB form thap 'place one on another', lak-thap "join one's hands (in marriage)" and a Lahu form with unaspirated initial, tôʔ 'adhere to each other', làʔ-qɔ tôʔ "have one's hands joined (in marriage)". Contra the note in *DL*:640, I now consider PLB *ʔ-tap^H 'scoop with both hands' to be a separate root, as it is considered to be in *TSR* #59.

g. *Cf.* also Kanauri lab, Takpa blap, Nung śəlap.

h. The Tibetan form cited is "Western Tib." (Jäschke 1881:552); standard WT has an open syllable, lo-ma.

i. *Cf.* also rGyalrong **tekyep**; Trung **ʔuop**; Pumi Dayang **qhǒ**; Namuyi **ʁo³³**. This etymon was first reconstructed as ***kap**, then as ***kəp** in *STC* (n.82). It shows variation between the HIGH- and LOW-stopped tones in Loloish, with the LOW-stopped forms (*e.g.* Lahu **ğòʔ**, Akha **à-ɣɔq**, Sani **ɣɤʔ²²**, Lalo **á-jɣ̀q**) reflecting an unprefixed PLB allofam ***rap^L**, while the HIGH-stopped forms (*e.g.* Bisu **kjāw**, Hani **ko³³**, Lisu **wɔʔ²**) point to the prefixed allofam ***k-rap^H**. The velar prefix has presumably preempted the root-initial ***r-** to produce the WT form.

j. *Cf.* also Dulong **tsaap⁵⁵**, Zaiwa and Achang **tshap**.

k. The Jg. forms (not cited in *STC*, but see Hanson 1906:467, 515) point to a variant with medial palatal, ***nyap**. Many more cognates are to be found in *ZMYYC* #278, *e.g.* Qiang Mawo **stɤ xuˠ**, Qiang Taoping **χɲ̩i⁵⁵ tsuə³³**, Ergong **snau**. A few forms show assimilation of the final stop to the nasal initial: rGyalrong **təʃnɐm**, Pumi Taoba **ŋ̩ã⁵⁵ bʐẽ⁵³**, Anong **n̩im⁵⁵**.

l. *Cf.* also Kanauri **krap**; Tshangla **gep**; Magari **hrap ~ rap**; Meithei **kəp**; Siyin **kap**, Nocte **sap**; Angami Naga **krạ**; Digaro **k(h)ro**; Pumi Taoba **xue⁵⁵**, Pumi Jinghua **squɑ⁵⁵**; Pumi Dayang **χqwá**; Mishmi **gra**; Darang Deng **khɹo⁵³**; Idu **ɑ⁵⁵-tɕɑ⁵⁵**; Bokar Adi **kap**; Bai (Dali, Jianchuan) **kho⁴⁴**, Bai Bijiang **qho⁵⁵**.

m. Reconstructed in JAM 2002 ("Wedge issues"). *Cf.* also Tshangla Monpa (Menba Cangluo Motuo) **sap** (*ZMYYC* #413, *TBL* #620), **ɕeŋ⁵⁵sap⁵⁵** (**ɕeŋ⁵⁵** 'wood'); Daofu **zav**; Ergong **sɯ-zau** 'wedge' (**sɯ-** 'wood'); Pumi Dayang **tsó**; Namuyi **ʂo³⁵**; Tangkhul Naga **thiŋ-*tap*** (**thiŋ-** 'wood'); Lai Chin **tsop**. There is a good Chinese comparandum, below 8.2(3e).

Several other etyma in ***-ap** have been reconstructed at the PLB level, including:

	PLB	TSR	WB	Lahu	Akha	Lisu	Sani
'blanket'	***m-pap^H**	#78	---	**á-*bô*ʔ**	---	**yi²-*bu³* ᵃ**	**uʔ⁴⁴-*bɤ⁴⁴***
'dry in sun' ᵇ	***ʔ-lap^L**	---	---	**hú**	---	---	---
'enter'	***lap^L**	#165	---	**lòʔ**	---	---	**lɤʔ²²**
'pack into / put into'	***m-tap^H**	#85	**tap**	**dôʔ**	**dɔq**	---	---
'rub / stroke'	***sap^H**	#116	**sap**	**šôʔ**	**sɔq**	**saw¹**	---
'scoop with both hands'	***ʔ-tap^H**	#59	---	**tôʔ**	**tɔ́ʔ**	---	**tɤ̩⁴⁴**
'split apart / split open'	***s-lap^H**	---	**ʔəhlap ᶜ**	**lôʔ ᵈ**	---	---	---
'stick into / insert₁'	***kyap^H**	#21a	**kyap / gyap**	**chôʔ**	**cɔ́ʔ**	---	---
'stick into / insert₂'	***tsap^H ᵉ**	#21b	---	---	**tsɔ́ʔ**	---	**tʂ'ɤ⁴⁴**
'turn over' ᶠ	***pyap^H**	#20	---	---	**pyɔ́ʔ**	**hpaw²**	---

a. The Lisu reflex is unexplained.

b. *Cf.* also Achang **ḷap⁵⁵**, Zaiwa **ḷap⁵⁵** (*ZMYYC* #749). For an exactly parallel Lahu reflex see 'stand' (§b below).

c. Glossed 'anything peeled off; flake; petal of flower', *DL*:1381.

d. 'split sthg. apart, split open, be split open'

e. *Cf.* also Phunoi **tsáp-ù**; Luquan **ts'uʔ²²**.

f. There is an allofamically related root ***pup** (*TSR* #19); see below 8.4(4).

(a)   **-wap*

Only a couple of etyma (neither of which has a WT reflex) have so far been reconstructed with the labialized rhyme ***wap**. The medial causes the vowel to back to -o- in Jg. and Garo:

PTB	Jg.	WB	Lushai	Garo
*-wap	-op	-wap	-uap	-op

	PTB	STC	Jg.	WB	Lushai	Garo
'lungs'	*tsywap [a]	#239	sìn-*wóp*	---	chuap	kasop
'rustle'	*krwap	#243	kròp	krwap-krwap	---	---

a. See the extensive discussion in JAM 1978a (*VSTB*:113-123), where this etymon is reanalyzed as an old compound *tsəy-wap, with the second syllable meaning 'spongy' (*cf.* Jg. wóp 'be spongy', sìn-*wóp* 'lungs'); the first syllable of this compound is well represented in Loloish (*e.g.* Lahu ɔ̀-*chî*-phôʔ) and Qiangic (*e.g.* Ergong ʐtshe¹⁴, Pumi Jinghua tshy¹³).

The following Lolo-Burmese set displays variation between ***-wap** and ***-rap**:

'munch / bite onto'	PLB *m-gwapᴸ ≍ *C-krapᴸ (*TSR* #90)	
	*m-gwapᴸ	WB kwap (~ kyap) 'clamp, make fast, firm, secure'; Lahu gə̀ʔ 'hold firmly in mouth'
	*C-krapᴸ	WB krap 'clamp, make fast, firm, secure'; Lahu khò̀ʔ 'munch, bite noisily'

(b)   **-yap*

A few roots may be reconstructed with the palatalized rhyme ***-yap**. The semivowel causes the vowel to front to -e- in WT, Khaling, and Meithei, and to -i- in Nung:

PTB	WT	Jg.	WB	Lahu
*-yap	-eb	-(y)ap	-yap	-oʔ / -uʔ

	PTB	STC	TSR	WT	Jg.	WB	Lahu
'glitter / flash / lightning'	*s-lyap [a]	#213	---	---	---	hlyap	---
'narrow / crowded' [b]	*gyap	---	---	---	---	kyap	cò̀ʔ

338

	PTB	STC	TSR	WT	Jg.	WB	Lahu
'squeeze'	*s/r-nyap	#192	#147	rnyab	nyàp	ñap, hñap [c]	nôʔ ~ nûʔ
'stand'	*g-ryap [d]	#246	#175	---	tsáp	rap	hú
'thin / flat'	*lyap	#212	---	leb-mo, gleb-pa	lyap	---	---

a. Lepcha has a back mid vowel: **lyop** 'flash, glisten', **səlyop** 'sheet-lightning'. This root has been identified as a "Pan-Southeast Asianism" by Bauer (1992), who relates it also to PTB ***yaːp** 'wave, fan' (below).

b. There is a good Chinese comparandum; see (e) below.

c. The WB forms are a simplex / causative pair. This verb appears with 'foot' in Loloish compounds meaning 'shoes' ("foot-squeezers"), *e.g.* Lahu **khí-*nôʔ***, Ahi **tši²²-*no⁴⁴***, Lisu **hchi³-*ni³***. This root is allofamically related to ***s-nip** 'crush / compress'; see below 8.3(3).

d. *Cf.* also Lepcha **hryăm** (with nasal final); Bahing **rap**; Dhimal **dźap**; Mikir **ardźap**, Empeo / Zeme **sap**; Khaling **rep**; Nung **rip**; Meithei **lep**. WB **rap** reflects an unprefixed PLB prototype ***rap^L**, though the Lahu high-rising tone and initial **h-** clearly point to PLB ***ʔ-rap^L**. (Several other Loloish languages also have reflexes with initial laryngeals.)

(c) *-aːp

Several etyma with this rhyme are to be reconstructed with long vowels on the testimony of Chin and Barish languages:

PTB	WT	Jg.	WB	Lahu	Lu.	B&G	Dim.	Kokb.
*-ap	-ab	-ap	-ap	-oʔ / -ú	-ap	-ap	-a(p)	-a
*-aːp	-ab	-ap	-ap	-oʔ / -ú	-aːp	-o	-au	-auʔ

Whereas the short rhyme ***-ap** is preserved as such in Barish languages (Bodo, Garo, sometimes Dimasa), the long rhyme ***-aːp** has developed into open syllables (Bodo and Garo -**o**, Dimasa -**au**). In Kokborok[19] (Tripuri), on the other hand, the short rhyme has become an open syllable, while the long rhyme preserves a final glottal stop:[20]

		-ap				
	PTB	STC	Lushai	Garo	Bodo	Dimasa	Kokborok
'weep'	*krap	#116	ṭap	grap	gap	gara	kra
'fireplace'	*g-tap	#18	tap	tśudap	gadap	gap	---

---

19. This Kokborok data is from a field methods class at Berkeley (1987-88), for which the consultant was Dr. Prashanta Tripura, now at the University of Dhaka, Bangladesh.

*-ap						
	PTB	*STC*	*Lushai*	*Garo*	*Bodo*	*Dimasa*	*Kokborok*
'fork / crotch / groin'	*kap	#338	kap	---	---	ya-*khap*	---

-aːp						
	PTB	*STC*	*Lushai*	*Garo*	*Bodo*	*Dimasa*	*Kokborok*
'shoot'	*gaːp [a]	#219	kaːp	go	gau	gau	kauʔ
'fan / paddle'	*yaːp [b]	#92	zaːp	tśo	dźau	dźau	čauʔ
'forget'	*b-laːp [c]	#335	---	---	---	balau	pəlauʔ
'capable / fit / beautiful'	*taːp [d]	#337	---	ni-*to*	---	thau	---

a. *Cf.* also Tshangla **gap**, Magari **ŋap**, Jg. **gàp**. There are also several Northern Naga reflexes, *e.g.* Moshang **gap**, Nocte **a-hap**, Konyak **khep** (French 1983:545). This root should perhaps be reconstructed with a velar prefix and laryngeal root-intitial, *e.g.* *g-haːp, to accommodate forms like Nung **hwap ~ ap**, Bahing **ap**, Miri **ap**, Lepcha **óp**, Vayu **wop**.

b. *Cf.* also WT **yab-mo**; Miri **məyap**; WB **yap**; Mikir **hi-dźap**; Jingpho **kətsàp**; Tangkhul Naga **kəyap**. Tangkhul is also good for distinguishing vowel length in this rhyme. Short *-ap > TN **-əp** (*e.g.* 'snot' *s-nap > TN **nəp**, while *-aːp > TN **-ap**, as in 'to fan'. See JAM 1972b:280-1.

c. *Cf.* also Jg. **məlàp**.

d. *Cf.* also Jg. **thàp**. Possibly related is the root *m-daw > WB **tau** 'fit, suitable, worthy', Lahu **dɔ** 'be able to fit into' (*DL*:712; above 5.6.2), which might ultimately derive from *m-daːp, with a vocalization of the final labial stop to -**w** as in Bodo-Garo.

See also the following:

'graze / rub / almost hit' [a]	*s-raːp	Lai Chin **hraap** 'be abrasive'; WB **hrap** 'graze, pass over slightly touching; cursory, slight', *hrap*-**tuik** 'walk with a shuffle', **hrap-hrap** 'shuffling (adv.)', *hrap*-**pu-tuik** 'apply heat by rubbing palms together'

a. This etymology is due to KVB. PTB *soy (*STC* #306) has roughly the same meaning: Jg. **sòi**, **gəsói** 'graze, almost hit; abrade, scratch', Lushai **thoi** 'slightly graze, go or pass close by'.

20. No generalization can be made as to whether TB final consonants are better preserved after long vowels than after short ones. Thus in the case of the rhymes *-in / *-it vs. *-iːn / *-iːt, WB preserves the final dental consonants */ -n -t / after the long vowels, while after the short vowels the final consonants are palatalized to / -ñ, -c / . See above 7.2(2) and below 8.3(2), 12.5.

(d)   **-ap ≍ *-am*

There are a few cases attested where an etymon shows variation between ***-ap** and ***-am**:[21]

'swell up / be swollen / stout / calf of leg' ***bwap ≍ *s-bwam**	
*bwap	Jingpho **bòp-lé-lé**, **bòp**, **ləbòp** 'calf of leg'; Lahu **phòʔ** 'swell up' < PLB ***C-pwap^L** (*TSR* #92)
*s-bwam	WT **sbom-pa** 'thick, stout'; Jg. **bōm** 'to swell' ≍ **bòm** 'round and chubby'; WB **phwam**' 'plump', Lushai **puam** 'swollen; to swell' (*STC* #172)

The following root with ***long vowel** shows this same pattern of variation:

'draw / scoop water' ***kaːp ≍ *kam**	
*kaːp	WB **khap**, Akha **xɔ̀q**, Lisu **hkaw^6** 'draw water', Lahu **qhòʔ** 'cupped, concave' (*TSR* #39); Garo **ko**; Dimasa **khau** (*STC* #336)
*kam	Lahu **qho** 'draw water' (< PLB ***kam^1**). See *TSR* #39 and the discussion in JAM 1978a (*VSTB*:108-109).

(e)   *Chinese comparanda*

Chinese comparanda to TB etyma with the rhyme ***-ap** include:

	PTB		*OC*	*GSR*	*GSR Gloss*
'bite / snap at / mouthful'	***hap**	呷	xɑp	[629]	'inhale / drink / sip'
'draw water'	***kaːp**	汲	ki̯əp	681h	'draw water'
'fold / layer'	***g/l-tap**	疊	d'iəp	1255a-b	'pile on / duplicate / repeat'
		褶	d'iəp	690g	'double / lined (garment)'
'fork / groin' [a]	***kap**	梜	ki̯ap ~ kap	630f	'chopsticks'
'join / connect'	***tsyap**	接	tsi̯ap	635e	'connect / come in contact / close to'

---

21. *Cf.* also 'needle', where the Chinese comparandum (see below) has a final nasal.

	PTB		*OC*	*GSR*	*GSR Gloss*
		輯	dz'i̯əp	688d	'come together / assemble / collect' [b]
		集	dz'i̯əp	691a-c	'*id.*'
		揖	tsi̯əp	688g	'cluster together / crowd'
'leaf'	***lap**	葉	di̯ɑp	633d	'leaf'
'lungs'	***wap**	肺	p'i̯wăd	501g	'lungs'[c]
'narrow'	***gyap**	狹	g'ăp	630e	'*id.*'
'needle'	***kap**	針	t̂i̯əm	671o	'needle'
'pinch / squeeze'	***r/s-nyap** [d]	捻	ni̯əp	*AD* 670	'pinch / nip with the fingers'
		鑷	ni̯ap	*AD* 667 [e]	'pincers / tweezers / to pinch / a pinch'
		攝	śni̯ap	638e	'pinch between'
'practice / learn'[f]	***s-lwap**	習	dzi̯əp	690a	'practice / exercise'
'repay'	***tsap**	摺	dzi̯əp	*AD* 781	'duplicate'
		贄	t̂i̯əb	685m	'ceremonial gift'
		答	təp	676a-b	'respond to / answer'[g]
'shell / shield' [h]	***krap**	甲	kap	629a	'shell'
'stand'	***g-ryap**	立	gli̯əp	694a-d	'stand'
'wedge'	***sap**	楔	tsi̯ap	635f	'peg / tenon'
'weep'	***krap**	泣	k'li̯əp	694h	'weep'

a. This Chinese comparison, as well as those to 'repay' and 'wedge', are due to J. Cikoski (p.c. 2001).

b. This and the following two comparanda are suggested by RSC.

c. The final dental in OC could have arisen by assimilation to the *-s suffix that may be posited in this root, which is under the 去聲 *qùshēng* in Middle Chinese. See the discussion in *VSTB*, pp. 113-123.

d. This etymon is allofamically related to ***nip** 'crush / compress / press on', below 8.3(3).

e. Not in *GSR* #638b.

f. *Cf.* WT **slob-pa**, fut. **bslab** 'learn / teach', **slobs** 'exercise / practice'; Dulong sɯ³¹lap⁵⁵ 'teach / tell', *sɯ³¹ lap⁵⁵ ɯ³¹* 'study'. See Gong 2001:32.

g. There is a similar Tai root (*cf.* Siamese tɔ̀ɔp, Lungchow **taap**), though it is probably a loan from Chinese. See Li Fang-Kuei 1977:101.

h. *Cf.* WT **khrab** 'shield / scales'. See Gong 2001:24.

8.3   Stops after medial *-i-

(1)   *-ik and *-i:k

This is a fairly common rhyme, with about a dozen examples in *STC* and around 16 examples in *TSR*. In several languages (notably WB, Lushai, and Meithei), the final ***velar** has been fronted to a palatal or dental stop by the nuclear vowel *-i-.[22] The Mikir reflexes show variation between a high and a mid vowel. There is only one good example of the corresponding long rhyme *-i:k (see 'scorpion', below). A number of etyma show variation between *-ik and similar rhymes, including *-iŋ, *-yak, *-ek, and *-it (see below).

PTB	*WT*	*Jg.*	*WB*	*Lahu*	*Lushai*	*Mikir*	*Meithei*	*Garo*
*-ik	-ig	-iʔ	-ac	-ɨʔ / -ɨ́ a	-it	-ek / -ik	-it	-ik
*-i:k	-ig				-i:t			-ik

a. The final glottal stop disappears (with compensatory development of the high-rising tone) in Lahu reflexes of PLB etyma with *glottalized or *voiceless sibilant initials. See 'bowels / stomach', 'joint', 'new', 'elder brother', below.

As noted above (7.2[2,4]), WB -ac represents the merger of the four PTB stopped rhymes */ -ik -it -ek -et / , just as the corresponding WB nasal rhyme -añ reflects the four homologous PTB rhymes */ -iŋ -in -eŋ -en /.[23] It is especially interesting to note that the PTB > WB shift in palatality from the vowel to the final consonant has been reversed in the passage from WB to the modern Rangoon dialect, where the reflex has become [-ɪʔ], *i.e.* a front vowel again but a non-palatal final stop:

	PTB	*WB*	*Mod. Bs.*
'leopard'	*zik	sac	θɪʔ
'joint'	*tsik	chac	sʰɪʔ
'pheasant'	*s-rik	rac	yɪʔ

---

22. Not all secondary shifts in position of articulation involve high vowels, *e.g.* *-am > Jg. -en, *e.g.* *sam 'breath, voice' > Jg. ǹ-sén, above 7.1(1). *Cf.* also the Lianghe dialect of Achang (Burmish group), where final *labials have become velars, *e.g.* PLB *dzam[1] 'bridge' > Lianghe tśyaŋ[55]; PLB *ʔ-rap[L] 'stand' > Lianghe ʐɯk[55]. See JAM 1991c ("Jiburish revisited"):94-5.

23. The palatal rhymes -ac and -añ are transcribed "-ats" and "-añ" in *STC* (p.78), and "phonemicized" as / -ait / and / -ain / , though they could equally well be considered to represent the neutralization of final dentals and velars: -ait / -aik and -ain / -aiŋ. As mentioned above, these WB palatal finals undoubtedly developed because of Mon influence; final palatals, extremely rare in TB, are the norm in Mon-Khmer.

Similarly, the rhyme *-ik is usually fronted to -it in Lushai and Meithei, *e.g.* 'eye' *s-mik > Lushai **mít**, Meithei **mít**; 'pheasant' *s-rik > Lu. **va-hrit**; 'scorpion' *s-diːk > Lu. **tiːt**.[24] (A counterexample is *s-r(y)ik 'louse' > Lu. **hrik**.) Mikir occasionally preserves the original vowel in this rhyme (*e.g.* *ʔik 'elder brother' > Mk. **ik**), but usually lowers the vowel to -e-, *e.g.* *pik 'bowels' > Mk. **phek**, *tsik 'joint' > Mk. **sek**, *mik 'eye' > Mk. **mek**, *s-r(y)ik 'louse' > Mk. **rek**; *r-lik 'penis / testicle' > Mk. **che-*lèk***; *wik 'tusk / canine tooth' > Mk. **vek**.

Etyma reconstructible with this rhyme include:

	PTB	*STC#*	*TSR#*	*WT*	*WB*	*Lahu*	*Lushai*	*Garo*
'bamboo sprout' [a]	*s-m(y)ik	237	---	smyig-ma	hmyac	---	---	bimik
'bowels / stomach' [b]	*pʷik	35	176	---	---	ɔ̀-*fɨ́*-qō	---	bibik
'burn / angry'[c]	*m-(t)sik	---	77	ḥtshig-pa	---	yî̱ʔ	---	---
'itch' [d]	*m-tsik	---	84	---	cac-cac	jî̱ʔ	---	---
'joint'	*tsik	64	45	tshigs	chac	cɨ́	---	tśik
'leopard' [e]	*g-zik	61	122	gzig	sac	mɔ̀ʔ-*yɨ̱ʔ* [f]	---	---
'louse' [g]	*s-r(y)ik	439	---	śig	---	---	hrik	tik
'mosquito' [h]	*ʔ-bik[L] (PLB)	---	---	---	---	pɨ́	---	---
'new' [i]	*g-sik	--	126	---	sac	ɔ̀-*šɨ́*	---	---
'older brother' [j]	*ʔik	112	172	---	ʔac-kui	ɔ̀-*vɨ́*-pā	---	---
'penis / testicle' [k]	*r-lik	---	170	rlig-pa	---	---	---	---
'pinch / twist' [l]	*sik	---	130	---	---	šɨ́	---	---
'strangle' [m]	*ʔik	113	---	---	ʔac	---	---	---
'tie / bind'	*kik [n]	484	---	ḥkhyig-pa	kyac	chɨ̱ʔ	---	---
'tusk / canine tooth' [o]	*wik	---	---	---	---	---	---	---

a. It is unlikely that there was ever a firm contrast between *-ik and *-yik. See also 'filthy', 'tie / bind', and 'one', below.

b. The immediate precursor of the Lahu form is PLB *ʔ-wik[L] ; *cf.* also Mikir **phek**. See below 8.4(1) for an allofam of this etymon with high back vowel (*puːk), as well as the extended discussion in JAM 1978a (*VSTB*):124-130.

24. Evidently a medial palatal semivowel *-y- sometimes had the same power as nuclear *-i- to front the Lushai reflex of an original final velar, *e.g.* 'sweep' *pyak > Lu. **phiat** (*STC* #174).

344

c. The WT form, glossed as 'angry' in *ZMYYC* #728, literally means 'burn, destroy by fire; be in rut (of animals)'. Lahu yɨ̂ʔ means 'angry', as do Sani n⁴⁴z̩⁴⁴, Lisu dzɨ³ (*TSR*). Many more cognates with this meaning are to be found in *ZMYYC* and *TBL* #1621, *e.g.* Cuona Monpa *tshik⁵³* pᴀ⁵³zᴀ¹³; Motuo Monpa (Tsangla) ro-*tsik*; Yi Dafang ne³³*zi³³*; Yi Nanhua **dzi³³** vu³³; Naxi Lijiang *ʐɯ³¹* tɕhi⁵⁵; Hani Dazhai nɯ³³*zi⁵⁵*. Achang tsit⁵⁵ (*ZMYYC*; *TBL*) apparently reflects secondary fronting of the final, as in Lushai and Meithei. It is quite possible that the etymon 'itch' (below) is allofamically related to this root (as suggested by RSC).

d. *TSR* also cites Akha dzɨ́q. *Cf.* also Lalo **dzíq**. Many more cognates are to be found in *ZMYYC* #900 and *TBL* #1749, *e.g.*: Amdo Tibetan (Bla-brang) tʂhək; Qiang Taoping *dzɿ³¹* zɑ²⁴¹; Pumi Jinghua dzy⁵⁵; Guiqiong tsø⁵⁵; Yi Xide ʑi³³; Yi Nanjian dzɿ³³; Hani Caiyuan tsɿ³³.

e. *Cf.* also Lalo **zìq-pàq**.

f. The Lahu form, literally "monkey-leopard", designates *Felis nebulosa* 'cloudy leopard'.

g. *Cf.* also Jingpho tsíʔ.

h. *Cf.* Lalo **ú-*pìq*** (SB 1998).

i. *Cf.* also rGyalrong kəsik (*STC*:113), kəʃək (*ZMYYC* #866); Zaiwa a²¹sik⁵⁵.

j. The WB and Lahu forms reflect PLB *ʔ-wyikᴸ. *Cf.* also Mikir **ik**.

k. *Cf.* also Spiti lik-pa 'testicle'; Kanauri lik-pā 'penis (polite)' is prob. a loan < Tibetan; Pattani (Manchad) ʈig-*lʰig* 'egg (of animal)'; Cuona Menba thi⁵⁵*liʔ⁵³* 'testicle'; Mikir che-*lèk* 'penis'; Tangut (Nishida) *Le, (Dai Qingxia) *le; Nasu ɬo²¹; Naxi læ³³; Akha lèq (all 'testicle'). Mostly on the basis of this Akha form, this root was reconstructed as *r-lek in *TSR*, since the usual Akha reflex of *-ik is -yq [ɨʔ], *e.g.* *tsikᴸ 'joint' > Akha tsɨ́q; 'new' *sikᴸ > Ak. shɨ̀q; 'elder sibling' *ʔ-wyikᴸ > Ak. à-jɨ̀q. However, the Akha syllable "lyq" [lɨʔ] is very rare, and in any event the testimony of WT should take precedence, so the reconstruction with *-ik is preferable.

l. *Cf.* Lisu (Fraser) shɨ̈¹, Luquan ʂz̩⁵⁵/³³, Lalo **zìq**, Tangkhul khəmə*sik*. *TSR* #130 suggests a relationship with WB **rac** 'wind around, encircle', though this now seems far-fetched.

m. *Cf.* also Nung iʔ.

n. This root shows alternation between *-ik and *-it. See below 12.6.1.

o. So far this root has been identified in only two languages: Lepcha **vik**; Mikir **vek**.

Thanks to Central Chin cognates with long vowels, two etyma may be reconstructed with long *-iːk:[25]

'expose / lay open'	*s-liːk (KVB) > WB **hlac** 'open / expose', Lai Chin **hliik** 'expose sthg / retract (as the foreskin)'
'scorpion / crab / shrimp'	*s-diːk (*STC* #56) > WT **sdig-pa** 'scorpion', **sdig-srin** 'crab / crawfish' (**srin** 'insect'); Lushai **tiːt** ; Garo **na-tik** 'shrimp' (**na** 'fish')

In certain etyma *-ik has been found to vary with other similar rhymes:

(a)   *-ik* ⋛ *-it*

'tie / bind' *k(y)ik ⋛ *k(y)it [a] (*STC* #484)

*k(y)ik   WT ḥkhyig-pa; WB **kyac** (< *gyik); Lahu chɨ̀ʔ; Kom, Aimol, Hallam (all Kuki-Chin) **khit**; Lakher tsə́khi

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25. As noted above 7.2(4), no etyma have so far been reconstructed with the homologous long nasal rhyme **-iːŋ.

'tie / bind' ***k(y)ik ≼ *k(y)it** [a] (*STC* #484)

***k(y)it** [b]	Jg. **kyít** 'gird', **gyìt** 'tie up'

a. The variation is this etymon is established cross-linguistically, though we have pointed out a similar phenomenon intra-linguistically in Lushai, where 'louse' > Lu. -**ik**, while 'eye', 'pheasant', 'scorpion' > Lu. -**it**.

b. The Chinese comparandum reflects the variant with final dental (see §e below). For a similar case of Chinese final dental stop corresponding to velars elsewhere, see 'joint' (*ibid.*).

(b)   ***-ik ≼ *-yak** [26]

'eye' ***s-mik ≼ *s-myak** (*STC* #402; *TSR* #145)

***s-mik**	WT **mig**; Limbu **mik**; Jg. **myìʔ**; Garo **mik**; Lushai **mit**; Meithei **mit**; Mikir **mek**, *etc*.
***s-myak**	rGyalrong **təmńak**; WB **myak**; Lahu *mê̂ʔ* -**śī**; Akha **myáq**, *etc*.

'pheasant' ***s-rik ≼ *s-ryak** (*STC* #403)

***s-rik**	Jg. **ù-rìʔ**; WB **rac**; Garo **grik** (< ***g-rik**); Lushai va-*hrit*
***s-ryak**	WT **sreg-po**; West Tib. **śrag-pa**; Lepcha **kəhryak**

'one / only' [a] ***g-t(y)ik ≼ *tyak** (*STC* pp.84, 94, *etc*.; *TSR* #'s 31, 48, 70)

***g-t(y)ik**	***g-t(y)ik** > WT **gtśig** 'one'; WB **tac** '*id.*'; Akha **tìq** '*id.*'; Lahu **tí** 'only' (< PLB **ʔ-dik^L*), **a-cí** 'a little bit' (< PLB **ʔ-gyik*), WB **kyac** 'be diminutive / smaller than ordinary'
***tyak**	Bumthang **t(h)ek**; Cuona Monpa **t'eʔ**[54]; Bai **tia**

a. This complex word family is discussed in more detail in JAM 1995b ("Numerals"):128-30.

(c)   ***-ik ≼ *-ek** [27]

'filthy' ***s-n(y)ik ≼ *s-n(y)ek** (*STC* #235)[a]

***s-n(y)ik**	WT **snyigs-ma** 'impure sediment'; WB **ñac** 'dirty / filthy'; Dimasa **dźi-***ni* 'dirt'; Nung **ni** 'excrement'
***s-n(y)ek**	Garo **antśnek** 'dirt', **snek** 'sloppy'

a. *STC* also cites Jg. "**nyi ~ nye** 'evacuate the intestines' " in support of the variation in rhyme, though the "**nye**" variant is not to be found either in Hanson (1906), Dai *et al.* (1983), or Maran (1979); the latter two sources agree that **nyí** is in the high-rising tone / ´ / , with no final glottal stop.

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26. Both 'eye' and 'pheasant' have already been adduced in connection with the *-**(y)ak** rhyme, above 8.2(1b). See also JAM 1978a (*VSTB*):40-1.

27. *Cf.* the intra-lingual variation between the Mikir reflexes of etyma in *-**ik** (above).

(d)   **-iŋ ⪦ *-ik*

In both of these examples the stop-final allofam seems to be confined to Lolo-Burmese:[28]

	'tree / wood' **siŋ ⪦ *sik* (*STC* #233; *TSR* #118)
**siŋ	WT śiŋ; Bahing siŋ; Lushai thĭŋ; Mikir theŋ; Bisu tsɯ̀ŋ
**sik	WB sac; Atsi sik; Lahu šîʔ; Nasu siʔ[32]

	'heart' **s-niŋ ⪦ *s-nik* (*STC* #367; *TSR* #146)
**s-niŋ	WT snyiŋ; Kanauri stiŋ; Limbu *niŋ*-wa; Lushai niŋ; Garo təniŋ; Bisu *nɯŋ*-ba
**s-nik	WB hnac; Zaiwa *nik⁵⁵*-lum²¹; Luquan niʔ²²; Lahu *ni*-ma (< PLB *ʔ-ni³)

(e)   *Chinese comparanda*

Chinese comparanda to the TB etyma discussed in this section fall into several interesting classes:

	PTB		OC	GSR	Chinese gloss
'joint'	**tsik	節	tsiet	399e-f	'knot / joint'
'louse' [a]	**s-r(y)ik	蝨	ṣi̯ɛt	506a	'louse'
'tie'	**k(y)ik ⪦ *k(y)it	結	kiet	393p	'to tie / knot'
'eye'	**s-mik ⪦ *s-myak	目	mi̯ôk	1036a-c	'eye'
'one'	**g-t(y)ik ⪦ *tyak	隻	t̂i̯ăk	1260c	'single / one'
'pheasant'	**s-rik ⪦ *s-ryak	翟	d'iok	1124a-b	'pheasant'
'tree / wood'	**siŋ ⪦ *sik	薪	si̯ĕn	382n	'firewood'
'heart'	**s-niŋ ⪦ *s-ni-k	情	dz'i̯ĕng	811*l'*	'feelings'

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28. See below 12.5.3.

	PTB		*OC*	*GSR*	*Chinese gloss*
'strangle'	*ʔik	縊	ʔieg	849g	'strangle'
'bamboo sprout' [b]	*s-m(y)ik	苗	mi̯og	1159a	'grain in the blade / sprout'
'burn / angry'	*m-(t)sik	焦 樵	tsi̯og	1148a,b	'roast / burn / scorch'
		燋	dz'i̯og	1148i	'burn fuel'
		灼	t͡ɕi̯ok	1120f	'burn / brilliant / illuminate'

a. See above §(1) and Tangut śjiw² (Gong 2001:29).

b. This Chinese comparison is due to J. Cikoski.

In 'joint', 'louse', and 'tie', Chinese has a similar development to TB languages like Lushai, with the original final **velar** fronted to a dental.[29] In those etyma showing PTB variation between *-ik and *-yak ('eye', 'one', 'pheasant'), Chinese reflects the *-yak allofam. In etyma with variation between final homorganic stop and nasal ('heart', 'tree / wood'), Chinese reflects the nasal-final allofam;[30] 'tree / wood' illustrates both this Chinese preference for the nasal-final allofam and its propensity for fronting an original final **velar** to a dental (as in 'joint', 'louse', and 'tie'). Finally, the original velar final was preserved in OC 'strangle', 'bamboo sprout', and 'burn / angry', though it disappeared by the MC stage (except in 1120f), leading *GSR* to reconstruct OC *-g instead of *-k.

*(2)   *-it *and* *-iːt*

Unlike the marginal nature of the length contrast in the *-ik rhyme, there are a number of good contrasts between etyma with short *-it vs. long *-iːt. Not only do languages with synchronic length contrasts (*e.g.* Lushai) directly reflect this, but so do Lolo-Burmese languages like WB and Lahu.[31]

PTB	*WT*	*Jg.*	*WB*	*Lahu*	*Lushai*	*Mikir*	*Garo*
*-it	-id	-it	-ac	-iʔ / -í	-it	??	-it
*-iːt	-id	-it	-it	-eʔ / -əʔ	-iːt	-it / -et	-it

29. For the variation between final velar and dental in these etyma, see below 12.6.1.

30. The rather speculative comparison between PTB *s-niŋ and OC dz'i̯ĕng 'feelings' is to be found in Benedict 1976a (STAL).

· Short *-**it** has merged with *-**ik** to become WB -**ac**, while long *-**iːt** has managed to pre-serve its final dental stop, becoming WB -**it**.[32]

· In this rhyme Lahu is of equal value with WB in distinguishing vowel length. Short *-**it** > Lahu -**iʔ** (or -**í** after ***glottalized initials**), whereas long *-**iːt** has developed into Lahu -**eʔ** (varying with -**əʔ** after Lh. **g̈** [ɣ] (< ***r**-) or after Lh. **g**- (< ***m-k/g(r)**-); see 'reap' and 'grind', below).[33]

· Mikir reflexes of four etyma with this rhyme have been identified. All of them happen to exemplify the long version, *-**iːt**. As with the *-**ik** rhyme (see (1) above), Mikir hesitates between high ('grind'; 'leech') and mid ('reap'; 'extinguish') vowels in these words: ***kriːt** 'grind' > Mk. **tśiŋ**-**krit** 'gnash teeth', ***m-liːt** 'water leech' > Mk. **iŋ-lit**; but ***riːt** 'reap' > Mk. **ret**, ***s-miːt** 'extinguish' > Mk. **met**.[34]

(a)   **-it*

Examples of etyma with short *-**it** include:[35]

	PTB/PLB	*TSR#*	*WB*	*Lahu*	*Akha*	*Lisu*
'scorch / burning hot' [a]	*kyit	13	khyac [b]	chîʔ [c]	---	---
'squeeze' [d]	*s-nyit	159	hñac	ní	nyɛ̀q	nyi[1]
'whistle₁ / trill'	*ʔ-dit[L]	50	thac [e]	tí-šîʔ	---	---
'whistle₂' [f]	*sit	119	---	tí-šîʔ	---	sï[3]
'drunk' [g]	*yit	163	yac	---	yɛ̀q	yi[6]
'move' [h]	*m-kyit	112	---	jîʔ	jíq	tʃ ɿ[55]

a. This set does not appear in *STC*. Extra-LB cognates include Tangkhul **kəšit**, Trung **džit**[44]. There is also a good Chinese comparandum, below (e). In *DL*:529, this etymon is erroneously reconstructed as ***kyik**, and the claim is made that it does not appear in *TSR*, where it is actually reconstructed ***kyit** in set #13!

b. 'be burnt, as food'.

c. 'be hot enough to burn; burn oneself; burn by applying something hot'.

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31. See JAM 1985a (*GSTC*):18-20. These differential Lolo-Burmese reflexes were missed in *STC*, leading to the misreconstruction of several roots (*e.g.* 'seven', 'sleep / nod', and 'grind'; see below). This oversight is all the more surprising in view of the fact that *STC* does clearly differentiate length in the homologous nasal-final rhyme *-**in** vs *-**iːn**, largely on the basis of the WB reflexes; see above 7.2(2).

32. This is exactly parallel to the fate of the homologous nasal-final rhymes in WB: PTB *-**in** > WB -**añ**, but *-**iːn** > WB -**in**. See above 7.2(2).

33. The syllables **g̈e** and **ge** do not exist in native Lahu words.

34. In a couple of etyma WT also has a mid-vowel reflex "-**ed**"; see 'extinguish' and 'split', below.

d. ≍ *s-nip (> WB **nip, hnip**) ≍ *s-nyap; see 8.3(3) below.

e. The WB form means 'to notch / interrupt a continuous sound by stops and breaks, as in stuttering'.

f. An excellent extra-LB cognate is WT **sid-pa**. For a likely connection of these forms with *tsut ≍ *tsi(t) 'lungs', see below 8.4(3).

g. *Cf.* also Sani **yiʔ²²**, Lalo **djé ìq** (1st syll. 'liquor', 5.3.2(2a)). Several more apparent cognates are to be found in *ZMYYC* #779, including: (Loloish) Yi Nanjian **ʐi²¹**, Hani Dazhai **jɤ³¹**; (Qiangic) Queyu **zi³⁵ si⁵³**, Ersu **thɛ³³ʐʅ⁵⁵**. Alternatively these Qiangic forms might come from a well-attested open-syllable variant, reflected by WT **bzi-ba** 'drunk' and PLB *m-dzəy¹ 'liquor' (> Lahu **jì** [dzî̩]), Akha **dží**, Lisu **dʒʅ³³**.

h. *Cf.* also rGyalrong **kəntʃi**, Muya **thɯ⁵⁵tɕhi⁵⁵**, Ersu **tʃhʅ⁵⁵tʃhʅ⁵⁵**, Yi Dafang **ndzʅ²¹**, Yi Nanhua **dʑe³³** (all from *ZMYYC* #591.

To these should be added PTB *ʔit 'one' (*STC*:94) > Kanauri **id**, WB **ʔac** 'one / unit', with a good Chinese cognate (below §e).

(b)   *-i:t*

Etyma reflecting the long rhyme *-i:t include:

	PTB	*STC#*	*TSR#*	*WT*	*Jg.*	*WB*	*Lahu*	*Lushai*
'grind' [a]	*kri:t	119	94	---	krìt	krit	gɔ̂ʔ	---
'reap' [b]	*ri:t	371	169	---	---	rit	ğɔ̀ʔ	ri:t
'sleep / nod' [c]	*g/r-nyi:t	236	---	gnyid	---	ñit	---	---
'goat' [d]	*tsi:t	p. 88	27	---	---	chit	á-chèʔ	---
'leech' [e]	*m-li:t	396	---	---	líp	---	---	hli:t
'extinguish / shut / blink' [f]	*s-mi:t	374	---	med-pa [g]	---	hmit	mèʔ	timit
'split' [h]	*(d)zi:t ≍ *(t)si:t	---	88	zed	šìt	cit	jêʔ [i]	---
'copula / be' [j]	*s-ri:t	264	---	srid-pa	---	---	hêʔ	---

a. Also Lalo **gɔ́q**, Bahing **khrit**; Nung **əgyit**, Mikir **tśiŋkrit**. The Jg. and Mk. forms refer to grinding the teeth, as does WT **so** *khrig-khrig* **byed-pa** (so 'tooth'), the latter reflecting a variant in *-ik.

b. Also Lisu (Fraser) **rgh⁶**; Achang **ʐit⁵⁵**; Mikir **ret**; Miri **rit**.

c. Also WT **rnyid-pa** 'wither / droop'.

d. Also Dulong **a³¹tɕit⁵⁵**, rGyalrong **tʃhət**, and many other cognates, to be found *e.g.* in *ZMYYC* #116 and #117, including: (Qiangic) Pumi Jinghua *tshɤ⁵⁵* **ʒãu**, Ergong *tshɛ-ɣi*, Muya *tshɯ⁵⁵* **ʁa³⁵**, Namuyi **jo⁵⁵***tshʅ³⁵* ; Shixing **tshʅ⁵⁵**; (Lolo-Burmese) Langsu *tʃhat⁵⁵* **pɛʔ⁵⁵**, Yi Xide **tʂhʅ⁵⁵**, Lisu **a⁵⁵tʃhʅ⁴¹**, Naxi Lijiang *tshɯ⁵⁵* **ʐu³¹**, Jinuo *tɕhi⁴⁴* **pɛ⁴²**.

e. Also Lepcha **hlet-bŭ**, Ao Naga **melet**, Mikir **iŋ-lit**. The Jg. form reflects a variant with final labial stop.

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35. None of these appear in *STC*, probably because most of the supporting forms are from Lolo-Burmese.

f. Probably because of the meaning difference from the forms meaning 'extinguish', WB **hmit** 'shut the eye / blink' is not cited in *STC*. Lahu **mèʔ** means 'shut abruptly (as the mouth or eyes) / wink / blink / go on and off rapidly / flicker' (*DL*:1008). *Cf.* also Akha **míq** 'be extinguished', **myáqmíq** 'close one's eyes', Mikir **met**, Garo **kimit** 'extinguish'. The low-stopped tone of the Lahu form reflects the unprefixed root *mit, but the *s- prefix is clearly reflected in WB **hmit**, as well as in Nung **śəmit**, Jg. (Assamese dial.) **simit**, Tangkhul **khəśimit**, and Lushai **timit**. The short vowel in the latter form suggests that a long ≍ short alternation should be set up for this root. WB **hmîn** 'have the eyes shut' points to an allofam with homorganic final nasal, *s-miːn (below 12.5.2). This etymon also has an excellent Chinese cognate (see below).

g. The WT form means 'not to exist'. I have elsewhere interpreted this WT form as a fusion of **mi** 'negative' plus **red-pa** 'be' (the latter related to WT **srid-pa**; see 'copula / be', below). See JAM 1985a(*GSTC*):64.

h. This root shows fricative ≍ affricate variation (see above 3.3).

i. *TSR* has Lahu **jîʔ**, but *DL*:572 correctly gives **jêʔ** as the basic form.

j. The WT and Lahu forms are allofamically related to WB **hri'** (< *s-ri (see above 5.3.2). Another variant, with -u-vocalism, underlies WB **hut** 'be the case' (< *s-rut). See the discussion of "copular allofamy" in JAM 1985a (*GSTC*), esp. pp. 19, 63-4.

(c)   ***-yat > *-it**

The important root for 'eight' ***b-r-gyat ≍ *(b)g-ryat** (*STC* #163) is reconstructed with *-yat at the PTB level (> WT **brgyad**, Thulung **yet**, Jg. **mətsát**, rGyalrong **wərjat**, Garo **tśhet**, Lushai **riat**), though it had developed to *ʔ-rit[L] by the PLB period:[36]

> 'eight'   PLB *ʔ-rit[L] (*TSR* #171) > WB **hrac**, Atsi **šit**, Lahu **hí**, Akha **yèq**, Lisu **he**[41], *etc.*

This close relationship between the rhymes *-yat and *-it parallels the interchange between *-yak and *-ik, above 8.3(1b).

(d)   ***-is > *-it**

In several cases an etymon reconstructible with *-it at a relatively recent time-depth (*e.g.* at the PLB stage) can be shown to descend from an earlier PTB rhyme with sibilant final, *-is:[37]

'two'	PTB *g-ni-s (*cf.* WT **gnyis** ; *STC* #4) > PLB *ʔ-nit (*cf.* WB **hnac**), Lahu **nî** (< *ni²); *TSR* #160)
'seven'	PTB *s-nis (*cf.* Kanauri **stis**, Jg. **sənìt**; *STC* #5) > PLB *s-ni-t (*cf.* WB **khu'-hnac**, Lahu **šɨ** (< *s-[n]i², with prefix preemption); *TSR* #128)
'wet / soak'	PTB *m-ti-s (*cf.* Kanauri **thiss** 'wet'; Jg. **mədī** 'wet', **mədìt** 'make wet'; *STC* p.16 *etc.*) > PLB *m/ʔ-tit[H] (*cf.* Lahu **tîʔ**, Akha **dɣ́q** 'soak' ≍ PTB *ti(y) 'water' (*cf.* Lahu **dì** (< PLB *ndi¹) 'ejaculate'; *STC* #55, *TSR* #109)

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36. For more detailed discussion see JAM 1995b ("Numerals"):203-6.

37. See below 10.2.

(e)   Chinese comparanda

Chinese comparanda to TB etyma discussed in this section include:

	PTB	*OC*		*GSR#*	*Chinese gloss*
'eight'	*b-r-gyat ≍ *(b)g-ryat	八	pwăt	281a-d	'eight'
'extinguish / blink'	*s-miːt	滅	mi̯at	294b	'drown / extinguish / destroy'
'leech'	*m-liːt	蛭	t̂i̯ĕt	--- a	'water leech'
'one'	*ʔit	一	ʔi̯ĕt	394a-d	'one'
'seven'	*s-nis	七	ts'i̯ĕt	400a-d	'seven'
'two'	*g-nis	二	ni̯ər	564a-d	'two'

a. Not in *GSR* #413.

At least three roots ('tear / rip', 'wipe', 'lung') show variation between *-**it** and *-**ut**; they will be discussed under the *-**ut** rhyme, below 8.4(3). See also 12.1 below.

(3)   *-ip

*-**ip** is the least well attested of the stopped rhymes with the vowel *-**i**-, but even so there are about eight good examples of etyma with this rhyme in *STC* and *TSR*. In several cases an etymon shows variation between *-**ip** and *-**up**. What little evidence there is for a length contrast in this rhyme is provided by languages like Lushai where contrastive vowel length persists synchronically. The reflexes of *-**ip** are straightforward in the criterial languages:

PTB	WT	Jg.	WB	Lahu	Mikir	Lushai	Garo
*-ip	-ib	-ip	-ip	-ɨʔ / -əʔ / -iʔ / -eʔ	-ip / -ep	-ip	-ip
*-iːp						-iːp	-ip

As with most stopped rhymes after medial *-**i**-, Mikir here shows variation between -**i**- and -**e**- : ***gip** 'ten' > Mk. **kep**, but ***b/pip** 'conceal / bury' > Mk. **pip** (see below). The "regular" Lahu reflex seems to be -ɨʔ (*cf.* 'sleep'), with -əʔ appearing after ğ̈- [ɣ] < ***r**- ('shade / shadow'), since no Lahu syllable of the form **ğ̈ɨʔ exists. In etyma with PLB ***dental stop** initials ('wrap'), the Lahu reflex is -iʔ, since Lahu dental stops do not occur before -ɨ or -ə in native words. In etyma with PLB ***glottalized** or ***prefixed** sibilant initials ('put to sleep'; 'thirsty', perhaps also 'squeeze'), Lahu has the vowel -i in the

high-rising tone: **-í**. Finally, in the one example of a lateral-initialled etymon with this rhyme, Lahu has **-eʔ**.

Examples of etyma with the invariant ***-ip** rhyme include:

	PTB/PLB	*STC*	*TSR*	*WT*	*Jg.*	*WB*	*Lahu*
'roll (n.) / curled object'	***lip**[L] (PLB)	---	---	---	---	ʔəlip	ɔ̀-lɛ̀ʔ
'shade / shadow'	***g/s-rip**	p.113	#189	ḥgrib-pa [a]	kríp	(ʔə)rip	ɔ̀- g̈ɔ̀ʔ [b]
'ten'	***gip**	#16	---	---	---	(ʔə)kyip [c]	---
'thirsty'	***C-sip**[L] (PLB)	---	#129	---	---	mwat-*sip* [d]	ší

a. Other WT allofams include **sgrib-pa** 'darken(ed)', **grib** 'shade / shadow', **srib-pa** 'grow dark', **rab-rib ~ hrab-hrib** 'mist / dimness'; the Jg. form means 'abate / die down (as a fire)'; *cf.* also Tangkhul Naga **yɯ** 'be shady'.

b. Lh. has a doublet ɔ̀-ɣɔ̀ʔ 'ember, glowing thing' from the unprefixed variant ***rip**[L]. See DL:1152.

c. The ordinary WB word for 'ten' is **chay**; **kyip** is substituted "when counting rational beings". This etymon is not reflected in the other criterial languages, but *cf.* Limbu **gip**, Miju **kap ~ kyep**, Mikir **kep**, Maring **tśip**, Yawdwin (So. Kukish) **gyip**. There is a Chinese cognate (below).

d. The WB form is glossed 'be hungry or thirsty' in Judson 1953 / 66:797; for **mwat** 'hungry', see above 8.2(2). So far this root has only been found in Lolo-Burmese; *cf.* also Zaiwa **vui⁵¹ʃit⁵⁵**, Ahi **sʅ⁴⁴**, Sani **sʐʔ²²**, Lisu **se⁴¹**, Jinuo **ɕi³³**, Lalo **sìq**. The Lahu high-rising tone reflects some sort of voiced prefix at the PLB stage, symbolized by "C-".

The following root (not in *STC* or *TSR*) has so far only been identified in Kamarupan languages:

'scale (of fish)' [a]	***s-lip** > Mikir **lìp**; Lushai **phu-*hlip*** ; Moyon **ŋa-*phrìp*** (< ŋa-phu-*rip*); Tiddim **lip³**; Rongmei **ka-*lip*** ; Liangmei **ka-kha-*lêp*** ; Zeme **he¹ka⁵*lip¹***; Tangkhul **ərip¹**; Kom Rem **ŋərip**

a. This root is quite distinct from ***sep** 'scale', below 8.5(3).

(a)   ***-iːp**

The lone example of long ***-iːp** so far uncovered rests on Chin evidence:

'shut / close / be close together'	***dzyiːp** (*STC* #370) > Garo **tśip**; Lushai **tśiːp**; Lai **ciip**; WB **cip** 'set close together; close / near (in time or space)'.

(b)   *-ip ≋ *-up*

A number of etyma with this rhyme display front ~ back variation, either already at the PTB stage or at the level of a particular subgroup of TB (especially Bodo-Garo)[38]. Roots showing *-ip ≋ *-up variation include:[39]

	'sleep' *s-yip ≋ *s-yup (*STC* #114, *TSR* #180; *ZMYYC* #582)
*s-yip	WT **yib-pa** 'hide oneself'; Jg. **(y)íp** 'conceal information', Bahing **ip**; Nung **ip**; Ao Naga **yip**; WB **ʔip** 'sleep', **sip** (< *s-yip) 'put to sleep'; Lahu **yìʔ** 'sleep', **í** (< *ʔ-yip < *s-yip) 'put to sleep'; Sani **šɿ⁵⁵** 'put to sleep'; Guiqiong **jø⁵⁵**; Namuyi **jy³³**
*s-yup	Jg. **ʔyúp** 'sleep'; Miri **yup**; Akha **yùq**; Bisu **jù**; Zaiwa **jṳp⁵⁵**; Bokar Adi **jup**
	'sink¹ / dive' *lip ≋ *lup (*STC* #375)[a]
*lip	Jg. **phūn-*líp*** 'dive'; Garo **tśi *rip*** 'dive', **srip** 'sink'
*lup	Bodo **thrup** 'sink'
	'wrap' *tip ≋ *tup (*TSR* #23, *ZMYYC* #663)[b]
*tip	Lahu **thîʔ**; Akha **tø̱q**; Yi Dafang **thi³³**; Yi Nanjian **thy³³**
*tup	Jg. **thúp**; WB **tup** 'tie together', **thup** 'wrap up'
	'conceal / bury' *b/pip ≋ *b/pup (*STC* #376)[c]
*b/pip	WT **byib-pa** 'cover / wrap up / conceal'; Mikir **pip** 'bury'
*b/pup	Bodo **phop ~ fop** 'bury'

a. Dimasa shows internal variation: **lip ~ lup** 'dive', **gilib ~ gulub** 'drown'.

b. This root also has an allofam with the homorganic final nasal: *tum > WT **ḥthum** 'cover over / wrap up / envelop', Jg. **thùm** 'tie in a knot'.

c. Dimasa again shows internal variation: **bib ~ bub** 'conceal oneself', **phip ~ phup** 'bury'.

There is a particularly interesting word-family involving the *-ip rhyme, which comprises intransitive verbs in the semantic area of *sinking*, as well as transitive verbs

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38. See below 8.4(3) and 12.1.

39. For an example of *-ip ≋ *-op variation, see 'suck', below 8.6(3). See also the WT variation in 'whisper', below §c.

referring to *compression / pinching* (*i.e.* causing to sink). This word family illustrates four types of variation in rhyme:

(a)	front �done back high vowels: *-**ip** ⋖ *-**up**
(b)	monophthongal *-**ip** ⋖ diphthongal *-**yap** [a]
(c)	final labial ⋖ dental stop: *-**ip** ⋖ *-**it** [b / c]
(d)	final stop & nasal: *-**ip** ⋖ *-**im** [d]

a. *Cf.* the discussion of *-**ik** ⋖ *-**yak** variation, 8.3(1b) above.

b. *STC* does not recognize the phonosemantic interrelationship among its three separately reconstructed roots, ***nip** 'crush / compress' (p.84), ***nup** ~ ***nip** 'sink' (#400), and ***nyap** 'pinch / squeeze' (#192). The allofam ***s-nyit** is not recognized in *STC* at all. *TSR* (p. 60) recognizes the "close relationship" between PLB ***s-nyap** (*TSR* #148) and PLB ***nip** ⋖ *ʔ-**nip** ⋖ *ʔ-**nyit** (*TSR* #159). There are good Chinese comparanda, below (c).

c. Another ramified word-family with similar variational patterns is 'body hair' ***s / r-mul** ⋖ *-**mil** ⋖ *-**myal**, below 9.3.2(2).

d. Cf. WB **hnip** 'crush / put down / oppress' ⋖ Lai Chin **hním** 'press down'

*s-**nip**	Bahing **nip** 'compress / express'; WB **nip** 'be kept down', **hnip** 'crush / put down / oppress'; Jg. **nìp** 'set (of the sun) / grow dark / cast a shadow / be dim', Nung **nəm nip lam** 'west' ("sun-sink-path") [*cf. STC* p. 84; *TSR* #159]
*s-**nup**	WT **nub-pa** 'fall gradually / sink / set (sun, moon) / decay / decline', **nub** 'west, evening'; Lepcha **nŭp** 'be covered with water'; Proto-Barish *(h)**nap** < *s-**nup** 'set (sun) / sink / drown / enter / penetrate' [C*f. STC* #400]
*s/r-**nyap** [a]	WT **rnyap-pa** 'seize or snatch together'; Jg. **nyàp** 'squeeze / extort'; WB **ñap** 'be squeezed', **hñap** 'pinch / squeeze / blacksmith's tongs'; Lahu **nôʔ** 'pinch / squeeze', **khí-nôʔ** 'shoes' ("foot-pinchers"), **mɛ́-nôʔ** 'scissors' [*cf. STC* #192; *TSR* #147]
*s-**nyit** [b]	WB **hñac** 'squeeze / to milk'; Lahu **ní** 'squeeze / press / force smn / oppress',[c] Akha **nyɛ̀q**; Lisu **nyi**[55], Zaiwa **ne̠**[55]; Langsu **na̠i**[55] [*cf. TSR* #159, *ZMYYC* #671]

a. This variant has already been presented under *-**ap**, above 8.2(3).

b. This variant has already been presented under *-**it**, §2 above. Jingpho occasionally shows interchange between final -**p** and -**t** after front vowels, *e.g.* **ŝiŋlèt** ⋖ **ŝiŋlèp** 'tongue' (Hanson 1906:623). *Cf.* also Jg. **líp** 'sp. of horse-leech' < PTB ***m-liːt** (*ibid*).

c. This Lahu form could alternatively descend from the *s-**nip** variant, since the Lh. reflex of *-**ip** is -**í** after *glottalized initials (above).

(c)   *Chinese comparanda* [40]

Chinese comparanda to the etyma in this section include:

	PTB		*OC*	*GSR*	*Chinese gloss*
'ten'	*gip	十	ḍ̪i̯əp	686a-d	'ten'
'sink / enter'	*nip ≽ *nyap ≽ *nup	入	ńi̯əp	695a-d	'enter / bring in'
'crush / compress / press on' [a]	*nip ≽ *nyap	躡	ni̯ap	638b	'trample'
'whisper' [b]	*syip ≽ *syup	聑	ts'i̯əp ~ tsi̯əp	688a	'*id.*'

a. This is probably the same etymon as 'sink / enter', the common core of meaning being downward motion.

b. Cf WT **śib-pa ~ śub-pa** (contra *STC*:170, which has the typo "**sib-pa**").

8.4   *Stops after medial *-u-*

(1)   ***-uk** and ***-uːk**

This is a very well attested rhyme, with about 17 good examples in *STC* and over 20 in *TSR*.[41] There is considerable evidence for a length contrast in this rhyme, especially from Burmese, Lepcha, Bodo-Garo, and Kuki-Chin-Naga languages like Lushai, Sho, and Tangkhul Naga. The reflexes in the criterial languages are as follows:

PTB	WT	Lp.	Jg.	WB	Lahu	Lu.	Sho	TN	Garo	Dimasa
*-uk	-ug	-ăk	-uʔ	-auk	-ɔʔ	-uk	-ok	-ɯ	-ok	-o
*-uːk	-ug	-uk	-uʔ	-uik	?	-uːk	-ūk	-uk	-ik	-i(k) ~ -u(k)

(a)   ***-uk**

Sets exemplifying short ***-uk** include:

	PTB	*STC*	*TSR*	*WT*	*Jg*	*WB*	*Lahu*	*Lu.*	*Garo*	*Dim.*
'basket / pouch'	*kuk	#393	---	khug-ma	---	---	---	---	khok	*baiŋ-kho*
'bean' [a]	*s-nuk	---	#140	---	noʔ³¹	nauk	nɔ̂ʔ	---	---	---

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40. See below 12.1(3).

41. The sets in this category are reconstructed with PLB ***-ok** in *TSR*. For discussion of a possible ***-uk** / ***-ok** contrast at the PLB level, see below 8.6(1).

	PTB	*STC*	*TSR*	*WT*	*Jg*	*WB*	*Lahu*	*Lu.*	*Garo*	*Dim.*
'bend sthg. down' [b]	*muk (PLB)	---	#137	---	---	---	mùʔ	---	---	---
'brain' [c]	*s-nuk	#483	#156	---	núʔ	û-*hnauk*	ú-*nɔ̀ʔ* -nɛ̂ʔ	---	---	---
'collide / butt against' [d]	*m-kuk (PLB)	---	#80	---	---	---	gûʔ	---	---	---
'crooked / bent' [e]	*g/kuk	p.77	#2	ḥgug-pa	---	kauk	qɔ̀ʔ	---	---	---
'cut / knock' [f]	*tuk	#387	#15	---	---	tauk	thɔ̂ʔ	tuk	dok / dak	do
'deer'	*d-yuk	#386	---	---	---	---	---	sa-*zuk*	mat-*tśok* [g]	moso
'enough'	*luk [h]	p.88	#164	---	---	lauk	lɔ̀ʔ	---	---	---
'monkey'	*m-yuk [i]	p.112	#133	---	---	myauk	mɔ̀ʔ	---	---	---
'neck'	*tuk [j]	#392	---	---	dùʔ	---	---	---	gitok	godo
'pen / corral' [k]	*kruk	---	#16	---	---	---	khɔ̂ʔ	---	---	---
'pick up' [l]	*s-g-ruk	---	#187	sgrug-pa	---	kauk	ğɔ̂ʔ ~ vɔ̂ʔ	---	---	---
'poison' [m]	*duk	#472	#113	dug	---	tauk	tɔ̀ʔ	---	---	---
'return / year' [n]	*kuk	---	#34	---	---	---	qhɔ̀ʔ	---	---	---
'shoot' [o]	*m-puk	---	#108	---	---	p(h)auk	bɔ̂ʔ	---	---	---
'six'	*d/k-ruk	#411	#35	drug	knúʔ	khrauk	khɔ̂ʔ	ruk	dok	do
'steep'	*tsyuk	#353	---	---	---	tsauk	---	tśhuk	---	---
'waist' [p]	*gyuk	---	#6	---	---	*kyauk*-kap	cɔ̀ʔ	---	---	---
'wear on head' [q]	*kuk	---	#12	---	---	---	qhɔ̂ʔ	---	---	---

a. *Cf.* also Akha á-nýq, Lisu no⁴⁴, Sani nu⁴⁴, Bisu *nū*-kɔ̀ŋ. Many extra-LB cognates are to be found in *ZMYYC* #201, *e.g.* (Qiangic) rGyalrong tɐstok, Ergong sthɔ (both with denasalization), Pumi Taoba ȵo⁵³, Muya ndɯ³³xɯ⁵³, Queyu nu⁵³, Guiqiong ȵo³⁵, Namuyi *u⁵⁵*ly³³; (Nungish) Anong ɑ³¹nu⁵⁵, Nusu nɯ⁵³, Dulong ɑ³¹nɔʔ⁵⁵.

b. *Cf.* also Akha (ILH) mòq 'bend head down'. Contra TSR #137 there is no connection with *m-lyəw-k 'swallow (v.)', which has become Akha myòq.

c. The first morpheme in WB and Lahu means 'head'. *Cf.* also Sgaw Karen khóʔ-*nùʔ*, Pwo Karen khóʔ-*nɔ̀* (khóʔ 'head').

d. *Cf.* also Sani gɤ⁴⁴ (Ma Xueliang 1951). This root remains sparsely attested. See *DL*:408.

e. *Cf.* also Bahing **guk** 'be bent' �== **kuk** 'make bent', Limbu **pɛgɔk**. This root is allofamic both with ***kuk** 'return / year' and ***m-ku:k** 'angle, knee'; there are also solid Chinese comparanda (see §§b,d).

f. Glossed 'peck / strike with curved instrument / hook onto' in *TSR*; see Lahu **thɔʔ** 'peck (as fowl), strike (as snake)' (< PLB ***tuk^H**) �== Lh. **dɔʔ** 'strike, beat' (< PLB ***m-tuk^H**). *Cf.* also Lepcha **tyók** 'collide, knock against'. There is a possible relationship between this root and 'spit / spew' (below, § b); *cf.* Mikir **iŋ-tok**, glossed 'to spit, dart, peck, bite (as a snake); spittle' (*STC*, n. 189).

g. Garo has a variant **mat-*t͜sak***, displaying the same -o- �== -a- alternation as in 'cut / knock'.

h. This root is best attested in LB (*cf.* also Lalo **ʔlùq**, with unexplained preglottalized initial), but (contra *STC* pp. 203, 213) it is also to be found elsewhere, *e.g.* Shixing **lu³⁵**; Bai Jianchuan **lu⁵⁵**; Karen **lø⁵⁵**.

i. The prefixal nature of the labial nasal is evidenced by forms like Chepang **yuk**, Bhramu **pəyuk**, Digaro **təmyu**, Gurung **timyu**, Bahing **moro**. Many more cognates are to be found in *TSR* #133 and *ZMYYC* #128.

j. *Cf.* also Lepcha **tŭk-tok**, Mikir **t͜sethok**. The Lepcha vowel reflex is irregular (we would expect Lp. -ăk < *-uk; see § c(ii) below. This led Benedict to revise the PTB reconstruction to ***twak** (*STC*, n. 231), though this is inconsistent with the Jingpho form.

k. Possible cognates include Shixing (Qiangic) **khuɛ** and several Lolo-Burmese forms, including Achang **kok⁵⁵**, Yi Xide **xo³³**, Hani Luchun **ku̱³³**, Gazhuo **xɤ³³**; perhaps also Bai Jianchuan **ɣu²¹**. See *TBL* #'s 503-507.

l. *TSR* #187 reconstructs PLB ***k-ruk^H** (HIGH-stopped tone); *cf.* also Akha **ɣóq**, Maru **kyuk**. Many other cognates are to be found in *ZMYYC* #556, including: Cuona Menba **ru²ʔ¹³**, Muya **tho⁵⁵ŋguɯ³⁵**, Ersu **ngo⁵⁵**, Yi Xide **ŋgu³³**, Yi Dafang **kə³³**, Yi Nanjian **ɣo³³**, Yi Mile (Axi) **kɯ³³**, Lisu **go⁴⁴**, Hani Caiyuan **kɤ³³**, Hani Dazhai **ɣu³³**, Hani Shuikui **ʋ³³**, Jinuo **ko⁴²**, Achang **kuʔ⁵⁵**, Zaiwa **kuʔ²¹**. The complex initial consonant group has been broken down differently in the various languages: some languages (*e.g.* WB, Lisu) have undergone preemption of the resonant root-initial by the velar prefix (***k-ruk** > ***kuk**); others (*e.g.* WT, Maru) preserve traces both of a prefix and the resonant initial; while still others (*e.g.* Lahu, Akha, Cuona Menba, Yi Nanjian, Hani Dazhai) seem to reflect the simple resonant (***ruk**), although the HIGH-stopped tone of the Loloish cognates is due to the influence of the voiceless velar prefix that still existed at the PLB stage (***k-ruk^H**).

m. Lahu **tɔʔ** 'be poisonous; be revolted by food, as a pregnant woman', **ɔ̀-tɔʔ-ma** 'poison'. There is an excellent Chinese cognate (below §d).

n. This morpheme means 'return' in the sense of 'give / take back', and by extension 'year' (a year keeps returning in annual cycles). A voiced prefix must be hypothesized at the PLB stage to account for the low-stopped tone, *i.e.* ***C-kuk^L**. There are many cognates in Loloish, including Akha **xòq**, Ahi **khu²⁴⁴**, Sani **qhuʔ²²**, Lisu **kho⁴¹**, Naxi Lijiang **khv⁵⁵**. Several of the Qiangic forms cited in *ZMYYC* #63 are probably also cognate, including Pumi Taoba **ko³⁵**, Ergong **ko**, Muya **kui⁵³**, Queyu **ko⁵⁵**, Namuyi **kuəˀ⁵⁵**, Shixing **qhɐ⁵⁵**. This root is allofamic with 'crooked / bent', above.

o. WB **pauk** 'go off, as a gun' �== **phauk** 'to fire a gun'; the voiced Lahu initial reflects a nasal prefix (confirmed by Yi Xide and Yi Dafang **mbe³³**). This etymon was reconstructed with the unusual PLB rhyme ***-ŏk** in *TSR* #108, because of several Loloish reflexes with front rounded, central, or back unrounded vowels: Akha **bǿq**, Bisu **pɤ̱**, Nasu **b'ə-ʔ³²**, Lisu **buɯ⁴⁴**. See also *ZMYYC* #688.

p. The WB form means 'kidney' (lit. "waist-adjoin"). Other LB cognates include Akha **jòq**, Ahi **dzu²⁴⁴**, Bisu **kjɔ̀ ~ t͜sɔ̀**. Two PLB allofams are reconstructed in *TSR* #6, "***gyok** �== ***džok**"; now revised to ***gyuk** �== ***džuk**. The latter variant seems more widespread both in Lolo-Burmese and in TB as a whole. Several putative Qiangic cognates are to be found in *ZMYYC* #261 and *TBL* #98, including: Pumi Taoba **dzɨ³⁵**, Pumi Jinghua **dʒə¹³**, Guiqiong **ʐo³⁵**, Ersu **dʒu⁵⁵**, Namuyi **dzu̱³³**.

q. This root may be confined to Lolo-Burmese. *Cf.* also Akha **xóq**, Sani **qhu⁴⁴**, Lisu (Fraser) **hkaw²**, Lalo **khúq**, Bisu **khɔ̄**, Yi Weishan **kho³³**, Yi Nanhua **khu̱³³**, Jinuo **kho⁴²**; *cf.* *TBL* #1252.

(b)   **-u:k*

Sets exemplifying long *-u:k include:

	PTB	*STC*	*WT*	*WB*	*Lushai*	*Garo*	*Dimasa*
'knee / angle' ᵃ	***m-ku:k**	p.120	**khug(s)**	---	**khu:p**	---	---
'cave / belly' ᵇ	***p/bu:k**	#358	**phug-pa**	**wam'-puik**	**pu:k**	---	---

	PTB	*STC*	*WT*	*WB*	*Lushai*	*Garo*	*Dimasa*
'cubit / armlength' [c]	*muːk	#394	---	muik	---	mik	mu (Bodo)
'deep / thick'	*tuːk	#356	ḥthug-pa	tʰuik	thuːk	dik	dib-bi, dub-pa [d]
'foggy / dark'	*r-muːk	#357	rmugs-pa	muik	muːk	---	---
'refuse / dust' [e]	*muːk	#363	---	ʔəhmuik	---	---	---
'shear / strip / pare'	*kuːk	#388	---	kuik	---	kik	khu
'spit / spew'	*m/s-tuːk [f]	p.58, etc.	---	---	---	---	---

a. *Cf.* also Ao Naga **temokok**, Lhota **nkho**, Tangkhul *khuk*-**sau**, Lakher **pəkhu**, Hakha **kuk**. The final -**p** in Lushai is unexplained. See below 12.6.2(2).

b. Garo **ok** 'belly' points to a variant with *short vowel. This root is placed in the context of a much larger word-family of the shape *[s / ʔ]-[p / b][u / i](ː)[k] in JAM 1978a (*VSTB*):124-6.

c. *Cf.* also Proto-Kiranti *muk (Lambichong, Chingtang, Yakha **muk**).

d. The final labial stop in the first syllable looks like a secondary anticipation of the labial initial of the suffix.

e. *Cf.* also Lepcha **muk**, Miri **pömuk**.

f. The long vowel is established by Lepcha **tyuk** 'to spit' ⋊ **dyuk** 'spittle' (see §c-ii below.) *Cf.* also Mikir **iŋ**-*tok* (see *-uk table under §a above); Maru **tauk** 'vomit, spew'; Pa-o Karen **pəthoʔ**, Sgaw Karen *thuʔ*-**pɣɛ** 'spittle', Pwo Karen *tho*-**phliʔ** 'to spit'. A distinct root *m/s-twa is set up to accommodate forms like WT **tho-le**, Jg. **məthó**, Garo **stu**, Rawang **du**, Dimasa **khu-di** *thu*.

(c)   *Differential reflexes in individual languages*

Evidence (or the lack of it) for the length distinction in this rhyme may be summarized language by language as follows:

(i)   *Mikir*

Medial *-**u**- is usually lowered to Mikir -**o**- before final consonants of all types (nasals, stops, and liquids; see above 7.2), whether the *-**u**- was long or not:

		PTB	*Mikir*
*-uk	'neck'	*tuk	tśe-*thok*
	'pouch / bag'	*kuk	hok
	'deer'	*d-yuk	thi-*dźok*
*-uːk	'cave / belly'	*p/buːk	pok
	'spit'	*m/s-tuːk	iŋtok

(ii)   *Lepcha*

Before many types of final consonants (stops, nasals, -s, and perhaps liquids), short medial *-**u**- is lowered to Lepcha -**a**- or -**ă**-, while long *-**uː**- remains a high vowel, transcribed -**u**- or -**ŭ**- :[42]

		PTB	*Lepcha*
*-uk	'six'	*d-ruk	tărăk
*-uːk	'cave / belly'	*puːk	tăfuk
	'weeds'	*muːk	muk
	'foggy / dark'	*r-muːk	muk
	'spit'	*m/s-tuːk	tyuk 'to spit'
			dyuk 'spittle' [a]

> a.   Lepcha medial -**y**- frequently reflects the PTB *s- prefix (Benedict 1943). *Cf.* also Pa-o Karen pəthoʔ.

(iii)   *Sho (S. Kuki)*

Short *-**uk** is lowered to Sho -**ok**, while long *-**uːk** maintains its high status:

		PTB	*Sho*
*-uk	'six'	*d-ruk	sok
*-uːk	'cave / belly'	*puːk	pük
	'deep'	*tuːk	thük
	'foggy / dark'	*muːk	mük

(iv)   *Tangkhul Naga*

Short *-**uk** becomes the high back unrounded vowel -**ɯ** in the transcription of Bhat 1969, while long *-**uːk** retains its final stop and vowel rounding:[43]

		PTB	*TN*
*-uk	'six'	*d-ruk	thərɯ
*-uːk	'angle / knee'	*m-kuːk	khuk

---

42.   See above 7.2(1) for Lp. reflexes of *-u**m** vs. *-u**ːm**; 7.2(5) for Lp. reflexes of *-u**ŋ** vs. *-u**ːŋ**; and below 10.3 for Lp. reflexes of long and short *-**u**- before -**s**.

43.   See JAM 1972b:280-1.

(v) *Bodo-Garo*

As illustrated by the above cognate sets, Bodo-Garo has two distinct sets of correspondences for short *-u- vs. long *-uː- before velar stops, with the long vowel tending to be fronted to -i- :[44]

PTB	Lushai	*WB*	*Garo*	*Dimasa*
*-uk	-uk	-auk	-ok	-o [a]
*-uːk	-uːk	-uik	-ik	-i(k) ⋉ -u(k)

a. The apparent open-vowel reflex in Dimasa may be due to inaccurate recording in old sources; perhaps a better transcription would reveal that these words have final glottal stop.

	PTB	*Garo*	*Dimasa*
'basket / pouch'	*kuk	khok	baiŋ-*kho*
'neck'	*tuk	gi-*tok*	go-*do*
'six'	*d/k-ruk	dok	do
'cubit / armlength'	*muːk	mik	mu (Bodo)
'deep / thick'	*tuːk	dik	dib-bi ⋉ dub-pa [a]
'shear / strip / pare'	*kuːk	kik	khu

a. See above, §b.

(vi) *Burmese*

WB clearly distinguishes short and long *-u(ː)- before velars, whether stops or nasals (see above 7.2(5) for *-uŋ vs. *-uːŋ):[45]

PTB	*WB*
*-uŋ	-auŋ
*-uːŋ	-uiŋ
*-uk	-auk
*-uːk	-uik

---

44. Similar BG reflexes may be distinguished before the homorganic nasal rhymes; see above 7.2(5).

PTB	Lushai	WB	Garo	Dimasa
*-uŋ	-uŋ	-auŋ	-oŋ	-oŋ
*-uːŋ	-uːŋ	-uiŋ	-iŋ	-iŋ ⋉ -uŋ

BG languages are similarly useful in distinguishing length in the *-ap rhyme; see above 8.2(3).

As speculated above, the peculiar diphthongal vocalism of WB **-uik** (now pronounced [-aiʔ] in standard spoken Burmese) might well have developed under Mon influence.

(vii)   Lahu

The normal Lahu reflex of ***-uk** is -ɔʔ, with many examples (above).[46] In a couple of unexplained cases, however, Lahu has a higher vowel, -oʔ or -uʔ / -ú:[47]

	PTB	STC	TSR	WT	WB	Lahu
'burn / kindle'	*duk	---	#62	dugs-pa	tauk	tɔ̀ʔ ≍ tú [a]
'pierce / plant / erect'	*(d)z(y)uːk	#360	#107	ḥdzugs / zug [b]	cuik	jûʔ

a. The Lahu forms are a simplex / causative pair: tɔ̀ʔ 'burn, be on fire' (v.i.) < ***duk ≍ tú** 'set on fire, cause to burn' (v.t.) < PLB ***ʔ-duk**. The high-rising tone of **tú** is conditioned by the *glottalized initial. *Cf.* also Pumi Jiulong dy¹¹, Yi Wuding du¹¹, Sani dɤʔ², Gazhuo tsɤ³³to³⁵ (*TBL* #1269).

b. *Cf.* also WT ḥdźug 'prick, pierce; put into; enter, begin'. This root shows length variation, since Lushai **fuk** points to a short allofam. See *DL*:569.

Another root showing length variation is ***pru(ː)k** 'scratch' (*STC* #391) > WT ḥphrug-pa, WB **phrauk ~ phyauk**, Garo **brik**, Dimasa **buru**. Although WB points to short ***-uk**, the Bodo-Garo forms reflect long ***-uːk**; see §v above.

(d)   Chinese comparanda

Chinese comparanda to the etyma with the TB rhymes discussed in this section include:

	PTB		OC	GSR	GSR Gloss
'belly' [a]	*p/buːk	腹	pi̯ôk	1034h	'belly'
'crooked / bent'	*g/kuk ≍ *m-kuːk	曲	k'i̯uk	1213a	'bend / bent / crooked / unjust'

---

45. WB also has differential reflexes of long and short *-i- before dentals, whether stops and nasals. For the WB treatment of *-in vs. *-iːn, see above 7.2(2); for WB reflexes of *-it vs. *-iːt, see above 8.3(2).

46. There are unfortunately no known examples of Lahu reflexes of etyma with long *-uːk.

47. In my note 232 (p.76) in *STC*, I attempted to posit a distinction between PLB *-ok (> Lh. -ɔʔ) and *-uk (> Lh. -uʔ or -oʔ). This is quite wrong, however (most of the cited examples are extremely doubtful), and in fact both Lahu and WB have merged PTB *-uk and *-ok (to -ɔʔ and -auk, respectively), as illustrated by 'beneath' and 'fear', below 8.6(1). There is also a case of PTB *-ok > Lahu -ú ('outer covering / bark'), below, *ibid.*

	PTB		*OC*	*GSR*	*GSR Gloss*
		局	g'i̯uk	1214a	'compressed / bent / curved / curl, twist (hair)'
		跼	g'i̯uk	1214b	'bend the body'
'custom / manner' b	*luk	俗	dzi̯uk	1220a-b	'rustic / vulgar / popular usage / custom'
'daytime / noon' c	*g-duk	晝	ti̯ôg	1075a	'time of daylight / day'
'piebald / speckled' d	*bruk	駁	pŏk	1127a	'horse with mixed colors / mixed / varicolored'
'poison'	*d/tuk	毒 e	d'ôk	1016a	'poison'
'rouse / awaken / disturb' f	*kruk	覺	kôk ~ kôg	1038f	'awake / rouse into understanding'
		攪	kôg	1038i	'disturb'
'sheep' g	*luk	羭	di̯u	125k	'sheep'
'six'	*d-k-ruk	六	li̯ôk	1032a-d	'six'
'strike' h	*r-tuk	椓	tŭk	1218c	'beat / strike / castrate'
'weep / wail' i	*kuːk	哭	k'uk	1203a	'lament / weep'

a. See the extended discussion of the word family to which this root belongs in JAM 1978a (*VSTB*):123-7.

b. *Cf.* WT **lugs** 'way / manner / method / established manner / custom / usage / rite'. See Gong 2000:#46.

c. *Cf.* WT **gdugs** (eleg.) 'midday / noon / umbrella / canopy'. See Gong 2000:#32.

d. *Cf.* WB **prauk** 'speckled / spotted'. See Gong 2001:22.

e. Since the Lahu cognate to this form, **tɔ̀ʔ**, can mean 'be revolted by food, as a pregnant woman' (above §a), I have speculated that a similar shade of meaning in Chinese might have motivated the graphic component 母 'mother' in this character. *GSR* calls the explanation of this graph "uncertain."

f. *Cf.* WT **dkrug** 'stir / agitate / disturb', **ḫkhrug** 'be disturbed'; Tangut **kio¹ ~ kio²** 'drive / urge'. See Gong 2001:25.

g. *Cf.* WT **lug** 'sheep'. See Gong 2001:22.

h. *Cf.* WT **rdug-pa** 'conquer / vanquish / strike against / stumble at' and perhaps Lahu **dɔ̀ʔ** 'hit / strike / beat', **nī-šī dɔ̀ʔ ve** 'castrate (cattle) by beating the testicles to a pulp'; Yi Xide **ndu²¹** < PLB ***m-tök**ᴴ 'cut by a blow' (TSR #101). See Gong 2000:#20 and *DL*:721. A probable allofam is ***r-duŋ** 'beat / strike' above 7.5(9).

i. *Cf.* Lushai **kuːk** 'shriek' (*STC*:182).

Also to be compared are WB **kauk** 'rice plant' (< PTB ***guk**) and OC **kuk** 穀 'grain' (*GSR* #1226i). See *STC*:181.

(2)   *-uk ⚔ *-uŋ

There are several good examples of variation between ***-uk** and the homorganic nasal rhyme ***-uŋ**, including 'back / behind' ***s-nuŋ** ⚔ ***s-nuk**; 'stone' ***r-luŋ** ⚔ ***k-luk**; 'sit' ***m-d/tuːŋ** ⚔ ***m-du(ː)k**; 'overcast / foggy / sullen' ***muːŋ** ⚔ ***r/s-muːk**. These have already been discussed in 7.2(5), above. See also 12.5.3 below.

(3)   *-ut

This rhyme is relatively rare, with only about a dozen examples in *STC* and *TSR* combined. What little evidence there is for a length contrast comes from Lepcha, but even this is equivocal (see below). There is a pronounced tendency for etyma with this rhyme to have inter- or intra-lingual variants with the corresponding front-vowel rhyme -**it**. The reflexes of ***-ut** are straightforward for the most part:

PTB	WT	Lepcha	Jingpho	WB	Lahu	Garo
*-ut	-ud	-ăt / -ut	-ut	-ut	-əʔ / -ɨʔ	-it

Examples include:

	PTB	STC	TSR	WT	Lepcha	Jingpho	WB	Lahu
'blow' [a]	*s-mut	p.75	#143	ḥbud [b]	măt ⚔ sŭŋ-*mut* [c]	kəwùt	hmut	mɔ̂ʔ
'boil (v.)'	*prut	#131	---	---	---	prùt (v.i.) ⚔ šəprùt (v.t.)	prut	---
'burn / raze' [d]	*put	---	#8	---	---	phùt	phut	---
'mischievous / rowdy / hooligan' [e]	*b-rut	---	---	---	---	---	bərut	---
'inferior / fallen; worse' [f]	*s-ryut	#206	---	---	---	yút ⚔ šəyùt	yut ⚔ hrut	---
'knee' [g]	*put	#7	---	*pus*-mo	tŭk-*păt*	phùt ⚔ ləphùt [h]	---	---
'scrape / carve' [i]	*ku(ː)t	#383	---	---	kut	khùt	kut ⚔ khut	---
'swaggering / noisy' [j]	*ʔut	#109	---	ʔud	---	---	ʔut	---

	PTB	STC	TSR	WT	Lepcha	Jingpho	WB	Lahu
'tear / rip' [k]	*dzyut	---	#110	---	---	---	cut ⪥ chut	jɨ̀ʔ

a. *STC* cites a Jg. (Assam dialect) form "**mut**" (not in Hanson 1906, Hertz 1935, Maran 1979, or Dai *et al.*, 1983), but **kəwùt** (with curiously lenited initial) is the ordinary form. The Lahu high-stopped tone, as well as the aspirated WB initial, confirm the *s- prefix. See also Bahing **(h)mut**, Miri **mut**. Many more cognates are to be found in *ZMYYC* #544, including: Tsangla (Motuo Menba) **mu**; Pumi Taoba **xə³⁵m̥ə³⁵**; Ergong **gɯ-wmɯ**; Guiqiong **mɯ³⁵**; Namuyi **fu⁵³**; Shixing **hũ⁵⁵**; Yi Xide **m̥o³³**; Yi Nanhua **mɯ³³**; Lisu **mu⁴⁴**; Naxi Lijiang **mu³¹**; Hani Shuikui **mɣ³³**; Achang **m̥ut⁵⁵**; Zaiwa **mut²¹**; Dulong **mut⁵³**; Idu **mu⁵⁵**; Bokar Adi **mit**. Note the lenition (similar to the Jingpho form) in Namuyi and Shixing. The nasalization in Shixing either reflects the earlier nasal initial, or (more likely) is due to rhinoglottophilia after the secondary **h-**.

b. See Benedict (1939):217.

c. **măt** 'blow' ⪥ **sŭŋ-mut** ('wind').

d. *Cf.* also Akha **pɤ́q**; Hani **pɯʔ³³**; Lisu **phu³¹**; Jinuo **phu⁵⁵**; Naxi Lijiang **pɣ⁵⁵**.

e. *Cf.* Lai Chin **ruu** (form I) ⪥ **ruut** (form II) 'be mischievous, irresponsible', **mi-*rut*** 'abnormal person'. The Burmese form is glossed as 'personne marginale, qui vit sans loi, qui n'a pas de tenue; voyou' in Bernot 1988, Fasc. 11, p. 42. The *Myanmar-English Dictionary* defines it as 'mischievous or rowdy person' (p. 311). Etymology by KVB.

f. Jg. **yút** 'grow worse, as illness', **šəyùt** 'be apathetic, indifferent'; WB **yut** 'inferior, mean', **hrut** 'put down'. *Cf.* also WT **rud** 'a falling or fallen mass', **kha-rud** 'avalnche', **sa-rud** 'landslide' (WT forms not cited in *STC* #206 but mentioned in Benedict (1939):217.

g. The WT form is from *put-s (WT dental stops do not occur before final -s); there is a W. Tibetan variant *pis*-mo; *cf.* also Nung **phaŋ-*phit*** 'knee', **ur-*phut*** 'elbow', **ra-*phut*** 'shoulder'; Trung **bak⁵⁵*pɯt⁵⁵*** 'knee'; Anong **ra-*phut*** 'shoulder'; Maru **pat-lau** 'knee'; Lepcha **pŭt-li** 'shoulder blade, scapula'. The intralingual vowel variation in WT, Nung and Chinese (see below) could justify including this set in the category of *-ut ⪥ *-it etyma (§a below).

h. **phùt** 'kneel' ⪥ **ləphùt** 'knee'.

i. The semantics of this root are interesting: Lepcha **kut** 'to rule a line', **ăkut** 'strake', **hut** 'scratch', **ăhut** 'a rake'; Jg. **khùt** 'scrape, rub'; Nung **tśəkut** 'itch'; WB **kut** 'scratch', **khut** 'gash, chop, cut, beat (metal)'; Garo **kit** 'carve', **kəkit** 'itch'; Dimasa **khu** 'engrave on wood or stone'.

j. This is a sparsely attested root, with semantically divergent reflexes: WT **ʔud** 'swaggering, bragging'; WB **ʔut** 'noisy'. A homophonous etymon *ʔut 'belch / burp' is reconstructed in *TSR* #161 (> Lahu **ə̀ʔ-ə̀ʔ te ve**; Akha **ø̀q**; Moso **ʌ¹¹**), though the semantic connection with 'noisy' is doubtful, and this word seems imitative in any event.

k. The WB forms are a simplex / causative pair: **cut** 'be torn', **chut** 'tear, sever'. The voiced initial in Lahu reflects a prenasalized PLB variant *m-džut. Many likely cognates are to be found in *ZMYYC* #553, including: Ersu **htʃ1⁵⁵**; Yi Nanhua **tʂi³³**; Yi Mojiang **tɕi³³**; Lisu **tʃ1³⁵**; Hani Caiyuan **tsh1⁵⁵**; Hani Dazhai **tsi³³**; Bai Bijiang **tɕhui⁵⁵ xuɑ⁵⁵**; Tujia **tshi⁵⁵ tsha⁵³**; Achang **tshe²⁵⁵**; Zaiwa **laŋ²¹*tʃheʔ⁵⁵***; Langsu (Maru) **lɔ̃⁵⁵*tʃhat⁵⁵***; Nusu **tshi⁵³**; Geman Deng **dʑit⁵⁵**; Bokar Adi **pu-ҫet**. Many of these cognates have front vowels, leaving open the possibility that this is an etymon with front / back variation, *dzyut ⪥ *dzyit.

Another widespread TB root with this rhyme is PTB *k(r)u-t ⪥ *g(r)u-t 'hand', which appears mostly in Kuki-Chin and Himalayish languages. The stop-finalled allofam is reflected, *e.g.*, by Hayu **got** 'hand', Kanauri **gud(h)** 'hand, arm', Magari **mi-*huʈ* '*id.*'**, Lushai ***kut*-zung** 'finger', Hill Miri **kod'** 'hand, earth', Meithei ***khut*-sa** 'finger', ***khut*-tum** 'fist', Tiddim Chin ***khut*-zûŋ** 'finger', Kom Rem ***kut* tun** 'fist'. Reflexes with medial -r- include Chepang ***krut*-pak** 'palm', ***krut*-brəyh** 'finger'; Gurung **pāːkhruq** 'arm'; in Mru **rut** 'hand', the medial has evidently been reinterpreted as the root initial. The open-syllable allofam appears in WT ***khu*-tsor** 'fist', Meithei ***khu*-jin** 'fingernail', Lushai ***ku*-tang** 'finger', *etc.*, and perhaps also in WB ***khu'*** 'unit, individual thing'.[48]

As noted in 8.4(1) above, Lepcha typically lowers medial *-**u**- to -**ă**-, while long *-**uː**-remains -**u**-. The alternation between 'blow' (Lp. **măt**) and 'wind' (Lp. **sŭŋ**-*mut*) can thus be interpreted as reflecting an earlier *-**mut** ⪥ *-**muːt** alternation, providing some slight evidence for a length contrast in this rhyme. Carrying this further, Lp. **tŭk**-*păt* can be said to confirm the short vowel in ***put** 'knee' , while Lp. **kut** would reflect a long vowel in ***kuːt** 'scrape, carve' (this is not suggested in *STC*).

Another possible root with the rhyme *-**uːt** is most clearly attested in the Chin languages:

'enter'   ***s-luːt**   Lushai and Lai **lùut**, Laizo **lûut**, Tiddim **luut**[1] 'enter'; Thado **hluut**
'put into' (*i.e.* "cause to enter", reflecting the causative ***s**- prefix)

Several Loloish forms are perhaps cognate, including Lh. **lòʔ** (there are no native Lahu syllables of the form ****ləʔ** or ****lɨʔ**); Sani **lɤʔ²²**; Naxi **khv³¹tɕy³¹***lu³³*.[49] A couple of Qiangic forms might also be related: Queyu **lə³⁵***lu⁵³* ; Namuyi **qo³³** *lo³³ lo³³* **bi⁵⁵** (see *ZMYYC* #746).

(a)   Variation with other rhymes

As usual with high-vowel stopped rhymes, one would expect cases of front ⪥ back variation between *-**ut** and *-**it**. The following etymon is a good candidate:[50]

'wipe' *sut ⪥ *sit [a]	
***sut**	WT **śud, bśud** 'rub'; Jg. **kətsút**; WB **sut**; Namuyi **su³⁵**; Shixing **su⁵⁵**; Yi Xide **sɿ³³**; Yi Mile (Axi) and Yi Mojiang **si̠³³**; Lisu **ʃɿ³⁵** ~ **sɿ³⁵**; Naxi Lijiang **sɯ⁵⁵**; Hani Shuikui **si̠³³**; Achang and Zaiwa **sut⁵⁵**; Langsu **sat⁵⁵**; Cho (S. Chin) **thut** 'wipe'; Lai **thuʔ** (Form II); Tangkhul **kəkə***sut* 'scrub'
***sit**	Lahu **šîʔ**; Akha **síq**; Sani **sz̩⁴⁴**

   a. *Cf. TSR* #120, *ZMYYC* #624. This etymon was already recognized in Benedict 1939 ("Semantic differentiation in Indo-Chinese"):217. See below 12.1(2c).

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48. See JAM (1985b "Arm, hand, wing"):431-2. In WB **khu'-hnac** 'seven' (**hnac** 'two') the first syllable in perhaps to be explained as referring to the fingers of the hand as a "unit" in counting (5+2=7). See JAM 1995b:("Numerals"):393 and 1985b:432.

49. This root was diffidently reconstructed as PLB "***luk** or ***lap**" in JAM 1972a (*TSR*) #165 and in *DL*:1382.

50. *Cf.* also the intralingual variation in the Nung and Tibetan forms for 'knee', above.

Several roots show variation between *-**ut** and an open syllable, so that the dental stop appears to be suffixal (see below 11.3):

<table>
<tr><td colspan="2" align="center">'join / tie / knot' *du-t ⩳ *tu-t ^a</td></tr>
<tr><td>*dut ⩳ *tut</td><td>WT dud-pa 'to tie, knot', mdud 'knot, bow', sdud-pa 'put together, join, unite', sdud 'folds of a garment' ^b; Jg. tút 'be joined, bound or tied together', mə<i>tút</i> ~ kə<i>tút</i> 'join, connect', Nung də<i>thut</i> 'join, unite'; Garo stit 'tangle', kə-əni bi-<i>stit</i> 'a knot'</td></tr>
<tr><td>*du ⩳ *tu</td><td>WT ḥdu-ba 'assemble, meet, join', ḥthu-ba 'gather, collect'; Nung thu 'join (as a stream)'</td></tr>
</table>

a. *Cf. STC* #421.

b. WT **sdud-pa** has an interesting polysemy, traced by Jäschke (1881:294-5) as follows: (1) 'to collect, gather;...put together, compile'; (2) 'to unite, join, combine'; (3) 'to condense, comprise; to contract, compress, abridge;...to close, conclude, finish, terminate...'. Bodman (1969) convincingly relates WT **sdud-pa** in its sense 'to close, conclude, finish, terminate' to a Chinese word meaning 'finish; die' (see below).

The following two etyma show both front ⩳ back and *-**ut** ⩳ open syllable variation:

<table>
<tr><td colspan="2" align="center">'stop up / plug up' *tsu(w)-t ⩳ *tsəy ^a</td></tr>
<tr><td>*tsut</td><td>Jg. tsút 'stop up, plug, cork', mətsút 'stopper'</td></tr>
<tr><td>*tsəw</td><td>Nung sü 'to cork', aŋsü 'a cork'; WB chui' 'stop up', ʔəchui 'stopper, plug' (< PLB *tsəw³)</td></tr>
<tr><td>*tsəy</td><td>Lahu chɨ̂ 'close off, close up, stop up, block off, plug' (<i>DL</i>:556-7)</td></tr>
<tr><td colspan="2" align="center">'lungs' ^b *tsut ⩳ *(t)si-t ^c</td></tr>
<tr><td>*tsut</td><td>WB chut; Atsi tsʔut; ; Hayu ɹot; Lakher pa-<i>chao</i></td></tr>
<tr><td>*tsəy</td><td>Lahu ɔ̀-<i>chɨ̂</i>-phôʔ; Sani tshɨ̀</td></tr>
<tr><td>*(t)sit</td><td>Axi <i>tsɿ</i>⁴⁴-pu²²; Lisu (Fraser) sɨ³ 'whistle'; WT <i>sid-pa</i> '<i>id.</i>'; Garo raʔŋ-<i>sit</i> 'breathe, exhale'</td></tr>
</table>

a. *Cf. STC* #422.

b. See above 8.3(2). Note the exactly parallel Lahu forms in 'stop up / plug' and 'lung'. For fricative ⩳ affricate variation, see above 3.3. Many more cognates are to be found in *ZMYYC* #274 and *TBL* #143, including several in the Qiangic group. rGyalrong **tərtshos** (alongside such other Qiangic forms as Pumi Taoba **tshø**³⁵, Ergong **ʐtshe**, Muya **tshɯ**⁵³, Ersu **tshu**⁵⁵, Namuyi *ntshu*³³**phu**⁵⁵, Shixing **tsho**⁵⁵) make one wonder whether this root should be reconstructed with a final *-**s**. Note the last two syllables of Lahu **ɔ̀**-*chɨ̂-phôʔ*, identical etymologically to the Namuyi disyllable.

c. *Cf. TSR* #56, #119; *VSTB* 119-21; *DL*:163, 557; *ZMYYC* #274.

The root presented (above §1) as *(**d**)**z**(**y**)**uːk** 'pierce / plant / erect' (> WT **ḥdzugs** ⩳ **zug** ⩳ **ḥdźug** 'prick, pierce; put into; enter, begin'; WB **cuik** 'erect, set upright, plant';

Lahu **jûʔ** 'pierce, stab'; Lushai **fuk** 'be erect') has several allofamic reflexes that point to final ***-ut**: WT **ḥdzud-pa** 'put, lay', **ḥtshud** 'be put into'; Jingpho **džút** 'be pierced', **šədžút** 'pierce'), thus establishing ***-ut �done *-uk** as an attested TB variational pattern. See below 12.6.1. There is also an open-syllable root ***tsow** glossed 'thorn' (above 5.6.1) that seems allofamically related.

A word-family with truly impressive internal variation has the semantic range 'suck / breast / milk'. Not only does it show a three-way variation in position of articulation of its final stop (-p ⋎ -t ⋎ -k), but also front-back variation (***-up ⋎ *-ip**) and alternation between stopped and open-syllable allofams. Although variants of this root include ***dzyut** (> WB **cut** 'suck, imbibe, absorb') and ***tsyuk** (> Jg. **cúʔ**, Mpi **tɕhuʔ¹**) the word-family as a whole is better discussed under ***-up** (below §3) and ***-oːp**, below 8.6(3).

(b)   *Chinese comparanda*

There are only a couple of Chinese comparanda so far available for the etyma discussed in this section:

		PTB		*OC*	*GSR*	*OC Gloss*
'knee'		***put**	巿	pi̯wət	#501a-b	'knee covers / kneepads'
			韍	pi̯wət	#276*l*	'*id.*'
			韠	pi̯ĕt	#407m	'*id.*'
'tie / knot; conclude / finish'		***s-dut**	卒	tsi̯wət	#490a	'finish; die'

(4)   **-up*

Like ***-ut**, ***-up** is sparsely attested, with only about a dozen examples in *STC* and *TSR* combined, many of which show variation with the corresponding front-vowel rhyme ***-ip** [51]. Very little evidence for a length contrast between ***-up** and ***-uːp** has been found so far. The reflexes in the criterial languages, as far as can be determined, are as follows:

PTB	WT	Jg.	WB	Lahu	Mikir	Lushai	Bodo-Garo
*-up	-ub	-up	-up	-ɔʔ / -uʔ [a]	-up / -op	-up	-up / -ip

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51. No good Chinese comparanda to PTB etyma with the invariant rhyme ***-up** have yet been discovered.

Etyma in *-**up** that apparently show no variation with *-**ip** include:

	PTB	*STC*	*TSR*	*WT*	*Jg.*	*WB*	*Lu.*
'cover₁ / wrap' [a]	*klup	#479	---	klub-pa	grúp	---	khuʔ
'cover₂' [b]	*ʔup	#107	---	---	ʔúp ≍ wúp ≍ kəúp	ʔup	ʔup [c]
'overflow / gush' [d]	*brup	#151	---	ḥbrub-pa	phrùp	mrup ≍ hmrup	---
'rot / spotted / write' [e]	*m-bup [f]	---	#'s 75, 89	---	---	pup	---
'satiated' [g]	*m-pup	---	#86	---	---	---	---
'sew' [h] / [i]	*d/g-rup	#456	#63	ḥdrub-pa	---	khyup	---
'snuff up / sip' [j]	*s-rup	#384	---	---	---	hrup	---
'turn over / search for' [k]	*m-pup	---	#19	ḥbub-pa	---	---	---

a. Bodo-Garo reflexes include: Bodo dźokhlop 'cover, shut'; Dimasa phukhlub 'tuck in', sukhlub 'drown, immerse', phun-khlub 'wrap around'. *Cf.* also Pwo Karen khlauʔ, khlüʔ; 'cover; put on a hat; shut (as a lid)'; Sgaw Karen kləʔ 'cover'.

b. *Cf.* also Mikir up 'cover'; Achang up⁵⁵ 'hatch', xup⁵⁵ 'cause to hatch' (*i.e.* by covering the eggs). A variant in *-ap must definitely be reconstructed, with a range of meaning also including both 'cover (in general)' and 'incubate eggs': *wap 'cover; incubate eggs' > WB wap 'incubate eggs'; Jg. ʔáp 'cover, as a dish with a plantain leaf'. There is also the possibility of an etymological connection between this root and *yip ≍ *yup 'sleep / conceal' (below); if this is valid, we must recognize *-i- ≍ *-u- variation in this etymon as well.

c. Lushai 'shelter'.

d. Glosses of these forms: WT ḥbrub 'cause to overflow, gush, spout forth'; Jg. phrùp 'squirt, as water with the mouth'; WB mrup 'be submerged, overwhelmed, buried', hmrup 'submerge'. *Cf.* also Garo brip 'flood', prip-at 'overwhelm'; Achang muʔ⁵⁵, as well as a number of possible cognates in *ZMYYC* #757, including: Qiang Taoping bə³³; Guiqiong phu³³; Ersu bzɿ⁵⁵; Yi Xide mbɿ⁵⁵; Yi Dafang bu⁵⁵; Yi Mojiang mɯ²¹; Tujia phu²¹.

e. The semantic range of this root is interesting: the basic meaning seems to have been 'rot; have spots of rot or mold', whence 'be spotted, mottled', thence to the notion of 'write' (perceived by pre-literate people as making spots on paper). *TSR* treats 'rot / spoil' (#75) as a separate etymon from 'write / make spots' (#89).

f. *Cf.* also (Lolo-Burmese) Atsi pùp; Achang pup⁵⁵; Maru páp; Lahu bùʔ 'rot (as wood), be mildewed (clothing, books); be spotted, mottled, pockmarked, striped, patterned; write, draw on paper'; Akha bùq 'rot, spoil', bòq 'make a design, write'; Lisu (Rui Yifu) bwɨʔ 'mildewed', bo⁴⁴ 'write'; Yi Xide bu̱³³; Hani Caiyuan py̱³³; Hani Dazhai bu̱³¹; Jinuo pu⁵⁵; (Nungish) Dulong bɯ̆p⁵⁵; (Qiangic) Muya mbɯ⁵⁵ (all 'rot'). See *ZMYYC* #792 ('rot') and #623 ('write').

g. *Cf.* Lahu bûʔ; Axi bu⁴⁴; Sani bɤ⁴⁴; Hani pu³³; Woni pu⁵⁵; Nasu b'uʔ³² (all from *TSR*); other Loloish forms are to be found in *ZMYYC* #896, *e.g.* Yi Xide mbu̱³³; Yi Dafang mbɔ³³; Yi Nanjian bo³³; Yi Mojiang bu̱³³. Forms from Baic (*ibid.*) prove that this is a general TB root: Bai (Dali and Jianchuan) pu³³, (Bijiang) bu³³.

h. *Cf.* also rGyalrong (Maerkang dial.) tətʂop; Lahu tɔ́; Akha tɔ̀q (all < *d-rup). Magari **rup** descends from the unprefixed root. Most other TB languages are like WB, reflecting the velar prefix instead, *e.g.*: Trung **krap**; Dulong **kɹɯp**⁵⁵; Tangkhul kə*khop*; Nusu Nu khɹɔ⁵⁵; Geman Deng kɯ³¹kɹɑp⁵⁵; Achang xʐɔp⁵⁵; Zaiwa **khjup**⁵⁵; Yi Xide **gu**⁵⁵; Hani Luchun **gu**ʔ³; Hani Mojiang **kʋ**³¹; Akha **gùq**; Lalo **gùq**; Bisu **kù** (see *TBL* #1324). Note the Akha doublet tɔ̀q ≶ gùq, providing evidence for both prefixes. Lepcha **hrap** seems to reflect still another prefix (< *s-rup). The Lahu reflex has high-rising tone because of the PLB *glottalized initial (*ʔ-drup).

i. *STC* (p. 114-5) attempts to draw a distinction between a true initial cluster *dr- on the one hand (as in 'sew'), which led to WB **khy**- and Lahu **t**-; and prefixal *d- plus root initial **r**- (*d-r-), as in 'six', which developed into WB **khr**- (**khrauk**) and Lahu **kh**- (**khɔ̀ʔ**), see §1 above. This seems far-fetched, however, and it seems simpler to posit prefixal variation in 'sew'.

j. WB **hrup** 'snuff up, sip, sup'; Dimasa **surup** 'sip, lap, smoke' ≶ **khu** *sirip* 'gargle' (**khu** 'mouth'); *cf.* also Manchati **srub** 'spittle'; Lepcha **hŭp** 'a sip, gulp' ≶ **háp** 'to suck'. This Lepcha doublet perhaps provides some slight evidence for a length contrast in this rhyme. *Cf.* the discussion of the Lepcha reflexes of 'blow' under *-ut, above (2).

k. *Cf.* Lahu **phû**ʔ 'turn over, roll; search for'; Akha **pó**q 'roll over; search for'; Lalo **phúq** 'turn over'; Yi Luquan **phu**ʔ²²; Lisu ti⁵⁵**pho**³⁵; Yi Xide **mbo**³³ ≶ **pu**³³ ≶ **phṳ**³³; Yi Dafang **bɯ**³³; Yi Nanhua *phu*³³; Hani Luchun **lɣ**³¹**pu**³³ ; Achang **phu**ʔ⁵⁵; Namuyi **mbu**³³ **li**⁵⁵; Shixing **bɐ**³³ **jĩ**⁵⁵; Queyu **təʂpuə**⁵⁵; Zhaba (TBL) 扎坝 **təpho**⁵⁵; Lusu **ŋe**³³**phu**⁵³; Dulong **pɔ**ʔ⁵⁵. See *ZMYYC* #762 and *TBL* #'s 1309, 1806, 1807.

(a)   **-up ≶ *-ip*

Most etyma which clearly show ***-up ≶ *-ip** variation have been discussed under ***-ip**, above 8.3(3b), including:

'sleep'	*s-yip ≶ *s-yup
'sink₁ / dive'	*lip ≶ *lup
'wrap'	*tip ≶ *tup
'conceal / bury'	*b/pip ≶ *b/pup
'sink₂ / submerge / squeeze'	*nip ≶ *nup

To these we may add a couple more:[52]

'wring / crumple' *(t)syup ≍ *(t)syip [a]	
*(t)syup	Jg. **tšùp** 'close, as the hands when catching a ball; gather, as the mouth of a sack', **šùp** 'wring, squeeze out'; WB **chup** 'clench the fist', Atsi (Zaiwa) **tsʔup** '*id.*'; Langsu (Maru) **tʃap**[55]; Akha **tsúq** 'sink the claws into, as eagle to chicken'; also perhaps Bai Jianchuan **tsue**[33], **tsui**[44]; Tujia **tɕiu**[53]
*tsyip	Lahu **chîʔ** 'crumple, clench, squeeze into a ball'; Lalo **tshìq** 'pinch with nails'
'suck / breast / milk' PTB *dz/tsyoːp > *dz/tsyup ≍ *dz/tsyip [b]	
*dz/tsyup	PLB *C-tšup[L] > Lahu **chɔ̀ʔ** 'suck' ≍ PLB *ʔ-dzyup > Lahu **cú** 'milk'; Atsi **suʔ-*cʔup***, Maru **cʔap**, Achang **tʂop**[55], Akha **cúq**, Hani Mojiang **tʃhɤ**[31], Jinuo **tʃhu**[55] (all 'suck'). Extra-LB cognates with back vowels include: Mikir **iŋ-*jùp***; rGyalrong **sccup**; Bokar Luoba **bjuŋ** *tɕop*.
*dz/tsyip	WT **ḥdźibs-pa** 'suck'; Cuona Menba *dzip*[35]**pa**[53], Lusu **tɕhi**[31]; Geman Deng **jip**[55]; Lisu **tʃhi̱**[31]; Naxi **tɕhi**[55]; Bai Jianchuan **tɕi̱**[33].

a. *TSR* #66; *ZMYYC* #554; *TBL* #1533. Possibly related is a similar root with liquid final *tsyuːr 'wring' (*STC* #188); see below 9.2.2(3).

b. Other allofams include *dzyut ≍ *dzyuk ≍ *dzyəw ≍ *dzyow. This complicated word-family has open-syllable variants (*dzyəw > WB **cui'** 'suck'; Akha **ɔ̷̃** 'breast, milk'; *dzyow > WT **ḥdźo-ba** 'to milk', **źo** 'milk'), as well as stopped allofams at all three positions of articulation (*dzyuk > Jg. **tšúʔ** 'breast, milk'; *dzyut > WB **cut** 'suck, imbibe, absorb' (above § 2). In the present context it also exemplifies *-up ≍ *-ip variation: *dzyoːp (*STC* #69; see below 8.6(3)) > PLB *-džup ≍ *-tšup (*TSR* #73); *TBL* #'s 1648, 94.

8.5   *Stops after medial *-e-*

Many TB languages (including 4 of the 5 criterial languages of *STC*: WT, Jingpho, Lushai, and Garo) have a full set of mid vowels before final stops (/ -ek -et -ep -ok -ot -op /). However, very few roots are reconstructible with such rhymes at the PTB level, and we must assume that a large proportion of the occurrences of mid vowels in stopped syllables are secondary developments in the various languages, especially due to the influence of the medial semivowels *-y- and *-w-.[53]

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52. See below 12.1(2a).

53. *Cf.* such sound-changes as PTB *-wat > WT -od and Jg. -ot (*e.g.* 'free smn' *s-lwat > WT **hlod-pa**, Jg. **šəlòt**), or PLB *-yak > WT -eg, Lahu -εʔ (*e.g.* 'partridge' *s-ryak > WT **sreg**; 'eye' *s-myak > Lh. **mɛ̂ʔ**).

Written Burmese is of no use in distinguishing *-i- and *-e- in stopped syllables, since the limited evidence available shows that ***-ik**, ***-ek**, ***-it**, ***-et** have all merged to WB **-ac**, while ***-ip** and ***-ep** have merged to WB **-ip**. Nevertheless, Lolo-Burmese comparative evidence can occasionally shore up the reconstruction of a mid-vowel stopped syllable, indicating that such rhymes might still have enjoyed a tenuous existence at the PLB stage.

(1)   *-ek

Only two or three PTB roots are reconstructed with this rhyme in *STC*, along with half a dozen in *TSR*.[54] From the scattered evidence available, the following correspondences may be pieced together:

PTB	*WT*	*Jg.*	*WB*	*Lahu*	*Akha*	*Lisu*	*Lushai*	*Bodo-Garo*
*-ek	-eg	-eʔ	-ac	-eʔ	ɛʔ	iʔ	-ek (?)	-ek
[*-eːk							-eːk]	

The best example so far unearthed is 'kick':

	PTB	*PLB*	*TSR*	*WT*	*Lahu*	*Lisu*
'kick'	*r/g-dek	*tek^H	#14	rdeg-pa [a]	thêʔ	hti^2

a. This form is also glossed 'beat, strike, smite; push, knock' (Jäschke 286); there is a variant with back vowel, **rdog-pa** 'kick'.

The velar prefix is attested in Garo **ga-tek** and Tangkhul Naga **kəkəthək** (the first **kə-** in TN is a general prefix occurring before all verbs, above 4.4.4(2); it is the second **kə-** that corresponds to Garo **ga-**. More Lolo-Burmese cognates are cited in *ZMYYC* #565 (Hani Caiyuan **the**^{55}; Hani Shuikui **thɛ**^{55}; Achang **thep**^{35}), as well as possibly related forms from

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54. Of the six in *TSR*, four are now reconstructed differently in the present work. Only one set ('give') was presented in both *STC* and *TSR*.

other subgroups, *e.g.* Bai Jianchuan tɕhɛ⁴⁴; Idu pɑ⁵⁵ti³⁵ ; Bokar Adi **duk**. There is also an excellent quartet of Chinese comparanda:[55]

		OC	*GSR*
'kick'	踶	**d'ieg**	866q
'*id.*'	踢	**t'iek**	*AD* #195 ᵃ
'animal's foot, hoof'	蹢	**tiek**	877o
'*id.*'	蹄	**d'ieg**	877h

a. Not in *GSR* #850.

Alongside an open-syllable root for 'give', ***bəy** (*STC* #427; see above 5.3.2), *STC* (pp. 101, 149) mentions a variant with velar suffix, ***pe(k)**, at the "Kuki-Naga" level, where it appears in Chin languages in what is now called "Form II" of verbs (used mostly in subordinate clauses), *e.g.*:

	Form I	*Form II*
Lushai	**pè**	**peːk**
Tiddim	**pia¹**	**piak¹**
Lai	**pee**	**peek**

However, the stopped allofam appears independently in Loloish (which lacks any such formal dichotomy for verbs), reconstructed in *TSR* #3 as PLB ***bekᴸ** > Akha **bìq**, Lahu **pèʔ** 'give, bestow' (alongside Lh. **pî** 'give', from the open-syllable allofam).

A "Kuki-Naga" etymon with the long version of this rhyme, ***ʔeːk** 'feces; defecate', has been set up on the basis of Chin forms like Lushai **eːk**; Hakha, Rangkhol, Sho **ek**; and Lakher **i**, with additional support from Karenic (Pwo and Sgaw **e** 'feces' (*STC* p. 146). While this may well be a valid root, it seems imitative and hypocoristic in origin; *cf.* the Lahu baby-talk expression **ɛ̀-ɛ̀ te ve** 'make poo-poo' (*DL*:129).

Another root reconstructible with long ***-eːk** has broader support, and may perhaps be set up for PTB as a whole. Again, *STC* (p. 41) parenthetically proposes a "Kuki-Naga" etymon ***gleːk** 'thunderbolt / lightning' on the basis of Lushai ** țeːk** and Sho **glek**. In *TSR* #67, a PLB root ***trek** is reconstructed by using this same Lushai form "**trêek**"(with the initial retroflex stop transcribed as "**tr**" instead of " **ț** "), along with two Loloish forms, Lahu **mû-*thêʔ*** 'thunder and lightning' (**mû** 'sky') and Akha **tɛ́ʔ** 'roar of thunder and crackle

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55. Here suggested for the first time.

of lightning'. Against this etymology is the Lahu reflex -ɛʔ (instead of -eʔ as in 'kick' and 'give', above), as well as the fact that the Lushai reflex of another putative root with initial ***tr-** (*t(r)ak 'weave', *STC* #17) is **taʔ**, with ordinary dental (not retroflex) **t-**.[56] On the other hand, the Lushai form **ṭeːk / trêek** 'lightning' poses a problem for the ***velar-plus-lateral** etymology, since in the only other available example with ***gl-**, ***gla-k** 'fall' (*STC* #123), Lushai has a lateral affricate, **tlaːk**, not a retroflex stop.[57] On balance, however, the velar etymology seems preferable, since it can accommodate two other key forms: WB **cac-cac** 'in a keen, darting, or shooting, sharp or sudden manner', **hlyap-*cac*** 'lightning' and WT **glog** 'lightning', *glog*-sprin 'thundercloud'. The back vowel in WT is another problem (we would have hoped for "**gleg**"), but it is interesting that the same front/back alternation is found in another ***-ek** root, 'kick' (WT **rdeg-pa ⋟ rdog-pa**), above. The last word has yet to be said on this etymology, but all the forms cited seem related somehow.

Three other *TSR* roots with PLB ***-ek** are better reconstructed otherwise: 'be / be able' ***C-prek** (*TSR* #68) is now reinterpreted as ***C-pretᴸ** (see §2 below); 'testicle' ***r-lek** (*TSR* #170) is now ***r-lik** (8.3(1), above); and 'wet' ***s-nek** (*TSR* #150), is now reconstructed as ***s-nyak** (8.2(1), above).

Contrariwise, a PLB root previously reconstructed with ***-yak**, 'sticky' ***ʔ-nyakᴸ** (*TSR* #154), on the basis of Lahu **nɛ́** 'stick onto, plaster on, smear on' and Sani **ñɛʔ²²**, might well be better assigned to PTB ***neːk**, in view of the apparent cognate in Lai Chin: **neek** (Form I) ~ **neʔ** (Form II) 'stick to'. Against this is the Lahu reflex with ɛ, which is the regular outcome of ***-yak** (above 8.2(1b)), while ***-ek** or ***-eːk** should give Lahu -eʔ (as in 'kick' and 'give'); on the other hand we have just noted the same Lahu ɛ reflex in 'thunderbolt / lightning' (**mû-thɛ̂ʔ**).

(2)   *-et

Not a single root is reconstructed with this rhyme in *STC*, though several have been set up in *TSR*. On the basis of the fragmentary evidence available, the following correspondences may be deduced:

PTB	WT	*Jg.*	*WB*	*Lahu*	*Akha*	*Lisu*	*Lushai*	*Bodo-Garo*
*-et	[-ed]	-et	-ac	-ɛʔ	-ɛʔ / -øʔ	-eʔ / -iʔ	[-et]	[-et]

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56. The final Lushai glottal stop in 'weave', instead of **-k**, is unexplained.
57. *STC* laments (p. 41) that "neither ***gl-** nor ***bl-** can be traced with certainty" in Lushai.

No WT, Lushai, or Bodo-Garo cognate to any *-et root has yet been found, although one would expect the reflexes included in square brackets.

The most solid etymon reconstructible with this rhyme is 'scratch / scrape':

'scratch / scrape'	PTB *m-kret [a]
	Jg. **khrèt** 'rasp, grate', **ʔəkhrèt** 'gnaw, as a mouse', **ʔəgrèt** 'scratch, as a thorn; graze, as a bullet', **məkhrèt** 'mark, as with a finger; strike, as a match'; WB **khrac** 'mark with the nails, scrape', **kyac** 'scratch earth out of hole in ground, as an animal'; Achang khʐət^{35}; Langsu khjat^{55}; Lahu **gɛ̂ʔ** 'rasp, scrape' (the voiced initial confirms the ***nasal prefix**); Sani gɤ^{44}; Akha **jɛ́q** 'scrape, rake, shave away'; Nasu tš'iʔ^{32}; perhaps also Nusu kɹɑ^{53}, Dulong ɑ^{31}xɹɔt^{55}, rGyalrong **kɐkhrot**

a. *TSR* #97; *ZMYYC* #555; *TBL* #'s 1170, 1352.

Another fairly widespread root with this rhyme is 'vagina / vulva':

'vulva / vagina'	PTB *b(y)et (*TSR* #5)
	Kanauri **phɛːts**; Tamang Risiangku *pit*-si; Bahing *pi*-si; Hayu *bi*-**mli** 'genitals' (**mli** 'penis'); Sak (Dodem) **əpɛt**; Bai **pi̱**^{44}; Meithei **seŋ**-*bi* ; Zeme *pe¹* **mu⁵**; Lahu **pɛ̀ʔ** 'be randy', **cha**-*pɛ̀ʔ* 'vagina'; Akha **à**-*bɛ̀q* ; Lisu **tu**^{55}*biʔ*^{21}, **tɔ**^{35}*biʔ*^{21} ; Bisu **tɔ**-*pɛ́* ; Nesu **pi**^{55}; Sani **pæ**^{55}. A couple of forms have -a- vocalism rather than a front vowel: WB **cauk**-*pat* ; Geman **pɑʔ**.

A PLB verbal root meaning 'break off a piece / notch / chip' is reconstructed as *C-ket^{L} (*TSR* #25) on the testimony of Lahu **qhɛ̀ʔ** and Akha **xɛ̀q** 'break by bending, as firewood or a leg'. Other Loloish cognates include Lalo **kjhàq**, Yi Nanhua **khɛ**^{55}, and several more to be found in *ZMYYC* #761 and *TBL* #1582. Lai Chin **khek** 'peel' is possibly related, although the final velar is a problem.

An etymon meaning 'be; be able' was formerly reconstructed with PLB *-ek (*TSR* #68; see section (1) above), but it seems better to revise its rhyme to *-et in view of the Lahu reflex -ɛʔ:

'be / be able' [a]	PLB *C-pret[L]
	WB **phrac**; Lahu **phɛ̀ʔ**; Lisu **hpyeʔ²¹** 'be able, succeed in doing'; Akha **pyø̀q** 'be'; *cf.* also Hani Mojiang **pɛ³³** (*TBL* #1531). The Akha and Lisu reflexes are different than in the other sets reconstructed with *-ek, so this reconstruction is still somewhat unsure.

a. So far this etymon has not been discovered outside of Lolo-Burmese.

(3)   *-ep*

This rhyme is also extremely rare, with only two examples in *STC*. A third example, 'scale (of fish, reptile)' is to be found neither in *STC* nor *TSR*. The reflexes in Jingpho, Lushai, and Garo are as expected (-ep), and that is also the presumable WT reflex, though no examples are available. This rhyme has merged with *-ip in Lolo-Burmese, with one possible exception ('scale').

PTB	*WT*	*Jg.*	*Lushai*	*Bodo-Garo*	*PLB*	*WB*	*Lahu*
*-ep	[-ep]	-ep	-ep	-ep	*-ip	-ip	-ɨ(ʔ)

'bug / ant / cochineal / lac insect' [a]	PTB *s-krep (*STC* #347) > Jg. **krép**, **šəkrép** 'bedbug'; see also Rawang **rap** 'lac insect', **rip** 'flying ant'
	PLB *ʔ-grip[L] (*TSR* #46) > WB **khrip ~ khyip**, Lahu **a-kɨ́** 'pitch pine [*Pinus merkusii*]; pine torch', **a-kɨ́-cɨ̂** 'pine sap, pine resin; cochineal' (*DL*:68-9).
'slice / pare off'	*s-lep (*STC* #351)
	Jg. **lèp**, **gəlèp**; Lushai and Lai Chin **hlep**; Garo **rep**; Dimasa **lep**; Limbu **lɛːp-u** 'slice, saw'. *Cf.* also Lepcha **lip** 'slice, cut in slices'.[b]
'scale (of fish or reptile)' [c]	*sep
	Jg. **ŋá-*sèp***; Dulong **ŋa⁵⁵*sep³¹***; Lahu **ŋâ-*šêʔ*** 'fish scale', **vɨ̀-*šêʔ*** 'scale of snake'[d]; Sani **ŋɑ⁵⁵*sa⁵⁵***; Tsangla (Motuo Menba) **sep⁵⁵**; Ergong **ɳɛ¹³*tʂʰɛp⁵³***. *Cf.* also Limbu **seːk** (with velar final) and Lepcha **a-ší** (open syllable).

a. WB **khrip ~ khyip** 'lac, gum lac; cochineal' (the variant with medial -**y**- is non-etymological, since the Lahu front velar points unmistakably to a *velar-plus-**r** cluster; see above 3.6.4). The sibilant prefix is reflected both in the Jg. prefixed variant and the *preglottalization of the PLB form (leading to the Lahu high-rising tone). Cochineal is a red dye made of the dried and pulverized bodies of a certain species of tiny sap-sucking insects inhabiting the bark of a kind of pine tree. For the interesting semantics of this root, see Benedict 1939:226-7. A possible Chinese cognate is 蠟 'wax / candle' OC *lâp (*AD*#550; not in *GSR*).

b. WB **hlî** 'cut with a sliding motion, cut a slice' (< PLB *s-ley or *s-li) is possibly related. Lahu **lí-lə** 'a saw' is a loan from Shan **lik-ləə** 'filing iron', as is Lisu **lek⁴⁴lɯːa⁴¹** (see *DL*:1364).

c. This root seems quite distinct from *s-lip 'scale', above 8.3(3).

d. The vowel of the Lahu form is different than in 'lac insect', for which a variety of *ad hoc* explanations might be offered: *e.g.* perhaps the merger with *-**ip** was complete in 'lac insect', while 'scale' retained a distinct *-**ep** rhyme at the PLB stage; or maybe the rhyme of 'scale' was confused in LB with *-**et** at an early date, leading to Lahu -**ɛʔ**.

Two Chinese comparanda for TB etyma with this rhyme are offered in Gong 2000 (#53, #54):

	PTB		*OC*	*GSR*	*OC Gloss*
'butterfly'[a]	*lep	蝶	**d'iap**	633h	'butterfly'
'flat / flat object'[b]	*lep	牒	**d'iap**	633g	'tablet'

a. *Cf.* WT **phye-ma-*leb*** 'butterfly'.

b. *Cf.* WT **leb-mo** 'flat', **bhag-leb** 'flat loaf of breat', **śiŋ-leb** 'board, plank'. The Chinese morpheme now means 'official document, certificate', the probable semantic association being 'a flat object written upon'.

8.6 Stops after medial *-o-

(1) *-ok

This rare rhyme is reconstructed in a few roots where WT has -**og** and WB has -**auk**. The one available Lushai reflex is -**ok** ('outer covering'), and this would also presumably be the development in Garo. Jingpho has -**oʔ** [ɔʔ] in one example ('ravine / gulf'), but -**uʔ** in another ('below / under'). The Lahu reflex is -**ɔʔ** in three examples ('below'; 'fear'; 'jump'), but -**ú** in another ('outer covering'). There is evidence for *-**ok** ≽ *-**wak** interchange ('fear'; 'outer covering').

PTB	*WT*	*Jingpho*	*WB*	*Lahu*	*Lushai*	*Garo*
*-ok	-og	-oʔ / -uʔ	-auk	-ɔʔ / -ú	-ok	-ok (?)

	PTB	*STC#*	*TSR#*	*WT*	*Jg.*	*WB*	*Lahu*
'below / under' [a]	*ʔok	110	173	ḥog	ləwúʔ	ʔauk	hɔ́
'fear' [b]	*g/krok	473	104	dkrog-pa	---	krauk	kɔ̂ʔ

	PTB	*STC#*	*TSR#*	*WT*	*Jg.*	*WB*	*Lahu*
'ravine / gulf'	*grok	122	---	grog-po	khər�ő?	khyauk	---
'outer covering / bark / rind / skin' [c]	*kok	342	71	skog-pa ≍ kog-pa	---	?əkhauk	ɔ̀-qú [d]
'white' [e]	*bok	p. 181	---	---	---	---	---

a. *Cf.* also Akha làq-ɔ̀q ~ làq-ók, Bisu ?aŋ-?ɔk, Lisu (Fraser) *wu⁵- paw¹*, Lalo *ùq-ʃí* 'further down', as well as the following forms from *ZMYYC* #58: Jinuo pɔ⁴² *o³³* ; Hani Dazhai a³¹*u̱³³* ; Achang u?³¹*pa³¹*; Zaiwa a²¹ *o̱⁵¹* ma⁵⁵; Langsu ɔ³¹. The Jg. prefixized element lə- and the first syllable of the Akha forms (làq) mean 'hand' (see above 4.4.2); *cf.* English locative expressions like *righthand side*.

b. *Cf.* also WT **skrog**-pa 'rouse, scare up', and the following forms from *ZMYYC* #730: (Qiangic) Qiang Taoping qu³³, Pumi Jinghua skiɛ¹³, Shixing ʐo³⁵; (Lolo-Burmese) Yi Xide tɕe³³, Yi Dafang dʐo³³, Yi Nanjian go³³, Yi Nanhua and Mojiang dzu̱³³, Lisu dʒo⁴⁴, Hani Caiyuan khe³³, Hani Dazhai gu̱³³, Hani Shuikui kv³³, Achang ʐo?⁵⁵, Zaiwa kju?²¹, Langsu kjauk³¹; also Nusu gɹu⁵³; Tujia kɯe⁵³. Several other forms point to an allofam with -a- vocalism: WT **skrag**-pa 'be afraid', Muya qɑ⁵⁵, Ergong stɕa¹, Naxi Yongning (Moso) dua¹³ (< *d-krak), Sulong kə³³*jua⁵³* . There are also several Chinese comparanda with -a- vocalism (see below). The vocalic variation in this root led to *STC*'s revision of the reconstruction to *grâk ≍ *krâk. For a similar gambit, see 'outer covering' (below) where *STC* revised the original reconstruction *kok to *r-kwâk.

c. *Cf.* also Bahing *kok*-te 'skin', siŋ-*kok*-te 'bark of tree'; Lushai khok 'peel off, pull off (skin, bark)'; Jinuo a⁴⁴*kho⁴²* ; Zaiwa ʃŏ²¹*ku̱?⁵⁵*. Several forms suggest an allofam *kwak (Chang Naga kwok 'to strip (as fibres)', Chourasya *kwak*-te ~ *kok*-te, Thulungya *kwok*-si ~ *kok*-si), rGyalrong wer*khwak*, as does one of the Chinese comparanda (see below).

d. The Lahu reflex -ú here is unexplained, since *-wak also regularly > Lahu -ɔ?, the same reflex as in 'below' and 'fear' < *-ok; see above 8.2(1a). The Lahu high-rising tone is due to the preglottalized initial, PLB *?-guk^L, which doubtless reflects the s- prefix found in WT **skog**, and/or the r- prefix in rGyalrong we-**rkhwak**.

e. This root has so far only been attested in scattered TB languages: (Chin) Sho and Chinbok **bok**, Yawdwin **pok**; (Barish) Garo gi-**bok** ~ gi-**pok**, Dimasa gu-**phu**; and perhaps Lepcha ă-*bók* 'white and black; piebald (of animals)'. There is, however, a good-looking Chinese comparandum (below).

Two other roots that are good candidates for this rhyme category, even though they lack any reflexes in the five "criterial" languages, are the following:

> 'jump'   PTB *p(r)ok
>
> This etymon is set up as PLB *?pök in *TSR* #55, on the basis of forms like Lahu pɔ̂? and Bisu pɤ̄k. *Cf.* also Lalo páq. That this is a general TB root is shown by many cognates in Abor-Miri-Dafla: J. Sun (1993) reconstructs "Proto-Tani" *pok (> *e.g.* Padam-Mising (=Abor-Miri) pok, Bokar Adi pok, Tagin *pok*-nam, Apatani po?, Bengni puk). Several Himalayish languages have apparent cognates with medial -r- (*e.g.* Tamang Sahu *prok*-toŋ, Thulung prok-, Bahing prøt-, Sunwar *preːk*-cā, Khaling *pro*-ne), which go with Kamarupan forms like Angami Naga *pru*-shi and Geman Deng phlu⁵³. [a]

'time / occasion'	*s-pok (*TSR* #40)
	Lahu pɔ̂ʔ;[b] Achang pɔk⁵⁵; Yi Weishan pho³³; Akha póq; Ahi *pu⁴⁴*-nuʔ⁴⁴. Possibly related are several extra-LB forms in *TBL* #917: Queyu phuə⁵⁵, Shixing pu⁵⁵, Darang Deng bɯ³⁵. A solid Nungish cognate is Rawang poq (LaPolla 1987, LaPolla and Poa 2001:107).

a. *Cf.* also Zeme (Naga) *pak*-chu; Lalo (Loloish) paq, Hani (Khatu dial.) phɔ́, Ergong (Qiangic) nɕɯ-pho . An allofam with final nasal, *pʰjoŋ (> *e.g.* Thakali phyong-la) is set up for Proto-Tamang (see Mazaudon 1980, 1985). Gurung pʰā:q looks like a loan from Nepali *phaʈ*-kanu.

b. Note the homophony with 'jump'.

Note that WB, which lacks medial mid-vowels, has merged *-uk and *-ok to -auk,[58] while Lahu has merged these rhymes to -ɔʔ (with the unexplained exception of 'outer covering').[59]

Terrific Chinese comparanda are available for a few of the above etyma:

		OC	*GSR*	*Chinese gloss*
'fear'	恪	**k'lâk**	766g	'respect, reverent'
	雒	**(g)lâk**	*AD* #411[a]	'kind of bird; to fear'[b]
	懼	**χi̯wak**	778e	'scared'
	覷	**χi̯ăk**	789a	'fear'[c] (= 虢 787d-f)
'outer covering'	殼	**k'ŭk**	1226a	'hollow shell; husk
	鞹	**k'wâk**	774i	'leather'
	革	**kɛk**	931a-b	'hide, skin; flay, peel'
'ravine'	壑	**χâk**	767a[d]	'moat, canal, ditch; valley'
'white'	白	**b'ăk**	781a-c	'*id.*'

a. Not in *GSR* #766.

b. Only the meaning 'kind of bird' is given in *GSR* #766q.

58. This is exactly parallel to the WB developments of the corresponding nasal-final rhymes: PTB *-uŋ and *-oŋ > WB -auŋ; see above 7.2(5) and 7.3(3). Before labials and dentals, WB merges *-o- rather with *-a-: PTB *-ap and *-op > WB -ap, PTB *-am and *-om > WB *-am; PTB *-at and *-ot > WB -at, PTB *-an and *-on > WB -an. See above 7.3, §1 and §2; below, §2 and §3.

59. My attempt in *STC*, n. 232 (p.76) to distinguish between PTB *-ok and *-uk on the basis of the Lahu reflexes -ɔʔ vs. -uʔ must be rejected, since several of the Lahu/WT/WB comparisons offered there ('scoop'; 'mane'; 'dry'; 'drink') are highly dubious. In the absence of extra-LB cognates, I conventionally reconstructed a number of PLB roots with *-ok in the etymologies of *DL* (JAM 1988b). These are herein revised to PLB *-uk, largely because of pattern symmetry, since the rhyme *-ek is so sparsely attested.

c. This character seems to be of the "combined meaning" (會意 *huìyì*) type, since the two components are TIGER + SEE.

d. *AD* #77 glosses this character as 'ravine; gully; pool'.

(2)   **-ot*

Only three etyma are reconstructed with this rhyme in *STC*; in one of these ('dig' / 'scoop up') the -t appears suffixal, and in another ('womb / vessel') there is variation between *-ot and *-ut. The reflexes in the criterial languages are as expected (except that no examples are available for Lushai, Garo, or Lahu). WB has merged *-ot with *-at (see note 58).

PTB	WT	Jg.	WB
*-ot	-od	-ot	-at

	PTB	STC	TSR	WT	Jg.	WB
'deer (sambar) / antelope' [a]	**tsot*	#344	#10	gtsod ~ btsod	---	chat
'dig out / scoop up' [b]	**r-k/go-t*	#420	---	rkod-pa ~ rko-ba	gót	---

a. *Cf.* also Akha tsɛ́q, Lisu (Fraser) htsye², Sani tshɯ⁴⁴, Bisu tshɛ̄, Luquan ts'iʔ²², along with many probable cognates in *ZMYYC* #129: (Qiangic) Pumi Jinghua tsɐ⁵⁵, rGyalrong rtshɐs, Ergong ʐtsɛ, Muya and Queyu tsɐ⁵³, Ersu *tsɿ³³* bu⁵⁵, Namuyi ntshɛ³⁵, Shixing tsho³⁵; (Lolo-Burmese) Yi Xide tshe³³, Yi Nanjian tsi̠³³, Yi Nanhua *tshɯ³³* mʌ²¹, Lisu tshe³⁵, Naxi Lijiang tʂhuɑ⁵⁵, Naxi Yongning tʂha¹³, Hani Caiyuan khɔ³¹*tshe³³*, Hani Dazhai xe³¹*tsɛ³³* , Hani Shuikui xa³¹*tshi̠³³* , Jinuo tshe³³, Zaiwa tshat⁵⁵, Langsu tshɛʔ⁵⁵; (Nungish) Anong tshe⁵³, Nusu tshɑɹ⁵⁵. See also *GSTC* #23. One or more of the Loloish forms cited may alternatively be derived from PLB *d-kəy¹ 'barking deer' (*Cervulus muntjac*) > WB khye ~ gyi, Lahu chɨ (see *STC* #54 and *DL*:554).

b. Besides gót 'be scooped out', Jg. has several prefixed forms of this root, including the causative šəgót 'scoop up', two forms with the 'hand-action' prefix lə- (ləgót 'to scoop' ≍ ləkhót 'scoop up (rare)') and (Hkauri dialect) dəgót 'scoop, ladle'. A possible reflex of the open-syllable allofam is Lahu qɔ̂ (< PLB *gəw²) 'hoe, dig up weeds' (*DL*:252-3). There is a good Chinese comparandum to the stopped allofam (below).

The following root shows variation between *-ot (WT) and *-ut (WB):

	'womb / mouth / vessel' *s-not ≍ *s-nut [a]
*s-nod	WT **snod** 'vessel', **bu-snod** 'uterus' (**bu** 'child') [b]
*s-nut	WB **hnut** 'mouth; womb'

a. *STC* p. 145.

b. *Cf.* also Pwo and Sgaw Karen **noʔ** 'mouth'.

One etymon in this group has a plausible Chinese comparandum:

	PTB		*OC*	*GSR*	*Chinese gloss*
'dig out'	*r-k/go-t	掘	g'i̯wət ≍ g'i̯wăt	496s	'dig out (earth)'
		堀	k'wət	496p	'dig in the ground; underground'

*(3)   *-op*

This is perhaps the rarest of the PTB stopped rhymes, with only three examples uncovered so far, two of which display variation with other rhymes. On the basis of this fragmentary evidence (*e.g.* there are no WT reflexes available), the following correspondences can be established:

PTB	*WT*	*Jg.*	*WB*	*Lahu*	*Lushai*	*Dimasa*
*-op	[-ob]	-op	-ap	-ɔʔ	-op	
*-oːp				-oːp		-op

	PTB	*STC*	*TSR*	*Jg.*		*WB*	*Lushai*
'hole / crack'	*pop	#345	---	---		pap	pop
'calf (of leg)' [a]	*bop	#30	#92	bòp, ləbòp		---	bop 'hind leg'

a. This root is only one allofam of a complex word-family with variants in *-wap and *-wam, including *s-bwam 'plump / swollen', set up as a separate root in *STC* #172 (> *e.g.* WT **sbom-pa** 'thick, stout', Jg. **bòm** 'swell; fat', Lushai **puam** '*id.*', WB **phwam** 'fat, plump'). This allofamy was recognized in *TSR* #92, which reconstructs PLB *m-pwap ≍ *C-pwam 'swell up / be swollen / stout / calf of leg'. See above 7.1(1), 8.2(3).

An even more complex word-family 'suck / kiss / breast / milk' includes an allofam with the long version of this rhyme, as attested by the Lushai cognate:

'suck / kiss' ***dzoːp** (*STC* #69)	Dimasa **dźop**, Lushai **foːp**,[a] Thado **tsop**, Siyin **tuop**

a. Lai Chin has the irregular reflex **doop**, perhaps pointing to stop ⪥ fricate variation in this root.

Several allofams are reconstructed with PLB ***-up** in *TSR* #73, including ***C-tsyup** (> Lahu **chɔʔ** 'suck') and ***ʔ-dzyup** (> Lahu **cú** 'milk', Atsi **suʔ-cʔup**, Maru **cʔap** 'suck'). As discussed under the rhymes ***-ut** and ***-up** (8.4, and §§3-4 above), a large number of other variants must also be recognized, including:

*dzyip	WT **ḥdźibs** 'suck'
*dzyuk	Jg. **tšúʔ** 'breast, milk'; Mpi **tɕhuʔ**[1] 'suck'
*dzyut	WB **cut** 'suck, imbibe, absorb'
*dz(y)əw	WB **cui'** 'suck'; Akha **ɔ́ɸ** 'breast, milk'
*dzyow	WT **ḥdźo-ba** 'to milk' ⪥ **źo** 'milk'

Final liquids

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*9.1   The reflexes of final *liquids in various TB languages*

Although final ***-r** and ***-l** must definitely be set up for PST/PTB, they have proven to be highly unstable in the history of the language family. Most modern languages lack them entirely. Others have merged them in favor of one or the other, or have retained one and dropped the other. Still others have developed -**n** from one or both. A number of languages (notably WB) show conditioned reflexes depending on the preceding vowel, or display unexplained multiple reflexes in the same environment.[1]

The special phonetic properties of syllable-final liquids are responsible for several interesting phenomena:

(a) Long vowels seem to be especially frequent before liquid finals in reconstructible roots. (See the individual rhymes below, and section 9.4.)

(b) Many etyma with final liquids show variation in the quality of the preceding vowel.[a]

(c) There is an unusually large number of roots with final liquids that reconstruct with laryngeal (including zero and semivowel) initials.[b]

(d) Many modern languages have rhotic (r-colored) vowels, but these do not usually derive from ***final liquids**, but seem most often to be have been conditioned by certain initial consonants, especially retroflexes (ultimately < medial ***-r-**).[c]

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1.   See *STC*:14-17, 172-3.

a. This should not be too surprising, since in general vowels are particularly variable before liquids. *Cf.* the celebrated isoglosses among American English dialects, in some of which the following groups of words rhyme completely, while in others they do not: *marry, Mary, merry; aural, oral; furry, hurry; lord, lard*.

b. They number at least 30. See above 3.5 and JAM 1997a (PSLTB):47-8. There is no obvious phonetic explanation for this phenomenon, which one is tempted to call *rhotoglottophilia*.

c. These languages are scattered over virtually all subgroups of TB, including Baic (Bijiang, Dali); Qiangic (Lüsu, Qiang Mawo, Qiang Yadu, Namuyi, Xixia); Himalayic (Tsangla); Kamarupan (Sulong); Nungish (Trung Dulonghe); Loloish (Jinuo, Luquan, Nasu, Naxi, Nusu). For inventories of these rhotic finals in the individual languages, see Namkung, ed., 1996.

9.1.1   *Languages which retain both *-r and *-l*

The testimony of these conservative languages is especially valuable. They include:

HIMALAYISH:	*Written Tibetan, Kanauri, Lepcha*
NUNGISH:	*Nung*
CHIN:	*Lushai, Lai*
BARISH:	*Dimasa*
N. NAGA:	*Moshang*
MIRISH:	*Mising/Miri*
QIANGIC:	*rGyalrong Zhuokeji (lCog-rtse)*

9.1.2   *Where the two *liquids have merged into a liquid*

· **GARO** has merged *-r and *-l to -l:

	PTB	*STC#*	*Garo*
'bloom'	*baːr	1	bi-bal
'twenty'	*m-kul	397	khol ≍ khal

9.1.3   *Where one *liquid is retained but the other is dropped*

· In **MIKIR**, *-r is retained as -r, but *-l is generally dropped, usually leading to -i :

	PTB	*STC#*	*Mikir*
'sour'	*s-kyur	42	thor
'hair'	*mul ≍ *mil	2	mi
'bloom / flower'	*baːr	1	par
'tend grazers'	*wul	p. 83	vi

Mikir varies between -l and -i in one important root:

'twenty'	*m-kul	399	iŋ-kol ~ iŋ-koi

· **TANGKHUL NAGA** also drops final *-l or reflects it as -y:

	PTB	STC#	Tangkhul	Lushai
'snake'	*s-bruːl	447	phərɯ	rúul
'belly / guts'	*riːl	---	khəri	ríil
'filth / excrement'	*baːl	---	páy	bàal

Final *-r is retained in Tangkhul after originally long vowels and after short *-a-, but becomes -y after short back vowels:[2]

	PTB	STC#	Tangkhul	Lushai
'shine / white'	*hwaːr	--- [a]	hor	vaːr
'fowl'	*haːr	---	ər; *hor*-hai	ʔáar
'peel / husk'	*koːr	---	kor	kóor
'sister (man's)'	*dzar	68	əzăr-vă	---
'new'	*sar	pp. 147, 172, 189	thə̀r	thár
'fly'	*pur	398	puy	---
'horse'	*kor	---	si-*kuy*	sà-*kŏr*
'make noise / hum'	*ʔur	---	huy	---

   a. *Cf. STC* #221 (where the reconstruction is hwa-t) and JAM 1997a:44-5,48.

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2.   See JAM 1972b:280.

9.1.4 Where one or both of the *liquids became nasal

· In **JINGPHO**, both *-r and *-l > -n, thus merging with -n < *-n:

	PTB	*STC*	*Jingpho*
PTB *-r > Jg. -**n**			
'star'	*s-kar	#49	šəgān
'flower'	*baːr	#1	pān
PTB *-l > Jg. -**n**			
'hair'	*mul	#2	mūn
'tired'	*bal	#29	bàn
PTB *-**n** > Jg. -**n**			
'convalesce'	**bran**	#133	brān
'bore / pierce'	*lwan	p. 49	gəlùn

9.1.5 Languages with obstruentization/fricativization of final *-r

· **SANGKONG** has merged PTB *-**ar** and *-**al** to -**an** (*e.g.* SK san⁵⁵ 'louse' < PTB *s(y)ar, SK san³¹ 'scatter, pour' < PTB *sywar; SK han⁵⁵ 'dhole, wild dog' < PTB **kywal**), but these words remain distinct from reflexes of PTB *-**an**, which has become SK -**e** (*e.g.* SK phe³¹ 'stir, mix' < PTB *pan).

· In **TIDDIM CHIN** (as well as in **SIYIN**, and probably other Northern Chin languages), *-r > -k, merging with the reflex of *-k:[3]

	PTB	*STC*	*Lushai*	*Tiddim* [a]	*Siyin*
'flat'	*peːr	#340	pèer	péek	p'iak
'flower'	*baːr	#1	páar	pāak	pak
'fowl / chicken / quail'	*haːr	---	ʔáar	āak	ak
'new'	*sar	pp. 147 *etc.*	thár	thāk	---
'nose' [b]	*s-naːr	#101	hnàar	nàak	---
'sell'	*ywar	pp. 15, 51, 89	zuár	zuāk	yuak

a. In this transcription the tonemarks in Henderson 1965 have been replaced by macron (level), grave (falling), and acute (rising).

b. Also cognate is Mikir iŋ-nar 'elephant' < *m-nar, lit. 'the snouted one' (PKB 1940 and STC n. 57).

3. See Solnit 1979.

A similar development from *r- to g- occurred in Tiddim in initial position (see above 3.4.2):

	PTB	STC#	Lushai	Tiddim
'bamboo'	*g-pʷa ≿ *r-pʷa	44	rua	guā
'bone'	*rus	6	ruʔ	guʔ
'rain'	*rwa	443	rya	gua

This suggests that the / r / phoneme in this branch of TB had a fricative, "uvular" articulation similar to that of Parisian French, something like [ɣ], which was suitable for further occlusivization to a stop.[4]

On the other hand, final *-l is preserved as such in Tiddim:

	PTB	STC	Lushai	Tiddim
'belly / stomach; intestine / guts'	*riːl	---	riil	gil
'enemy / quarrel / war / strife; sword'	*g-raːl	pp. 50, 71, *etc.*	raal	gaal
'snake'	*s-b-ruːl	#447	ruul	guul

· **SULONG** is an obscure language of northern Arunachal Pradesh,[5] that has so far not been classified into any larger TB nucleus. Several examples show that final liquids have been occlusivized into Sulong -ʈ, -t, -k:

	PTB	STC	Sulong
'arrow'	*tal	pp. 168, 169, *etc.*	me³³tak³³
'flower'	*baːr	#1	mə³³buat⁵³
'hail'	*wal	---	aŋ³³viʈ⁵³
'new / fresh'	*g-sar	pp. 147, *etc.*	a³³faʈ³³
'star'	*s-kar	#49	ha³³ɣat⁵³

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4.   As Solnit observes (1979:116), there is a widespread tendency toward occlusivization in Chin languages, with developments like *s- > th-, *v- > z-, and *w- to v- in both Tiddim and Lushai.

5.   Most of our information on Sulong comes from *ZMYYC*, where it appears as the last (#52) language of each synonym set, labelled as a variety of "Luoba".

9.1.6 Languages which show variable treatment of the final *liquids

In Chinese, both final PST ***liquids** usually became OC **-n**; occasionally, however, either final ***liquid** is retained as OC **-r** (in the reconstruction of *GSR*).[6]

· **MEITHEI** has merged both final liquids to -l, but "the lateral -l varies freely with -n syllable finally: thus, [lón] or [lól] 'language'" (Chelliah 1997:20).

	PTB	*Meithei*
'sell'	***ywar**	yol ~ yon
'sister (man's)'	***dzar**	i-tśal ~ i-tśan
'snake'	***s-b-ruːl**	lil ~ lin
'twenty'	***m-kul**	kul ~ kun

· **WRITTEN TIBETAN** really belongs in category (1) above, since both final ***-r** and ***-l** are well preserved (see many examples below). Final ***-r** is the more consistently maintained, since there are several cases where etyma with PTB final ***-l** either show WT variation between -l and **-n** ('worm'; 'fight / sword'), or have replaced ***-l** by **-n** entirely ('all / twenty'; 'eyebrow'; 'mountain goat'):[7]

	PTB	*STC*	*WT*	*Other*
'worm'	***zril**	pp.15-16 …	sril ≋ srin-bu	Thado til
'fight / sword'	***raːl**	pp.15, 21…	ḥgran-pa 'fight'; ral-gri 'sword'	Lushai raːl; Tiddim gaːl
'twenty / all'	***m-kul**	#397	kun 'all'	Garo khol ~ khal
'mountain goat'	***kyeːl**	#339	skyin	Lushai keːl
'eyebrow' [a]	***s-mul ≋ *s-mil**	#2	smin-ma	Lushai hmul; Garo kimil

a. This last case might be due to assimilation to the suffix -ma.

· The reflexes of the final ***liquids** in **WRITTEN BURMESE** are complicated, depending partly on the preceding vowel, but showing unexplained variation between open syllables and final -n in etyma with such rhymes as ***-al**, ***-ar**, and ***-ul**. Other liquid rhymes (*e.g.* ***-il**) have more than one open syllable reflex in WB.[8]

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6. See *STC*:172-3, and the Chinese comparanda, below 9.2.4, 9.3.4.
7. See *STC* n. 53 (p. 15).

9.2   Root-final *-r

A nearly full set of rhymes with final *-r is reconstructible after all five PTB vowels, both long and short, though some are much better exemplified than others:

---, -iːr	-ur, -uːr
-er, -eːr	-or, -oːr
	-ar, -aːr

9.2.1   *-ar

PTB	*-ar	*-aːr [a]
WT	-ar	-ar
KANAURI	-ar	---
LEPCHA	-or / -ar	---
RGYALRONG	-ar	---
JINGPHO	-an	-an
WB	-an / -ai	-an / -a
LUSHAI	-ar	-aar
TIDDIM	-ak	-aak
TANGKHUL NAGA	-ər	-or
MEITHEI	-al / -an	(-en)
MIKIR	-ar	-ar
GARO	-al	-al
DIMASA	-ar	-ar

a. There are no examples available to illustrate the reflexes of long *-aːr in Kanauri, Lepcha, or rGyalrong, although presumably they would be the same as for short *-ar. There is one possible example of -**en** as the Meithei reflex of *-aːr (see 'bird / chicken', below).

The usual WB reflex of both long *-ar and short *-aːr is -**an**,[9] although in a couple of cases ('sell / buy', 'lead / bronze') *-ar > WB -**ai**, while in one instance ('dance') *-aːr > WB -**a** (see below). The Loloish languages seem to have merged *-a(ː)r completely with

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8.   See the discussion of the individual rhymes below, and *STC* n. 54 (p. 15).
9.   See above 7.1(2) under the rhyme *-**an** for more discussion.

*-an. The usual Lepcha reflex of ***-ar** is **-or**, though in one example ("man's sister") the
*-ar is retained as such.

(1)   Short *-ar

'affix / sew / plait / braid'	*byar ≍ *pyar	*STC* #178
	WT ḥbyar-ba ~ ḥbyor-ba ~ sbyor-ba (< *-bwar) 'stick / adhere to, join / connect'; Bahing **phyer** 'sew'; Lushai **phiar** 'knit / plait, be entangled'.	
'beard / moustache'	*yar	JAM 1997a (PSLTB):47
	Lahuli (Tibetan) *yar*-sam 'moustaches' (Jäschke, p.572) ≍ WT *ya*-ma 'the temples'; Tsangla *ja*-wu 'beard'; Yakha *ya*-muŋ 'moustache', wiː-*ya*-muŋ 'whiskers of animal'; Kaike wā-*yē* 'beard'; Bunan əl-tshəm; Lepcha **kăyat** 'beard' (with unexplained -t).	
'fresh / radiant'	*s-lar	KVB
	WB **lân** 'be fresh, invigorated (plants, face); radiant, buoyant'; Lai **hlar** 'fresh'	
'frost'	*s-ŋar	JAM 2000 "*p-/w-":147
	rGyalrong (Zhuokeji) sŋaɹ, (Suomo, *ZMYYC*) sŋɐ¹ ; Ergong sŋa¹ ; Bengni *ŋɯr*-kam; PLB *s-ŋan > Zaiwa ŋan⁵¹phju⁵¹, Achang ŋ̊an⁵⁵, Langsu ŋəŋ (with assimilation of final to initial), WB *hnâŋ*-khâi (with metathesis of the two nasals), Lahu a-ŋə.	
'lead / bronze'	*kar	*STC*: 15
	WT ḥkhar-ba ~ mkhar-ba 'bronze, bell-metal'; WB **khâi** 'lead'; Tiddim (Henderson 1965) **hàk** 'lead'.	
'leave / abandon'	*gar	*STC* #15
	Nung **gar**; Garo **gal**; Dimasa **gar**	
'louse'	*s(y)ar or śar [a]	*STC*:15, 53, *etc.*; *ZMYYC* #162
	rGyalrong sar ≍ sor; Ergong wɕau; Nusu ʂa¹ ⁵⁵; Geman săl⁵³; PLB *san¹ᐟ² (> WB **sân** (< Tone *2); Lahu **še** (< Tone *1); [b] Achang ʂan³¹; Zaiwa ʃin²¹; Maru śiŋ³⁵; Yi Nanjian ɕi⁵⁵; Naxi Lijiang ʂu³³; Jinuo ɕɛ³³phɹo³³; Lisu xɯ⁴⁴); Proto-Karen *sən (> Sgaw θú; Pwo θə́n; Pa-o sý ~ sí ~ sá).	

'new / fresh' [c]	*g-sar	*STC* pp. 147,172,189
	WT gsar-ba; Queyu (*TBL* #1050) xsar⁵⁵pe⁵⁵; Rawang aŋ-sar; Trung ak-sal; Lushai thar; Thado ătha; Tiddim thak; Proto-Karen (Jones 1961) *sành (> *e.g.* a³¹tθɔ⁵⁵ [*TBL* #1050], Pa-o təsà); Sulong a³³faȶ³³.	

'phlegm'	*har	JAM 1997a (PSLTB):36
	Chepang hārʔ; Lepcha hor; Monpa Motuo har-khak-taŋ.	

'rise / east'	*syar or śar	*STC:* 28
	WT śar 'east', śar-ba ~ tśhar-ba 'rise, appear, become visible (*e.g.* of sun)'; Kanauri sar 'lift, bear, carry', sar-sí 'rise (refl.)'; Nung nam sarr 'sunrise, nam sarr kha 'east' (nam 'sun').	

'run / ride / go by vehicle'	*gyar ⋊ *hyar	JAM 1997a (PSLTB):41
	Geman Deng gial³⁵ 'run'; Tamang yarʰ '*id.*'; Tsangla (Tilang) yar '*id.*'; Apatani har 'run', har-gɯ-ko 'ride'.[d]	

'sister (man's)'	*dzar	*STC* #68
	Lepcha far-nu; Jg. džān; Tangkhul əzăr -vă; Meithei i-tśal ~ i-tśan; Kadu san 'younger sister'.	

'star'	*s-kar	*STC* #49
	WT skar-ma; Kanauri kar; Lepcha săhor; Miri təkar; Jg. šəgān; Khoirao səgan; Khami ka-si ~ a-si; Lushai ar-śi (note loss of initial velar in some Kuki-Chin languages); Sulong (*ZMYYC* #4) ha³³ɣat⁵³ .	

'sunshine'	*tsyar or *tśar [e]	*STC* #187
	Bahing tśyar 'shine'; Tiddim Chin ni-saː 'sunshine'; the following forms all mean 'sun': Jingpho džān; Tangsa Moshang roŋ-śarr; Tangsa Yogli rang-shal ; Wancho rang-han ; Nocte san; Garo sal; Dimasa saing; Bodo san; Deuri sá. Also undoubtedly cognate is Tangkhul kəcər 'white'.	

'trade / buy / sell' [f]	*par	*STC* p.35
	WT phar 'interest (on money); exchange; agio'; Lepcha (a)far 'price' ⋊ par 'buy'; Kanauri be-par 'trade'; rGyalrong mphar 'be for sale'; Garo phal 'sell'.	

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a. It is often difficult to distinguish reflexes of this root from those of *s-r(y)ik 'louse', above 8.3(1).

b. The tonal instability of this root in LB is another example of the tonogenetic power of *s- (above 3.3, below 11.4.5).

c. Qiang Mawo **khsə** (*ZMYYC* #866), like rGyalrong **kəʃək**, seems to descend rather from ***g-sik**, above 8.3(1). There are two good Chinese comparanda (9.2.4).

d. A number of "look-alike" forms meaning 'ride' in TB languages of Nepal are loans from Nepali *ghoḍa* 'horse' (*cf.* Sanskrit *ghoṭa*), *e.g.* Khaling **ghar**, Chepang *ghor* a-haŋ lanh-sa, Gurung *gohḍaq* **krebaq**. See below 9.2.3.

e. The restricted distribution of this root, found chiefly in Jingpho, Bodo-Garo, and Northern Naga, led Burling (1983) to consider it a key isogloss for subgrouping the TB family, dubbing this group "the Sal languages" in honor of the Garo reflex. This root may well be related to the complex word-family ***hwal** ⪤ ***hwar**, etc. 'fire / shine' (see below 9.6).

f. ʔ⪤ʔ ***ywar** 'sell / buy', §3 below.

(2)   Long *-aːr

'fowl / chicken / quail' [a/b]	***haːr**	JAM 1997a (PSLTB):47
	Lushai **ʔaar**; Tangkhul *har*-nao, *hor*-hai; Tiddim **aːk**; Ao Mongsen **an**, Ao Chungli *aen* -techanu;Yacham-Tengsa **an**, *an*-shu. Perhaps also Meithei *yen*-nao, Lotha **hon**-oro, and Sangtam *hün*-aza.	
'bloom / flower'	***baːr**	*STC* #1; ZMYYC #228
	WT **ḥbar**-ba 'to blossom'; Lushai **paːr** 'flower; to bloom'; Mikir **par** 'petal', **aŋ**-phar 'flower'; Garo **bibal**; Dimasa *bar*-guru 'to blossom'; Dhimal **bar** 'to flower'; Jg. **pān** 'flower'; WB **pân**; Pwo Karen **phau**, Sgaw Karen **phə**; Shixing **bu³³bu³³**; Zaiwa **pan²¹**; Langsu **pəŋ³⁵**; Naxi **bɑ³¹**; Jinuo **a³³pɔ³³**; Geman Deng **phɑn⁵³**; Darang Deng **tɑ³¹pɯ⁵⁵**; Idu **ɑ⁵⁵pe⁵⁵**; Bokar Adi **puŋ** -*pin* ; Sulong **mə³³***buat⁵³*.	
'dance / leap / stride / sing'	***gaːr** [c]	*STC* #11
	WT **gar** 'a dance'; Jg. **gān**, **kəgān**, **khān** 'leap, bound, canter'; Lushai **kaːr** 'to step, pace, stride'; Garo **kaʔl** 'play'.	
'hang / impale'	***taːr**	*STC* #326
	Jg. **thàn** 'hang, as a sword at the side', **məthán** 'impale, as the head of a robber'; Lushai **taːr** 'stick on a pole, make or set up a landmark, hang up'; Mikir **tar** 'impale'.	
'other / outside'	***yaːr**	
	Kanauri **yar** 'other'; Tangkhul **ā***yār* 'exterior, border, brink'; **ā***yār*shoŋ 'outside', **ā***yār* khanā 'outskirts'.	
'solid / frozen' [d]	***kaːr** ⪤ ***gaːr**	*cf. STC* n.54
	WT **gar**-ba 'strong', **gar**-bu 'solid', **gar**-mo 'thick (as soup)'; Lushai **khaar** 'congeal, crust over, be frozen'.	

'spread / extend / sail'	*yaːr [e]	*STC* pp. 138, 146, *etc.*

Lushai **zaːr** 'hang up (cloth), spread (sail)'; Tiddim **zaːk** 'spread a blanket'; Jg. **yàn** 'be unrolled, spread out, extended', **ʔəyān** 'extended, continuous'; Proto-Karen ***ya** 'sail; expand to a great extent (as branches); spread sail'.

a. This root seems to be an ancient loan from Mon-Khmer into PST. *Cf. e.g.* E. Khmuʔ **hi̯ʔiər**, W. Khmuʔ **həʔíər ~ ʔíər** (Suwilai 2002). Several other TB animal names are also convincingly imputed to MK sources, especially ***k-la** 'tiger' and ***g-laŋ** 'eagle / bird of prey'. See above, 3.6.4.1(1), and 7.1(3).

b. So far this root has only been found in Kamarupan, although there is an excellent Chinse comparandum (below 9.2.4). Moso **æ¹¹**, despite its phonological similarity to the above forms, is probably < ***k-rak**, above 8.2(1).

c. An open-syllable variant ***s-ga** is reflected by rGyalrong **ta-rga** (*ZMYYC* #684); Jg. **kà** 'leap'; WB **ka'** ; Lahu **qā** 'traditional dance', **qā- qhêʔ** 'to dance'; Lisu **gwa³³** 'to dance'. The Chinese comparandum 歌 means 'sing' (below 9.2.4).

d. This root probably ⋇ ***kal** 'congeal' (below 9.3.1).

e. WT **g-yor**-mo 'sail' shows vowel gradation. There are several good Chinese comparanda (9.2.4).

(3)   *-war

The labialized version of this rhyme has distinctive reflexes in many languages, including WT, WB, Jg., Mikir, Meithei, Garo, and Dimasa:

PTB	*WT.*	*Lp.*	*Jg.*	*WB*	*Lushai*	*Meithei*	*Mikir*	*Garo*	*Dimasa*
*-war	-or	-or	-on	-wan	-uar	-ol ~ -on	-or	-ol	-or

Examples include the following:

'cut / chop'	*tsywar or *tśwar	*STC* #240; *ZMYYC* #602

Bahing **tśwar** 'cut with a knife by one stroke'; Mikir **tšor** 'cut, chop'; Amdo (Zeku) **ptɕal**, (Bla-brang) **tɕal**; Qiang (Taoping) **tshuɑ⁵⁵**, (Mawo) **tuɑ**; Pumi Jinghua **thə¹³stʃɑ⁵⁵**; Zhaba (TBL) 扎坝 **a³³ʂtsa⁵⁵** ; Daofu (Ergong) **xtsa**-xtsə; Shixing **tshʅ⁵⁵**; Nung **phɑ³¹dzan⁵⁵**.

'hawk'	*hwar	JAM 1997a (PSLTB):39

WT *hor*-pa; Sema Naga *al*-hok-hu; Naxi Lijiang **uə³¹**.

'sell / buy'	*ywar	*STC* pp. 51, 89 [a] ; *ZMYYC* #616, #617

Lushai **zuar**; Tangkhul **khəyor**; Mikir **džor**; Meithei **yol ~ yon** (all 'sell'); Rawang **wan** 'buy' (rather than the expected *war); PLB *way[1] (> *e.g.* WB **wai** 'buy'; Lahu **vɨ** [b] '*id.*'). Many other Lolo-Burmese cognates are to be found in *ZMYYC* #617 ('sell'), and the following from #616 ('buy'): Yi Dafang **va²¹**; Yi Mojiang **vɛ²¹**; Lisu **vu³³**; Naxi Lijiang **xa³¹**; Naxi Yongning **xua³¹**; Hani Caiyuan **ɣ⁵⁵**; Hani Dazhai **ɣɤ⁵⁵**; Jinuo **jo³¹**; Achang **oi⁵⁵**; Zaiwa **vui⁵¹**; Langsu **vai³¹**. *Cf.* also Namuyi **hɛ̃**; Shixing **jɛ⁵⁵**; Nusu **ue³⁵**; Darang Deng (Taraon) **bɹai³⁵**; Bokar Adi **rəː**; Sulong **vɛ¹³³**.

'throw / throw away / divorce (a spouse)'	*bʷar ⩖ *hʷar	*STC* pp.172-4,191; PSLTB:40; JAM 2000a ("p/w"):#18
	*bʷar	WT **ḥbor-ba** [c]
	*hʷar	Bahing **war, waː-li**; Chepang **waːr**; Mikir **var**; Lushai **vorʔ**; Newari *wān*-**chat**; Dumi *wər*-**ni**; Tangkhul *hor*-**hai**; Ao Chungli **a-*on*** ; Ao Mongsen *en*-**chuk**; Bokar *or*-**ang**; Tagin *or*-**nam**; Apatani **jar**; Milang *yur*-**cen-ma**

a. Benedict believed this root was "definitely a loan from Austro-Tai", citing Proto-Indonesian *d'ual 'sell' (*STC*:51).

b. The Lahu vowel is irregular with respect to WB.

c. There are also good Chinese comparanda with initial labial stop (9.2.4 below).

Of particular interest is the complex allofamy exhibited by the following etymon:

'flow / pour / scatter'	*sywar or *śwar [a] *STC* #241; JAM 2000b ("Sino-Bodic")
	WT **ḥtshor-ba** 'escape; flow out, run over'; Lepcha **tśhor** 'the pouring of water'; Garo **sol-aŋ** 'flow', **sol-gipa** 'current'; Dimasa **di-sor** 'flow'; Jg. **šōn** 'flow (as tears, sweat, water poured on ground').

a. Limbu has a complex set of related forms reflecting alternations among final -r, -n, -t, -s, and open syllable: -sɛr- ~ -sɛt- 'scatter, be split, go in separate directions' ⩖ sɛnd- ~ sɛn- 'split up, disperse, break up' ⩖ -sɛs- ~ -sɛ- 'scatter, spill, sow'. This root may well be allofamically related to *tsyur (=*tśur) 'wring / squeeze' (below). There is also evidently an open-syllable allofam *g/b-sywa or *g/b-śwa > WT **gśo-ba ~ bśo-ba** 'pour out'; Jg. **džó ~ tśó** 'pour out, cast, enamel, dye'.

Both Lolo-Burmese and Chinese (see below 9.2.4) reflect a pair of allofams with homorganic final nasal and stop, ***swan** ≽ ***swat**:

	*swan ≽ ***swat**
PLB ***swan**[1/2]	WB **swan** 'pour out, spill, shed' ≽ **swân** 'pour upon, cast by pouring liquid into a mold'; Lahu **šē** 'pour; sow broadcast'; Akha **sὲ** 'sow seeds', **sjὲ** 'pour'; Mpi **se**[1] 'sow broadcast, scatter seed'
PLB ***swat**[H]	Lahu **šêʔ** 'pour, spill'; Akha **sjέq**; Sani **xɤ**[44]; Bisu **šὲt**

(4)   **-war* ≽ **-or*

'hole / pit / valley / cave'	***kwar** ≽ ***kor**	*STC* #349, #350 [a]
	*kwar	Lushai **khuar** ~ **khur** 'hole, cavity'; Nung **duŋ**-*khər* 'hole'
	*kor	WT **kor** 'round, circular' (West Tib. 'hollow in the ground, pit'); Lushai **kor** 'small valley, ravine'; Garo **a**-*khol* 'cave'; Dimasa **ha**-*khor 'id.'*; Bodo **ha**-*khor* 'hole, valley' (**a** ~ **ha** 'earth').

    a.   *STC* (p. 74) insists that these roots are "to be kept distinct", but they are obviously co-allofams.

9.2.2   **-ir and *-ur*

No sets are reconstructed with invariant short ***-ir**, and there are only a few examples of invariant short ***-ur**, though three other sets show ***-ur** ≽ ***-ir** variation. Both these rhymes occur with long vowels in a few cases, though the one example of long ***-iːr** varies with ***-yaːl**. Both long and short ***-u(ː)r** show variation with the labialized rhyme ***-wa(ː)r**.

(1)   **-iːr*

'iron'	***syiːr** ≽ ***syaːl** [a]	*STC* #372
	*syiːr	Dhimal **śir**; Dimasa **śer**; Lushai **thiːr**; Garo **sil**
	*syaːl	(Kiranti) Bahing **syaːl**; Sangpang **syel** ~ **sel**; Dumi **sel**; also Darang (Taraon) **sɑi**[53].

    a.   This etymon illustrates both **-r* ≽ **-l* and **-iː-* ≽ **-ya:-* variation. *STC* (n. 244) speculates that it might be an old loanword from Austro-Tai, though this root is not mentioned in Benedict 1975a. Two other roots for 'iron' have been presented above: ***syam** 7.1(1); ***l-tšak** 8.2(1).

(2)   *-ur*

PTB	*WT*	*Kan.*	*Lp.*	*rGyal.*	*Lu.*	*Lai*	*Lak.*	*TN*	*Mk*
*-ur	-ur							-uy	
*-uːr	-ur	-ur	-ór	-ur	-uur	-uur	-ao	-or	-or

'hand'	*kur ⋊ *ʔur [a/b]
	Dulong **ŭr⁵⁵**, **ul⁴⁴**; Dumi **khur**; perhaps also Bokar Lhoba a**çur**, Sunwar **kuy**, Bahing **gyje**.
'make noise / hum / chat / babble'	*ʔur (JAM 1970 "GD" #69)
	WT **ḥur** 'noise, hum; talk, babbling, chitchat', **ḥur** gto**ŋ**-ba 'to talk, chat'; Lahu **nàʔ-*ú* *ú* ve ~ nàʔ-*ú* te ve** 'chat, converse' [c] ; Yi Wuding **ɤ¹¹** 'chat'; Sgaw Karen (Yue) **tă³¹*u*⁵⁵**, (Hinthada) **tθa̱⁵⁵ɯ⁵⁵** 'hum' (Dai Qingxia), Karen **u̱⁵⁵gă³¹li³³** 'chat' (*TBL*); Tangkhul **huy** 'hum'; Thado **ɔ̀ ~ ɔ́** 'noise'.
'tremble / shake / pulse'	*tur (KVB)
	WB **tun**; Lushai and Lai **tur**.

a. This reconstruction is revised from *ul (JAM 1997a (PSLTB):47).

b. This etymon remains to be firmly established. Michailovsky (1991) derives the Sunwar and Bahing forms rather < *kut, above 8.4(3). *Cf.* perhaps *s-hwal 'joint / wrist', below 9.3.1.

c. The Lahu high-rising tone suggests a secondary occlusivization of the final *-r to a stop (see also 'spittle' (below 9.3.2). There is a good Chinese comparandum (9.2.4).

(3) **-uːr*

'gills / beak / mouth / face' [a]	**muːr* (*STC* #366)
	WT **mur** 'gills', *mur*-goŋ 'temples', *mur*-ḥgram 'jaw', *mur*-ba 'gnaw, masticate'; Limbu *mur*a 'mouth, beak'; Nung **mər** 'face, mouthful'; Lushai **hmuur** 'point, tip, prow'; Lai Chin **hmúur** 'beak'; Lakher (Maraa) **hmao** '*id.*'; Thado **mu** '*id.*'; Khoibu **mur** 'mouth'; Tangkhul khə*mor* 'mouth'.
'rainy season'	**zuːr*
	Lai Chin **fùur**; Lakher (Maraa) **sao** [b]
'wring / squeeze'	**tsyuːr* or **tśuːr* [c] (*STC* #188)
	Bahing **tśyur** 'wring'; Bunan **tśhur** 'squeeze out'; Kanauri **tsŭr** 'to milk'; Hakha **śur**, Lai Chin (KVB) **sùur** 'wring; milk a cow'; Lakher (Maraa) **sao** '*id.*'

a. This root may also be reflected in Loloish forms like Lahu **mɔ̂** 'lip, mouth, jaws; tip, point, peak' (*DL*:1044, 1046), Lisu *muɯ³ˀlɯ³⁵* 'mouth', Jinuo mø³³mø³³ '*id.*'. The Chinese comparandum (9.2.4 below) means 'gate / door.'

b. This comparison is due to KVB (2001). So far no extra-Chin cognates have been found.

c. A long vowel is tentatively reconstructed for this root because of the Lai form. This root may well be allofamically related to **sywar* or **śwar* 'flow / pour / scatter' (above) and/or to 'wring / crumple' **(t)syip ≍ *(t)syup* (*TSR* #66), above 8.4(4).

(4) **-ur ≍ *-ir*

'fly (v.)' [a]	**pur ≍ *pir*	(*STC* #398)
	*pur	WT **ḥphur-ba**; Thakali (Tukche) **pyuhr-wa**; Chamling **bur**ꜛ-; Magar **bhur-ke**; Kham **buhr-nyā**; Newar (Kathmandu) **bwɔ(l)-**, (Dolakha) **bwɔr-, bwa-la**; Guiqiong **phɯ**; Tangkhul Naga **puy**; [b] Nung **əphər** 'shake (as a cloth)'
	*pir	Central Tib. **ḥphir-ba**; Thakali (Tukche) *pihr*-la; [c] Gurung *pihr*-i-bā; Cuona Mama **pʰir⁵⁵**; Tsangla Motuo **phen**; Garo **bil**; Dimasa **bir**
'wash' [d]	**hur ≍ *hir*	JAM 1997a (PSLTB):38
		Newar **hir-, hi(l)-** 'wash clothes'; Thulung **hur-** 'wash hair/head'; Kulung *hur*-su; Dimasa **hu**; Zeme **hui**; Apatani **har-su**; Miri *hɯr*-kak-na; Bengni/Bokar **hɯr**

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a. This root is allofamic with 'butterfly' (below §5). There are three plausible Chinese comparanda (9.2.4). *Cf.* also ***byer** (below 9.2.3), with a distinct Chinese comparandum (9.2.4). Another distinct root for 'fly' with labial initial is ***byam**, above 7.1(1).

b. ***-uy** seems to be the regular Tangkhul reflex of ***-ur**; see above 'make noise/hum' ***ʔur** > TN **huy**.

c. Note the intralingual vocalic alternation in both WT and the Tukche dialect of Thakali.

d. This set is perhaps related to ***hus** 'wet / moisture', below 10(10.3).

(5)   **-ur ⋛ *-war*

'butterfly' [a]	*pur ⋛ *pwar	
	*pur	Bokar Lhoba paŋ-*pur* ; Apatani po-*pʉr* ; Damu dʑo-*por* ; Pattani *pʰər*-pʰi-tig; Nung khoŋ-*phər* 'moth'
	*pwar	Bahing ʔbar; Geman Deng *phal*[55] tɕoŋ[35]; Milang bo-*par* ; Sulong *bua*[33] pit[33]

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a. No set for 'butterfly' appears in *STC*, although Nung **khoŋ-*phər*** 'moth' is cited along with **əphər** 'shake (as a cloth)' under ***pur ~ *pir** (#398) 'fly' (§4 above). The resemblance to Hebrew *parpar* 'butterfly' is surely fortuitous.

(6)   **-uːr ⋛ *-waːr*

'sour'	*s-kyuːr ⋛ *suːr ⋛⋛ *s-kywaːr ⋛ *swaːr	*STC* #42; *ZMYYC* #887
	*s-kyuːr	WT **skyur-ba**; rGyalrong **kətɕyur**; Ergong **wtɕhʉ¹wtɕhʉ¹**; Lepcha **tɕór** 'sour', **sǎ-*tsór*-lǎ** 'sourish';[a] Tsangla **tɕur-pa**; Bahing **dzyur**; Nusu *tsə¹³⁵* ; Pumi Taoba *tɕu⁵⁵mə⁵³*; Pumi Jinghua **tʃu⁵⁵**; Muya **tɕu⁵⁵**; Namuyi **tʂu³⁵**; Shixing **tɕi⁵⁵**; Xixia **tɕhjwɨ¹** (Gong Hwang- cherng1999); the nasalized vowels in Queyu **tʂõ⁵⁵tʂõ⁵⁵** and Guiqiong **tsɔ̃⁵⁵mu⁵⁵** indicate a development from **-r > -n* in Qiangic.[b]
	*suːr	Lushai **suur**; Kanauri **sur-k**; Rodong **sur-e**; Mikir **thor**; Trung **sul** 'spoiled'; perhaps also Geman **sǎl⁵⁵**

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a. The Lepcha forms, as well as the excellent Chinese comparandum (9.2.4 below), point to the variant with **-waː-*.

b. Loloish forms like Lahu **ci ~ ce**, Yi Xide **tɕi³³**, Lisu **tʃʉ⁴⁴**, Hani Caiyuan **tshɤ⁵⁵**, Jinuo **a³³tʃhʉ³³** are cognate to each other, but not necessarily to the forms above. WB **khyañ** (presumably < ***kyin** or ***kyiŋ**) seems unrelated to the Loloish forms.

(7)   **-ur ≍ *-ir ≍ *-war*

'sweat' [a]	***hur ≍ *hwar ≍≍ *hir ≍ *hyar**	JAM 1997a (PSLTB):48

Gallong **a-ur, a-ɯr, a-yɯr**; Tagin **ha-***cer*, **ha-***yer*; Miri **har**; Bokar **ho-***war* **len**; Milang *hi:l* -**ma**; Darang **haː-***u*; Lhoba **ɦoŋ-***ŋar* (with assimilation to the final of the first syllable); Mikir **ing-***i* ; Anong **in**[55]

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a. This root is part of the immense word-family clustering around the meanings 'fire/heat/shine' presented below 9.6.

9.2.3   **-er and *-or*

Examples of etyma with these rhymes are few, but solid:

(1)   **-er*

'fly'	***byer**	*STC* pp. 83, 166; *ZMYYC* #782

Bahing **byer**; Kulung **per-a**; Sunwar *ber*-**ca**; Khaling *bher*-**ne**; Rumdali *per*[fi] - **ma**; Limbu **pɛːr-**; Nusu (Central) **bia**[33]; Dulong (Nujiang) **zer**[33], (Dulonghe) **ber**[55]; Trung **biel**; Mikir **ing-***jar*; Padam-Mising (Abor-Miri) **ber**; Bokar Lhoba **bjar**; Damu *piar*-**ra**; Hill Miri *ʝar*-**nam**; Bengni **ǰɯr**; Apatani **ǰar** [a]

'give / causative'	***s-ter**	

WT *ster*-**ba** 'give, bestow; let, permit'; Lai Chin -*tèr* 'causative suffix' (*e.g.* **tlaak-***tèr* 'cause to fall', **kaŋʔ-***tèr* 'cause to burn', **rilʔ-***tèr* 'cause to roll') [b]

'hail / sleet'	***ser**	*STC:*172; *ZMYYC* #15; Weidert 1987

WT *ser*-**ba** 'hail' (Tsangla *ser*[55]**ba**[13], Bumthang *ser*-**pa**, Tamang *ser*-**pa**, and Tashigang **sir-***ser*-**ba** are probably loans < Tibetan); Thakali Thukche **ti-***sjor* ; Dzongkha *sɪ*-**uː**; Jg. **sin**[33]; Garo *sil*-**te**; Trung *săn*[53]**wɑ**[55]**zɑʔ**[55]; Chang Naga **sàn**; Khiamngan **sun**[21]; Qiang Taoping *sye*[33] **tan**[13]**tsɻ**; Pumi Jinghua **sdʒɛ̃**[55]; Pumi Taoba **zẽ**[35]; Guiqiong *si*[55]**wi**[55]; Bai Bijiang *sue*[44]**uɑ**[42]; Bai Jianchuan *sɯ*[44]**po**[42]**tsi**[33]; Darang (Taraon) **aːthei** ; Idu **ɑ**[31]*the*[53]. [c]

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a. There is a good Chinese comparandum (9.2.4 below).

b. This suffix is productive in Lai, where it is added to Form II of verbal roots.

c. Lotha **še**[1]**rɯ**[1] and Sangtam **šu**[2]**rɯ**[1] apparently show dimidiation (disyllabification) of the original monosyllabic root. Chinese 霰 is a good comparandum (see 9.2.4).

(2)   **-eːr*

'dry' [a]	***heːr-s**	JAM 1997a (PSLTB):36
	Kulung **har-a**; Limbu **heːr-**, **heːs-**	
'flat / thin'	***peːr**	*STC* #340; *ZMYYC* #825
	Dimasa **gepher** 'flat'; Lushai **peːr** 'flat and thin'; Nusu **biɑ¹ ³⁵biɑ¹ ³¹**	

a. This etymon (reconstructed in PSLTB with a short vowel) needs more support.

(3)   **-or*

'distribute' [a]	***hor**	JAM 1997a (PSLTB):35
	Miri *hor*-**mi**-**si**; Gallong *or*-**si**-**nam**; Bengni **huɯr**	
'horse'	***kor**	JAM 1972b ("TN and TB"):280
	Lushai **sà-*kŏr***; Tangkhul **si-*kuy***; Tiddim **sa¹*kòl³***; Thado **sʌ*kòl***; Meithei **sa-*gol***; Ao Chungli **kor**; Dulong **mɯ³¹*gɯ⁵³*** ; Proto-Tani (J. Sun 1993) ***kɯ** (> Bokar Adi **ɕəkɯ**, Bengni **si-kiː**); PNN (French 1983) > Konyak **koi**, Maram **takoi** [b]	
'snore'	***s-ŋor** [c]	
	WT **s*ŋur*-ba** 'snore', **ŋur-ba** 'grunt (of pigs and yaks)'; Sherpa **ŋor-pa**; rGyalrong (N) **ɳi-*sŋər***, (NW) **kəsŋor**; Sunwar **ŋor**; Gurung **ŋruh**; Pattani **gor gor-si**; Apatani **i-mi iʔ-*ŋɯr***; Tangkhul **ngər**; Mikir **ing-*ngar***; Lushai **hnar**; Noesu **ʑi-ŋo⁵⁵** (**ʑi** 'sleep'). Perhaps also Chepang **h*ŋrok*-naʔ**, Thulung and Khaling **khor**.	

a. This root has so far only been found in Abor-Miri-Dafla (Tani). See J. Sun 1993.

b. The first element of most of these forms (*e.g.* Lushai **sà-**, Bokar **ɕə-**) is the animal prefix derived from PTB ***sya** (see above 4.2.1). Many other TB languages of India and Nepal have similar-looking forms that are borrowings from Indo-Aryan (*cf.* Sanskrit **ghoṭa**, Nepali **ghoḍā**), including Tsangla (Motuo Monpa) **kur⁵⁵ta⁵⁵**, Deuri **guri**, Milang **gure**, Hill Miri **guri**, Gallong **gure**, Chang **kuri**, Lotha **korrü**, Sangtam **kuri**, Sema **kuru**, Dimasa **gorai**, Bodo **goray**. It is indeed possible that even the TB forms with the ***sa-** element are ultimately to be traced back to the Indo-Aryan etymon. Ao Chungli **kor** (above) might well be apocopated from a disyllabic IA prototype.

c. This root looks allofamically related to ***s-na** ≿ ***s-naːr** 'nose' (*cf.* Lushai **hnaar** 'nose'), below 9.5. There is a similar Indo-Aryan etymon (*cf.* Nepali **ghur-nu**), but this resemblance appears accidental, probably due to the imitative nature of words for snoring.

(4)   **-oːr*

'peel / husk'	*koːr	JAM 1972b ("TN and TB"):280
	Lushai **kóor**; Tangkhul **kor**	

(5)   **-or ≍ *-war*

'valley / pit; hole / cave' [a]	*kor ≍ *kwar	*STC* #349 and #350 [b]
	*kor	WT **kor** 'round, circular'; West Tib. **kor** 'hollow in the ground, pit'; Lushai **kor** 'small valley, ravine'; Garo **a**-*khol*, Dimasa **ha**-*khor* 'cave'; Bodo **ha**-*khor* 'hole, valley' (**a** ~ **ha** 'earth').
	*kwar	Lushai **khuar** ~ **khur** 'hole, cavity'; Nung **duŋ**-*khər* 'hole'.

a. This set is repeated from 9.2.1(4), above.
b. *STC* (p. 74) maintains that these forms represent two distinct roots, but they seem clearly to be co-allofams.

9.2.4   *Chinese comparanda to TB etyma in *-r*

There are a surprisingly large number of plausible Chinese comparanda to TB etyma with final ***liquids**, with some 60 Chinese characters involved. Both ***-r** and ***-l** generally merged to -**n** in OC, with occasional survivals of the liquid in the shape of OC -**r** (in the reconstructive system of *GSR*).[10]

	PTB		*OC*	*GSR*	*Chinese gloss*
'bind / fasten / tether' [a]	*s-dar	纏	d'i̯an	204c	'bind / wind'
'braid / plait / interweave' [b]	*byar ≍ *pyar	辮	b'yan	*AD* 734 [c]	'braid / plait'
		編	pian ≍ b'i̯an	246e	'plait, weave / arrange in series'
'fowl / chicken / quail' [d]	*ʔaːr	鷃 [e]	ʔan	146g	'name of a bird'
		鷃	ʔan	146i	'name of a bird'
'dance / sing'	*gaːr	歌	kâ	1p-r	'sing / song'

'fire / burn / shine / white'	*pwa(ː)r	皤	b'wâr ⪥ pwâr	195r	'white' [f]
		燔	b'i̯wǎn	195i	'burn / roast'
		焚	b'i̯wən	474a	'burn / destroy'
	*hwaːr	火	χwâr	353a-c	'burn / fire'
		煇	χi̯wər ⪥ g'i̯wən	458k	'flame / bright(ness)'
		輝	χi̯wər	458-L	'bright'
'flow / pour / scatter'	*sywar ⪥ *sywa-n/t	散	sân	156a-b	'disperse'
		撒	sât	AD #767	'scatter, disperse / spread / distribute / let loose'
'fly₁' (v.)	*pur ⪥ pir	飛	pi̯wər	580a	'fly (v.)'
		翂	pi̯wən	471f	'fly / soar'
		奮	pi̯wən	473a	'spread wings / fly up'
'fly₂' (v.)	*byer	翩	p'i̯an	246k	'fly about / flutter'
'gills / beak / mouth / face'	*muːr	門	mwən	441a-c	'gate / door'
		吻	mi̯wən	503o	'corner of lips / shut the lips'
'hail / sleet'	*ser	霰	sian	156d	'graupel (soft hail) / sleet'
'louse'	*s(y)ar	蝨	si̯ĕn	506a	'louse'
'new'	*sar	新	si̯ĕn	382k-m	'new'
		鮮	si̯an	209a-c	'fresh / new / fine / clear'
'noise / hum; chat / babble'	*ʔur	嘔	ʔu	122i	'vomit / babble / as a child'
'sour'	*suːr ⪥ *swaːr	酸	swân	468e	'sour'

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10. See *STC*, notes 459-462, pp. 172-3.

'spread / extend / sail'	*ya:r	延	di̯an	203a	'extend / continue / delay / stretch'
		筵	di̯an	203b	'mat'
		演	di̯an	450k-l	'flow out / extend'
		引	di̯ĕn	371g	'draw the bow / pull, draw / extend / prolong'

a. *Cf.* WT **star-ba** 'tie fast, fasten to (as sheep to a rope in a bivouac)', WB **ta** 'cling to' . See Gong 2000:29.

b. *Cf. GSTC* #37 (n. 22) and *STC* n. 460 (p. 173).

c. Not in *GSR* #219.

d. This TB/Chinese comparison is due to A. Schüssler (p.c., May 2001). As he observes, the Division II vocalism in this word (thought by most Sinologists to derive from OC medial *-r-) occurs occasionally in words whose TB cognates have final *-r.

e. These characters are glossed as 'quail' in Guoyu . A third variant of this character, as in Mandarin 鵪鶉 *ānchún* 'quail', is not to be found in *GSR* #614.

f. *Guangyun* glosses the meaning of this character as "white-haired appearance of the elderly".

Another promising Chinese comparandum to a possible PTB etymon in ***-ar** is 單 'single, simple; a unit' OC **tǎn** (*GSR* #147a-d) / PTB ***tay** ≿ ***tan** ʔ≿ʔ ***twar**. See above 7.1(2).

9.3   Root-final *-l

A nearly complete set of lateral-final rhymes is attested for PTB:

-il	-i:l			-ul	-u:l
-el	-e:l			---	-o:l
		-al	-a:l		

9.3.1   *-al

PTB	WT	Bahing	Lp.	Jg.	WB	Lahu	Lu.	Meithei	Garo
*-al	-al	-al	-ol	-an	-an / -a / -ai	-a	-al	-al ~ -an	-al
*-a:l	-al			-an	-an / -a		-aal		

As with the corresponding rhotic rhyme ***-ar** (above 9.2.1), WB shows variable reflexes of ***-al**, sometimes dropping the lateral without trace,[11] but in several cases

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11. This simple dropping of the lateral is also the typical development in the Loloish languages.

developing the nasal rhyme -**an** (see 7.1 above); in at least one root ('congeal') the WB reflex is -**ai**.

	PTB	WB	Lahu
'back / loins'	*s-ga:l	khâ	---
'frog'	*s-bal	phâ	pā
'clear / bright / pleasant'	*g-sal	sa	ša
'snow / ice'	*wal	---	vâ
'chew (cud, betel)'	*wal �done *yal	ya	---
'tired'	*bal	pân	---
'circular'	*wal	wân	---
'quarrel'	*ra:l	ran	---
'congeal'	*kal	khâi	---

Vowel length is established in the usual way for this rhyme, on the testimony mainly of Kuki-Chin and Naga languages like Lushai, Tiddim, and Tangkhul, *e.g.*:

	PTB	Lushai	Tiddim	Tangkhul
'forehead'	*d-pral	tsàl	tal	(khəwəy)
'filth / excrement'	*ba:l	bàal	ba:l	páy

Examples of etyma with this rhyme include:

(1)   **-al*

'arrow / bow'	*tal	*STC*:169; *ZMYYC* #428

Mikir **thal ~ thai**; Lushai **thal** 'arrow'; Tiddim **thal** 'bow'; Sulong me[33]*tak*[33]; [a] perhaps also Deori Chutiya **thal** 'bough' (because of the way branches bend down like bows?; *cf.* Benedict 1940 #72) [b]

'chew (cud, betel)'	*y(w)al	JAM 1997a (PSLTB):47

Thulung Rai **ol** 'chew cud (cow)'; Kaman (Miju) **jɑl**[55]; Tamang (Risiangku) **ŋjal**, (Taglung) *kjan*-**ba** (apparently from a prefixed variant ***k-yal**); perhaps also Bantawa *yo*-**khott**. Also WB **ya** 'make a quid of betel', **ʔəya** 'betel-quid'; Karenic (Pwo, Palaychi, Sgaw) **ya** 'betel cud' (prob. loans < Burmese)

'clear'	*sal	*STC*:15; *DL*:1153 [c]

WT **gsal-ba** 'clear, distinct, bright'; Jg. **sàn** 'clean, pure'; Nung **san** '*id.*'; *cf.* also WB **sa** 'clear, pleasant', Lahu **ša** 'easy, pleasant, fun; easily obtainable'; Akha **sá** 'easy'

'cold / dry season' [d]	*pral	*STC*:42

Lushai ʈhal; Siyin *phal* -bi

'congeal' [e]	*kal	*STC*:15

Lushai **khal**; Tiddim **xal**; WB **khâi**

'forehead'	*d-pral	JAM

WT **dpral-ba**; Sherpa ʈal-ā; Chepang cel[fi]; Kanauri *tal* -göŋ 'crown of head'; Bunan **phe-*tar*** ; Jg. **kəthān ~ ləthān**; Dulong mal⁴⁴*ta⁴⁴* ; Lushai/Lai/Khualsim **tsal**; Anal **pàcàl**; Lamgang **pʌtsèl**; Moyon **bʌ-cʌ́r**; Tiddim **tal**; Thanphum **tan-pɑ**; Milang **cal-ma** 'forehead band'; PNN (French 1983 *tʰəːl) > Nocte **than** 'forehead', Tangsa Moshang **thal** 'face'

'frog'	*s-bal	*STC*:15; *ZMYYC* #150

WT **sbal-pa**; Cuona Menba *bɛː¹³* pᴀ⁵³; WB **phâ, bhâ**; Lahu *pā-tɛ-nɛ̂ʔ*; Yi Xide ɔ⁴⁴*pa³³* ; Yi Dafang *pu⁵⁵* tsa²¹; Yi Mile (Axi) ᴀ³³*po⁵⁵* ; Lisu o⁵⁵*pa⁵⁵*; Naxi Lijiang *pa³³* tɕɚ³³; Hani Caiyuan *phɔ³¹* nē³³; Hani Dazhai xa³¹*pha³¹* ; Hani Shuikui xɔ³¹*phɔ³¹* ; Jinuo *phɔ³³* kɛ⁵⁵; Achang phɔ³¹; Zaiwa *po²¹* kjek⁵⁵; Langsu pʌ³⁵; Nusu pɑ⁵⁵. This root also has a full set of Qiangic reflexes: Qiang Mawo **dzu** *pi* ; Qiang Taoping dzuɑ³¹*pu⁵⁵* mɑ³³; Pumi Taoba *pa⁵⁵* diɛ³³; Pumi Jinghua spɑ⁵⁵; rGyalrong kha *ʃpa*; Muya *mbo³⁵* mba³³; Queyu *pɛ³³* pa⁵³: Guiqiong *bi⁵⁵* pũ⁵³; Namuyi *pa³³* mi⁵⁵; Shixing *pɔ⁵⁵* mi³³; Xixia (Gong 1999) pie[1]

'hail'	*ryal	*STC:* 54

Lushai **rial**; Thado **giel**; Lakher **pərei**; Rangkhol **ril**; Ao Naga **rer ~ rɔr**; Meithei **lel**; Mikir **herei**

'kidney / small of back'	*m-kal �ydash *s-gaːl	*STC* #12

WT **mkhal-ma** 'kidney', **sgal-pa** 'small of the back'; Lushai **kal** 'kidneys'; Tiddim Chin **kal** 'kidney', **xaːl** 'groin'; Jg. **kàn** 'put / be on the back'; WB **khâ** 'loins'; Meithei **nam-*gal* ~ nam-*gan*** ; Maring **nam-*gal*** ; Garo **dźaŋ-*gal*** 'back'

'lip' [f]	*d(y)al	

Lushai **dal**; Xixia (Gong 1999) **dɑr**; Khaling **kwām-to**-*tar*; Dimasa **khu**-*jer*; Jingpho **ǹ-tēn**; Qiang Mawo **ɣdʑaːᴵ**; Tangkhul **mor**- *chai*; Maram **ka∘***tei*.

'right / good'	*ʔal	JAM 1997a (PSLTB):42
	Gallong *al*-na; Miri **al**; Sema *al*-lo; Tangsa **a**-*hal*	
'round / circular' ᵍ	*wal	STC #91
	Jg. **wàn**; WB **wân**; Lushai **val**	
'snore' ʰ	*hal	JAM 1997a (PSLTB):48
	WT **hal-ba** 'pant, wheeze, snort'; Spiti **al** 'snore'	
'take / keep'	*hyal	JAM 1997a (PSLTB):42
	Chepang **ʔalʔ-sa**; Mikir **en**; Maring *yan*-hei; Ao (Mongsen) **han**, (Chungli) **ang**; Konyak **ang**; Yacham-Tengsa **an**	
'tired'	*bal	STC #29; ZMYYC #899
	Bahing **bal**; Jg. **bàn** 'be at rest' ⪤ **bá** 'tired'; WB **pân** 'tired, weary' ⁱ	
'village' ʲ	*dyal ⪤ *tyal	STC: 52
	Lepcha **tyol**; Bahing **dyal**; Dumi **del**; Nachereng **tyal**; Kulung **tel**	

a. For several other examples of Sulong final dental or palatal stops corresponding to final liquids elsewhere, see above 9.1.5.

b. There is also a Chinese comparandum (below 9.3.4).

c. *DL*:1153 suggests an alternative etymology for the Lolo-Burmese forms, *s-la, in order to accommodate Dulong la⁵⁵.

d. So far this root has been found only in Chin languages.

e. This root probably ⪤ *kaːr ~ *gaːr 'solid / frozen', above 9.2.1(2).

f. This root is apparently distinct from *m-ts(y)ul 'lip/beak', below 9.3.2(4).

g. In this root the **w**- functions as the syllable-initial, not a glide. There is a large cognate Chinese word-family, represented by at least eight separate characters (see below 9.3.4).

h. There is a good Chinese comparandum (below 9.3.4). The root *s-ŋor 'snore' (above 9.2.3) is unrelated.

i. *Cf.* also Qiang Mawo **χbɑ**, Qiang Taoping **χba²⁴¹**. rGyalrong **kɐspɐp** perhaps represents a separate root.

j. This root seems confined to Himalayish.

(2)   *-aːl

'far'	*dzyaːl	STC #229
	Moshang **ədźal**; Jg. **tsān**; Garo **tśel**; Dimasa **gadźaiŋ** (with unexplained -ŋ); Lushai **faːl** 'apart, isolated, detached'; Darang Deng **diɑ⁵⁵**	

'fight / quarrel / war' [a]	*g-raːl ≿ *ran	*STC*:71, 173,191
	WT *ral*-gri 'sword' ("war-knife"), ḥgran-pa 'fight'; Lushai **raal** 'war against, warrior'; Tiddim **gaːl** 'battle, war, enemy'; Angami te-*hrə* 'war'; WB **ran** 'quarrel'	
'filth / excrement'	*baːl	JAM
	Lushai **bàal** 'be or get dirty'; Tiddim **baːl** 'covered with mud'; Tangkhul **páy** 'excrement'; Chokri **the²*bwɤ⁵*; Angami **the²*buo⁴*; Khezha ˈè-*bö*; Rongmei **bɔ́**; Sema **ba¹**; Damu **ʔeː-*paː*; Apatani **i-*paʔ*; *cf.* also Hayu **ex-*pi*.	

a. There is a good Chinese comparandum (below 9.3.4).

(3)   *-wal*

Several languages have distinctive reflexes of the labialized version of this rhyme, either by retaining the semivowel directly (*e.g.* WB -**wan**, Lushai -**ual**), or by developing a back vowel (*e.g.* WT -**ol**, Jingpho -**on**). In the two available examples, Lahu shows a dual development: in 'snow / frost' (where the labial element is actually functioning as the root-initial in Loloish), Lahu has -**a**, indicating simple loss of the lateral; in 'jackal / dhole' and 'slave', on the other hand, Lahu has -**e**, implying an intermediate Proto-Loloish prototype *-**an** (see 7.1(2) above).

PTB	*WT*	*Jg.*	*WB*	*Lahu*	*Lushai*
*-wal	-ol	-on	-wan	-e / -a	-ual

Examples:

'hang down / sag'	*dzywal [a]	*STC* #242
	WT ḥdźol-ba 'hang down (as cow's udder, hair on yak's belly, tails); trail, train, retinue', ḥdzol-ḥdzol 'paunch'; Lushai **fual** 'sag, hang low; be loose or long (as a coat)'	
'jackal / dhole' [b]	*kywal	JAM 1985a (*GSTC*):#17
	PLB *wan¹ > Lahu **vè** 'dhole' (*Cuon javanicus*) ; Jinuo (Gai 1986:67) **ø⁴** 'jackal' 豺狗 ; Akha **xà-*yɛ́* 'wolf'; PNN (French 1983) *C-khyual > Wancho **šan** 'wolf'; Konyak and Phom **šo** '*id.*'; Chang **šo** 'wolf', **šuo** 'wild dog'; Jg. **čəkhyōn** 'fox, wolf, wild dog'; Nishing (Tani) **yal** (Jacquesson 1998:102.)	
'joint / wrist' [c]	*s-hwal	JAM 1997a (PSLTB):47

	Newar sạhạl 'joint'; Tangkhul ā-won '*id.*'; also perhaps Nung/Trung ul 'hand', *ur*-phut 'elbow', *ur*-pha 'palm' and Rawang ur 'hand' [d]
'mix / stir'	*ŋwal
	Kulung ŋal-u; Thulung ŋol; Zaiwa ŋio⁵⁵.
'slave / servant' [e]	*gywal *DL*:476
	WB kywan; Lahu ɔ̀-*cè*; Yi Weishan tɕy⁵⁵; Yi Wuding phṳ²*dʐe³³*; Hani Lüchun *dʑe⁵⁵*-ma³³; Jinuo *tʃhə⁴²*kɔ⁴⁴mə³³; Naxi *tʂɚ˗²¹*u²¹. Several Qiangic forms (*TBL* #183) appear to be cognate: Qiang Mawo ʁua¹-m; Queyu ʁʑye⁵⁵pu⁵⁵; Shixing guə⁵³
'snow / frost'	*s-pʷal JAM 2000a ("*p-/w-"):#8; *ZMYYC* #9; *TBL* #12
	WT ba-mo (with loss of *-l); Amdo Tibetan (Xiahe, Zeku) wal; Chepang wer; Geman Deng wal³⁵, *wa³³*tăuŋ³⁵; Dulong *wă̰ʔ ˥³*dzuŋ⁵⁵ ~ *wan⁵⁵*dʑuŋ⁵⁵ 'frost', tɯ³¹*wăn⁵³* 'snow'; Anong thi³¹*vɛn⁵³*
	> *PQiangic* *s-pa > Pumi (Jinghua) spy⁵⁵, (Dayang) ɸpɨ, (Taoba) pu⁵⁵; Qiang (Taoping) χpa³¹thu³³; (Longxi) *pià*-thò; (Mianchi) *pèi*-thòu; rGyalrong (Zhuokeji/Suomo) tʂɿ-*jpa*, (Kyomkyo) ʈɛy-*va*; Muya vɯ³⁵, ve̠⁵³; Zhaba (TBL) 扎坝 *ve³³*ʂʌ⁵⁵ [f]
	> *PLB* *wa² > Hani ɸo³¹ (Gao Huanian 1955); Hani Shuikui xɔ³¹; Hani Caiyuan ɔ³¹; Lahu *vâ*-məy 'snow', *vâ*-šī 'hailstone'; Yi Nanjian mɯ⁵⁵*fu⁵⁵* 'frost', vɑ²¹ 'snow'; Yi Xide vo³³; Yi Dafang vu³³; Yi Nanhua, Mojiang, and Mile ɣo²¹; Lisu uɑ³¹; Nusu vɑ⁵⁵; also perhaps Gazhuo xoa⁵⁵

a. An equivalent reconstruction would be *dʑwal (see above 3.3).

b. There is an excellent Chinese comparandum (below 9.3.4).

c. This root is so far only sparsely attested in TB, but there is a promising Chinese comparandum meaning 'wrist' (below 9.3.4).

d. These Nungish forms are isolated in TB in the sense of 'hand'. See JAM 1985b:432.

e. There is also a good Chinese comparandum (below 9.3.4).

f. *Cf.* also Sulong kə³³*zɯh⁵³*, Ersu zɻ⁵⁵, Zhaba (TBL) 扎坝 vʑi¹³, Shixing dʑyə³⁵, Lüsu ʑy³⁵ (all cognate to each other, and perhaps related to the other Qiangic forms).

Several roots showing variation between *-a(ː)l and other rhymes are presented elsewhere:

'fire / shine'	*hwal ≶ *hwar	9.6 below
'wash / bathe'	*m-syal ≶ *m-s(y)il	9.3.2 below
'iron'	*syaːl ≶ *syiːr	9.2.2 above

9.3.2 *-il and *-ul

Both of these rhymes are fairly well attested, although there is much variation between them (especially in the Bodo-Garo group), and their reflexes are rather unstable in several languages.

(1)   *-il

PTB	WT	Jg.	WB	Lahu	Lushai	Lai	Garo
*-il	-il	-in	-e / -i / -we [a]	-ɨ / -i	-il / -i	-il	-il / -ul

a. The examples of WB -we corresponding to Lai Chin -il are due to KVB. WB -we is also one of the principal reflexes of PTB *-ul (see below).

As usual with liquid-final rhymes, WB and the Loloish languages have unexplained multiple reflexes of *-il, implying that it merged with several other rhymes, including *-əy ('wash'; 'spit / water'), *-i ('fat'; 'worm'), and *-ul ('fall [leaves]'; 'choose'; 'move /

roll'). There are no attested cases of *-il > WB -in, although a nasal reflex is possible for *-ul (below).

	PTB	*PLB*	*WB*	*Lahu*
'wash'	*m-syil	*ts(y)əy²	chê	chî̩
'spit / water'	*m-tŝril	*rəy¹	re	g̈ɨ̩
'fat'	*tsil	*ts(y)i¹	chi	---
'worm'	*zril	*di¹	ti	tì

	PTB	*Lai Chin*	*WB*	
'fall (as leaves)'	*grwil	tril [ṭil]	krwe	
'choose / be fastidious'	*s-ril	hril	rwê	
'move / roll' ᵃ	*ril ⋉ *gril	ril	rwe' ⋉ hrwe'	
'turn / corner'	*gil	kil	kwe'	

a. See the full etymology below (this section).

Examples:

'choose'	*s-ril	KVB
	WB **rwê** 'select, choose; be fastidious'; Lai Chin **hril**	
'fall / cause to fall (as leaves)' ᵃ	*grwil ⋉ *krwil	KVB
	*grwil (v.i.)	Lai Chin **tril** [ṭil]; WB **krwe**
	*krwil (v.t.)	Lai Chin **thril** [ṭhil]; WB **khrwe**
'fat / oil (n.)' ᵇ	*tsil	*STC*:16,168; *ZMYYC* #397
	WT **tshil** 'fat'; WB **chi** 'oil', **ʔəchi** 'fat'; Yi Xide **tshʅ³³** 'animal fat'; Yi Nanjian **tɕhe⁵⁵**; Yi Mojiang **tshɛ²¹**; Hani Dazhai **tshi⁵⁵**; Hani Shuikui **ʒɣ³³tshi⁵⁵**; Jinuo **a³³tshɯ³³**. This root also occurs in Baic: Bai (Dali) **tsi⁵⁵**, (Bijiang) **tʂeɹ⁵⁵**.	
'gums'	*r-ni-l ⋉ *s-ni-l	*STC* #3; *TBL* #138
	Languages directly reflecting the *-l* *with a modern liquid or* -n *include:*	

WT rnyil, so-rnyil [c] ~ snyil; Lepcha fo-*nyel* ~ fo-*nyăl*; Kanauri stil ~ til; Chepang nəl; Tamang (Risiangku) ŋil, (Taglung) nil; Thebor nil; Spiti ñil; Bunan and Pattani ñil; Kaman (Miju) síi-*nʌ́l* ; Gallong i-*ɲir* , iː-*ñɯɯr* ; Tagin i-*nyior*; Bokar jiː-*ñur* ; Nusu (Central) ȵɚ³³; Kom Rem hə-mənih (the final "-h" probably represents glottal stop); Limbu *nen*-dī; Jg. (Assam dial.) wa-*nin* ; Nocte pa³*hʌnʔ²* ; Maru ŋan³¹

Several languages show a shift of the final *-l to -ŋ :

Tsangla sha-ni-*ring* ; Garo wa-riŋ; Tangkhul ha¹*niŋ²*; Ugong ɲîŋ; Lashi ŋjəŋ³¹

But many reflexes are open syllables, whether or not the language generally preserves final liquids:

Lushai ha-*hni* ; Lakher ha-*hni* ; Tiddim ha¹*ni¹* ; Paangkhua háa-*ní* (Löffler), **maniit** (Weidert); Mikir so-*ni*; Meithei ya-*ri* ; Dimasa ha-*rni*; Bodo hatay go-*ri* ; Moyon mʌ∘*ná*̣ ; Mru tǎ∘*ni¹*; Rengma a¹ha¹*ni³*; Angami u⁵me²*nie¹* ; Ergong rni⁵³; rGyalrong (NW) tərne; Queyu ski⁵⁵*rȵi⁵⁵* ; Qiang Mawo ʂə-*zdi* ; Ersu ʂ̩⁵⁵*ȵi⁵⁵* wa⁵⁵zɑ⁵⁵; Muya xuə⁵⁵*nɐ⁵³* , xɯ⁵⁵*ŋgɐ³⁵*; Guiqiong hui⁵³*nɛ⁵³* ; Lüsu fu³³*ȵi⁵³* ; Chang ŋʌ́i; Khiamngan hoʊ²¹*ñaɪ¹²* ; Lipho sɤ²¹*di³³* ; Yi Xide *ni³⁴*-lɻ³³; Lisu si³¹ne̠³³*ni³¹* ; [d] Bola ŋɛ⁵⁵; Baima sha⁵³*ȵi³⁵* ; Bai *ɲi⁵⁵* ko⁵⁵; Bwe Karen θə-ʔmɛ̀ ə-*nì*

'move / roll'	**s-ril ⋊ *s-gril* [e]

WT ril-ba 'round; wrap up', sgril-ba 'wind, wrap round; roll'; Cuona Menba riʔ¹³, riu³⁵ 'roll'; Tsangla (Motuo Menba) rin¹³; Thulung ril- 'roll out (as dough)'; Chepang *hil*-sā; Geman Deng (Kaman/Miju) xɑ³¹*lol⁵⁵* ; Kokborok ri; Tangkhul ruy; Bokar rɯː 'roll about on the ground'; WB rwe' 'move from one's place' ⋊ hrwe' 'move sthg'; [f] Lai Chin ril 'roll'. Several forms apparently descend from the complex consonant group **s-gr-*: WT sgril-ba (above); rGyalrong (Maerkang) kɐtʂəl; Lushai and Tiddim zial 'roll up', Thado zíl

'spit / spittle' [g]	**m-tsyil ⋊ *m-tśril*	*STC* #231; JAM 1970 "GD" #32

WT mtśhil-ma; Lushai tśil; Nung thil 'spittle', thil thil 'to spit' (cognate object construction); S. Khami mətśe; Lakher pətśi; Ao Naga metsə; Mikir iŋ-*the*

'turn / corner'	***gil**	KVB
	Lai Chin **kil** 'corner'; WB **kwe'** 'bend around, be curved, turn a corner', **ʔəkwe'** 'curve, corner'	
'worm'	***zril**	*STC*:15, 171; *ZMYYC* #166
	WT **sril** 'silkworm' ≍ **srin-bu** 'insect, worm, vermin'; Thado **til** 'earthworm'; Lushai and Lai Chin **til** 'testicle'; [h] Guiqiong **bu**⁵⁵*ti*⁵⁵ ; Ergong **mŋa**¹ **bɯ** *dʑi* ; Ersu **ȵo**³³**nkhuɑ**⁵⁵**bɛ**⁵⁵*dzɻ*⁵⁵ ; Nusu **lɑ**⁵⁵*di*³¹ **ɑ**³¹; Dulong **pɯ**³¹*dǎɻ*⁵³ ; Darang Deng **tɑ**³¹*dʑi*³⁵ ; the following forms are < PLB *di¹: WB **ti** ; Lahu **tì**, **pû-*tì*** ; Lisu **bi-*di*** ; Yi Xide **tsa**³³**dzɯ**³³**bu**²¹*di*³³ ; Yi Dafang **bie**²¹*die*²¹ ; Yi Nanjian **ɑ**⁵⁵*di*⁵⁵**li**⁵⁵; Yi Nanhua **ʌ**³³**vu**³³*di*³³**li**³³; Yi Mile (Axi) **pʌ**³³*ti*³³ ; Yi Mojiang **bɯ**²¹*dɯ*²¹**mo**²¹; Hani Caiyuan **pi**³³*tɤ*⁵⁵ ; Hani Shuikui **pi**³¹*ti*⁵⁵ ; Jinuo **pu**³³*tɯ*³³ ; Langsu **vɔʔ**³¹*tɔi*³¹	

a. This is a simplex/causative pair in both languages.

b. There are Chinese comparanda (below 9.3.4). This etymon is distinct from ***tsow** 'be fat (of people or animals)' (above 5.6.1), but it is sometimes difficult to distinguish the reflexes of these two roots in Loloish. Also distinct is ***saːw** 'fat; oil' (above 5.6.2).

c. The first syllable in this and most other cited compounds means 'tooth' (< ***swa**). This suggests that this wide-spread root for 'gums' derives from ***r-ni** 'red' ("tooth its-redness"; *STC* n. 265). See below 9.5 for a general discussion of variation between final liquids and zero coda. There is a possible Chinese comparandum (below 9.3.4).

d. The first two syllables of this form mean 'tooth' and 'red'.

e. Allofamically related roots are ***s-kiːl** 'bind / twist / roll / angle' and ***riːl** 'bowels / intestines' (below).

f. For the semantics, *cf.* Mandarin 滚 *gǔn* 'roll; get away, beat it' (滚出去 *Gǔn chū qù!* "Get out of here!").

g. *STC* (p. 15) identifies this root as the source of WB **re** 'water' (< PLB ***rəy**¹; *cf.* Lahu **ğ̀ɨ**, etc.); *cf.* English *one's mouth waters*. A rather dubious Chinese comparandum purportedly meaning 'spittle of a dragon' is claimed in *STC:* 171.

h. This semantic connection seems a bit strange, though various associational pathways might be suggested. *STC* (n. 121, p. 37) does not make these explicit. See also Benedict 1939:225 and JAM 2001f ("Areal semantics").

(2)   **-il ⩢ *-yal*

'wash / bathe'	**m/b-s(y)il ⩢ *m/b-syal*	*STC* #493
	*m-s(y)il	WT **bsil-ba**; Jg. **šín, kəšìn**; Lushai **sil**; Tangkhul **gerśil**; Thado **śil, kiśil**; Khami **məse**; Lakher **pəśi**; Mikir **iŋ**-*thi*
	*m-syal	WT **bśal-ba** 'wash, clean by washing'; Rawang **thi** *zal* 'bathe, wash' (**thi** 'water')

(3)   **-iːl*

As usual, evidence for length in this rhyme is to be found primarily in Kuki-Chin languages like Lushai:

'bind / twist / roll / angle' [a]	**s-kiːl* *STC* #373
	WT **skyil-ba** 'to bend', **ḥkhyil-ba** 'wind, twist, roll'; Lepcha **kil** 'a screw'; Dumi **saː**-*khil* 'intestines'; [b] Jg. **kyìn** 'be pliable, easily twisted', **ʔəkyīn** 'roll into a ball (as a turban)', **gyīn** 'fashion by rolling (as mud pellets)'; Lushai **kiːl** 'corner, angle'
'bowels / intestines' [c]	**riːl*
	Lushai **ríil**; Khualsim and Lai **riːl**; Thado **gìl**; Tiddim **ŋgil, γil**; Xongsai **ŋgil**; Matupi **χriːl**; Awa Khumi **tăχʀi**; Zotung **riːŋ**; Mru **ria**; Kom Rem **kəri**; Lakher *ri*-**pi** 'large intestine', *ri*-**chi** 'small intestine'; Tangkhul **kəri, ā**-*ri*-**rā, ā-kha**-*ri* ; Khezha **keri**; Angami **u-rie**; Lotha **e-ru**; Simi **a-ki**-*ghi* ; Sangtam **ghü**. Also perhaps Chamling **tho**-*ri* 'bowels'; Taraon (Darang Deng) **haː**-*ri* 'screw'. [d]

a. This root is definitely allofamic with 'move/roll' **s-ril ⩢ *s-gril* 'move/roll' (above), as well as with **riːl* 'bowels/ intestines' (next item).

b. For the semantics, see **riːl* 'bowels/intestines', below.

c. This root is found throughout Kuki-Chin-Naga, and probably elsewhere. It seems certainly to be related both to **s-ril ⩢ *s-gril* 'move / roll' and **s-kiːl* 'bind / twist / roll / angle' (above), the semantic connection being the convoluted appearance of the intestines.

d. The same semantic association between 'intestine' and 'screw' is found with a different etymon in Burmese: WB **ʔu** 'intestine', **wak-ʔu** 'screw' (lit. 'pig intestine'). See "Conclusion", Ch. 13.

(4)   *-ul*

PTB	WT	Jg.	WB	Lu.	Garo	Dim.	Mikir
*-ul	-ul / -un	-un	-un / -we	-ul	-ol	-on	-ol / -oi
*-uːl	-ul	-un	-we	-uːl	-ol		-ul

WB again shows variation in its reflexes of this rhyme, sometimes developing -**un** ('all / twenty'), sometimes -**we** [12] ('silver'; 'snake'), and sometimes both ('hair / fur'):

	PTB	*WB*
'all / twenty'	*m-kul	ʔəkun [a]
'silver'	*d-ŋul	ŋwe
'snake'	*s-bruːl	mrwe
'hair / fur'	*mul	mwê [b] ⋇ pâ-mûn [c]
'sweat'	*s-krul ⋇ *s-ŋrul	khrwê [d]

    a.   'all; the whole'
    b.   'hair, fur'
    c.   'whiskers'
    d.   See above 3.6.5(1).

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12. Via Inscriptional Burmese -**uy**.

Examples:

'dust' [a]	*r-dul ⋟ *r-tul	*STC*:173; *TBL* #45

WT **rdul**; Pattani **dʰūl**; rGyalrong (Maerkang) tɐ *ndər*, (Caodeng) *tʰɐr*-də; Nusu **dui³¹**; Kokborok ha-*druy* . Perhaps also Bantawa *dhu*-mi-lo 'dusty, misty' and Zhaba (TBL) 扎坝 **di³¹/¹³**

'lips / beak'	*m-ts(y)ul	Benedict 1939:218; *STC*:158, 169

WT **mtśhu** 'lip; beak, bill (of birds)' ⋟ **mtshul-pa** 'lower part of face, nose and mouth; muzzle (of animals); bill, beak'; Lepcha **a-dŭl** 'lips'; Mikir **iŋ-tur** 'lips, bill (of a bird)'; Garo **ku-tšil** 'lips'; WB **hnut-**si' 'bird's bill; beak'; Nung **nœ̂-**sil 'lips' (WB **hnut**, Nung **nœ̂** 'mouth') [b]

'roll up / wrap'	*r-tul	*STC*:110, 147

WT **thul-ba** 'roll, wind up', **thul-pa** 'dress made of animal skin'; Newari **gwārā** *tul*-a 'roll over'; Anong **rədul** 'roll, wrap, envelope', **hi-dul** 'legging', **hi-dul dul** 'wear gaiters' (cognate object construction); Pwo and Sgaw Karen **thu** 'roll up (as a mat or a cigar)'

'silver' [c]	*d-ŋul	*STC*:15, 173; *ZMYYC* #36

WT **dŋul**; Trung (Dulonghe) **ŋŭl⁵⁵**, (Nujiang) **ŋuun⁵⁵**; Tsangla (Motuo) **ŋoi¹³**, (Tilang) **ngui**, (Cuona) **ŋy³⁵**; WB **ŋwe**; Achang **ŋui⁵⁵**, **ŋɔi³¹**, **ŋu⁵⁵**; Zaiwa **ŋun⁵¹**; Maru (Langsu) **ŋɔi³¹**; Bola **ŋø⁵⁵**; Leqi **ŋə³¹**; Naxi (Yongning) **ŋv³³**; Nusu *ŋui³⁵*ɑ⁵⁵; Konyak and Phom **ngin**, Nocte **ngun**; Wancho **ngung**; Bokar Lhoba **ŋiː**; Damu **ŋyː**; Tagin **anyi**; Milang **uːn**; Bai (Dali, Bijiang) **n̠i²¹**; Tujia **ŋo⁵⁵**, **ŋa³³**

There is also a full set of Qiangic cognates:

Qiang Mawo *ŋuə* **zi**; Qiang Taoping **χŋu⁵⁵**; Pumi Taoba **n̠õ⁵⁵**; Pumi Jinghua **ŋãu⁵⁵**; rGyalrong po-*ŋi* , pa-*ŋei* , po-*nge*, (Caodeng) **rŋəl**; Daofu **rŋəl**; Ergong **ʐŋən**; Muya **ŋu⁵³**; Queyu **ŋui⁵⁵**; Guiqiong **wū⁵³**; Ersu **ŋuaˌ⁵⁵**; Lusu **ŋu³⁵**; Namuyi **ŋu⁵⁵**; Shixing **ɦũ⁵⁵**, **jũ⁵³**; Xixia **ŋwo²**

A number of forms descend from a variant with labial nasal: [d]

*mul

Balti Tibetan **ʂmul**; Pattani **mul**; Kanauri **möl(h)**; Manang **mɯy**; Tamang Risiangku **mui**; Gallong *mur*-ko **adin**; Phön (Megyaw) **myaiŋ**, (Samong) **moiŋ**

'stump / tree / root' [e]	***bul ⋛ *pul**	*STC*:166
	Jg. **phún** 'tree, bush, stalk, wood'; Moshang **phuːl** 'tree' (with secondary vowel length); Garo **bol** 'tree'; Lushai **bul** 'cause, beginning, the root, stump or foot (of tree), the lower end (of stick, post)'; Tiddim **bul** 'bottom, base, foot'	
'sweat'	***s-krul ⋛ *s-ŋrul**	JAM
	WT **rŋul**; WB **khrwê**, Lh. **kɨ̄** (< PLB ***ʔ-grwəy²**); Lakher **mathlai**; Angami **rükhru**; Qiang (Mawo) **χtʂə**, (Taoping) **χtʂuə⁵⁵**; rGyalrong **tə-ʃtʂɛ**. See above 3.6.5(1).	
'tend grazing animals'	***wul**	*STC*:83
	Lushai **vul** 'keep or rear domestic animals'; Mikir **vi** 'tend, graze (flocks)'	
'twenty / all'	***m-kul**	*STC* #397; JAM 1995b ("Numerals"):149-51
	Jg. **khūn**; Garo **khol ⋛ khal**;[f] Meithei **kul**; Dimasa **khon**; Mikir **iŋ-*kol* ⋛ iŋ-*koi*** 'twenty', **koi** 'all'; WT **kun** 'all'; WB **kun** 'come to an end / be used up', **ʔəkun** 'the whole'. This root is attested in dozens of Kuki-Chin and Naga languages, including Siyin **kul**; Lai (Hakha) **kul ⋛ kwe**; Angami (Khonoma) **meku**; Ao Mongsen **mukyi**; Khoirao **machi**; Lotha **mekwi**; Meluri **mukwe**; Nruanghmei **ncui**; Pochury **mke**; Tangkhul **məkɯ**; Yimchungru **muku**; Zeme **nkai**.[g]	

a. This root is rather sparsely attested in TB, but there is a good Chinese comparandum (below 9.3.4).

b. There is a good Chinese comparandum (below 9.3.4).

c. There is a sterling Chinese cognate (below 9.3.4).

d. This perhaps indicates an ancient loan relationship with Mon Khmer. *Cf. e.g.* Khmuʔ **kəmuːl** 'silver' (Suwilai 2002).

e. There is a good Chinese comparandum (below 9.3.4).

f. A number of other languages have forms which point to ***s-gal**, some of which mean 'twenty' (*e.g.* Sherpa *khal*-jik, Tamang **kha:l**; Khaling **kha:el**) and sometimes 'load of a beast of burden' (*e.g.* WT **khal**, **sgal**). This perhaps indicates an original meaning for this root like 'a complete load; everything that can be placed on a beast of burden at one time.' There is a good Chinese comparandum. See below 9.3.4.

g. There is a Proto-Wa etymon ***kol** 'ten' (Diffloth 1980:151), perhaps an old loan from TB.

(5)   **-uːl*

'rope'	**gruːl*	KVB

WB **krûy**; Lai Chin **truul**. See above 3.6.4.1(2).

'rub against / be worn down'	**nuːl*	*STC #365*

Lushai **nuul** 'brush past, rub against'; Lai Chin **hnúr** 'rub against' (with short vowel and -r); Lakher **hnao** '*id.*'; Garo **nol** 'rub, knead'; Jg. **nùn** 'be worn, threadbare', **kənùn ~ mənùn** 'rub with the fingers'; WB **nûn** 'be weak, exhausted from illness'

'snake'	**s-b-ruːl* [a]	*STC #447; ZMYYC #152*

Himalayish	WT **sbrul**; Thebor **brul**; Magar **bul**; Thulung **blo**
Kuki-Chin	Mikir **phurul ~ phurui**; Lushai **ruul**; Maring **pharul**; Anal **pùrùul**; Paangkhua **manúul**; Puiron **marun**; N. Khami **pəwi**; Lakher **pari**; Tiddim **guːl**; Thado **gúl**; S. Khami **məgui**; Meithei **lil**
Naga	Ao **per**; Sema **əpeɣü**; Tangkhul **phərə**; Lotha **ndrü, nrɯ**; Mao **in**-*gho* ; Rongmei **nrui**; Rengma **peri**; Sangtam **mɯrɯ**; Yimchungru **phuru**; Yacham-Tengsa **phalü**; Tangkhul **rɯ**
Mirish	Kaman (Geman Deng/Miju) **ɹuɯl**³⁵; Bengni *bɯr*-**taː**; Bokar Lhoba **tabɯ**; Sulong **pɯh**⁵³
Nungish	Trung **bɯ**⁵³; Nusu (Bijiang) **vɹia**⁵⁵
Lolo-Burmese	WB **mrwe**; Achang (Longchuan) **mʒui**⁵⁵; Maru **mòi**; Zaiwa **ʔláŋ**-*mûi* ; Phön (Samong) **moiŋ**; Proto-Loloish **wəy*¹ > Lahu **vɨ**; Gazhuo **zɻ**²⁴; Jinuo **ɣɯ**⁴²; Naxi Lijiang **ʒɯ**³¹
Karenic	Sgaw **ɣ̀ỳ**; Pho **ɣú**; Palaychi **rù**; Pa-o **ru**
Qiangic	Qiang Mawo **bəs**; Qiang Taoping **bə**³¹**guə**²⁴¹; Pumi Taoba **bʁ**³⁵**re**⁵³; Pumi Jinghua **bʁ**¹³**ʐɑ**⁵⁵; rGyalrong **kha**-*brɛ* , **kho**-*rei* ; Ergong **mphʂi**; Daofu **mphri**; Muya **zo**⁵³; Queyu **bru**⁵³; Guiqiong **tʂu**⁵³; Ersu **bɛ**³³**rɻ**⁵⁵; Namuyi **bə**ʲ⁵³; Shixing **bɑ**³³**ro**⁵⁵; Lüsu **bɯ**³³**ɣɯ**ʲ ³⁵ ; Xixia **phio**²
Baic	Dali and Jianchuan **khv**³³; [b] Bijiang **fv**³³
Unclassified	Tujia **wo**⁵³

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a. This root may be derived from a dissyllabic prototype **bəw-rul*, where the first element is the etymon **bəw* 'insect/ snake' (above 5.3.1). Reflexes of this root appear in all TB branches, and there is a good Chinese comparandum, below 9.3.4.

b. These forms apparently reflect a velar prefix in Proto-Baic.

(6)   *-ul ≋ *-un

We must assume *-ul ≋ *-un variation in the following root to account for the -**n** reflexes in languages that preserve *-**l** as such (*e.g.* Lai, Lushai):

'bulge / bend'	***guːl**	KVB
	Lai Chin **kuul** 'hunchback' ≋ **kuun** 'bend'; WB **kûn** 'rise, bulge, stoop'	
'skin'	***wul** ≋ ***wun** [a]	(JAM 1997a (PSLTB):43)
	Meithei **ul**, *un*-sa; Maring **un**, **wun**; Geman Deng **ung**; Kham *ol*-ko-ta; [b] PNN (French 1983) ***wur** (> Chang **kho**-*(w)un* , Nocte **kho**-*wan* , **a-khuon**); Lushai, Chinbok, and Kom Rem **vun**; Thado **vún**; Maring **un**, **vun**, **wun**; Tiddim **sa**-*vun* ; Moyon **vin**; Lakher **vo**; rGyalrong *wu*-ʃan-dʒi; Puiron **mun** (with unexplained nasal initial); Lotha **o**-*fɦu* ; Kaman (Miju) **uŋ³⁵**; perhaps also Qiang Mawo *ꞌuɛ*-piɛ.	

a. This reconstruction is revised from ***ul** (JAM 1997a:43).

b. But *cf.* Thakali *ol*-ko-ʈa 'throat' (below).

Many other TB words for 'skin' point to a prototype with stop initial, ***pun** ≋ ***pin**, *e.g.* Chepang **pun**; Dulong **pɯn⁵⁵**, **aŋ³¹***pin⁵³* ; Bokar Lhoba, Gallong, and Tagin **a-pin**, above 7.2(3). It is tempting to relate them all to the present root, in view of the widespread TB variational pattern *p- ≋ *w- (see JAM 2000a). Supporting this are the Lushai forms **pil** and **vun**, both meaning 'skin', attesting to the final lateral in the putative allofam with labial stop. If these relationships are valid, the word-family may be reconstructed by a pan-allofamic formula:

$$
*\begin{array}{|cc|}
\hline
p & l \\
 & u \\
 & i \\
w & n \\
\hline
\end{array}
$$

(7)   *-ul ≍ *-il*

'dull / buttock / heel / rounded part' [a]	*r-tul ≍ *r-til	JAM 1994d, 2000b
	*r-tul	WT *rtul*-po 'blunt, dull'; Abor-Miri ko-*dun* 'buttock'; Meithei məthun 'buttock'; Wancho chi-*dun* 'heel' (chi 'foot'); Khözha šǔ-*dò* ; Lisu khi²¹*du*²¹ 'buttock' (khi²¹ 'excrement'); Phunoi pi³³*tun*¹¹ 'heel'
	*r-til	Jingpho šə*tī̃n* 'buttock', lə*thī̃n* 'heel'
'hair (body) / fur' [b]	*s-mul ≍≍ *s-mil ≍ *s-myal *STC* #2; *ZMYYC* #172	
	*s-mul	Jg. mū̃n 'body hair', ǹ-mū̃n 'beard'; Lushai hmul; Moshang mul ~ kəmul ; Dulong aŋ³¹*mǔɩl*⁵⁵ ; Geman Deng bɯl³⁵; Bokar Adi a-mɯɯ; Sulong a³³muɳ³³; WB mwê ; Achang ɑ-mwe; Zaiwa sǒ²¹mau⁵⁵; Lahu mu ; Yi Dafang m̩(u)²¹ ; Yi Nanhua mɯ³³; Yi Mile (Axi) i³³*nɯ*³³ ; Yi Mojiang nu³³; Lisu e⁵⁵*mu*⁴⁴ ; Naxi (Lijiang) fv³³, (Yongning) xv³³
	*s-mil ≍ *s-myal	WT *smin*-ma 'eyebrow'; Lepcha myal ≍ myel; Nung mil; Anong min⁵⁵; Garo kimil; Dimasa bikhi-*mi* ; Mikir aŋ-mi

There is also a set of Qiangic cognates that it would be premature to assign to either allofam, including:

Qiang Mawo *hu*-pɑ; Qiang Taoping qə³¹χmə⁵⁵; Pumi Taoba mɛ̃⁵³; Pumi Jinghua ma⁵⁵; rGyalrong ta rŋ̊ɛ ; Ergong *wmə* ʐʑa, ʁuə ʑmi ; Muya ʁʁ³⁵*mo*³³ ; Queyu m̩u⁵³; Ersu ma¹⁵⁵; Namuyi hũ³³; Shixing ʁo³³ m̩ɔ̃³⁵ ; Xixia mjar¹

'poor' [c]	*d-bul ≍ *d-bil	*STC:* 173
	WT dbul; Qiang Mawo bɣ	
'sweet'	*hul ≍ *hil	JAM 1997a (PSLTB):37
	Thulung ol-ol; Milang *hil*-ma	

a. There are good Chinese comparanda meaning both 'dull' and 'buttock' (below 9.3.4).

b. There are excellent Chinese comparanda reflecting each allofam (below 9.3.4).

c. This root is still poorly attested for TB, but there is a good Chinese comparandum that points rather to PST *-bil (see 9.3.4 below).

9.3.3   *-el *and* *-ol

(1)   *-el

There are only a few etyma reconstructible with these rhymes:

'count / read' [a]	***wel**	JAM 1997a (PSLTB):44; French 1983
		Chepang **wel**; Tangsa **vʌlʔ**; Nocte **veʔ**; Konyak **é**; Phom **e**; Chang **wie** 'count', **we** 'read' [b]
'mix / stir' [c]	***hwel**	JAM 1997a (PSLTB):40 [d]
		Proto-Tamang ***ʰwal**; Dumi *hɪl* -**nɪ**; Khaling *wāl*-**nyā**; Thulung **hil-s-**, **hir-**; Tiddim **hel**; Tangkhul **húy**; Deuri **u**; Apatani **hár**
'sleepy'	***myel**	*STC* #197
		Bahing **myel** 'be sleepy'; Jg. **myén ~ myè** 'fall into sleep or swoon; gradually lose consciousness'; Shixing *miæ³³* du⁵⁵; WB **myâñ** 'be sleepy, sleep'[e]; Langsu **mjauŋ³⁵**; Leqi **mjɔːŋ³³**

a. So far this root has been found only in Chepang and Northern Naga.

b. The notions of 'count' and 'read' are connected in many TB languages, via the conception of reading as counting pages; *cf.* Lahu **ğɔ** 'count; read'. This semantic association seems in fact to be widespread outside the SE Asian linguistic area as well, *e.g.* Russian **čitatj** 'read', **čislitj** 'count, reckon'. See JAM 2001f.

c. Several Loloish forms are cognate to each other, and perhaps related to this root: Yi Weishan **ho³³**; Naxi **xo⁵⁵xo³³**; Hani Shuikui **xɤ³³**; Lisu **hɤ̃³⁵**

d. This root was assigned the non-canonical reconstruction ***hwəl** in PSLTB.

e. This is the only example of WB -**añ** < *-el. For more on the WB rhyme -**añ**, which has several better attested proveniences, see above 7.2(2,4).

(2)   *-eːl ⪦ *-iːl

'goat'	***kyeːl ⪦ *kyiːl**	*STC* #339
	*kyeːl	Lushai **keel** 'goat'; Tiddim **gam-***keːl* 'wild goat'; Thado *kēl*-**cà**; Puiron **kel ~ ken**; Pattani **cʰəgəl** 'wild goat'; Jili (Kachinish) **təkhyen**
	*kyiːl	WT **skyin** 'wild mountain goat'; Newar *cil* -**ā** 'goat', *cil*- **cā** 'kid'; Dumi **tsaŋ-***gɪr* ; Nocte **kien** (Das Gupta 1971) [a]

a. Perhaps also Kanauri **ba-***khör* 'female goat' and Tamang Sahu *gyuh*-**sya** 'goat meat'.

(3)   **-ol*

'fall'	***hol** [a]	JAM 1997a (PSLTB):36

Chepang *ʔol*-sa; Thulung **als**; Miri *hol*-**nam** ~ *ho*-**nam**; Gallong *o* -lo-**nam**; Tagin *o* -lu-**nam**; Bengni *hu*-**lu**; Apatani *hu*-**i**; Dafla *hu*-**lu**, *ho*-**lu**; Bokar Lhoba **fio**, **hoː**

'overbearing / exploitative'	***grol**	KVB

Lai Chin **trol** 'pass over; overtake; be overbearing'; WB **krâw** 'take advantage of'

a. This root shows variation between -l and -Ø (zero final); see below 9.5.

(4)   **-ol ⪴ *-or*

'throat / gullet'	***ʔol ⪴ ʔor**	JAM 1997a (PSLTB):43

WT *ul*-**mdud**; Tamang *ol*-**koŋ**; Thakali Tukche *ol*-ko-ʈa; Bunan *or*-**o**; Pattani *ol*-**long**; Ergong *o³³***mdət⁵³**; Muya *o⁵⁵*-**ndy⁵⁵**, *u⁵⁵* **tʂho⁵³**; Guiqiong *wu⁵⁵* **tʂo⁵⁵**; Lushai **or** 'throat, gullet'; Meithei **hun**; Angami **u**-*vo³³* ; [a] Mpi **kho²***wo⁴*

a. The first (toneless) syllable of this Angami form is a general bodypart prefix, *e.g.* **u-ru** 'bone', **u-mhi** 'eye', **u-se** 'liver'.

(5)   **-oːl*

'wash / clean'	***groːl**	KVB

Lai Chin **trool**; WB **chê**-*krâw*

'finish / loose / relax' [a]	***ʔoːl**	*STC* #111; Coblin 1986:136

WT **hol-hol** 'soft, loose, light, as the soil in spring'; Lushai **oːl** 'have little to do'; Magar **ol** 'finish'; Garo **ol** 'lax, loose; relax'; Bokar *or*-**pak** 'put (clothing) on loosely'; Apatani *ar*-**he** 'loose'; Bai (Dell 1981) **io** 'relaxed, released'

a. There is an allofam with velar stop initial, ***grol**. See below 9.3.4.

These Loloish forms are cognate to each other, and perhaps to the forms above[13]:

Mpi **ho¹** 'loose'; Nusu (N) **xo³⁵**, (S) **xuɛ³¹**; Yi Sani *hɣ³³* **dlɣ¹¹**; Lisu *ɔ⁵⁵*lɔ⁴⁴.

9.3.4   *Chinese comparanda to TB etyma in *-l*

There are even more good Chinese comparanda to PTB roots in *-l than there are to roots in *-r.

	PTB		OC	GSR	Chinese gloss
'arrow / bow'	*tal	矢	śi̯ər	560a-d	'arrow'
'between / interval' [a]	*ka:l	間	kăn	191a-c	'crevice / interstice / interval / space between'
'breed / bring up' [b]	*srel	產	săn	194a	'breed / bear / produce'
'buttocks / dull'	*r-tul ⋈ *r-til	屍	d'wən	429a	'buttocks'
		臀	d'wən	429b-c	'buttocks'
		殿	ti̯ən	429d	'rear of an army'
		沌	d'wən	427h	'confused / stupid'
		鈍	d'wən	427i	'dull'
		頓	twən	427j	'worn / dull / spoiled'
'charcoal / dust₁ / ashes'	*tal [c]	炭	t'ân	151a	'coal / charcoal / lime (potash)'
'dust₂'	*r-dul ⋈ *r-tul	塵	d'i̯ĕn [d]	374a	'dust'
'equal / line up / connect in a row' [e]	*g-ral	連	*li̯an	213a	'connect / unite / in a row / consecutively'
		聯	*li̯an	214a	'join / bring together'
'face'	*s-mel	面	mi̯an	223a	'*id.*'
'fat / oil'	*tsil	脂	t̂i̯ər	552g	'fat / grease'
		胰	di̯ər	!551 AD#186	'fat over the stomach'

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13. There are also Chinese comparanda (below 9.3.4).

	PTB		*OC*	*GSR*	*Chinese gloss*
'enemy / quarrel / war / strife; sword'	*g-raːl ⋊ *ran	戰	t̂i̯an	147r	'battle / to fight'
'finish / loose / relax' [f]	*grol	暖	χi̯wăn	255j	'soft / mild'
		緩	g'wan	255*l*	'slack / loose / indulgent'
		援	gi̯wan ~ gi̯wăn	255e	'pull up / lay hold of / succor'
		完	g'wân	257m	'to complete'
'gums'	*r/s-ni-l	矧	śi̯ən [g]	560i-j	'base of tooth'
'hair / fur'	*s-mul ⋊ *s-mil	毛	mog	1137a-b	'hair / fur / feathers'
		眉	mi̯ər ~ mi̯wər	567a	'eyebrow'
'instruct / explain / admonish' [h]	*s-kul	訓	χi̯wən	422a	'instruct / explain / admonish'
'jackal / wild dog'	*kywal	犬	k'i̯wən	479a-d	'dog'
'joint / wrist'	*s-hwal	腕 [i]	ʔwân	260m	'wrist'
		掔	ʔwân	273b	'wrist'
'leave / depart / separate' [j]	*bral ⋊ *pral	離	lia	23f	'leave / depart from / be dispersed / divide'
		披	p'ia	25j	'divide'
'load / burden' [k]	*s-gal	荷	g'â	1o	'lotus / carry / sustain'
'lip'	*m-ts(y)ul	脣	d̂'i̯wən	455u	'lip'
'poor'	*d-bul ⋊ *d-bil	貧	b'i̯ĕn	471v	'poor'

	PTB		*OC*	*GSR*	*Chinese gloss*
'round / enclosure'	*wal	圈	g'i̯wan	226k	'enclosure for pigs'
		員	gi̯wan	227a-b	'circle / circumference / round / return'
		圓	gi̯wan	227c	'round'
		還	g'wan	256k-m	'turn around / return'
		環	g'wan	256n	'ring / encircle'
		繯	g'iwan	256q	'tie around / encircle'
		院	gi̯wan	257u	'wall around courtyard'
		圂	g'wən	425a-b	'pig-sty'
'silver'	*d-ŋul	銀	ngi̯ɛn	416k	'silver'
'slave'	*gywal	宦	g'wan	188a	'servant / officer / official'
		臣	d̂i̯ĕn	377a-f	'slave / servant / subject / officer'
'snake' [l]	*s-bruːl	閩	mwən	441i	'kind of snake / (loan for) certain tribes of the South'
'snore' [m]	*hal	鼾	χân	AD#296	'snore'
'spit'	*m-tsyil �End *m-tsyril	漦	dź'ri̯ər	!979	'mucus / spittle / slime' [n]
'spread / extend / develop' [o]	*r-dal	展	di̯an	203a	'unfold / open / develop'
'stump / tree / root'	*bul ⋈ *pul	本	pwən	440a	'root / trunk'

	PTB		*OC*	*GSR*	*Chinese gloss*
'throw away / cast / sow / toss'	*bʷar ≍ *hʷar	播	pwâr	195p	'spread out / sow / winnow / shake'
		簸	pwâ	25n	'winnow'
'wash'	*m/b-sil ≍ *m-syal	洗	si̯ən ~ si̯ər	478j	'wash'
'worm'	*zril	螾	di̯ən	450j	'earthworm'
		蚓	di̯ĕn	371c	*id.*
		蟺	d̂i̯an	148p	*id.*

a. See above 3.6.4.1.

b. Cf WT **srel** 'bring up, rear, nurse up'. See Coblin 1986:40 and Gong 2001:29.

c. *Cf.* WT **thal-ba** 'dust, ashes, and similar substances'.

d. The Chinese form seems to descend from an allofam with front vowel, ***r-dil**.

e. Cf WT **gral** 'row, series, class'. WT **gras** 'class, order, series' appears allofamically related, although Gong (2002:27) relates it to a different Chinese etymon; see below 10(10.6).

f. Cf WT **ḥgrol-ba** 'become free; be liberated, released from', **sgrol** 'rescue, deliver, save'. There is an allofam with laryngeal initial, ***ʔoːl** 'finish / loose / relax', above 9.3.3(5). See Coblin 1986:136 and Gong 2001:29.

g. Coblin (1986:90) reconstructs the OC form as **hnjinx**.

h. Cf WT **skul-ba** 'exhort, admonish; appoint, impose; rouse'. See Gong 2000:#13.

i. Also written 捥 .

j. *Cf.* WT **ḥbral** 'be separated, parted from', **ḥphral** 'separate, part (someone)'. See Gong 2001:23.

k. *Cf.* WT **s-gal** 'load (of a beast of burden)', **ḥgel-ba** 'load; lay on a burden', **bkal** (pf.), **dgal** (fut.), **kʻol** (imp.). See Gong 2000:48. This TB root seems to be allofamic to ***m-kul** 'all / twenty'; see above 9.3.2(4).

l. See above 9.3.2(5). For the gloss 'kind of snake', see Handel 1997.

m. This comparison was first made in Coblin 1986:135-6.

n. This gloss is from Mathews (1960):804. The source of Benedict's gloss 'spittle of dragon' is not clear.

o. *Cf.* WT **rdal** 'spread; extend; cover'. See Gong 2000:#21.

9.4 Long vowels before final liquids

There seems to be a particular affinity between liquid finals and preceding long vowels.

	-r		*-l*	
-aː-				
'flower'	*baːr		*dzyaːl	'far'
'dance / leap / stride'	*gaːr		*g-raːl	'battle / war / enemy'
'hang / impale'	*taːr		*baːl	'filth / excrement'

'shine / white'	*hwaːr		
'fowl'	*haːr		
'nose'	*s-naːr		
'solid / frozen'	*kaːr �done *gaːr		
'spread / extend / sail'	*yaːr		

-iː-			
'bowels / intestines'	*riːl	*s-kiːl	'bind/twist/roll/angle'
'iron'	*s(y)iːr ⋈ *syaːl		

-uː-			
'sour / acid'	*suːr ⋈ *swaːr	*s-bruːl	'snake'
'wring/squeeze'	*tsyuːr	*nuːl	'rub/wear down'
'gills/beak/mouth/face'	*muːr		
'rainy season'	*zuːr		

-eː-			
'dry'	*heːr	*kyeːl [a]	'goat'
'flat / thin'	*peːr		

-oː-			
'peel / husk'	*koːr	*ʔoːl	'finish / loose / relax'

a. ⋈ *kyiːl.

In syllables with liquid finals, the ratio of etyma with long vowels to the total number of reconstructible etyma seems impressionistically to be much higher than in syllables with nasal or stop finals. Some 25 such roots have been presented above, with all 5 nuclear vowels (see the preceding table).

The reason for this tendency toward vowel length is undoubtedly to be sought in the dual nature of liquids themselves. Liquids are *consonantal* enough to close a syllable, so that length contrasts are possible before them (just as they are before more occlusive consonants like nasals and stops). But liquids are also *vocalic* enough so that they can serve as a kind of prolongation of the preceding nuclear vowel, or induce such a prolongation.

9.5 Variation between final liquids and zero coda

A similar articulatory explanation may be invoked to account for the relatively large number of cases of allofamic alternation (both inter- and intra-lingual) between final liquids and open vowels. Since liquids are so vowel-like themselves, they can easily be amalgamated into the preceding vocalic nucleus, either forming a diphthong with it, lengthening it with the same quality, or disappearing entirely.[14]

Examples of alternations between final liquid and zero coda may be found with four of the five nuclear vowels.[15]

'dance / leap / stride'	*gaːr ⪥ *s-ga	
	*gaːr	WT **gar** 'a dance'; Jg. **gān, kəgān, khān** 'leap, bound, canter'; Lushai **kaːr** 'to step, pace, stride'; Garo **kaʔl** 'play'
	*s-ga	rGyalrong **ta-rga**; Jg. **kà** 'leap'; WB **ka'**; Lahu **qā** 'traditional dance', *qā*-**qhêʔ** 'to dance'; Lisu **gwa**³³ 'to dance'
'tired'	*bal	Jg. **bàn** 'be at rest' ⪥ **bá** 'be tired'
'flow / pour / scatter'	*sywar ⪥ *sywa (or *śwar ⪥ *śwa)	
	*sywar	WT **tśhor-ba** 'flow out'; Lepcha **tśhor**; Dimasa **di-***sor***, *etc.*
	*g/b-sywa	WT **gśo-ba ~ bśo-ba** 'pour out'; Jg. **džó ~ tśó** 'pour out, cast, enamel, dye'
'nose'	*s-na ⪥ *s-naːr	*STC* #101
	*s-na	WT **sna**; WB **hna**, *etc.*
	*s-naːr	Lushai **hnaar**
'gums' [a]	*r-ni-l ⪥ *s-ni-l	
	*r/s-nil	WT **rnyil ~ snyil**; Kanauri **stil**; Chepang **nəl**, *etc.*
	*r/s-ni	Lushai **ha-***hni*** ; Dimasa **ha-***rni*** , *etc.*
'sleepy'	*myel	Jg. **myén** ⪥ **myè**

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14. Familiar examples include Old French -*al* > Mod. French "au" /o/. Many dialects of English (including RP British and Bostonian) have lost final -*r*, with compensatory lengthening of the preceding vowel. English words with final -*r* get borrowed into Japanese with long vowels, probably imitating British pronunciation (*e.g.* 'car' > Jse. *kaa*; 'color' > Jse. *karaa*; 'bar' > Jse. *baa*), whereas English words with final -*l* are rendered with -*ru* ('ball' > *booru*; 'girl' > *gyaaru*; 'level' > *reberu*).

'fall'	*ho ⋛ *hol		Miri *hol*-nam ~ *ho*-nam

a. This root may be a derivative of ***r-ni** 'red'; see above 9.3.2.

Somewhat different are cases where a PTB final ***liquid** has already disappeared at the subgroup level, as in the several examples of PTB ***-al** > PLB ***-a** (cited above 9.3.1):

	PTB		*PLB*		*WB*	*Lh.*
'frog'	***s-bal**	>	***ʔ-ba²**	>	**phâ**	**pā**
'back / loins'	***m-kal**	>	***ka²**	>	**khâ**	---
'clear / bright / pleasant'	***g-sal**	>	***sa¹**	>	**sa**	**ša**
'snow / ice'	***wal**	>	***wa²**	>	---	**vâ**
'chew (cud / betel)'	***yal**	>	***ya¹**	>	**ya**	---

9.6 A "spectacular" word-family with liquid finals [16]

Three sets of forms presented as separate etyma in *STC* [17] have meanings like 'fire / burn / shine / bright / light / white', and similar phonological shapes (labial initials, labial glides, the nuclear vowel **-a-**, and various codas, including liquids). These are all to be combined into a single word-family of even greater scope, comprising variants with open, nasal-final, stop-final, and liquid-final rhymes, roughly distinguishable as follows:

'fire / burn / kindle / roast'	***b-war** ⋛ ***p-war** ⋛⋛ ***ʔuːr** [a]
	WT **ḥbar-ba** 'burn, catch fire, **sbor-ba** 'light, kindle' ; Kanauri **bar** 'burn', Miri **par** 'light (fire)'; Nung **hwar** 'burn, kindle'; Chairel **phal** 'fire'; Moshang **var** '*id.*'; Limbu *oʔr*-**u**, *oʔ*-**ma** '*id.*'; Mikir *ar*-**nu** 'roast, bake, grill'; Garo **waʔl**; Dimasa **wai**; Tangsa (Yogli) **wal**; Yacham-Tengsa *wa*-si; Jingpho **ʔwàn**; Chang **wan**; Damu *wun*-pit-dung (all 'fire'); Lai **uːr** 'light a fire'; Lushai **uur** 'warm up (a house, food) / keep warm / smoke (meat) / scorch'; WB **pa'** 'emit radiance, shine'.

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15. No cases of ***-ul/*-ur** ⋛ ***-u** have yet been noted.

16. Versions of this word-family have already been presented in JAM 1997a (PSLTB):44-5, 48 and JAM 2000a "*p-/*w-":144-6. There are several good Chinese comparanda (above 9.2.4, 9.3.4).

17. These are: ***b(w)ar** ⋛ ***p(w)ar** 'burn; fire' (#220); ***hwa-t** 'shine; light' (#221); ***pwaːr** 'white' (pp. 172, 174).

'white / yellow'	***b-wa**
	WB **wa** 'yellow', **ʔəwa** 'color, brightness'; Proto-Karen ***ʔ(b)wa** 'white' > Pa-o **bwà** ~ **ʔwà**, Bwe **əko** *6ú* 'white-haired' (**əko** 'head') [b]
'white / yellow / bright / shine' [c]	***hwaːr ≫ *yar**
	Lushai **vaar** 'white'; Maring **war** 'bright light'; Thakali **ur** 'yellow'; Gurung (Ghachok) *ur*-**gyaː** '*id.*'; Magari *or*-**khe** '*id.*'; Chepang *yar*-o '*id.*'; Hayu **ho** '*id.*'; Khaling **ehr**-nya 'shine'; Tangkhul **hor** '*id.*'; Ao (Chungli) **yar** '*id.*'; Bokar Adi **a**-jen ~ **a**-en '*id.*' [d]
'heat up / kindle / cook'	***hwa(ː)l**
	Thulung **hal ≫ ul** 'heat slightly', **wal** 'boil lightly'; Lushai **hal** 'burn fields', **ʔalʔ** 'to flame', **haal** 'light, ignite'; Tiddim **haːl** burn'; Limbu **haqr-** 'burn, alight'
'sweat' [e]	***hwar ≫ *hyar**
	Gallong **a**-*ur*, **a**-*ɯr*, **a**-*yɯr*; Tagin **ha**-*yer*, **ha**-*cer*; Miri **har**; Bokar **ho**-*war* len; Milang *hiːl*-ma; Darang *haː*-u; Mikir **ing**-*i*; Anong **in**[55]; Lhoba **fioŋ**-*ŋar* (with assimilation to the final of the first syllable)
'shine / light'	***hwa**
	Bahing **hwa** 'light'; Apatani *hú*-tò 'light' (n.); Chepang **haʔ**-*ʔo* 'shine'; Kulung *ha*-me 'shine'; Ntenyi *wʊ*-ghʊ '*id.*'
'shine / light / burn' [f]	***hwat**
	WT **ḥod** 'light, shine, brightness', **nyi**-*ḥod* 'sunlight'; Written Burmese **ne**-*at* 'sunlight'; Thado **wat** 'shine'; Damu **wat** 'glimmer'; Limbu **o:tt-, o:ts-** 'burn, give light, shine'; Dumi *hɨt*-nɨ 'burn'; Bahing **høt-** '*id.*'; Chairel **id** 'burn, catch fire' [g]
'shine / bright / light'	***hwan**
	Limbu **ha:nd-** 'light (lamp, cigarette)'; Tangkhul **han** 'shine'; Lotha and Mao **won** '*id.*'; Milang **a**-*un* 'bright, light'
'burn / shine'	***hwam**
	Chepang *hyumʔ*-sa 'burn, scorch'; Lepcha **om** 'shine', *om*-bo 'illuminating', **a**-*om* 'light, brightness'

'shine / bright / yellow'	***hwaŋ**
	WB **wâŋ** 'bright yellow'; Tagin *ong* -**ka-nam** 'shine', **hung** '*id.*'; Konyak *wang*-**ngai** 'bright light'

a. See above 9.2.2(5).

b. Karenic cognates cited in *TBL* include: a³¹*wa̱*⁵⁵ 'white' (#1006), gəbɔ³³ 'bright' (#1012), a³¹*bɔ̱*⁵⁵ 'yellow' (#1008).

c. For similar alternation between **pw**- and **hw**-, *cf.* WB **phwak** ⋙ **hwak** 'hide'.

d. Perhaps also Yimchungru **yin** 'kindle'.

e. See JAM 1997a (PSLTB):48.

f. This allofam has suffixal *-**t** (see below 11.3.1).

g. Also perhaps Manang **wE**¹ 'bright light'; Sangtam **a**-*vi*-**sa** '*id.*'

These relationships can be summarized in a "pan-allofamic formula" (PAF), as follows:

p/b				r
	w			l
		a	ː	
	y			N
h				t

For the semantics, *cf.* Proto-Indo-European ***bhel**- "shine; flash; burn; shining white and various bright colors" > Eng. *black, blank, blanch, bleak, bald, bleach, blue, blaze, blind, blend, blond, blink, etc.*[18]

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18. See *American Heritage Dictionary* (4th ed. 2000):2022.

Root-final *-s

Only about a dozen PTB etyma are reconstructible with root-final *-s.[1] Very few languages preserve final *-s as such, notably northern TB languages like Written Tibetan, Kanauri, Chepang, and rGyalrong. Often final *-s disappears without trace, as in Garo, Meithei, and Tangkhul.[2] In Lushai and other Chin languages *-s > -ʔ (with the glottal stop written as "-h" in missionary-devised orthographies).[3] In many other languages (*e.g.* Chinese, Jingpho,[4] Nung, Lepcha, Miri, Mikir, Karenic,[5] and sometimes Lolo-Burmese), final *-s > -t, merging with original *-t. The reflexes of *-s are sometimes conditioned by the preceding vowel (*e.g.*, PTB *-is > PLB *-it, but PTB *-us > PLB *-əw; see below).

The following PTB rhymes with *-s are attested:

-is	-us
-es	---
-as	

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1.   This root-final *-s is to be carefully distinguished in principle from suffixal *-s (below 11.4), though there are cases where this is difficult, *i.e.* roots which show variation between *-s and zero final (see the rhyme *-is, 10.2 below).

2.   See JAM 1972b ("TN and comparative TB"):281. Similar developments are widespread elsewhere, *e.g.* in many dialects of Latin American Spanish, where -s > -h > Ø.

3.   Many Chin verbs in "Form II" end in glottalized sonorants, which are likely descendants of an *-s suffix with subordinating function. See below 11.4.2.

4.   Final -ʔ in Jingpho is from *-k, not from *-s. See above 8.2(1), etc.

5.   In the original version of *STC*, it was claimed (p.146) that final *-s "appears to have been dropped" without trace in Karenic, but this was amended to "replacement by -t" on the basis of new evidence (n. 401, pp. 146-7). See also Benedict 1979:13-20 ("A note on the reconstruction of Karen final *-s").

10.1 *-as

PTB	WT	Kanauri	Lepcha	Jg./Nung	Lushai	Dimasa
*-as	-as	-as	-ot	-at	-aʔ	-e

Some examples are as follows:

'bear fruit / rice' [a]	***b-ras**	*STC* pp. 17, 123
	WT **ḫbras** 'rice'; Lushai **raʔ** 'fruit, bear fruit'; Dimasa (Marrison 1967) **bere** 'bear fruit'	

'bee / honey'	***was**	*STC*, p.17
	Kanauri **wăs** 'honey'; Lepcha **vot** 'bee'; Vayu **siŋ-wo** 'bee'	

'leaf'	***s-nas**	JAM 1972b:281
	Lushai **hnàʔ**; Tangkhul **a-na**; Khoirao **a-na**; Maram **a-no**; Maring **na**; Tiddim Chin **naʔ**; Sema **a-ni-ka**; Zeme **peneu**; Mzieme **penei**; Proto-Tani (J. Sun 1993) **nə** > Apatani **jà-nɯ**; Bengni **na-nɯ**, Bokar **a-nə**, Dafla **na-ne**, Padam-Mising (Abor-Miri) **an-nə** , **na-nə** , Tagin **a-nɣ**, Taraon **naː**	

'possess / keep'	***ŋas**	
	Chamling (W. Winter 1985) **ngas-u**; Lai Falam (KVB) **ŋaʔ**	

'thick / solid'	***r-tas**	*STC* #426 [b]
	WT **ḫthas-pa** 'hard, solid'; Rawang (Nungish) **that** 'thick'; Jg. **thàt** 'thick', **ləthàt** 'coarse, rough'; Mikir **ar-that** 'fat, thick, callous'; Wancho **tat** 'thick'; Meithei **ətha-ba** 'thick'; Lushai **tśhaʔ**; Tiddim Chin **saʔ**; Tangkhul **šá**	

'thing' [c]	***r-dzas**	Gong 2000:#23
	WT **rdzas** 'thing, matter, object'; WB **ca** 'thing'.	

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a. For competing Chinese comparanda and a possible Austronesian connection for this root, see below §10.6.

b. This root was originally reconstructed as *r-ta-t, with suffixal *-t (see *STC* p. 102).

c. There is a Chinese comparandum in the *qùshēng* (see below 10.6 and 11.4.5(2)).

The -s appears certainly to be suffixal [6] in the following:

'be / live / stay; rest / perch'	*g-na-s	*STC* #414
	*g-nas	WT **gnas**-pa 'be, live, dwell, stay'
	*na	Kanauri **na**-śi 'rest'; Bahing **na**-so '*id.*'; PLB *na² (*DL*:733) > WB **nâ** 'cease motion to rest'; Lahu **nâ** 'perch on, alight (of wingèd creatures)'
'feed / food' [a]	*dzya-s	JAM 1972b:281
		WT **zas** ⋈ **zan** 'food'; Lushai **fàʔ** 'feed with the mouth'
'hear'	*s-ta-s	*STC* #415
	*tas	WT *thos*-pa (with unexplained back vowel); Vayu *thas*-tśe; Miri **tat**
	*s-ta	Lepcha **thyo** [b]; Tsangla **tha**; Nung **tha**
'rain'	*rwa-s	JAM 1972b:281; *STC* #443
	*rwas	Lushai **rwàʔ** (n.)
	*rwa	WB **rwa** (v.)

a. The underlying verb is *dzya 'eat', ubiquitous in TB; see above 5.2.

b. The Lepcha medial -y- points to the *s- prefix (above 4.2.1). Probably related, though with other suffixal elements, are Trung **thaŋ** and Newari **tal**.

10.2 *-is

PTB	WT	Kan.	rGyal.	Lp.	Jg./Nung	Lu.	WB	Lahu
*-is	-is	-is	-es	-ăt	-it	-iʔ	-ac	-i(ʔ) / -ɨ(ʔ)

Sets with this rhyme generally have variants with open syllables:[7]

'comb'	*kʷi-s [a]	*STC* #480; [b] Benedict 1979 [c]; JAM 1986b [d]
		Lushai **khuiʔ**; Digaro **se-kwi**; Proto-Karen ***khwis** (> Pa-o **khút**, Pho **khwì**, Palaychi **khwèq**, Sgaw **khwí**); PLB ***ʔ-gʷəy²** ≍ ***bri²** > WB **phî** ~ **bhî** ~ **phrî** 'to comb, brush'; Lahu **pɨ̄** 'to comb', *pɨ̄*-**kâʔ** 'a comb'
'two'	*g-ni-s	*STC* #4; *TSR* #160; JAM 1995b ("Numerals"):178-81
	*g-nis	WT **gnyis**; Kanauri **nis**; rGyalrong **kĕnĕs**; Lepcha **nyăt**; Lushai **hniʔ**; Tangkhul **khəni**; Garo **gni**
	*ʔ-nit	WB **hnac** [e]
	*ni [f]	Jg. **nī**; Lahu **nî** (< PLB *ni²)
'seven'	*s-ni-s	*STC* #5; *TSR* #128; JAM 1995b ("Numerals"):197-201
	*s-nis	Kanauri **stis** ~ **tis**; rGyalrong **kĕsnĕs**; Jg. **sənìt**; Lushai **sariʔ**; Tiddim **səgiʔ**; Paite and Gangte **sagih**; Lakher, Puiron, Kom Rem **sari**; Garo **sni**; Tangkhul **śini** [g]
	*ʔ-nit	WB **khu'**-*hnac* ; Atsi **nʔyit**; Maru **nʔat**
	*si² (PL)	Lahu **šɨ̄**; Akha **shìq**; Luquan **ši⁵⁵**
'wet'	*m-ti-s [h]	*STC* pp. 16, 26, 45
	*m-tis	Kanauri **this** 'wet'; Jg. **mədìt** 'moisten sthg; wet, damp'; Lalo **tíq** 'steep, soak'
	*m-ti	Kanauri **ti** 'water'; Jg. **mədī** 'moist, damp, wet'; Lahu **dì** 'moisten due to sexual excitement (of a woman), ejaculate (of a man)'

a. *Cf.* the section on *labiovelar initials, above 3.2(4).

b. Reconstructed as *kwi(y) in *STC*, despite the final glottal stop in the Lushai reflex.

c. "Four forays into Karen linguistic history".

d. "Labiovelar unit phonemes".

e. Contra *STC* (n. 60, p.16), where the WB form is derived from *s-nik.

f. The indubitable Chinese cognate 二 ńi̯ər (*GSR* #564a-d) apparently descends from the open-syllable variant; see *STC* n.454, p. 169.

g. Kanauri **st-** is the regular reflex of ***s-n-** (see above 4.2.1). Lushai and other Chin languages have undergone rhotacization of the root initial to **-r-** (sometimes then occlusivizing to **-g-**). Lahu (and other Loloish languages) show preemption of the root-initial by the ***s-** prefix. The numeral 'seven' seems to be a derivative of 'two', undoubtedly reflecting an ancient quinary system of calculation (as in modern Khmer).

h. The underlying root is ***t(w)i(y)** 'water' (see *STC* #55, #168), with several Chinese comparanda: 水 **śi̯wər** 'water' (*GSR* #576a-e); 洟 **di̯ər** 'nasal mucus' (*GSR* #551f); 川 **t̂i̯wən** 'stream/river' (*GSR* #462a). The PTB nasal prefix is confirmed by the voiced Lahu initial (see above 4.3).

10.3 *-us

PTB	WT	Chepang	Lp.	Jg./Nung	Lushai	WB	Lahu
*-us	-us	-us	-ăt	-ut	-uʔ	-ui	-ɔ

There are two good examples:

'bone'	***g-rus**	*STC* #6
	*g-rus	WT **rus-pa**; Lepcha **ăhrăt**; Jg. **ǹ-rút**; Lushai **ruʔ**; Tangkhul **rɯ**; Proto-Karen ***krut** > Pa-o **tśhut**, Pwo **χwi**, Palaychi **ʔa-χi**, Sgaw **χi** [a]; Nung **sərö**
	> ***s-rəw²** (PLB)	Maru **səruk**,[b] WB **rûi**, Lahu **ɔ̀-g̈ɔ̂**
'wet / dew'	***hus**	*STC* p. 17
		WT **hus** 'moisture'; Chepang **hus** 'dew'; Lushai **huʔ** 'wet'

a. *Cf.* also Rungchengbung **sa-yu-ba**. There is an excellent Chinese cognate that reflects the velar prefix: 骨 **kwət** (*GSR* #486a).

b. PLB ***-əw** regularly becomes Maru **-uk** (see above 5.3.1).

10.4 *-es

There is only one example of ***-es** that has been discovered so far:

'lip / beak'	***s-nes**	*STC* p. 16
		rGyalrong **ăśnäs** lip, beak'; Lushai **heʔ** 'lower lip'; Tiddim **nɛʔ** '*id.*'

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7. See the discussion of root-final vs. suffixal *-s, 11.4 below.

*10.5   Dental stop plus suffixal *-s > WT -s*

There are a couple of cases ('knee', 'bile / gall') where an original suffixal ***-s** seems to have displaced a root-final dental stop in WT, by a process which might be called "suffix postemption". Suffixed -s appears after WT final velars and labials (orthographic -**gs** -**ŋs** -**bs** -**ms**), but not after dentals (there is no "-**ds**" or "-**ns**"). Thus some instances of WT -s are to be derived from earlier ***-t-s** :

'knee' [a]	***put-s**	*STC* #7
	WT **pus-mo**, W. Tibetan **pis-mo**; Lepcha **tuk**-*păt* ; Jg. **phùt** 'kneel', **ləphùt** 'knee'; Nung **phaŋ**-*phit* 'knee', **ur**-*phut* 'elbow, **ra**-*phut* 'shoulder'; Maru *pat*-**lau** 'knee'; Phunoi *phat* **tho khau** 'kneel'	
'bile / gall' [b]	***m-kri-t-s**	*STC* #412
	*m-krit	> Garo **kha**-*khit* (**kha** 'bitter'); Dimasa **bikhlu**
	*m-krits	> WT **mkhris-pa**; West Tibetan **ṭhigs-pa**

a. See above 8.4(3). The Lolo-Burmese forms (Maru, Phunoi) point to final *-t rather than *-s, since in the one unambiguous example ('bone' above) the rhyme *-us > PLB *-əw, which in turn > Maru -uk.

b. The underlying root is ***kri(y)** 'acid / sour' (*STC* #413): Lepcha **kri** 'bitter'; Jg. **khrī** 'sour'; Dimasa **khiri** '*id.*'; Nung **səhi** 'bile'; PLB ***ʔ-grəy**[1] 'bile' > WB **sâñ**-*khre* (**sâñ** 'liver'), Lahu **ɔ̀-kɨ** .

10.6   Chinese comparanda to TB etyma in *-s

	PTB		*OC*	*GSR*	*OC Gloss*
'bone' [a]	*g-rus	骨	kwət	486a	*id.*
'class / category' [b]	*g-ras	纇	li̯wəd	529a	'class / category / similar / equal'
'hungry / famine' [c]	*b-kres	饑	ki̯ər	547k	'famine / esp. want of grain'
'old' [d]	*b-gres	耆	g'i̯ɛr	552*l*	*id.*
'rice' [e]	*b-ras	糲	lâd ~ li̯ad ~ lât	340g	'coarse grain'
'speak / word' [f]	*grwas	話	g'wad	302o	'speak / word'
'thing' [g]	*r-dzas	事	dẓ'i̯əg	971a-c	'practice / serve / service / occupation / affair / sacrifice'
'two'	*s-ni-s	二	ńi̯ər	564a-d	'*id.*'
'wet'	*m-ti-s	水	śi̯wər	576a-e	'water'
		洟	di̯ər	551f	'nasal mucus'
		川	tˢi̯wən	462a	'stream / river'

a. See above §10.3.

b. *Cf.* WT **gras** 'class, order; tribe'. For an allofamically related root, *cf.* ***g-ral** 'equal / line up / connect / in a row', above 9.3.4. See Gong 2001:27.

c. *Cf.* WT **bkres** 'hungry; hunger'. See Gong 2001:25.

d. *Cf.* WT **bgres** 'old', WB **krî** 'big; old, senior'. See Gong 2001:27.

e. *Cf.* WT **ḥbras** 'rice', Lushai **raʔ** 'fruit, bear fruit' (above §10.1). An Austronesian connection has long been suggested for this root (*cf.* Malay **bəras** < Proto-Indonesian ***bəɣa/s** 'husked rice') although this etymology has been rejected by Benedict (1975:104), who prefers to relate the WT form to Chinese 飯 'cooked rice or millet' (OC **b'i̯wăn**; *GSR* #262i), on the grounds that the basic meaning of the TB etymon is 'fruit / bear fruit' (*cf.* WT **ḥbras-bu** 'fruit; corn; grain'). See Gong 2001:23.

f. *Cf.* WT **gros** 'speach, talk'. See Gong 2001:28.

g. *Cf.* WT **rdzas** 'thing, matter, object', WB **ca** 'thing'. See Gong 2000:23.

Suffixes

11.1   Introduction

TB suffixal morphology is an intricate topic, to which a full-length book could easily be devoted. This section will not deal with fully syllabic suffixes like WT -**pa** ~ -**po**, -**ma** ~ -**mo**; or with particles or postpositions with clear grammatical functions like Meithei -**pə** 'nominalizer; relativizer; citation form of verbs',[1] Newari -**e** ~ -**ye**, Lahu **ve** '*id.*', which are best discussed in the general context of grammaticalization of root-morphemes.[2]

11.1.1   The trio of dental suffixes */ -n -t -s /

Three non-syllabic dental suffixes, */ -**n** -**t** -**s** /, are so widespread that they may be reconstructed at the PTB or even the PST level.[3/4] Yet they have been referred to as "particularly troublesome" (*STC*:98) because of their semantic elusiveness. Their functions overlap both inter- and intra-lingually, *e.g.*, all three of them can have nominalizing force in WT (intralingual variation); and all three may carry a causative/transitive meaning, but in different languages (interlingual variation).[5] Sometimes their grammatical roles appear contradictory from a cross-linguistic viewpoint: *e.g.*, the *-**s** suffix in some languages has a causative/transitive (*i.e.*

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1.   Chelliah 1997:155*ff.*

2.   See JAM 1985a *GSTC*, *passim*; 1991d ("Grammaticalization").

3.   -**t** and -**n** occur only after vowels, but -**s** could occur after stops and nasals as well. See the PTB syllable canon, above Ch. 2. In WT, however, suffixal -**s** did not occur after dentals, so that WT -**s** sometimes reflects PTB *-**t**-**s** or *-**n**-**s**; see the discussion of 'knee' and 'bile', above 10.5.

4.   The pioneering work on these suffixes was brilliantly carried out by S.N. Wolfenden (1929:56*ff.*; 1936; 1937).

5.   However, none of these dental suffixes were as consistently or productively used in this function as the causative *prefix* *s- (above 4.2.1).

outer-directed) meaning; but in other languages it functions as a marker of inner-directed action, a kind of middle voice or stative meaning (below 11.4.3). In many specific cases the increment of meaning conveyed by one of these dental suffixes is quite idiosyncratic, with few if any parallel examples.

In view of their vagueness, sporadicity, and limited productivity, as well as their ability to change the form-classes of roots, these dental suffixes should be viewed as derivational rather than inflectional morphemes.

Morphophonemically it is not uncommon to find word families comprising an open-syllable root that could be followed by more than one dental suffix, either within a single language or cross-linguistically. For a single language, examples may be drawn from Written Tibetan:

WT

dro 'be warm'	≍	dron-mo 'sthg warm'	≍	drod 'warmth'
blu 'redeem; ransom'	≍	blud-po 'ransom payment'	≍	blus-ma '*id.*' [a]
nu 'suck'	≍	nud-pa 'suckle an infant'	≍	snun-pa '*id.*'

a. < *blu-t-s

Some cross-linguistic examples:

*na ≍ *nan ≍ *nat	'ill / suffer / evil spirit'[a]
*na	WB **na** 'be sick, hurt'; Lahu **nà** '*id.*'; WT **na-ba** '*id.*'
*nan	Lahu **nê** 'illness producing spirit'; Chinese 難 (OC **nân**) 'be in difficulty, suffer'
*nat	WB **nat** 'spirit'; WT **nad** 'illness'; Lushai **nat** 'ache, be in pain'
*dzya ≍ *dzya-n ≍ *dzya-t ≍ *dzya-s [b]	'eat / food / feed'
*dzya	WT (b)za-ba 'eat'; Jg. **šá**; WB **câ**; Lahu **câ** '*id.*'; Pwo and Sgaw **sha** 'food'
*dzyan	WT **zan** 'food'; Lepcha **ăzom** 'food'; Chinese 餐 (OC **ts'ân**) 'eat / food, meal')
*dzyat	Lepcha **zot** 'graze'; Jg. **šàt** 'rice to eat'
*dzyas	Lushai **faʔ** 'feed with the mouth'
*ba ~ *pa ≍ *b/pan ≍ *b/pat	'thin'
*b/pa	Jg. **phà**; WB **pâ**; Lahu **pâ**; Garo **ba**; Tiddim **paː** (Form I) [c]

*pan	Lushai **pan**; Tiddim **pan**[1] 'very thin'
*pat	Tiddim **paːt** 'be thin' (Form II)

*g-tsyi ≍ *g-tsyin ≍ *g-tsyit	'urine / urinate'
*g-tsyi	WT **gći** 'urinate; Jg. **dží** '*id.*'
*g-tsyin	WT **gćin** 'urine'
*g-tsyit	WT **gćid-pa** 'urinate'; Jg. **džìt** 'urine'

*r-kəw ≍ *r-kun ≍ *r-kut	'steal / thief'
*r-kəw	WT **rku** 'steal'; Jg. **ləgú** '*id.*'; WB **khûi**; Lahu **qhɔ̂**
*r-kun	WT **rkun-ma** 'thief'; Pa-o Karen **təkhun**; Kanauri **khun**
*r-kut	Jg. **ləgùt** 'thief'

*b-rəy ≍ *b-ris ≍ *rit ≍ *riːn	'draw / write'
*b-rəy	WT **ḥbri-ba** 'draw, write', **ri-mo** 'drawing, marking'; WB **rê** 'write, paint'
*b-ris	WT **bris** 'picture', **ris** 'figure, form, design'
*rit	Jg. **rìt** 'fix, as a boundary', **ʔərìt** 'boundary line'
*riːn	Lushai **riin** 'draw a line, scratch'

*yəw ≍ *yun ≍ *yut	'leak / drip'
*yəw	WB **yui** 'leak'; Tsangla **yu** '*id.*'; Meithei **yu** '*id.*'
*yun	Jg. **yūn**, **kəyūn** 'leak'; Lushai and Hakha **zun** 'excrement, urine'
*yut	Hakha **zuθ** 'leak, drip, fall'

a. See JAM 1978a (*VSTB*):110.

b. This root is also well-attested with a velar suffix, ***dzyak**; see below 5.2.4(5).

c. For the Form I/Form II distinction in Chin verbs, see below 11.4.2.

Additional examples include 'smoke' and 'join / bring together', below 11.2.4(1,2).

11.1.2 *Root-final vs. suffixal dental consonants*

In etymologies, these dental suffixes present an eternal problem that is quite analogous to what one faces with prefixes. Just as it is necessary to distinguish as far as possible

between ***prefix-plus-root-initial** vs. ***intrinsic initial consonant** clusters (above 4.1.2, 4.5.1),[6] so must we distinguish between root-final consonants and suffixes, *e.g.*:

*rus	'bone'	*vs.*	***d-bu-s**	'center'
*mpat	'vomit'	*vs.*	***s-ta-t**	'put / place'
*zan	'strong'	*vs.*	***dzya-n**	'food'
*was	'bee'	*vs.*	***g-na-s**	'be, stay; alight, perch'

11.1.3 *Primary vs. secondary suffixes: Newar verb classes*

The important Himalayish language Newar(i), spoken in the Kathmandu Valley of Nepal, is known for its elaborate system of stem-final consonants that it attaches to verb roots in certain conjugated forms. For Classical Newar (14th-19th cc.), Jørgensen (1936; 1941:47) distinguishes four classes of "primary verbs", each consisting of a monosyllabic root with a final consonant: (1) verbs in **-n**; (2) verbs in **-t**; (3) verbs in an "unstable -l "; and (4) verbs in an "unchangeable" -l. Most of these stem augments are secondary with respect to the rest of TB,[7] *e.g.*:

	Nw.	*PTB*
'die'	sit-	*səy
'give'	bil-	*bəy [a]
'steal'	khul-	*r-kəw
'graze'	dźal-	*dzya 'eat' [b]
'hear'	tal-	*ta-s

a. For modern Newar, Malla (1985:44) analyzes this stem as an underlying open syllable, **bi-**. Genetti (1994:98) shows that this root is to be reconstructed as Proto-Newar ***bir-** (*cf.* Dolakha **bir-**).

b. Compare Lepcha **zot** 'graze', with suffixal ***-t** or ***-s** (both suffixes > Lp. **-t**).

Malla (1985:43-44) recognizes five distinct verb conjugations for Modern Newar: two with stem-final vowel, one with **-n**, one with **-l**, and one with stem-final **-p**, **-t**, or **-k**. Genetti (1994:92-100), on the basis of comparisons between the Kathmandu and Dolakha dialects, reconstructs four verb-classes for Proto-Newar, with stems ending in

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6. See, *e.g.* PLB ***krak**[H] 'crossbow' > Lahu **khâʔ** vs. PLB ***k-rak**[H] 'chicken' > Lahu **ğâʔ**.

7. Some of these stop-final stems are in fact etymological, *e.g.* **syat-** 'kill' < PTB ***g-sat** (*STC* #58).

*/ -n -t -r -l /, which surface most clearly in the "past disjunct" forms. These four classes remain intact in Dolakha, but the Kathmandu paradigms show some innovations:

				Examples		
Proto-Newar	*Dolakha*	*Kathmandu*	*Class*	*Dolakha*	*Kathmandu*	
*-n	-n	-n	I	on-	wan-e	'go'
*-t	-t	-ø ~ -t	II	syāt-	syā-ye	'kill'
*-r	-r	-ø ~ -l	III	khor-	kho-ye	'cry'
*-l	-l	-l	IV	tul-	tul-e	'roll'
---	---	-p -t -k	V	---	---	---

When comparative data is not taken into account, Kathmandu Classes II and III are analyzed as having stem-final vowels (as in Malla 1985).[8] Class V, with stop finals, does not exist in Dolakha, is not mentioned in Jørgensen's treatment of Classical Newar, and does not undergo morphophonemic alternations in the various forms of the paradigms. Genetti thus regards this class as a modern innovation in the Kathmandu dialect.

These stem-final suffixes are rather reminiscent of the sort of "stem augments" that one finds in Indo-European word-families.[9]

11.2   Suffixal *-n

A variety of functions for this suffix may be distinguished (*nominalizing*, *transitivizing*, *collectivizing*), though few languages employ it with any great degree of productivity in any particular grammatical role.[10]

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8.   The stem final *-t and *-r can actually be deduced by internal reconstruction in these classes, by reanalyzing the Past Disjunct affix as simply -a, not -ta (Class II) or -la (Class III). Thus 'kill' (PD) Kath. syāt-a (not syā-ta) vs. 'cry' (PD) khol-a (not kho-la). See Genetti p. 98.

9.   A good example is PIE *wer-, taken as the "conventional base of various Indo-European roots" meaning 'turn/bend', including: *wert- ≍ *wreit- > Eng. *inward, vertex, wreath, wroth*; *wergh- > Eng. *wring, wrong, wrangle*; *werg- > Eng. *wrench, converge*; *wreik- > Eng. *wry, wriggle, wrist, wrestle*; *werb(h)- > Eng. *reverberate*, Old English *weorfan* 'throw away', German *werfen*; *werp- > Eng. *wrap*, *rhapsody*; *wrmi- > Eng. *worm*. See *The American Heritage Dictionary of the English Language*, 4th Edition, p. 2054.

10.   In some cases all one can do is note the presence of a nasal suffix, without being able to assign it any meaning at all, *e.g.* 'give' PTB *bəy > WB pê, Mikir pi, etc., but WT sbyin. There are several miscellaneous examples where Trung (Nungish) has a final -ŋ where other TB languages have open syllables, including 'give' (Trung biŋ), but also 'hear' PTB *ta (Trung thaŋ), and 'borrow / lend' PTB *s-kəy > WT skyi-ba, WB khyê, Lahu chî (but Trung skiŋ).

11.2.1   *Nominalizing *-n*

(1)   *Lepcha -m ~ -n*

Lepcha has a nasal suffix (apparently unpredictable as to point of articulation, but usually labial) with nominalizing function.[11] It is usually reinforced pleonastically by the prefix ǎ- (< *ʔə-), which is itself historically a nominalizer (*cf.* above 4.2.2):

zo	'eat'	**ǎzom**	'food'
hru	'be hot'	**ǎhrum**	'hot' �done ǎhrun 'heat'
ya	'know'	**ǎyam**	'knowledge'
śi	'be'	**śim**	'being'
bu	'carry'	**ǎbun**	'vehicle' [a]

> a. This etymon (reconstructed as *bəw 'carry on back or shloulders' in *STC* #28) has several other reflexes with final -n, including Lushai **bun** 'put on or wear (as ring, boots), encircle' and Pwo Karen **phün ~ phən** 'carry on back'. It is the same morpheme as *bəw 'wear', set up as a separate root in *STC* #428. (*Cf.* French *porter* 'carry; wear clothes'.) There is a Chinese comparandum 負 OC **bɨ̯ŭg** 'carry on the back' (*GSR* #1000a).

In at least one case in Lepcha the nasal suffix has been generalized to the underlying verb:

'shine / light'	*hwa-t	*STC* #221
	Bahing **hwa**; Lp. **om** 'shine', **om-bo** 'illuminating', **ǎ-om** 'brightness' [a]	

> a. *Cf.* 9.6 above.

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(2)   *Written Tibetan* **-n** [12]

Written Tibetan has a relatively large number of derived nominals with suffixal -**n**:

WT Verb		*Derived Noun*	
skyo	'be weary; vexed'	**skyon**	'fault; harm; defect'
rgyu	'move; wander'	**rgyun**	'flow; current; stream'
gtśi	'urinate'	**gtśin**	'urine'
ńe	'be near'	**ńen**	'kinsman'
gda	'be there'	**gdan**	'seat; position; abode'
rdzu	'lie; deceive'	**rdzun**	'falsehood'
za	'eat'	**zan**	'food'

As in Lepcha, the WT nominalization is often reinforced pleonastically with another morpheme, in this case with a further suffix, fully syllabic -**pa**/-**ma** ~ -**po**/-**mo**:

WT Verb		*Derived Noun*	
rku	'rob; steal'	**rkun-ma**	'thief'
skyi	'borrow'	**skyin-pa**	'thing borrowed'
Ngro	'go'	**Ngron-po**	'guest'
rŋa	'mow; cut; reap'	**rŋan-pa**	'reward; hire; wages'
Ndu	'come together'	**Ndun-ma**	'council; advice'
Ndre	'be mixed'	**Ndren-ma**	'mixture'
Nphyo	'roam about; gambol'	**Nphyon-ma**	'prostitute'
bźo	'to milk'	**bźon-ma**	'milk cow'
śu	'peel; strip off'	**śun-pa**	'a peel'
dro	'be warm'	**dron-mo**	'sthg warm' (⋇ **drod** 'warmth')

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12. Examples are from the excellent list in Beyer 1992:117. In all forms cited from Beyer, the prefix *a-chung* is transcribed with "**N**-", instead of the symbol "ḥ-" used elsewhere in this volume. For speculations on the phonetic nature of *a-chung*, see above 4.2.2.

11.2.2　Transitivizing *-n

This is a rare function for the nasal suffix, so far documented only for a few forms in Kanauri (see *STC*:102):

Kanauri (v.i.)	Gloss	Kanauri (v.t.)	Gloss
hu-śi [a]	'learn'	hun	'teach'
go-śi	'be adulterous'	gon	'commit adultery with smn'
PTB *r-kəw	'steal'	khun	'*id.*'

a. Kanauri -śi is a 'middle voice' suffix expressing inner-directed action or state; see below 11.4.3.

11.2.3　Collectivizing *-n

The most interesting function of suffixal ***-n** is after noun roots, where in a few cases it seems to have a *collective* or *pluralizing* meaning.[13] Convincing examples are relatively few, but they are to be found in Chinese as well as in TB, with occasional good correspondences between them (see 11.2.4 below).

'palm / sole'	*pʷa-n	*STC* #418; JAM 2000a ("*p-/w-") #16
	*pʷa	Nung **ur-pha**; WB **bhəwâ**; Garo **dźak-*pha*** 'palm', **dźa-*pha*** 'sole'
	*pʷan	Jg. **ləphàn** [a]
'garlic / onion'	*swa-n	JAM 1985a *GSTC*, pp. 10-11
	*swa	Lahu **šū-qō** 'leek', **šū-phu** 'onion', **šū-phu-nù** 'garlic' [b]
	*swan	WB **krak-*swan*** 'onion'

a. The **-n** in Jingpho is "possibly with dual force" here (*STC* n. 284). Although this is not suggested in *STC*, it is possible that the source of this "collectivizing" suffix is actually the numeral 'two' ***g-ni-s** (above Ch. 10). There is a Jingpho numeral **nī** (used in composition), as well as a collectivizing suffix of the same shape (Hanson 1906:467-8; Dai *et al.* 1983:593).

b. Lahu **-u** is the regular reflex of ***-wa**, with several parallel examples ('cattle'; 'handspan'; 'tooth'; see above 5.2.2). PLB ***-an** becomes Lahu **-e** (*e.g.* 'louse'; 'slave'; 'hawk'; see above 7.1(2)). There is a solid Chinese cognate with final **-n** (below). The function of the **-n** in this root might have been to differentiate multi-cloved garlic from unibulbate onions. Note, incidentally, that the English word *onion* is itself etymologically related to *one* : < French *oignon* < Lat. *ūniō(n)-* 'unity, union; a kind of large pearl, a rustic Roman name for a single onion' (*OED*).

13. See *STC*, n. 284, pp. 99-100; n. 428, pp. 157-8.

This suffix is also postulated in several animal names, with the semantic implication that they are species perceived to appear in large groups:[14]

'crow'	*ka-n	*STC* pp. 99-100
	*ka	WT *kha*-tha; Jg. **ù**-*khā*; Rawang **thaŋ**-*kha*
	*kan	WB kyî-*kân* [a]
'crab'	*d-kaːy ≍ *d-kan [b]	*STC* #51
	*d-kaːy	Lp. **tăhi**; Mikir **tɕehe**; Tangkhul **khai** 'fish', **khai-reu** 'crab'; Lushai **ai ~ chakai** 'crab'
	*d-kan	Jg. **tʃəkhán**

a. The unaspirated WB initial actually points to a prototype with *voiced initial, ***gan**. The voicing possibly arose because the initial of the second element in the compound is in intervocalic position.

b. There are other several other etyma which display -**ay** ≍ -**an** variation; see JAM 1985a *GSTC* pp.46-7, 64-6; also JAM 1995a "Palatal suffixes"; see below 11.6.

Written Tibetan has a pair of collective circumfixes, comprising prefixal **s**- and a suffix which is either -**n** or -**d** (= /t/), which is found in a very few words denoting kinship groups, functioning to expand the range of reference of the source noun (Beyer 1992:119):

phu	'elder brother'	**spun**	'siblings'
		span-spun	'brothers; relatives'
tsha	'grandchild; nephew'	**khu-tshan**	'uncle and nephew'
		pha-tshan	'cousins on the father's side' [a]
khu	'uncle'	**skud-po**	'brother-in-law; father-in-law'
pha	'father'	**pha-spad**	'father and children'
ma	'mother'	**ma-smad**	'mother and children'

a. The **s**- prefix does not appear in these forms because of their sibilant initial.

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14. The most convincing examples of this category are 'goose' and 'rat/rabbit', presented below (11.2.4) because the evidence comes mainly from Chinese.

This kinship suffix is reflected sporadically elsewhere in TB, not necessarily with a "collective" meaning, *e.g.*:

'mother'	***ma-n**	Kanauri **mann**
'child'	***tsa-n**	Dhimal **tśan**
'child'	***za-n**	Lepcha **ăzon** 'grandchild'
'grandmother'	***bwa-n**	WB **khaŋ**-*pwân* 'spouse' (**khaŋ** 'grandfather')

*11.2.4   Traces of suffixal *-n in Chinese*[15]

The most interesting cases of the ***-n** suffix in Chinese involve noun roots where the suffix can be said to contribute a collective or vaguely plural meaning. These include several animal names and kinship terms:

'dog'	***kʷəy-n**	*STC* #159; JAM 1985a *GSTC* #17
	*kʷəy	WT **khyi**; Chepang **kwi**; Jg. **gùi**; WB **khwê**; Lahu **phɨ̂**; Lushai **ui**; Karen **thwì**; Chinese 狗 (OC **ku**; *GSR* #108d) 'dog'
	*kʷəyn	Chinese 犬 (OC **k'iwən**; *GSR* #479a-d) 'dog' [a]
'female'	***pwi(y-)n**	*STC* #171
	*pwi(y)	Lushai **-pui** 'feminine affix'; Jg. **wī ~ yī** '*id.*', **śəwī ~ śəyī** 'female'
	*pwi(y)n	Chinese 牝 (OC **b'i̯ən ~ b'i̯ər**; *GSR* #566i-j) 'female of animals' [b]
'flesh / meat / animal'	***sya-n**	*STC* #181
	*sya	WT **śa** 'flesh, meat', **śa-ba** 'hart, stag'; WB **sâ**; Lahu **šā** 'game animal; meat, flesh'; Ch. 獸 (OC **śiôg**; *GSR* #1100a-f) 'animal'
	*syan	Jg. **šàn** 'flesh, meat; deer'; Chinese 身 (OC **śi̯ĕn**; *GSR* #386a-c) 'body' [c]
'garlic / onion' [d]	***swa-n**	JAM 1985a *GSTC*, pp. 10-11
	*swa	Lahu **šū**

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15. See *STC*:154-60.

	*swan	WB krak-*swan* 'onion'; Chinese 蒜 (OC swân; *GSR* #175b) 'garlic'
'goose'	*ŋa-n	*STC* pp. 99, 155, 191
	*ŋa	Chinese 鵝 OC ŋâ (*GSR* #2p) 'domestic goose'
	*ŋan	Chinese 雁 OC ŋan (*GSR* #186c) 'wild goose'; [e] WB ŋân
'grass'	*r-tswa-n	*STC* pp. 49, 158
	*r-tswa	WT rtswa; perhaps also Chinese 草 'grass, plants, herbs' (OC ts'ôg; *GSR* #1049b-c)
	*r-tswan	Chinese 荐 'grass, herb' (OC dz'iən ~ dz'wən; *GSR* #432b)
'man / person'	*r-mi-n	*STC* pp. 107, 158
	*r-mi(y)	WT mi; rGyalrong tərmi; Kanauri mi; Magar bhərmi; Digaro nəme; Lushai mi
	*min	Chinese 民 (OC mi̯ěn ~ mi̯ən; *GSR* #457a-b) 'people'
'rat / rabbit'	*b-yəw-n	*STC* #93
	*b-yəw	Jg. yú 'rat';[f] WT byiu 'alpine hare'
	*b-yəwn	Jg. yūn 'rat'; WB yun 'rabbit'; Chinese 魏 (OC ts'i̯wən; *GSR* #468s) 'hare'

a. Perhaps the suffixed Chinese form originally referred to wild dogs, which run in packs; ?≋? PTB *kywal 'wild dog; dhole' > PLB *wan¹.

b. Although this is not suggested in *STC*, the meaning here is possibly collective: 'females in general, regardless of species; femaledom'.

c. The whole body is apparently "flesh viewed collectively". For an alternative etymology, see JAM 2000c ("PLB Fable") where the Chinese form is compared to PTB *sin 'body; owner; agentive nominalizer' > Lahu ɔ̀-šɛ̂ (-phâ) 'body; self' and Lai Chin sin 'possesive particle'. See above 7.2(2).

d. In *STC* (p. 190) this root is related rather implausibly to *swaːr 'sour'; see above 9.2.2.

e. The original collective force of the Chinese suffix is plausible given that wild geese typically appear in large groups during migration, etc.

f. Jingpho shows intralingual variation between the plain and suffixed forms. WB and Chinese both reflect the suffixed allofam. Rats and rabbits are both species notorious for their fecundity.

There are also three good Chinese examples of the collective suffix with kinship terms:

'grandchild'	*syu(w)-n	*STC* p. 158
	*syu(w)	Jg. šû; Mikir and Meithei su; Bodo sou, Dimasa su
	*syu(w)n	Chinese 孫 (OC swən; *GSR* #434a-c)

'older brother / senior male relative'	*gəw-n ≍ *kəw-n	*STC* #255
	*g/kəw	WB ac-*kui* 'older brother'; WT *khu*-bo 'uncle'; Ao Naga o-*khu* 'uncle, father-in-law'; Jg. **gû ~ kû** 'father-in-law'; Meithei i-*ku* '*id.*'
	*g/kəwn	Chinese 昆 (OC **kwən**; *GSR* #417a-b) 'older brother'
'children / relatives'	*tsa-n	*STC* pp. 27,158
	*tsa	WT **btsa**-ba 'bear children', *tsha*-bo 'nephew, *tsha*-mo 'niece'; Bahing **tśa**-tśa 'grandson'; Maru and Atsi **tso** 'child'; Chinese 子 (OC **tsi̯əg**; *GSR* #964a-j) 'child'
	*tsan	Dhimal **tśan** 'son'; Chinese 親 (OC **ts'i̯ĕn**; *GSR* #382o-p) 'parents, relatives'; [a] *cf.* also the WT collective kinterms cited above: **khu**-*tshan* 'uncle and nephew', **pha**-*tshan* 'cousins on the father's side', **gnyen**-*tshan* 'kindred, relations'

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a. For an alternative etymology for this Chinese form, see below 12.6.1(2).

Other manifestations of the *-n suffix appear sporadically in Chinese with both noun and verb roots; most of the post-nominal cases are also susceptible of a "collective" interpretation:

(1)   With noun roots

'heaven'	*m-ka-n	*STC* p. 157
	*m-ka	WT **mkha** 'heaven, the heavens', **nam**-*mkha* 'heaven, sky'
	*m-kan [a]	Magar **nam**-*khan* 'sun'; Chinese 天 (OC **t'ien**; *GSR* #361a-c) 'heaven' ≍ 祆 (OC **χien**; *AD* 996 [not in *GSR* #361]); *cf.* also 乾 (OC **g'i̯an**; *GSR* #140c) 'heaven, heavenly'
'monkey'	*g-woy-n	*STC* #314
	*g-woy	Jingpho **wōi** [b] Kadu **kwe**; Nung **əwe**; Moshang *vi*-sil; Shangge **yok**-*vi*
	*g-woyn	Chinese 猿 (OC **gi̯wǎn**; *GSR* #256c)
'net'	*kwa-n ≍ *gwa-n	*STC* #158; p. 158
	*kwa	Chinese 罟 (OC **kwo**; *GSR* #41d) 'net'

	*kwan ≍	WT *rkon*-pa ~ *skon*-pa 'fowler's net'; Lepcha **kun** 'sort of
	*gwan	fishnet'; Jg. sùm-*gòn*; Nung **gun**; WB **kwan** 'casting net';
		Maru **gùm**
'smoke'	***kəw-n/t** c	*STC* #256; p. 159
	*kəw	Bunan **khu**; Limbu **me**-*khu*; Abor **mui**-*kü*; WB **mî**-*khûi*; Lahu
		mû-*qhɔ̂*; d Garo **wal**-*ku*; Jg. **khú** 'be smoky'
	*kəwn	Sunwar **kun**; Newar **kɨn**; Chinese 熏 (OC **χi̯wən**; *GSR*
		#461a-c) 'to smoke, to steam; aflame'
'water /	***twəy-n**	*STC* #168; p. 158
river'	***twəy**	Lushai **tui** 'water / egg'; WB **thwê** 'spit', **tam**-*thwê* 'saliva';
		Chinese 水 (OC **śi̯wər**; *GSR* #576a-e) 'water'
	*twəyn	Chinese 川 (OC **t̂i̯wən**; *GSR* #462a) 'stream, river' e

a. A collective interpretation is also possible here; *cf.* plural expressions for the sky in other languages, *e.g.* Eng. *the heavens*; French *les cieux*; Hebrew *shamayim* 'sky, the heavens' (morphologically dual).

b. *STC* cites an alternant "we", but I have been unable to confirm this in other sources.

c. Jg. *ʔwàn-khùt* 'smoke' reflects a stopped allofam *kəwt. This word family may thus be included in the collection of morphophonemic triplets, above 11.1.1. See below 11.3.1.

d. The first element in these forms means 'fire' (except for Lahu, where it means 'sky').

e. A river is a collectivity of waters, *i.e.* a confluence of tributaries. See above 10.6.

(2)   With verb roots

'bitter / liver' a	***b-ka-n**	*STC* #8; p. 158
	*ka	WT **kha**; Jg. **khá**; WB **khâ**; Lahu **qhâ**; Lushai **kha**;
		Chinese 苦 (OC **k'o**; *GSR* #49u) 'bitter'; Garo **kha**
		'bitter', **bi-kha** ~ **bəkha** 'liver'
	*kan	Chinese 肝 (OC **kân**; *GSR* #139L) 'liver'
'blush / red'	***n(y)a-n**	*STC* p. 159
	*nya	Pa-o Karen **ńa** 'red'
	*nyan	Chinese 赧 (OC **nan**; *GSR* #216b) 'blush' b
'eat / food /	***dzya-n**	*STC* #66; p. 159
feed' c	***dzya**	WT **(b)za-ba** 'eat'; Jg. **šá**; WB **câ**; Lahu **câ** '*id.*';
		Pwo/Sgaw **sha** 'food'
	*dzyan	WT **zan** 'food'; Lepcha **ăzom** 'food'; Chinese 餐
		(OC **ts'ân**) 'eat / food, meal'. See above 11.1.1.

'far'	*g-wəy-n		*STC*:61; *DL*:1337
	*wəy² (PLB)	WB **wê**; Lahu **vɨ̂**; Maru **wa**	
	*gwəy (Qiangic)	Qiang (Mawo) ***guəˈχe***; Qiang (Taoping) **χuɑ³³**; Muya **qhuɐ⁵⁵rɐ⁵³**; Queyu **kua⁵⁵kua⁵³**; Shixing **qhuɑ⁵⁵** [*ZMYYC* #817]	
	*gwəyn	Chinese 遠 **gi̯wǎn** [*GSR* #256f-g]	
'ill / suffer'	*na-n		*STC* #80; p. 159
	*na	WB **na** 'be sick, hurt'; Lahu **nà** '*id.*'; WT **na-ba** '*id.*'	
	*nan	Lahu **nê** 'illness producing spirit'; Chinese 難 (OC **nân**) 'be in difficulty, suffer'. See above 11.1.1.	
'join / bring together' [d]	*d/tu-t ⋊ *d/tu-n		*STC* #421; p. 159
	*du ⋊ *tu	WT **ḥdu-ba** 'assemble, meet, join', **ḥthu-ba** 'gather, collect'	
	*dun	Chinese 屯 (OC **d'wən**; *GSR* #427a-c) 'accumulate, bring together',[e] and 純 (OC **d'wən**; *GSR* #427n-o) 'tie together, envelop'	
	*dut ⋊ *tut	WT **sdud-pa** 'put together, unite'; Jg. **tút** 'be joined, bound together'	
'red'	*t(y)a-n		*STC* pp. 17-18, 159
	*t(y)a	WB **ta ~ tya** 'very red, flaming red'; Chinese 朱 (OC **t̑i̯u**; *GSR* #128a-c) 'red'	
	*t(y)an	Tiddim Chin **tśhan ~ san** 'red'; Lushai **śen**; Chinese 丹 (OC **tân**; *GSR* #150a-b) 'red, vermilion; cinnabar', 縉 (OC **tsi̯ěn**; *GSR* #378g) 'pale red', and 綪 (OC **ts'i̯ən**; *GSR* #812t') 'dark red'	
'thick'	*t/dow-n [f]		*STC* #319; JAM 1994d
	*t/dow	Jg. **dāu**; WB **thu**; Lahu **thu**	
	*t/don	Chepang **dun** 'thick'; Abor-Miri **ko-*dun*** 'buttock'; Wancho **chi-*dun*** 'heel'; Chinese 敦 (OC **twən**; *GSR* #464p-q) 'solid, thick' and 窀 (OC **ti̯wən ~ d'uən**; *GSR* #427k) 'thick (as darkness)'	
'wear / put on'	*g/kwa-n		*STC* #160

*g/kwa	WT **bgo-ba** 'put on clothes'; Nung **g(w)a** 'to dress'; Lisu **gwa** '*id.*'
*g/kwan	WT **gon-pa** 'put on clothes, clothing', **skon-pa** 'dress smn'; Jg. **khòn** 'wear (as bracelets)'; Garo **gan** 'wear, dress'; Mikir **kan** 'clothes, finery'; PKaren ***kwan** 'put on (lower garment)'; Chinese 冠 (OC **kwân**; *GSR* #160a) 'cap; put on cap'

a. In this word family, the suffix looks like a nominalizer. The semantic connection is via the 'gall bladder'.

b. The modern colloquial Mandarin expression is 臉紅 *liǎn hóng*, lit. 'face is red'.

c. There is also an allofam with velar suffix; see below 11.5.

d. Since this word family has stop-final allofams, it should also be included in the collection of morphophonemic triplets, above 11.1.1.

e. Peter Boodberg has suggested that the ancient graphic interchange between this character and 七 'seven' might imply a Chinese cognate to the isolated WT form **bdun** 'seven' (p.c. to Benedict; see Benedict 1939:219). For a discussion of this mysterious etymon see 1995b ("Numerals"):202.

f. There is also an allofam with final -**k**, ***tu:k** (*STC* #356). As shown in JAM 1994d, the semantic range of this word-family extends into the concept *dull* (as opposed to *sharp*; *cf.* Chinese 鈍 (OC **d'wən**; *GSR* #427i) 'dull', and from there to rounded body-parts like *buttocks* and *heel*; *cf.* Chinese 屍 臀 (OC **d'wən**; *GSR* #429a-c) 'buttocks', and 殿 (OC **tiən**; *GSR* #429d) 'rear of an army'.

*11.3   Suffixal *-t*

Like ***-n**, suffixal ***-t** has been employed in a variety of derivational roles in the various TB languages and Chinese, although no language uses it with very high productivity in any particular function. In many "miscellaneous" cases the grammatical or semantic contribution of the suffix resists classification.

An example of a highly specialized use of a dental stop suffix has been noted above (11.2.3) for Written Tibetan: along with s.....**n**, s.....**d** is used in a few nominal compounds as a collective circumfix in kinship terms (Beyer 1992:119):

pha	'father'	**pha-spad**	'father and children'
ma	'mother'	**ma-smad**	'mother and children'
khu	'uncle'	**skud-po**	'brother-in-law; father-in-law'

The nasal version of this circumfix is probably more original, given the relatively widespread use of -**n** as a collective suffix elsewhere in ST.

*11.3.1   Nominalizing *-t*

Suffixal -t occurs as a nominalizer of a few important verb-roots in Jingpho, and with somewhat higher frequency in Written Tibetan.

(1)   Jingpho

Jingpho has an interesting set of four parallel examples of verbs under the high tone / ´ / which have derived nouns with suffixal -t under the low tone / ` /:[16]

PTB	*Jg. Verb*		*Jg. Noun*	
*dzya-t	šá	'eat'	šàt	'food/rice'
*kəw-t	khú	'smoky'	ʔwàn-khùt [a]	'smoke'
*r-kəw-t	ləgú	'steal'	ləgùt	'thief'
*tsyi-t	tší ~ džî [b]	'urinate'	džìt	'urine'

   a. *Cf.* also Tangkhul Naga **khut** 'smoke'.

   b. This verb is mistranscribed **dźíʔ**, with a final glottal stop, in *STC* (n. 190, p. 59), ostensibly on the basis of new data from LaRaw Maran; but see Dai *et al.*, 1983:348.

In other tonally parallel pairs the semantic relationship between the open and suffixed forms is different:

*tsow-t	džú	'thorn; prick with a thorn'	džùt	'be pierced' (v.i.)
			šədžùt	'pierce' (v.t.)

Here the open form can function either as a noun or a verb, while the suffixed form is an intransitive verb, which can be made transitive or causative by adding the productive prefix šə- (above 4.2.1). See below 11.3.3.

*s-ta-t	dá	'put, place'	dàt	'*id.*' [a]

   a. Hkauri dialect.

Here the meaning of both forms is verbal, and the difference is merely one of dialect. In the cognate word-family in WT, however, the open syllable is nominal, while the stop-finalled allofam is a derived verb: *sta*-**gon** 'preparation, arrangement'; *stad*-**pa** 'put on, lay on'.

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16. See JAM 1978a (*VSTB*):26-7.

A different pattern of Jg. tonal alternation is displayed by the following pair:

*s-ləy-t	lī	'heavy'	lít	'a load'

(2)   Written Tibetan

Beyer (1992:117) lists a number of WT nouns derived from verbs via the orthographic suffix "-**d**", in most cases reinforced by a following "pleonastic" nominalizing suffix **-pa/-ma ~ -po/-mo** :

Verb		*Derived noun*	
dro	'become warm'	**drod**	'warmth' (⋛ **dron-mo** 'warm')
na	'be ill'	**nad**	'illness'
sńe	'lean against'	**sńed**	'crupper'
mtśhi	'speak'	**mtśhid**	'conversation'
tsha	'be hot'	**tshad-pa**	'heat'
ldźi	'be heavy'	**ldźid-pa**	'weight'
rga	'be old'	**rgad-po**	'old man'
rke	'be lean'	**rked-po**	'waist'
bro	'taste; smell; savor'	**brod-pa**	'joy'
rtse	'play'	**rtsed-mo**	'game; sport; toy'
ŋu	'weep'	**ŋud-mo**	'a sob'
gdu	'love'	**gdud-pa**	'longing; desire'
lu	'cough'	**lud-pa**	'phlegm'

Sometimes there are noun doublets with and without -**d**, with no obvious underlying source verb:

du-pa ⋛ **dud-pa**	'smoke'
rtsa-ba ⋛ **rtsad**	'root'

In a few WT word families there are morphophonemic triplets comprising an open syllable, a form with suffixed "-**d**", and one with final -**s**. The allofams with -**s** are plausibly interpreted as deriving from doubly suffixed forms (< *-**t**-**s**), since the consonant

sequence "**-ds**" does not occur in WT; *i.e.* the PTB final combination *-t-s had already been reduced to -s by the WT period.[17]

'look'	*l-ta ≍ *l-ta-t ≍ *l-ta-t-s	
	*l-ta	WT lta 'look'
	*l-tat	WT ltad-mo 'sight; scene; spectacle'
	*l-tats	WT ltas 'miraculous sign; omen'
'ransom'	*blu ≍ *blu-t ≍ *blu-t-s	
	*blu	WT blu 'redeem; ransom'
	*blut	WT blud-po 'ransom payment'
	*bluts	WT blus-ma '*id.*'
'laugh'	*rya ≍ *rya-t ≍ *rya-t-s [a]	
	*rya	WT gźa-ba 'to sport, joke, play'; Digaro məra; Aka (Hruso) ra
	*ryat	WT bźad-pa ~ gźad-pa 'laugh, smile'; Thebor rot; Bunan sred; Magar ret; Khaling ret; Nung it
	*ryats	WT gźas 'play, joke'; Bahing ris ~ rit 'laugh'; Nachereng hres

a. See below 11.3.5.

In one word family, WT preserves only a form with final -s, with the direct evidence for the corresponding open syllable and dentally suffixed form provided by other languages:

'gall / bitter / sour'	*krəy ≍ *kri-t ≍ *m-kri-t-s	
	*krəy	Lepcha kri 'bitter'; Jg. khrī 'acid, sour'; Dimasa khiri 'sour'; WB sân-*khre* 'gall / bile' (sân 'liver'); Lahu ɔ̀-kɨ '*id.*'
	*krit	Garo kha-*khit* 'bile'
	*m-krits	WT mkhris-pa 'bile'; W. Tib. ṭhigs-pa '*id.*'

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17. The combinations "**-bs**" and "**-gs**", on the other hand, are frequent in WT. (The same distribution holds for the homorganic nasals before -s, *i.e.* -**ms** and -**ŋs** are common in WT, but -**ns** does not occur.) The PTB syllable canon given above (Ch. 2) allows for suffixal -s after postvocalic stops and nasals.

11.3.2   Verbalizing *-t

Only rarely is suffixal -t to be found in the contrary capacity, *i.e.* as a verbalizer of nominal roots. Two examples have already been mentioned (above 11.3.1), one from Jingpho and one from WT:

Jg.	**džú**	'thorn'	�done	**džùt**	'be pierced'
WT	***sta*-gon**	'preparation, arrangement'	⋈	***stad*-pa**	'put on, lay on'

Hakha Chin is among the very few TB languages that uses such a verbalizing suffix with any frequency, in the form of the interdental fricative -θ (< *-t) :[18]

əfa	'child'	faːθ	'to breed'
əbu	'nest'	buːθ	'build a nest; group together, swarm'
ərɔːl	'food'	rɔːθ	'grow food'
əvaː	'husband'	əvaːθ	'take a man as husband'

11.3.3   Transitive/causative *-t

A third type of derivation performed by suffixal -t is to convert intransitive or stative verbs into transitive or causative ones. In this function, -t seems rather more widespread than -**n** (above 11.2.2).

(1)   Bahing-Vayu

On the basis of limited data (see *STC* p. 101), a transitive/causative suffix of the shape -t ⋈ -to seems to be fairly productive in Bahing-Vayu:

Bahing	ri-so	'laugh'	ri-to	'laugh at'
Vayu	khu	'steal'	khut	'cause to steal'
	muś(-tśe)	'sit'	muś-to	'seat smn'
			mut	'cause to seat' (double causative)

Modern data on Hayu (= Vayu) reveals that the -**to** suffix is only one of several morphophonemically   complex   transitive/causative   formations   in   the   language

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18. The Hakha data cited in *STC* p. 102 have been corrected by KVB.

(Michailovsky 1988:99 *ff.*), though it does remain conspicuous in that function. Thus in the sentence

mi	kʋn-ha	dzɪ-to
he	*meat-ERG*	*stinks him up*
'The smell of meat bothers him',		

"the use of the suffix **-to** seems to identify the verb as transitive, even if there is no opposition with [another transitive suffix **-ko**] on the same root" (Michailovsky, *op. cit.*:139).

(2)   Jingpho

Jingpho has scattered examples of a causative or directive suffix **-t**:

mədī̀	'moist, wet'	mədì̀t	'moisten; wet sthg'
mənī̀	'laugh'	mənì̀t	'laugh at'

Since both ***-t** and ***-s** > Jg. **-t** (see above Ch. 10), it is possible that these causative allofams reflect suffixal ***-s** rather than ***-t**, even though causative ***-s** is otherwise attested only in Himalayish and Chin languages (below 11.4.4). The best evidence for ***-s** here is the set 'moist / wet' (above Ch. 10).

(3)   Written Tibetan

Suffixal "**-d**" is frequently encountered in WT verbal paradigms, as the marker of the present (*i.e.* imperfective) stem of certain transitive verbs. Since there are several cases where related pairs of transitive and intransitive verbs are distinguished only by this suffix, this makes it look as if **-d** is a transitive/causative morpheme (Beyer 1992:176):

Intransitives		*Transitives*	
Ndzu	'enters'	Ndzud	'inserts'
Ngye	'be divided'	Ngyed	'divides'
Nbye	'be separated'	Nbyed	'open sthg; separate sthg.'
skye	'be born'	skyed	'produces'
rgyu	'moves'	rgyud	'transmits'
nu	'suck'	nud	'suckle an infant' [a]

a. Also **snun-pa** '*id.*'

Suffixes

This suffixal **-d** is known to Tibetan grammarians as the "present stem **da-drag**", which a deeper analysis shows to be a tense/aspect marker rather than a transitivizer or causativizer. See 11.3.4 below (next section).

11.3.4   WT **da drag** ("strong **d**"): a present stem suffix

The only syllable-final consonant sequences occurring in most Classical Tibetan texts have -s as their second member / -ms -ŋs -bs -gs /. In a certain number of early texts, however, the spellings / -nd -rd -ld / are found, with the final dental stop called *da drag*,[19] *i.e.* "strong **d**". In his penetrating internal reconstruction of the WT verb system, Beyer (1992:175*ff.*) distinguishes between *past-stem da-drag* and *present stem da-drag*, hypothesizing that the underlying morphemes involved were two tense/aspect markers, ***-s** for the past stem and ***-d** for the present stem, which both underwent morphophonemic changes according to the particular final of the verb root, such that they only contrasted after roots ending in a vowel:

		After Vowels	*After Acute Cons.*	*After Grave Cons.*
Past	***-s**	> -s	> -d > Ø	> -s
Present	***-d**	> -d	> -d > Ø	> -s

(1)   Past-stem **da-drag**

According to this analysis, the underlying ("Proto-Tibetan") past stem suffix ***-s** remained -s after vowels and grave (labial or velar) finals, and became **-d** after acute (dental) finals. During the 8th century the **-d** allomorph disappeared, leaving only the -s allomorph after vowels or grave finals. In some manuscripts the **-d** is preserved sporadically after acute finals: *e.g.* **gyurd** 'became' (ult. < ***gyur**-s), **btsald** 'acquired' (< ***bstal**-s). This usage was artificially continued by the Tibetan grammarians, who used **-d** to distinguish the past from the future stem in verbs with non-grave finals where the future form was marked by the prefix **b-** (see above 4.4.3), *e.g.* **bsgyur** 'will translate' vs. **bsgyurd** (< ***bsgyur** < ***bsgyur**-s 'translated').

(2)   Present-stem **da-drag**

Here the underlying present stem suffix is assumed to have been ***-d**, which remained -d after vowels or acute finals, and became -s after grave finals. But even before the

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19. See Przyluski and Lalou 1933 ("Le *da drag* tibétain") and Beyer 1992:175-6.

earliest written texts, the -**d** allomorph had disappeared after acute finals, leaving the -**d** allomorph only after vowels, and the -**s** allomorph after grave finals, *e.g.* **Ntshod** 'cooks' (<√TSHO), **Nbyed** 'makes open' (< √PYE), *etc.*; vs. **Ngugs** 'bends' (< √GUG), **Ndźibs** 'sucks' (< √DźIB), *etc.* It is noteworthy that this -**d** occurs only in the present stem of transitive verbs that also have the *a-chung* prefix (transcribed variously as ', ḥ, ɦ, or **N-**), and not the **g-** prefix.[20]

11.3.5   *Suffixal -t in verb forms with no obvious function*

Intralingual variation as well as comparative evidence reveal many cases of verbal word-families with allofams including both open syllables and forms with final -**t**, indicating that the -**t** is suffixal and not part of the root. Often, however, it is not clear what increment of meaning this suffix provides. The base verbs may be either transitive or intransitive, though transitive examples appear more numerous.

(1)   *With transitive verbs*

	PTB		*STC*
'bite / chew'	**g-wa-t*		#424
	*g-wa	Jg. **gəwá**; WB **wâ**	
	*g-wat	Bodo **wat ~ ot**; Dimasa **wai**	
'comb / rake'	**m-si-t*		#466
	*m-si	Jg. **pəsí** 'a comb; a rake'; Nung **əsi**; Ao Naga **məsə**; Mikir **iŋthi**	
	*m-sit	Jg. **məsìt** 'to comb, to rake; a rake, a harrow'	
'get / obtain'	**r-ney-t*		#294 [a]
	*r-ney	Bahing **ne**, Lushai **nei**	
	*r-neyt	WT **rnyed-pa**	
'join / bring together'	**d/tu-t* [b]		#421
	*d/tu	WT **ḥdu-ba** 'assemble, meet, join', **ḥthu-ba** 'gather, collect'; Nung **thu** 'join (as a stream)'	
	*d/tut	WT **sdud-pa** 'put together, unite'; Jg. **tút** 'be joined, bound together'; Nung **dəthut** 'join, unite'	

20. The *a-chung* cannot occur before **s-, r-** or **n-**, as in the last three examples in the list in 11.3.3(3) above. See the discussion of *a-chung*, above 4.2.2(4).

'lose / disappear'	*ma-t ^c		#425
	*ma	Magar **hma** 'be lost, lose'; Gurung **hma** '*id.*'; Chang **màu** 'lose' ^d	
	*mat	Magar **hmat** 'be lost, lose'; Garo **mat** 'be spent'; Jg. **màt** 'be lost, have disappeared'	
'put / place'	*s-ta-t		#19
	*s-ta	WB **thâ**; Lahu **tā**; Jg. **dá** 'put, place'; WT **sta-gon** 'arrangement'	
	*s-tat	WT **stad-pa** 'put on, lay on'; Jg. (Hkauri dial.) **dàt** 'put, place'	
'scoop up'	*r-ko-t		#420
	*r-ko	WT **rko-ba** 'dig out, engrave'	
	*r-kot	WT **rkod-pa** '*id.*'; Jg. **gót** 'be scooped out', **ləgót ~ šəgót** 'scoop up'	
'stop up / plug up'	*tsəw-t		#422
	*tsəw	WB **chui'** 'stop up', **ʔəchui'** 'stopper, plug'; Nung **sü** 'to cork', **aŋsü** 'a cork'	
	*tsəwt	Jg. **tsút** 'stop, plug, cork (as a bottle)', **mətsút** 'to stop, cork; a stopper'	
'wash'	*krəw-t		#117
	*krəw	WT **ḫkhru-ba**; WB **khyûi**; Dimasa **gru**	
	*krəwt	WT **ḫkhrud-pa**; Jg. **khrùt**	
'wound / injure'	*r-ma-t		#446
	*r-ma	WT **rma** 'wound', **rma-ba** 'to wound'; Jg. **ǹ-mà ~ nùm-mà** 'wound, scar'; Tangkhul **khə***ma* ; Tiddim **ma** 'sharp edge of knife; to wound'; Lai **hmaa** (Form I) 'have a wound', **hmaa** 'a wound'	
	*r-mat	Garo **mat** 'to wound'; Dimasa **bu-***mai* ; Jg. **màt ~ tsə***mát* 'nettle' ("the wounder"), Nung **rəmat**, Garo **gil-***mat*; Dimasa **ger-***ma* '*id.*'; Lai **hmaat** (Form II) 'have a wound'	

a. There are two typos in the *English-TB Index* of *STC* (pp. 214, 217), where the reference to this root is given as "#249".

b. There is also an allofam with -**n**, attested in Chinese; see above 11.2.4(2).

c. Jg. **máʔ** 'be exhausted, spent' (cited incompletely as "ma" in *STC* #425) actually points to an allofam *mak.

d. For this Chang reflex -**au** < *-**a**, see above 5.2.1.

There is an etymon where final -**d** in a WT verb can be shown to be suffixal on the basis of a Chinese comparandum:

	PTB		*STC*
'curse / revile'	*mwa-t		p. 189
	*d-mwat	WT dmod-pa	
	*mwa	Chinese 罵 **mả** (*GSR* #40h)	

(2)   With intransitive verbs [21]

	PTB		*STC*
'awed / startled'	*ti-t		p. 99
	*ti	WB **thi** 'fear; stand in awe of' (v.i.)	
	*tit	WB **thit** 'startle; be frightened' (v.i.)	
'cough'	*səw-t		#423
	*səw	Magar **su**; Garo and Dimasa **gu***su*	
	*səwt	WT *sud*-pa	
'fall'	*k/gla-t [a]		#123
	*kla ≍ *gla	WB **kya'** 'fall', **khya'** 'let fall, drop'; Lahu **qa** 'fall, of dew, frost, snow, hail, leaves)';[b] Lepcha **klo**; Mikir **klo**	
	*klat	Jg. **khràt** 'fall', **džəkhràt** 'drop, throw down'	
'fear'	*kri-t		#416
	*kri	WT *khri*-le-ba; Lushai **tri** (Form I); Kokborok **kiri**; Limbu **kir**-	
	*krit	Jg. **khrìt** 'be afraid', **džəkhrìt** 'frighten, scare'; Limbu **kit**-, **kiːs**-; Garo **an**-*skit* 'quail, shudder'; Lushai **trit** (Form II)	
'hot / hurt' [c]	*tsa-t		#62
	*tsa	WT **tsha** 'hot, illness'; WB **cha** 'hungry'; Lahu **cha** 'hot'; Garo **sa** 'be sick, ache'; Dimasa **sa** 'ache', **sa**-ba 'hot (of chillies)'; Lushai **śa** 'hot'; Mikir **so** 'hot, excessive; be ill, sore'	

	PTB		*STC*
	*tsat	WT **tshad-pa** 'heat; fever'; Lushai **śat** 'hot'; Pumi Dayang **tsɛ́** [d]	
'laugh' [e]	*rya-t		#202
	*rya	WT **gźa-ba** 'to sport, joke, play'; Digaro **məra**; Aka (Hruso) **ra**; PLB *ray[1] > WB **ray**; Lahu ** g̈ɨ**	
	*ryat	WT **bźad-pa** ~ **gźad-pa** 'laugh, smile', **gźas** (perhaps < *g-źad-s; see above 11.3.1); Thebor **rot**; Bunan **sred**; Magar **ret**; Bahing **rit** ~ **ris**; Khaling **ret**; Nachereng **hres**; Nung **it**	
'light / brightness' [f]	*hwa-t		#221
	*hwa	Bahing **hwa** 'light'	
	*hwat	WT **ḥod** 'light, shine, brightness', **nyi-ḥod** 'sunlight'; WB **ne**-*at* '*id.*'; Thado **wat** 'shine'	

a. Both a velar and a palatal suffix are also attested with this root; see below 11.5, 11.6, and JAM 1995a (Pal. suf.):46-7.

b. Lahu **ce** 'fall from a height' reflects the variant with palatal suffix *gla-y. See above 5.5.2(1b).

c. See above 11.3.1, and the Chinese comparandum with -t, below 11.3.6.

d. Final -ɛ seems to be the regular Dayang reflex of *-at : *e.g.* 'vomit' *N-pat > Pumi Dayang **ɸphɛ́**; 'kill' *sat > **syɛ̆**.

e. For the Lolo-Burmese vocalism, see JAM 1985a *GSTC*:6, 59, and above 5.5.2(1b). WT **gźas**, as well as the Bahing and Nachereng forms, point to an allofam with the -s suffix.

f. See above 9.6.

11.3.6   Traces of suffixal *-t in Chinese[22]

Suffixal *-t is not as well exemplified in Chinese as the *-n suffix, though several clear cases have been uncovered.

The *-t suffix is attested for both Chinese and TB in at least three verb roots discussed above (11.3.5):

	PTB		*OC*	*GSR*	*Chinese Gloss*
'dig out'	*r-g/ko-t [a]	掘	**g'i̯wət**	496s	'dig out (earth)'
		堀	**k'wət**	496p	'dig in the ground / underground'

21. One intransitive verb once regarded as illustrating suffixal *-t has been reanalyzed as having root-final *-s : 'thick', formerly *r-ta-t (#426), is now reconstructed as *r-tas, based on WT **ḥthas** 'hard, solid' and Lushai **tśhaʔ** 'thick' (see *STC*, n.291, and above, Ch. 10).

22. See *STC*, pp. 154-60.

	PTB		*OC*	*GSR*	*Chinese Gloss*
'hot'	*tsa-t	疾	dz'i̯ət	494a-c	'sickness / pain'
'laugh'	*rya-t	哂	d'iet	413m	'laugh'

    a. The alternation in initial voicing is also attested both in WT and in Chinese. This ST word-family also has a nasal-final allofam, PKaren **ko-n** > Pwo **khən**, Pa-o **khu**, Palaychi **fo**, Sgaw **khu**.

The final dental stop also seems suffixal in two Chinese kinship terms (see the similar use of ***-n**, above 11.2.4):

'grandchild / nephew'	*b-ləy	姪	d'iet	413op	'nephew, niece'
'nephew / descendant'	*m-tu ≍ *m-du	出	t̂i̯wət	496a-e	'nephew'[a]

    a. The Chinese gloss is from 爾雅 *Erh Ya*; see Benedict 1942b.

In four interesting cases, PTB etyma with the open-syllable rhyme ***-əy** have solid Chinese comparanda with final **-t** :

	PTB		*OC*	*GSR*	*Chinese Gloss*
'blood'	*s-hywəy	血	χi̯wet	410a-c	'blood'
'earth / mud'	*mləy	泥	niər	563d	'mud / mire'
		涅	niet	404j	'black sediment in muddy water / clay / mud'
'juice / paint'	*r-tsəy	漆	ts'i̯ĕt	401b	'varnish'
'sun / day'	*nəy	日	ń̯i̯ĕt	404a-d	'sun / day'
		晛	nian [a]	1250e	'sunlight'

    a. OC reconstruction guessed at in *GSR*; Middle Chinese is **nien-**.

Since there is no plausible semantic increment contributed by the Chinese suffix, an explanation might be sought in phonetic terms. It seems possible that the final **-t** in these words is purely "extrusional", *i.e.* an originally subphonemic consonantal offglide from the high front vocalic nucleus. A close analogy is to be found in Maru (Burmish), where the regular reflex of PLB ***-əy** is **-it**, while PLB **-əw** regularly becomes Maru **-uk** (see above 5.3.1, 5.3.2).[23] Unlike the Maru phenomenon, however, this Chinese development

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23. For a similar extrusional account of the tendency for PST/PTB ***p-** to develop into ***w-** via an intermediate phone [pʷ], see JAM 2000a.

is sporadic, and counterexamples are readily found, *e.g.* 'die' PTB *səy, but OC si̯ər, not
**si̯ət.

For allofamic alternations in OC between homorganic final stops and nasals, which
may plausibly be imputed to the assimilatory influence of suffixes, see below 12.5.4.

11.4   Suffixal *-s

Only a handful of TB languages preserve *-s as a sibilant, whether root-finally or
suffixally. Foremost among these conservative languages is Written Tibetan, but *-s is also
preserved as such in West Himalayish languages (Kanauri, Bunan, Manchad, Tinan);
languages of Nepal like Magar, Chepang, and Bantawa; and some Qiangic languages
(Qiang, rGyalrong).

It is often difficult to distinguish final *-s from *-t. In a number of languages (*e.g.*
Jingpho, Lepcha, Chinese) the reflexes of both have merged to -t, in both root-final and
suffixal position.[24] In the following two examples, the *-s is root-final in 'bone', but
suffixal in 'know':

	PTB	
'bone'	*g-rus	WT **rus-pa**; Lepcha ăhrăt; Jg. ǹ-rút; Lushai ruʔ; Chinese 骨 OC *kwət (*GSR* #486a) [a]
'know'	*syey-s	WT **śes-pa**, Hayu **ses-tśe**; but WB si' 'know', Jg. ší 'news'; Chinese 悉 MC si̯ĕt (*GSR* #1257e) 'all, completely; exhaust'; (*AD* #782) 'thoroughly know; perfectly understand; [b] fully, minutely, all, altogether'

a. See above Ch. 10.

b. As observed in *STC* (n. 429, p. 159), 'know / understand' is probably the more basic meaning, since the graph has *heart* as signific. RSC points out that the original meaning of this graph, according to 説文 *Shuo Wen*, is 'track an animal', thence 'make inductions from evidence; think logically' (Duan Yucai 1815:050.210; *cf.* 釆 050.110).

In Chin languages (*e.g.* Lushai, Lai), final *-s has developed into -ʔ (written with "-h"
in their orthographies), both root-finally and suffixally. As a suffix, this Chin -ʔ frequently
appears in "Form II" of verb roots, where it seems to have a subordinating function (below
11.4.2).

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24. As noted above (11.3.1), both suffixes could occur sequentially after the same root, in the order *-t-s, with this sequence realized as simple -s in WT, *e.g.* 'bile / gall' *m-kri-t-s > WT **mkhris-pa**.

Tonogenetic effects have been imputed to suffixal ***-s**, both in Chinese and in Lolo-Burmese, and even in Vietnamese (below 11.4.5).

No single overall meaning may be assigned to the ***-s** suffix, since it plays several different derivational roles in the languages which preserve it, functioning variously as a nominalizer, subordinator, marker of stativity, or a causativizer.

11.4.1   *Nominalizing/locative* **-s**

In a number of roots, suffixal ***-s** serves as a nominalizer in Qiang (LaPolla and Huang 1997:29):

nə	'sleep'	**nəs**	'bed'
guə	'wear'	**guəs**	'clothing' (< PTB ***gwa-s**)
dzə	'eat'	**dzəs**	'grain' [a]

> a. There is a similar morphosemantic relationship between Lahu **câ** 'eat' (< PLB Tone *2) and **cà** 'paddy; rice in the field' (< Tone *1), although this is a counterargument to the claim that it was PLB tone *2 that ultimately derived from final **-s. See below 11.4.5. *Cf.* also WT **za** 'eat', **zas** ⋊ **zan** 'food' (below).

These cases are to be distinguished from those where Qiang final -s (like several other consonants) is merely a "pseudo-suffix" resulting from the fusion of the second syllable of a compound onto the final of the first syllable (see below 11.7).

Written Tibetan is a stronghold of nominalizing suffixal ***-s**. A few examples are given in *STC* (*e.g.* ḥbri-ba 'draw / write' > **bris** 'picture', **ris** 'figure / form / design'), and many more are to be found in Beyer (1992:118):

Verb		*Derived Noun*	
skyab	'protect'	skyabs	'protection'
skyem	'be thirsty'	skyems	'beverage; beer; libation'
khru	'bathe'	khrus	'bath'
graŋ	'count'	graŋs	'number'
Ngro	'go'	Ngros	'motion; travel' (⋊ **Ngron-po** guest')
rdźe	'to change; shift'	rdźes	'track; trace'
lta	'look'	ltas	'omen; sign; prodigy'
Ndom	'come together'	Ndoms	'genitals'

466

Verb		Derived Noun	
spu	'decorate'	spus	'beauty'
spo	'to change; shift'	spos	'incense'
phyug	'be rich'	phyugs	'cattle'
Nbo	'swell up'	Nbos	'boil; tumor; swelling'
sbug	'pierce'	sbugs	'hole'
rtsi	'count; calculate'	rtsis	'counting; numeration; astrology'
rdzoŋ	'dismiss; expedite'	rdzoŋs	'act of escorting; fee for safe conduct; dowry'
gźa	'make jokes; play games'	gźas	'joke; game'
za	'eat'	zas	'food' (≍ zan 'food')
zab	'deep'	zabs	'depth'
log	'return; turn around'	logs	'side; direction; region'
śoŋ	'remove; empty; carry away'	śoŋs	'pit; excavation; valley'
bśo	'pour out'	bśos	'food offering to the gods'
srub	'stir; rake; rub'	srubs	'cleft; slit; rent; wound'
slob	'learn; teach'	slobs	'exercise; practice; experience'

   Sometimes the derived nominal is reinforced pleonastically by a further, fully syllabic suffix:

rga	'be old'	rgas-ka	'old age'
Ndre	'be mixed'	Ndres-ma	'mixture; medley'
btsa	'bear; bring forth'	btsas-ma	'harvest'
rdzu	'lie; deceive'	rdzus-ma	'something counterfeit'
lhe	'twist; braid'	lhes-ma	'a braid; wickerwork; twisted pastry'

Beyer *(ibid.)* points out that these are distinct from nominalizations with **-pa** of past tense stems which have an inflectional suffix **-s** (these seem to function rather like English past participles, active or passive):

skye	'be born'	**skyes-pa**	'man; male person'[a]
grag	'cry; shout'	**grags-pa**	'fame' ("that which has been shouted")
tśhib	'ride'	**tśhibs-pa**	'horse' ("that which has been ridden")
spro	'go out; spread; incline to'	**spros-ba**	'business; activity' ("that which has been spread abroad")

a. Perhaps the meaning is 'one that has been born with good enough karma to be a male'.

Beyer, following W. Simon 1940, theorizes that this suffix might derive from Proto-Tibetan ***sa** 'place' (*cf.* Chinese 所 OC **si̯o** *GSR* #91a-c, Mand. **suǒ**), *e.g.* **nag** 'be black' > ***nag-sa** 'dark place' > WT **nags** 'forest'. This seems especially plausible since there are also examples where **-s** derives nouns from other nouns:

dbu	'head'	**dbus**	'center; middle' < ***dbu-sa** 'head-place'
khuŋ	'hole; pit'	**khuŋs**	'a mine' < ***khuŋ-sa** 'hole-place'
ŋo	'face'	**ŋos**	'direction; surface' < ***ŋo-sa** 'face-place'
nye-źo	'mishap'	**nyes-pa**	'calamity, punishment' (above 5.4.1)

Nominalizing ***-s** may also have left traces in Chinese in the shape of *qùshēng* ("departing-tone") allofams of words in other tones. See below 11.4.5.

11.4.2   *Subordinating -ʔ (< *-s) in Chin Form II verbs*

The Chin languages (Lushai, Lai, Tiddim, *etc*.) are notable for their characteristic verbal morphology, in which most verbs have two allomorphs (so-called Form I and Form II), with a complex distribution determined by a number of syntactic factors. In Lai, *e.g.*, Form I is required in main clauses with intransitive verbs, or with transitive verbs if the clause is negative, interrogative, or imperative; while Form II appears in subordinate clauses, as well as in main clauses with transitive verbs which are affirmative and declarative (*i.e.* non-negative, non-interrogative, and non-imperative). The two forms

display several different patterns of morphophonemic relationship which are predictable to some extent from the final segment of the Form I allomorph, as in Lai:[25]

		Form I	*Form II*
(a)	If Form I ends in -ʔ, the verb is invariant in Form II:		
	'want, like'	duʔ	duʔ
	'detest'	fiʔ	fiʔ
(b)	If Form I ends in an oral stop /-**p** -**t** -**k**/, Form II ends in -ʔ:		
	'enter'	luut	luʔ
	'ache'	faak	faʔ
(c)	If Form I ends in a liquid or nasal other than -ŋ, Form II ends in the corresponding glottalized sonorant:[a]		
	'surround'	zeel	zeʔl
	'turn, twist'	mer	meʔr
	'deride'	zoom	zoʔm
	'throw'	hlon	hloʔn
(d)	If Form I ends in -ŋ, there are two possibilities for Form II. In about 20% of the cases, Form II has glottalized -ʔŋ, following the general rule; usually, however, Form II has the non-glottalized alveolar nasal -**n**:		
(d1)	'tip over'	buŋ	buʔŋ
	'be burning' (v.i.)	kaŋ	kaʔŋ
(d2)	'crow'	khuaŋ	khuan
	'be strong'	ʈhooŋ	ʈhoon
	'be sticky'	baŋ	ban
	'borrow'	hlaaŋ	hlaan

		Form I	*Form II*
(e)	If Form I ends in a diphthong, a glottal stop is inserted before the last mora of the diphthong in Form II:		
	'make war'	dau	daʔu
	'be muddy'	noi	noʔi
	'provoke'	haau	haʔu
(f)	If Form I ends with an open (automatically long) vowel, Form II ends with a stop, unpredictably either -ʔ, -**k**, or -**t** (apparently never -**p**), often with shortening of the vowel:		
(f1)	'die'	thii	thiʔ
(f2)	'urge, push'	hnee	hneek
(f3)	'be sick'	zoo	zoot
	'come'	raa	rat
(g)	Some verbs have I/II variants that differ only in tone: [b]		
	'say'	tshìm	tshím
	'be short'	niàm	niám

a. Synchronically it is immaterial whether the glottal stop is written either before or after the sonorant, since the glottalization is really a prosody which affects the whole rhyme of the syllable.

b. This class requires further investigation.

Most of these morphophonemic relationships (all except *f2* and *f3*) can be accounted for by positing a Proto-Chin glottal stop suffix -ʔ, that perhaps functioned as some sort of subordinator. In the case of verbs which already ended in -ʔ, this suffix was otiose, hence the invariant class (*a*). This Proto-Chin suffix is plausibly derived from an earlier PTB suffixal *-**s**, in view of the fact that syllable-final *-**s** typically becomes -ʔ in Chin languages (above Ch. 10). This would also explain the change from velar to dental nasal in Form II of class (*d2*), via assimilation to the dental *-**s** suffix: *-**ŋ**-**s** > -**ns** > -**n**. This assimilation must have been sporadic, since it did not occur in all cases.

This Form II suffix (basically a subordinator) is diachronically distinct from the -ʔ causative/transitive suffix also found in Lai (below 11.4.4).

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25. See Melnik 1997, Patent 1997, KVB 2001.

11.4.3   Sibilant stative suffixes

There is scattered evidence in Himalayish languages for a sibilant suffix that carried a stative, inner-directed, or "middle" meaning.[26] There are a number of WT intransitive verbs (*e.g.* verbs of perception or cognition) that have an -s suffix in their present stem, a couple of which have exact cognates in Hayu (= Vayu):

	PTB	*WT*	*Hayu*	*WB*	*Lahu*
'know'	*syey-s	śes-pa	*ses*-tśe	si'	šī
'hear' [a]	*ta-s	thos-pa	*thas*-tśe	---	---
'dwell / stay'	*g-na-s	gnas-pa	---	nâ	nâ

a. This root could take other suffixes as well: Trung (Nungish) **thaŋ**, Newari **tal**. (Other examples of Trung secondary -ŋ are 'borrow/lend' (*s-kəy > WT **skyi-ba**, WB **khyê**, Lahu **chî**; but Trung **skiŋ**) and 'give' *bəy > Trung **biŋ**.)

In Vayu, a palatal sibilant suffix -ś has been recorded for some adjectives (*i.e.* stative verbs) and reflexives: *liś*-tśe 'be heavy' (< *s-ləy); *siś*-tśe 'kill oneself / kill for oneself'.

A similar adjectival/stative suffix is well attested in Kanauri,[27] *e.g.* **tśis** 'rotten'; **tshŏs** 'fat' (< PTB *tsow);[28] **kyŏs** 'drunk'; **liss** 'cold'; **thiss** 'wet' [29] (< *m-ti-s). Other West Himalayish languages have suffixal -s (or -z) after some action verbs, mostly intransitives, *e.g.*:

• *Bunan*	**hoangs** 'come out', Tinan **voas** '*id.*' (< PTB *hwaŋ, *STC* #218)
• *Manchad*	**braŋz** 'sit'
• *Tinan*	**sams** 'think' (*cf.* WT *sems*-pa), **bragz** 'put together' (v.t.)
• *Bunan*	**bris ~ briz** 'write' (< PTB *b-rəy; *cf.* WT ḥbri-ba 'write' ⪰ (b)ris 'picture, figure', where the -s functions as a nominalizer, above 11.4.1)

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26. For a general study of "middle voice" marking in TB, see LaPolla 1996. For an account of the "middle voice" in Lai Chin, see Smith 1998.

27. Sometimes written "-ss" in the transcription of Bailey 1911.

28. Recently uncovered data indicate that the final -s found in the etymon in Himalayish languages may have had a nominalizing rather than a stativizing function: *tsow-s 'fat / omentum (fat around the intestines)': Zhangzhung **tshas** 'fat'; Bunan **tshos** 'omentum'; Pattani **tshòi** 'fat'; *tsho-so* 'omentum'; Kanauri **tshŏs** 'fat, oil, grease' (note the nominal rather than adjectival gloss; also probably Chepang ʔənʔ-*chewʔ* 'omentum'. See JAM 2001b:#40.

29. The underlying root is *ti(y) 'water'. See above Ch. 10.

After several transitive verbs Magar (Central Nepal) has suffixal -s, with no obvious function: **khus** 'steal' (< PTB ***r-kəw**); **ŋos** 'look for, search'; **khus** 'take up' (*cf.* WB **khû**).

Possibly related to the non-syllabic stative ***-s** suffix is a fully syllabic suffix **-śi** ✕ **-so** in Himalayish and Nungish, with a similar range of intransitive, reflexive, reciprocal, or stative meanings:

• *Bahing*	-so	**ri-so** 'laugh'; **phi-so** 'dress oneself'; **yoŋ-so** 'be melted'
• *Kanauri*	-śi	**za-śi** 'be eaten'; **krap-śi** 'cry together'; **toŋ-śi** 'strike oneself, strike one another'; **go-śi** 'commit adultery with'; **hu-śi** 'learn'
• *Nung*	-śi	**it-śi** 'laugh'; **khuŋ-śi** 'awaken'; **ŋim-śi** 'stoop'

11.4.4   Causative *-s in Kiranti and -ʔ (< *-s) in Chin*

In contradistinction to the "inner-directed" functions just described, the Kiranti languages provide sporadic evidence for an "outer-directed" causative suffix -s, that occasionally participates in paradigms along with applicative forms with a -t suffix (see above 11.3.3), as in Bantawa (Ebert 2000:5):

i-	'laugh'	**is**	'make laugh'	**itt-**	'laugh at'
par-	'shout'	**pays-**	'make shout'	**patt-**	'shout at'

Independent of the Form I/Form II distinction, some Lai Chin verbs have a Form III with final glottalization that carries a causative, transitive, or benefactive meaning (KVB 2001:8):

	Form I	*Form II*	*Form III*	
'drink'	**dìŋ**	**dín**	**dinʔ**	'give to drink'
'cook'	**tshwàŋ**	**tshwán**	**tshwanʔ**	'cook for someone'
'be full'	**tlìŋ**	**tlín**	**tlinʔ**	'fill something'
'say'	**tshìm**	**tshím**	**tshimʔ**	'tell someone'
'sweet'	**thlùm**	**thlúm**	**thlumʔ**	'sweeten'

These Form III causative forms are invariant with respect to the Form I/Form II distinction. In fact they clearly represent a more recent or "younger" level of suffixation, since the glottal stop is superimposed on the Form II allomorphs (*cf.* the first three examples with final dentals, above). Only verbs which do not develop a glottal stop in Form II (*i.e.* classes *d2* and *g*, above) are eligible to receive the causative suffix -ʔ.

More common as a causative mechanism in Lai is aspiration of the initial consonant. Both the simplicia and the causatives may have the Form I / Form II distinction:

	Simplicia			Causatives	
	Form I	*Form II*		*Form I*	*Form II*
'be burning'	káaŋ	kaŋʔ	'burn sthg'	kháaŋ	khaŋʔ
'disappear'	lów	lowʔ	'erase'	hlów	hlowʔ
'be split'	tsat	tsaʔ	'split sthg'	tshat	tshaʔ
'descend'	trùm	trúm	'put down'	thrúm	thrumʔ

Many other TB languages (including WB and Kiranti[30]) also have morphological causative formations with aspirated initials, and the comparative evidence strongly suggests that the source of the aspiration is the causative *prefix* *s- (above 4.2.1), which is much better attested in TB as a whole than the causative suffix *-s.

In sum, Lai Chin displays traces of three distinct (though doubtless historically related) functions of affixal *s- and *-s : (1) causatives with aspirated initials, from the PTB *s- prefix; (2) Form II stems of verbs that point to a -ʔ suffix ultimately from PTB suffixal *-s; (3) causatives with a final -ʔ suffix superadded to Form II stems of verbs, also descending ultimately from suffixal *-s.[31]

There are two pairs of verbs in WB with homorganic final dental nasal and stop, with the latter carrying a causative/transitive meaning. It is possible that these forms with final -t reflects an earlier causative suffix *-s:

pân	'go round'	pat	'wind around; encircle'
pwân	'be rubbed off'	pwat	'rub, grind; lathe'

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30. Kiranti languages with this type of causative include Hayu (*e.g.* **bok**- 'be born' / **phok**- 'give birth'), Thulung (*e.g.* **get**- 'come up' / **khet**- 'bring up'), and Limbu (*e.g.* **tɛːks**- 'be torn' / **thɛːks** 'tear sthg'). See Ebert, *loc. cit.*

31. By far the most productive type of causative formation in Lai, however, is via the suffix **-ter**, grammaticalized from a PTB verb meaning 'give' (see above 9.2.3).

Finally, as noted above (11.3.3), Jingpho also has a couple of simplex/causative verb-pairs where the causative member has final -**t**, though it is hard to say whether this reflects *-**t** or *-**s**, since both finals have merged to Jg. -**t** (above Ch. 10):

məd**ī**	'moist, wet'	məd**ì̀t**	'moisten; wet sthg'
mən**ī**	'laugh'	mən**ì̀t**	'laugh at'

11.4.5   Tonogenetic effects of initial and final *s

There is widespread agreement that **s**, along with **h** and **ʔ**, is one of the most tonogenetically potent of consonants, although there is no obvious phonetic explanation for why this should be so.[32] This tonogenetic power can make itself felt either in syllable-onset or -offset position.

(1)   Initial *s-

In syllable onsets, **s**- sometimes behaves tonogenetically like **ʔ**-, but sometimes quite differently, perhaps partly depending on whether the **s**- is functioning as the root-initial or as a prefix. Both possibilities may be illustrated in Lolo-Burmese:

· Etyma under PLB Tone *2 usually develop into the Lahu tone ⁵⁴, written " ˆ "; however, if the syllable initial was a PLB ***preglottalized stop** or if the initial has become a Lahu voiceless fricative, the Lahu tone becomes ¹¹, written " ˉ ".[33] Here all the voiceless fricatives (including **f**- and **h**-) behave tonally like Lahu **š**-/**s**-, and all these fricatives behave just like the proto-glottalized stops.

· In stopped syllables, prefixal *s- before nasals triggers Lahu high-stopped tone / ˆʔ /, but the *ʔ- prefix before nasals gives high-rising tone / ´ /, *e.g.* PLB *s-**myak**ᴴ 'eye' > Lh. **mê̂ʔ**; PLB *ʔ-**mak**ᴸ 'son-in-law' > Lh. **má**, with most other Loloish languages showing similarly divergent tonal developments.[34]

The very last point made in *STC* (p. 197) is an attempt to explain a set of tonally irregular TB/Chinese comparanda by invoking the special tonogenetic effect of sibilant

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32. For an early expression of puzzlement on this score see JAM 1970 ("Glottal dissimilation"):43, where it is pointed out that the nature of the phonetic relationship between **s** and **h**, as well as that between **h** and **ʔ**, is relatively clear, but that the close tonogenetic relationship between **s** and **ʔ** is more difficult to understand. See "The glottogenic prefixes *s- and *ʔ-", above 4.2.

33. See Burling 1967; JAM 1979 ("Quo vadimus?"). See above 3.3 for the historical origins of the Lahu voiceless fricatives.

34. See JAM 1972a (*TSR*):24.

initials, which supposedly caused PST etyma under Tone ***B** to acquire Chinese Tone ***A**, with at least one case ('die') where this correspondence is reversed. The assumption here is that the "PTB" tones faithfully reflect the original PST situation, while Chinese has innovated (see JAM 1999a:24-5):

TABLE 22. *TB / Chinese tonal correspondences after sibilant initials*

	PTB		OC	GSR
PTB *B / Chinese *A				
'bitter'	*sin^B (as in *m-sin 'liver')	辛	si̯ĕn^A	382a-f
'body'	*śa-n^B 'flesh; meat' (Jg. šàn)	身	śi̯ĕn^A	386a-c
'fish'	*s-ŋya^B	魚	ŋi̯o^A	79a-c
'older sister'	*sru(w)^B	嫂	sri̯u^A	133e
'sour'	*swaːr^B	酸	swân^A	468e
'tree'	*siŋ^B	薪	si̯ĕn^A 'firewood'	382n
'year'	*s-niːŋ^B	年	nien^A	364a-c
PTB *A / Chinese *B				
'die'	*səy^A	死	si̯ər^B	558a-c

(2)   Final *-s

Syllable-final -s can also have multiple tonogenetic effects, probably because it may change either into -**h** (as, *e.g.* in Latin American Spanish), or into -ʔ (as in Chin languages). According to the classic theory of Haudricourt (1954b), these two laryngeals are supposed to have opposite tonogenetic effects, with -**h** leading to a low or falling tone and -ʔ favoring the development of a high or rising tone.[35]

It has long been felt that the Chinese 去聲 *qùshēng* or "departing tone" (often called "Tone C") is less "basic" than the others, particularly because of the large number of word-families where it alternates with words in other tones.[36] Benedict considered the

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35. Haudricourt (1954b) explains the evolution of the 6-tone system of Vietnamese as a two-stage process. In the first stage (ca. 6th c. A.D.), this previously atonal Mon-Khmer language developed three tones due to the loss of final -h (< Proto-Mon-Khmer *-s) and final -ʔ, which led respectively to a falling and a rising tone, both contrasting with a third tone deriving from syllables with other finals. In the second stage (*ca.* 12th c.) each of these three tones split due to a loss of the voicing contrast in initial position.

36. The morphological functions of the *qùshēng* in these word-families are arranged into eight categories in Downer 1959, including nominalization, verbalization, causativization, and adverbialization. Schüssler 1985 and Mei 1989 attempt to establish a single more abstract function underlying all of these, characterized as "inversion of attention flow" or "change of direction" . See LaPolla 2001:5-6.

qùshēng to be a "sandhi tone replacing either of the two basic tones in close juncture", and did not derive it from any segmental entity (*STC*, pp. 194-5). Several other scholars do posit a segmental origin for this tone, namely suffixal *-s.[37] These views are not necessarily mutually exclusive, since the putative sibilant suffix could well have triggered the "junctural" effect on the tone.

One small piece of evidence for the reality of the OC *-s suffix is the etymon for 'lung', one allofam of which is reconstructed as PTB ***p-wap**.[38] The obvious Chinese comparandum is 肺 (*GSR* #501g) OC **p'i̯wăd** / MC **p'i̯wɒi-**, a *qùshēng* word (> Mand. fèi) like four of the five other characters in *GSR* #501. Karlgren reconstructs all five with OC ***-d** since the remaining character 市 in the same phonetic series (501a) is a stopped syllable ending in *-t. If the final consonant was really *-p at the PST level, it is possible that the shift to dental articulation in Chinese was due to assimilation to the putative *-s suffix: *-p-s > *-t-s > OC -s > MC *qùshēng*. See below 12.6.3(1).

It has been suggested in passing that the origin of Proto-Lolo-Burmese Tone ***2** might have been suffixal *-s.[39] Several arguments might be offered in support:

· The Modern Burmese tone which descends from PLB ***2** is often characterized by breathy phonation. Furthermore, the Burmese writing system usually indicates this tone by a pair of vertical dots "ː", which descend from the Sanskrit graph known as *visarga* that represented a laryngeal sound usually transcribed as "ḥ". It might be deduced that the hypothetical original *-s had changed to a laryngeal spirant by the time the Indic script was adapted to write Burmese. This spirant then disappeared as a consonantal coda, leaving its trace in the shape of a breathy tone.

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37. *Cf. e.g.* Haudricourt 1954a, Pulleyblank 1973. Generally those who seek a segmental origin for the *qùshēng* also want to derive 上聲 *shǎngshēng* ("rising tone") from suffixal -ʔ. The 平聲 *píngshēng* ("level tone"), more than twice as frequent lexically as the other two put together, is then regarded as a sort of default tone assumed by syllables with neither the *-s nor the *-ʔ suffix. For Benedict, however, both the *píngshēng* and *shǎngshēng* are basic, and are to be reconstructed at the PST level.

38. See the discussion in JAM 1978a (*VSTB*):113-119.

39. See Pulleyblank 1963; Haudricourt 1975:342.

· There are several examples of PLB Tone ***2** etyma which correspond to forms elsewhere in TB with final ***-s**, either root-final ('bone', 'two', 'seven') or suffixal ('rest / stay', 'head', 'know', 'quotative'):

	PTB	*WT*	*PLB*	*WB*	*Lahu*
'bone'	*rus	rus-pa	*rəw²	rûi	ğɔ̂
'two'	*g-nis	gnyis	*ʔ-nit ≽ *ni²	hnac	nî
'seven'	*s-nis	stis (Kanauri)	*ʔ-nit ≽ *ši²	khu'-hnac	šɨ̄
'rest / alight on'	*g-na-s	gnas	*na²	nâ	nâ
'head'	*d-bu-s	dbu ≽ dbus	*ʔu²	ʔû	û ≽ ú
'know' [a]	*syey-s	śes-pa	*sey²/³	si'	šɨ̄
'quotative particle' [b]	*dzyay-s	ćes	*džay²/¹	--	cê

   a. The WB form represents a variant under Tone ***3**, but Loloish is unanimous in reflecting Tone ***2**.

   b. The WT form is glossed 'so, thus; in ancient literature regularly placed after words or thoughts that are literally quoted' (Jäschke:142). Akha djé 'quotative' reflects PLB Tone ***1**. Tonal instability is frequent in functors, however. See JAM 1985 (*GSTC*) #104, where this root was first reconstructed.

· Benedict (1979, Part III) reconstructs eight Proto-Karen etyma with final ***-s**, on the basis of correspondences between Pa-o **-t** and **-i** in other dialects (Sgaw, Pho, Palaychi).[40] Seven of these sets have Lolo-Burmese cognates, and all seven are under PLB Tone ***2** :[41]

	Proto-Karen	*PLB*	*WB*	*Lahu*
'carry' [a]	*ʔbüs	*bəw²	pûi	pû
'comb'	*khwis	*ʔ-gʷi(y)²	phî	pɨ̄
'bone'	*khrus	*rəw²	rûi	ğɔ̂
'four'	*lis	*b-ləy²	lê	ɔ̂
'five'	*ŋas	*ŋa²	ŋâ	ŋâ
'seven'	*hnəs	*ʔ-nit ≽ *ši²	khu'-*hnac*	šɨ̄
'nine'	*ʔkus	*gəw²	kûi	qɔ̂

   a. 'carry (by headstrap or on the back)'

40. See also *STC* n. 401, p. 147.

41. *Cf.* JAM's note 20 in Benedict 1979:28.

Striking as this is, four out of these seven examples are numerals, and there is a strong tendency for numerals to influence each other's form.[42] In fact, all the Loloish numerals from 1-9 (except for 'six' and 'eight', which come from PLB stopped syllables) are under Tone ***2**, *e.g.* Lahu **tê** 'one', **nî** 'two', **šɛ̄** 'three', **ɔ̂** 'four', **ŋâ** 'five'... **šɨ̄** 'seven'...**qɔ̂** 'nine'.[43]

The major problem with this theory is the approximately equal lexical frequency of PLB Tones ***1** and ***2**.[44] In view of the rarity of TB etyma with root-final ***-s**, it can only be assumed that the putative sibilant that underlay Tone ***2** was a suffix. If so, what could have been the meaning of this suffix, and why should approximately half of the words in the lexicon have carried it?

The sibilant suffix theory will hardly do as a general tonogenetic explanation for PLB Tone ***2**. On the other hand, it is perfectly possible to assume that the few PTB words in root-final or suffixal ***-s** joined the pre-existing Lolo-Burmese tone-class we call ***2**.[45]

There are at least four views on the status of tones at the PST or PTB level:

(1) There were no phonemic tone contrasts at the proto-level, but merely syllables with certain final consonants that had tonogenetic potential, *i.e.* ***-s** (often > **-h**) and ***-ʔ**.

(2) There were no tone contrasts as such at the proto-level, but rather a two- or three-way phonational opposition among clear (modal), breathy, and perhaps creaky voice (Weidert 1987).

(3) A two-way tone contrast existed already at the PST and PTB levels, later supplemented by a third tone that originally appeared in sandhi contexts but was later generalized to perform various morphological functions (see *STC* pp. 193-7 and Benedict 1972b).

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42. See the discussion of "prefix runs" in TB numerals in JAM 1995b:211-33.
43. As noted above, Tone ***2** > Lahu / ˉ / [11] after sibilant or *glottalized initials, and to / ˆ / [53] otherwise.
44. Benedict would derive these LB tones directly from the two "basic" tones he reconstructs for PST and PTB.
45. For this same conclusion see JAM 1982a "Sprachgefühl", n. 34, p. 45.

(4) A language family with monosyllabic morphemes is particularly "tone-prone", so that certain universal tonogenetic principles have led independently to the development of tone systems in the various branches of the family at different historical periods. Once established, tonal contrasts are highly diffusible, even to unrelated languages in the same linguistic area. [a]

a. See JAM 1991c, 1999a, 2001c.

11.5   Velar suffix

Even more elusive semantically than the suffixes already discussed is a sporadically attested velar suffix *-k that occurs mostly after verb roots. Mention of this suffix is sneaked into *STC* here and there,[46] where it is regarded as confined to Kuki-Chin-Naga. While this suffix is perhaps particularly frequent in KCN,[47] it seems much more widespread, and can even be found in Chinese (see below: 'eat', 'fall', 'belong'). At least a dozen etyma show traces of this mysterious *-k, which some might prefer to call a "formative" rather than a suffix. (Several of these roots are attested with other suffixes as well.)

'back / after'	PTB *s-nuŋ/k	
	*s-nu(-k)	Lai Chin [a] **hnuu** 'after; back' ≍ **hnuuk** (Form I) / **hnuʔ** (Form II) 'drag after' [b]
	*s-nuŋ	WB **hnâuŋ** 'be after', **ʔəhnauŋ**' 'back (of a knife)'; Lushai **hnuŋ** 'the back'; Mikir **ənuŋ** 'back' (*STC* #354)
	*ʔ-nok (PLB)	WB **nauk**, Lahu qhɔ̀ʔ-*nɔ́* (*TSR* #155; see JAM's note 233 in *STC* p. 76)
'belong; trust / depend; accept / take' [c]	PST *m-dz(y)u-k	
	*m-dz(y)u	Lahu **cû** 'prefer; adopt as one's own; accept; put one's trust in; have recourse to; depend upon' (perhaps ≍ Lahu **yù** 'take' [d]); Akha **djù** 'listen to, adhere to'; Jg. **chyù**, **məchyù** 'cling to, depend upon'

46. See *STC*, n. 289 (p. 101).

47. In the Chin languages the -k suffix seems to occur mostly in Form II of verbs, *e.g.* Tiddim **ne:** (I) / **ne:k** (II) 'eat or drink; consume'. See morphophonemic Class *f2* of Lai verbs, above 11.4.2.

	*dzyuk	Chinese 屬 OC *d̑i̯uk ≽ t̑i̯uk (*GSR* #1224s) 'be joined to, attached to; belong to, be of the category of'
'come out / bring out'	PTB *s-pro-k	*STC* #248 and n. 190
	*pro	WT ḥphro-ba 'proceed, issue, emanate from', spro-ba 'make go out, disperse'
	*prok	Jg. pró̰ʔ 'bring out, come out', šəpró̰ʔ 'bring out, exhume, contribute'
'eat / food'	PST *dzya-k [e]	
	*dzya	WT za-ba; Bahing dźa; Jg. šá; WB câ; Lahu câ; Garo tśha
	*dzyak	Chepang jeʔ, Nocte tšhaʔ, Tangsa chaʔ ~ saʔ, Konyak hak, Garo caʔ-a, Bodo/Meche jaʔ, Chiru sak, Kom Rem sàak, Yimchungru dzɯʔ, Mikir kətšõʔ, Ao a-tšiʔ 'eat'; Meithei čáak 'food'; Chinese 食 OC *d̑i̯ək 'eat / food / feed' (*GSR* #921a-c)
'fall'	PST *gla-k ≽ *kla-k [f]	
	*gla ≽ *kla	Lepcha klo; Mikir klo; WB kya' 'fall', khya' 'let fall, drop'
	*glak ≽ *klak	Lushai tlaak 'fall (v.i.), thlaak 'let fall' (causative); Chinese 落 OC *glâk (*GSR* #766q')
'give'	PTB *bəy-k [g]	
	*bəy	Dumi bi; Miri bi; Dhimal pi; WB pê; Lahu pî; Mikir pi
	*bəyk	Lahu pèʔ; Akha bìq; Chepang bəyʔ; Limbu *piʔ*-ma; Caodeng (rGyalrong) kɐ-nbiʔ; Lushai peːk; Thado péʔ; Tiddim pia (I) / piak (II)
'heart'	PTB *s-ni-k/ŋ [h]	
	*s-ni	Lahu *ni*-ma; Akha *nui*-ma
	*s-nik	WB *hnac*-lûm
'horn' [i]	PTB *krəw-k	*STC* #37
	*krəw	WB khrui; Lahu khɔ
	*krəwk	Chinese 角 (OC kŭk; *GSR* #1225a-c).

'laugh' [j]	PTB *m-nwi-k	
	*m-nwi(y)	Jg. mənī; Bodo and Dimasa mini; Lushai nui; Lakher pəhnei; Yacham-Tengsa manü; Angami nyü; Tujia n̯ie⁵³; Manang ɲiː
	*m-nwik	Meithei nok; Mikir iŋnek; Phunoi ʔɨ⁵⁵-ɲiʔ⁵⁵; Pho Karen (Bassein) níʔ; Tiddim nuːi (I) / nuiʔ (II); Kanauri hon-*nigʰ*, wan-*nigʰ* [k]
'meat / flesh'	PST *s-nya-k	
	*s-nya	Proto-Karen *hña > (Luce 1986) Sgaw tɑ⁶ñɑ⁴, Pho (Delta) s'əyɑ⁴, Pa-o yɑ¹; (Jones 1961) [l] Sgaw (Bassein) ñà, Pho (Bassein) jà, Pa-o já.
	*s-nyak	Chinese 肉 (OC ń̯i̯ôk; *GSR* #1033a-b)
'neck / neck-shaped'	PTB *s-ke-k	
	*s-ke	WT ske 'neck, throat'
	*s-kek	Jg. kéʔ 'to be or make neck-shaped'
'soft / boiled'	PTB *pryo-k	
	*pryo	WB prau ~ pyau 'quite ripe, very soft', pyau' ~ prau' 'soft, tender, lax', phrâu 'parboil'
	*pryok	Jg. pyóʔ 'boiled and soft; tender', šəpyóʔ 'to boil'
'swallow (v.)'	*mlyəw-k	
	*mlyəw	WB myui (Insc. Bs. mlyui); Atsi myûi; Maru^m myúk; Kanauri myū; Tangkhul Naga khəməyuy
	*mlyəwk	Jg. məyùʔ 'throat; to swallow'; Ak. (ILH) myòq 'swallow'
'two'	PTB *g/s-ni-s	
	*g-ni	Garo gni; Jg. nī; Lahu nî
	*g-ni-s	WT gnyis; Kanauri nis; rGyalrong kĕnĕs
	*s-nik	Bahing nik-si; Lushai hniʔ; WB hnac; [n] Akha nyìq

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a. Lai reflects both the open and the velar-suffixed allofams.

b. P.c., KVB.

c. This etymon was reconstructed in JAM 1989c "A new ST root *d-yu-k". See also *DL*:469.

d. Also probably belonging to the same etymon is Lahu **cû** 'loose, slack; not taut, sagging'; *cf.* English *depend* < Lat. *pendere* 'to hang'.

e. This root is also attested with all three of the "trio of dental suffixes" /-t, -s, -n/; see above 11.1.1.

f. This root could also take the -t suffix (*cf.* Jg. **khràt**), as well as the palatal suffix -y (see below 11.6).

g. Contra *STC*:101, 149, 205, 214, the velar-suffixed version of this root is not confined to Kuki-Naga. Several languages also show a nasal suffix, *e.g.* WT **sbyin**; Tamang **pin**; Trung **biŋ**.

h. The best attested allofam of this root has a final nasal: WT **snyiŋ**; Kanauri **stiŋ**; Limbu **niŋ**-wa; Mikir **niŋ**; Nung **əniŋ**; Bisu **nuɯ**-ba; Garo **təniŋ** 'brains'.

i. See above 5.3.1 and Gong 2001:25.

j. Also attested with this root is suffixal -t (Jg. **mənìt**; Tamang Risiangku **net**; Tangkhul Naga **nuɯ, nuɯt**), as well as a liquid suffix (Newari **nil-**; Bokar Lhoba **n̥ir**; Tagin **nyar**-nam; Hill Miri **n̥ir**-nam; Tsangla **ŋar**).

k. This final consonant, written " -g' " in Bailey 1911:4, is characterized as "an aspirated sonant, attributed to Indo-Aryan influence".

l. Some forms cited by Jones have final -ʔ or -q (*e.g.* Sgaw (Moulmein) **ñáʔ**, Palaychi **záq**), but these final "laryngeal" elements seem to be secondary effects of the high tone; see Burling 1969.

m. Maru -**uk** is the regular reflex of the open rhyme *-**əw** (see above 5.3.1). See *STC* #153 and *DL*:1007.

n. This WB form could equally well be derived from *s-**nit**, and there are good arguments for so reconstructing it. See above 8.3(2).

In one root for which suffixal -**k** is claimed in *STC*, the final velar seems rather to be part of the root:

'descend' [a]	PTB *s/ʔ-yuk	Lushai *zuk* 'verbal affix indicating motion downwards'; Jg. ʔyúʔ 'descend', šəyúʔ (causative) 'let down'

a. The inaccurately transcribed Jingpho form cited by *STC* (p. 101) from early sources is **yu**, which is compared to Bahing **yu** and Vayu **yu** (v.i.) / **yut** (v.t.), to justify setting up an open-syllable root *yu(w); cf. also Limbu **ju**. There is a possible allofamic relationship between *s-**yuk** and PLB *zak^L 'descend' (*TSR* #121) > WB **sak**, Lahu **yàʔ**; if this is valid, it would be a case of the rare vocalic alternation -**a**- ⪥ -**u**- (below 12.3.1). Other examples of this alternation include 'fragrant' *b-**suŋ** ⪥ *b-**saŋ** (*STC* #405) and perhaps 'grass' *mrak ⪥ *m-lyak (*STC* #149) ⪥ *mruk (*TSR* #138).

11.6 Palatal suffixes

In JAM 1995a ("ST palatal suffixes revisited") it is claimed that three distinct etyma, once fully syllabic, have all been grammaticalized and reduced phonetically to a palatal offglide in various ST languages at different times:[48]

		Full form	*Reduced form*
(1)	*Transitive motion / motion away from the deictic center*	*ʔay	*-i or *-y
(2)	*Diminutive*	*ya	*-i or *-y
(3)	*Nominalizer / subordinator*	*way	*-i or *-y

11.6.1   *Motion away from the deictic center* [49]

Here the fused morpheme is deemed to be PTB ***ʔay** 'go', attested in several branches of TB (see *GSTC* #128):

Loloish	Lahu **e** 'verb particle indicating motion away from the center of interest'; Akha **i**[55] 'go down'; Hani, Pijo, Khatu **jí**; Lisu **ye**[4] 'go', Phunoi **ʔé**, Bisu **ʔέ**, Mpi **je**[5] 'go (south or west)'	
Himalayish	Bunan **e** 'go', Chitkuli and Manchati **i-** (prefix) 'go and V; V away'	
Kamarupan	[Barish] Garo **-e** 'go and V'; [Naga] Lotha **yi** 'go'; [Abor-Miri-Dafla] Milang **yi-ma**	

Motion verbs which seem to have incorporated this suffix include:

'fall'	***gla-y** ⪤ ***kla-y** [a]	*GSTC* #125; "Pal. suff." #2
	*gla ⪤ ***kla**	Lepcha **klo**; Mikir **klo**; WB **kya'** 'fall', **khya'** 'let fall, drop'
	*glay ⪤ ***klay**	Lahu **ce** 'fall from a height'; Luquan Lolo **ts'e**[33] 'fall down'; Boro **gəgláy** 'fall; lie down' (simplex) ⪤ **kəkláy** 'to fell' (causative) ⪤ **klay** 'V downward (*e.g.* **za-klay** 'eat from top to bottom', **kam-klay** 'burn down', **bar-klay** 'jump down' (Lahu **ce** may also be used as an auxiliary in this way, *e.g.* **bɔ̂ʔ ce ve** 'fell by shooting', **bà ce ve** 'throw down'); also perhaps Mikir (Grüssner 1978) **ingjùy** 'fall off, drop off (hair, leaves), V + **jùy** 'V away' (*e.g.* **kát-jùy** 'wegrennen', **arphlúng-jùy** 'wegjagen')
'throw'	***ba** ⪤ ***baːy**	*GSTC* #147; "Pal. suff." #3
	*ba	Lahu **bà** (< PLB ***mba**[1]) 'throw; throw away; divorce (a spouse)'; (as auxiliary verb) 'discard by V' ing', *e.g.* **šîʔ bà ve** 'wipe away'

48. The existence of these suffixes was first suspected in JAM 1985a (*GSTC*), where several cases of ***-a** ⪤ ***-ay** allofamic variation were noted.

49. JAM 1995a:45-50.

	*baːy	WB **pay** 'put aside, put away; reject; tare or tret'; Jingpho **kəbài** ≍ **gəbài** throw'; Lushai **paih** 'throw / fling away; strike out, cancel, annul, discard, subtract'; Tiddim Chin **paːi** 'throw away' (Form I) / **paiʔ** (Form II); Kokborok **səbi** 'throw'
'go / stride'	*s-ka-y ≍ *m-ka-y	"Pal. suff." #4
	*ka	'open; spread (as the legs when walking)' (*STC* #469)
	*m-ka	Lahu **gà** 'reach, arrive'
	*s-ka-y	Lahu **qay** 'go'; Chinese 開 'open' OC ***kʼər** (*GSR* #541a), ***khəj** (Baxter) [b]
'come' [c]	*la-y	*GSTC* #185; "Pal. Suff." #5
	*la	WB **la**, Lahu **là**, Akha **lá**, Phunoi **lá**, Bisu **lá**, Mpi **lo**[5]
	*lay	Mikir (Grüssner) **lè** 'arrive, reach'

a. Suffixes -t and -k are also attested with this root (above 11.3.5, 11.5).

b. Henceforth referred to by his initials "WHB".

c. Chinese 來 OC ***ləg** (*GSR* #944a), ***C-rə̄-k** (WHB) may not be cognate.

11.6.2 Emergent quality in stative verbs [50]

This suffix could apparently also appear after stative/adjectival verbs to express a kind of "figurative motion", *i.e.* the progressively greater realization of a state.[51] (This is one of the functions of the Lahu directional particle **e** (< ***ʔay**), as in **chu e ve** 'get fat; continue to get fat; go on getting fat; get fat from now on'.)[52]

'big'	*ta-y	*STC* #298; *GSTC* #68; "Pal. Suff." #6
	*ta	Abor-Miri **ta**; Chinese 大 OC ***tʼâd ~ *dʼâd** (*GSR* #317a-c) [a/b]

	*tay	WT **mthe-bo** 'thumb'; Nung **thɛ** 'big, large, great'; Mikir **thè**, **kethè** '*id.*'; WB **tay** 'very'; Tangkhul Naga **kətay** 'be extra', **khəmətay** 'increase, multiply', **akətay** 'remnant'; PNN (W. French 1983) *-tay > *e.g.* Wancho **a-tai** 'far', **tai-hu** 'many'
'red' [c]	*t(y)a �done *t(y)an [d] ⋈ *t(s)aːy	*STC* pp. 17-8, *etc.*; *GSTC* #150; "Pal. Suff." #7
	*t(y)aː	WB **ta**, **tya** 'flaming red, very red'
	*t(y)an	Lushai **śen**, Tiddim **san**, **tśhan**
	*t(s)aːy	Lushai **tâi** 'rosy, ruddy, red'; Lakher **sai** 'rosy, ruddy, red, crimson', **sai-law** 'scarlet'
'easy'	*lwa(ː-y)	*STC* #302; "Pal. Suff." #9
	*la	Dulong **la⁵⁵**
	*lwaːy	WB **lwai**; Jg. **lòi ~ lwè**

a. The monophthongal Mandarin pronunciation **dà** is irregular (compare the diphthongal Mand. pronunciations (**tài**) of the synonymous allofams with the same OC reconstructed rhymes, 太 (*GSR* #317d-e) and 泰 (*GSR* #316a).

b. Baxter suggests another pair of Chinese comparanda that show *-a ⋈ *-ay variation in his system: 諸 OC (WHB) *tă (*cf.* *t̂i̯o *GSR* #45p) 'many; all; plural for eminent persons' ⋈ 多 OC (WHB) *tāj (*cf.* *tâ *GSR* #3a-c) 'much, many'.

c. On the Chinese side, *STC* (pp. 169, 188) suggests comparing TB *t(y)a to 朱 OC *t̂i̯u [*GSR* #128a-c] : [WHB] *tŏ, though Baxter characterizes this as an "odd correspondence", and proposes as a more likely cognate 紫 OC *tsi̯ăr 'purple' [*GSR* #358j] : [WHB] *tsĕjʔ, which could perhaps derive from an earlier *tsăjʔ.

d. This word-family illustrates the *-an ⋈ *-ay alternation, above 7.1(2), below 12.4. There is good evidence for the nasal-finalled allofam in Chinese: 丹 OC *tân 'red; vermilion; cinnabar' *GSR* #150a-b]. *STC* suggests (p. 159) further affiliations with two other forms with front vowels: 縉 OC *tsi̯ĕn 'pale red' (*GSR* #378g) and 綪 OC *ts'i̯ən 'dark red' (*GSR* #812t'). Baxter considers it possible that these last two items are related to each other, but feels they are quite unrelated to 丹 .

11.6.3   *Diminutives* [53]

It is something of a sound-symbolic universal for high front vowels to be associated with smallness (*cf.* Eng. *teeny-weeny*, *eensie-weensie*, *etc.*), and the best exemplified function of a PTB/PST palatal suffix may perhaps be interpreted as a diminutive one. The

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52. See *GL*:319.
53. See JAM 1995a:57-73.

palatal element here might be a reduction of a widely attested morpheme meaning 'child; little one', PST/PTB *ya ⋨ *za ⋨ *tsa ⋨ *dza. Examples given in JAM 1995a include:

'bee'	*k/gwa-y	*STC* #157; *GSTC* #76; "Pal. Suff." #10
	*k/gwa	Nung kha; Dulong *khwa³¹* me⁵³; Lakher əkha
	*k/gwaːy [a]	WB kwâi; PTamang *gway (> Thakali koy); Lushai khuai ~ khoy; Tangkhul khui; Angami (Khonoma) makwi, (Kohima) mepfi; PNN *C-guay
'cheek'	*ba-y	"Pal. Suff." #11 [b]
	*ba	PLB *ba² (> WB pâ; Lahu pâ)
	*bay	Pa-o Karen bái; Dulong kəbai
'jaw / chin'	*m-ka-y ⋨ *s-ka	*STC* #470; "Pal. Suff." #12
	*m-ka ⋨ *s-ka	Jg. nìŋ-*khá*; Nung məkha; Dimasa khu-*sga*
	*m-kay [c]	Dulong mɯ³¹*kai⁵⁵*; Jg. ǹ-khá-ǹ-*khái* (Hanson 1906:492)
'fontanelle' [d]	*ra-y ⋨ *wa-y	"Pal. Suff." #13
	*ra ⋨ *wa	Lahu ú-*ğâ* (ú 'head'); Tamang Risiangku wa²
	*ray ⋨ *way	Meithei ləway; Tangkhul ā-lap-*rai* ~ ā-rap-*rai*
'rice'	*ma-y	*STC* p. 65, *etc.*; *GSTC* #57; "Pal. Suff." #14
	*ma	Tangkhul ma (Bhat 1969:33); Dulong tś(h)ɯ³¹*ma⁵⁵*; Luoba a-*mə*
	*may [e]	Garo mi; Dimasa mai; Pwo and Pho Karen me; Chinese 米 OC miər (*GSR* #598a-c): *mĩjʔ (WHB)
'arrow' [f/g]	*b/m-la ⋨ *g-la-y	*STC* #449; "Pal. Suff." #15
	*b-la	Bahing bla; Dimasa bala; Tangkhul məla; WT mda and Jg. (Hkauri dial.) niŋ-*da* represent a delateralized version of the same root (they are treated as a separate etymon in *STC* (n. 313); WB hmrâ; Akha káq-*mjà*; Kha Li (S. Lolo) ka-*mla*
	*g-la-y	Lahu khá-*ce*, ɔ̀-*ce*
'sand'	*z(l)a-y	*GSTC* #159; "Pal. Suff." #16
	*sa	WT sa 'earth'

*z(l)ay	WB sâi, səlâi; Jg. *zài*-brù 'sand', *zài*-brōn 'coarse sand; gravel', *zài*-ni 'fine sand; dust' [h]	

a. Also reflecting the palatal element is Chinese 蜾 OC **klwâr** (*GSR* #351a-b): **k(r)ōjʔ** (WHB) 'species of small wasp'. The appearance of this putative diminutive morpheme in a word for 'bee' is paralleled in Romance (Fr. *abeille*, Sp. *abeja* < Spoken Latin *apicula*, diminutive of *apis* 'bee').

b. Dimples are cute, which is perhaps what motivates the suffix with this root.

c. The suffix with this root seems confined to the Jingpho-Nung group.

d. A bodypart found only in babies is an excellent candidate for a diminutive suffix.

e. The diminutive suffix here could have been motivated by the granularity of rice (see 'sand', below), or by the positive affect which rice inspires, or perhaps to distinguish rice from another cereal with larger grains. *Cf.* Mandarin *dà-mài* 'barley' (lit. "big cereal") vs. *xiǎo-mày* 'wheat' ("small cereal"); also Japanese *oo-mugi* 'barley' vs. *ko-mugi* 'wheat' (*oo* 'big', *ko* 'small').

f. The arrow is child to the bow (see JAM 1991e). The first element in the Lahu, Akha, and Kha Li form means 'crossbow' < PLB **krak** (*TSR* #9). The Lahu reflex is homophonous with that of the similarly reconstructed etymon 'fall' (above 11.6.1).

g. Still another possible variant of this root, with velar suffix, is represented by 弋 'shoot with arrow and string attached' (OC di̯ək; *GSR* #918a-b). See *STC*:176,188; Gong 2001:30. The latter source also suggests an allofamic connection with Chinese 射 'shoot with bow; archer' (OC ḓʼi̯ăg; *GSR* #807a).

h. Lahu šê̂-šī̀ is probably a loan < Burmese, since native Tone **2** syllables with voiceless fricative initials acquire Lahu very-low tone / ꜒ /. Phunoi **khi-sǎi**, Bisu **sàj**, and Mpi **n⁴si⁵** are probably loans < Tai (*cf.* Siamese **saaj** < PTai **zaay**; the word is written with an initial indicating PTai **dr**-, but this is held to be spurious by Li Fang-Kuei (1997:161-2). If the monophthongal WT form meaning 'earth' is indeed cognate to Chinese 沙 'sand' (OC **sa** [*GSR* #16a-c] / **srāj** [WHB]), as suggested in *STC* p. 188, it is possible that this is an old loan from ST into Tai.

For another possible example, see 'tongue' **m-slay** �done *s-lya** (below,12.2.6).

11.6.4 Abstract functorial [54]

The remaining etyma where a palatal suffix may be posited almost all have an abstract grammatical meaning (particles, pronouns, deictics).[55] In at least some of these cases, the palatal element may provisionally be assigned to a highly abstract nominalizer/subordinator that ultimately derives from the PST/PTB copula **-way** ⋈ **-ray**.[56]

'1st person pronoun'	*ŋa-y [a]	*STC* #406, 285; "Pal. Suff." #24; JAM 1994b
	*ŋa	WT ŋa; Nung ŋa; WB ŋa; Lahu ŋà
	*ŋay	Jg. ŋāi 'I / me' [b]; Lushai ngei 'self'; Meithei ei

54. See JAM 1995a:73-77.

55. One example in the miscellaneous category is the verb 'laugh', reconstructed **rya-t** in *STC* #202 (> WT **gźa-ba** 'to joke' ⋈ **bźad-pa** ~ **gźad-pa** 'laugh, smile', Aka (Hruso) **ra**, etc.) but WB **rai**, with a palatal diphthong, perhaps requiring the positing of an allofam **r(y)a-y**. See above 5.5.2(1b).

'question particles' [c]	*la-y	*GSTC* #131; "Pal. Suff." #21
	*la	PLB *la² (> WB lâ 'yes/no question particle'; Lahu lâ '*id.*'); Newari lā '*id.*'; Meithei la ~ lə '*id.*'
	*lay	PLB *lay²/³ > WB lê 'substance question particle' (< Tone *2); Lahu le '*id.*' (< Tone *3) [the tonal discrepancy is not unusual for functors]; Kokborok (Barish group) lay ~ khlay; Newari le 'content question particle' (Malla 1985:65)
'inchoative particle' [d]	*sa-y	*GSTC* #154; "Pal. Suff." #22
	*sa	Lahu šā 'particle indicating intended action of the 1st person'
	*say	Lahu šē 'particle indicating that an action has not yet occurred or been carried through to its conclusion, or that an action must be performed as a prerequisite for some further action'; WB sê 'still / yet'; Akha á-shì '*id.*'
'which / like / deictic' [e]	*ka-y ⋛ *kaŋ	"Pal. Suff." #23
	*ka	Lahu qhà 'which?; what?; what kind of?'
	*kay	Lahu qhe 'like; thus; so', qhà-*qhe* ~ qhɔ̀-*qhe* 'how?'
	*kaŋ	Lahu qhɔ̀ 'where?', qhɔ̀ ve 'what kind of?', qhɔ̀-thâʔ 'when?', qhɔ̀-qhe 'how?'; WT gaŋ 'who?; which?; what?' (see Benedict 1984)
'what'	*ba-y ⋛ *ma-y	"Pal. Suff." #25
	*ba ⋛ *ma	WB bha (< *m-ba); Lahu à-*ma*, à-thɔ̀ʔ-*ma*; Dimasa ba-ṛa 'where?', ba-khali 'when?'; Bodo ma 'interrogative'
	*bay ⋛ *may	WB *bhai*-hma 'where?', *bhai*-lok 'how much?', *bhai*-su 'who?', *bhai*-kui 'whither?'; Garo mai 'interrogative'
'negative' [f]	*ma-y	"Pal. Suff." #26
	*ma	PTB *ma 'negative adverb' (attested throughout TB)

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56. See JAM 1985a, "God and the ST copula."

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*may	WB **mai'** 'be wanting, not full'

a. Other apparent allofams are represented by Garo **aŋ** and Lushai (and other Chin) **ka**.

b. This Jg. pronoun may well be the source of the aberrant Jg. numeral **ləŋâi** 'one' (see JAM 1994e); *cf.* also WT **ŋed** 'I, we (elegant)', with dental suffix. Chinese has had at least two different 1st person pronominal forms since early times, perhaps once differentiated syntactically, one of which has a final palatal in Baxter's system: 我 OC *ngo (*GSR* #58f-i) / *ŋā (WHB) ≍ 吾 OC *ngâ (*GSR* #2a-g) / ŋājʔ (WHB).

c. Chinese 與 or 歟 'final (yes/no or rhetorical) interrogative particle' is reconstructed as OC **zi̯o** in *GSR* #89b-d and 89e, but as **lă** in WHB's system.

d. The LB vowel correspondences are irregular (WB **-e** < *-əy, Lahu **-e** < *-ay, Akha **-i** < *-ey); the Lahu form is perhaps a loan from Burmese. There may also be contamination from Tai (*cf.* Siamese **sǐa**, with similar grammatical functions). A likely Chinese comparandum is 纔 (now usually written 才), Mandarin **cái** < OC *dz'əg (*GSR* #943): *dzə̄ (WHB) 'prerequisite action'.

e. A possible Chinese cognate to the palatal allofam is 豈 'how' OC *k'i̯ər (*GSR* #548a) / *khǎjʔ (WHB).

f. Chinese has a pair of comparanda reflecting both variants in Baxter's OC system: 無 'not have' OC **mi̯wo** (*GSR* #103a): *mă (WHB) ≍ 靡 'there is no; without' OC *mia (*GSR* #17h) / *măjʔ (WHB).

11.7 Pseudo-suffixes

Occasionally a language is found to display final consonants which are lacking in cognates from other languages, but which do not represent real suffixes. Perhaps the best example is furnished by Maru (= Langsu; Burmish group), where the regular reflexes of the rhymes *-əw and *-əy are **-uk** and **-it**, respectively (see above 5.3.1, 5.3.2).

Secondary final consonants of another type are characteristic of the northern dialects of Qiang (*e.g.* Mawo), which have a tendency to drop the vowel of the final element of compounds, leading to secondary monosyllables with (sometimes typologically strange) final consonants:[57]

	Southern Qiang	*Northern Qiang*
'earth'	zuə³¹-pə³³	zəp
'seed'	zuə³¹-za²³¹	tʃhaz
'last year'	ȵi³¹-pə³³	nəp
'day after tomorrow'	sy⁵⁵-dy³¹	syt
'decaliter'	que⁵⁵-te⁵⁵	quat
'fifteen'	χɑ³¹-ŋɑ³³	hɑŋ
'lay aside'	kuə³¹-χty³³	kuəxʂ
'ear of grain'	χti⁵⁵-qə³³	stiɑq
'grandson'	zʅ³¹-tsuə³³	zətʃ
'head'	qə³³-po⁵⁵-tʂʅ³³	qəpatʂ [a]

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a. As the last example shows, the same process can operate on trisyllabic compounds, creating secondary disyllables in N.Qiang.

So pervasive is this tendency that it is even applied to Chinese loanwords, *e.g.*:

'table' [a]	tʂue⁵⁵tsɻ³³	tʂus

a. *Cf.* 桌子 Mand. *zhuōzi.*

These pseudo-suffixes are to be contrasted with a genuine suffixal -s in Qiang that has nominalizing function (above 11.4.1).

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57. See Sun Hongkai 1981; Benedict 1983b:113; LaPolla and Huang 1997:8-9.

Allofamic Variation in Rhymes

Although attempts have been made to posit a quasi-regular "ablaut" system for PTB/PST,[1] one must agree with Benedict that "generally speaking, TB vowel gradation is sporadic and irregular, and can hardly be compared with that found in Indo-European" (*STC*:69). Least convincing are suggestions of systematic vocalic alternations in open syllables, *e.g.* Miller's claim of morphosemantic relationships among such unrelated forms as WB **ni** 'red', **na** 'ill', and **nu** 'leprous'.[2]

More plausible are extrapolations of the undeniable ablaut patterns in WT verbs to the PTB period or even earlier. We have seen (above 4.4.3) that four basic WT conjugational types may be set up according to the various patternings of the affixes (prefixes ḥ-, g-, b-, and the -s suffix) that appear in the principal parts of the verb.[3] Cross-cutting these affixal patterns are two vocalic alternations that may occur when the vowel of the perfect and future forms is -a- : the imperative always has -o-, while the present often has either -e- or -o-. Comparative evidence indicates that in these cases it is the vowel of the perfect/future which is basic (see 'kill', below):

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1. See Shafer 1940/1941; Miller 1956, 1958; Pulleyblank 1965.
2. Miller 1956. See the "rejection" of Miller's approach to PTB reconstruction in JAM 1975a, and JAM 1978a (*VSTB*):45-7.
3. The maximum number of forms in the paradigm of a WT transitive verb is four: the present, perfect, future, and imperative.

TYPE A: invariant -a- except for the imperative				
	Present	*Perfect*	*Future*	*Imperative*
	-a-	*-a-*	*-a-*	*-o-*
'throw into the mouth'	ḥgam-pa	gams, bgams	bgam	goms
'descend'	ḥbab-pa	bab(s)	---	ḥbobs

TYPE B: -o- in the present				
	Present	*Perfect*	*Future*	*Imperative*
	-o-	*-a-*	*-a-*	*-o-*
'kill' [a]	gsod-pa	bsad	bsad, gsad	sod
'put / place'	ḥdźog-pa	bźag	gźag	źog

TYPE C: -e- in the present				
	Present	*Perfect*	*Future*	*Imperative*
	-e-	*-a-*	*-a-*	*-o-*
'fill'	ḥgeŋs-pa	bkaŋ	dgaŋ	khoŋ
'throw'	ḥdebs-pa	btab	gtab	thob

a. There is no doubt that the basic PTB/PST vowel in this root was *-a- colored rather than *-o- colored: *cf.* WB **sat**, Jg. **sàt**, Nung **sat**, Lushai **that**, Mikir **that** (*STC* #58), as well as OC **săt** 殺 (*GSR* #319d).

Benedict considers these alternations to be phonological rather than morphological in nature, and takes them as evidence for reconstructing a 7-vowel system for PST/PTB closed syllables:[4]

-i-			-u-
-e-		-ə-	-o-
	-a-	-â-	

According to this scheme, WT verbs of TYPE A reflect PST medial *-a-, while TYPE B points rather to PST *-â- (presumably a low back vowel), and TYPE C descends from PST *-ə- .

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4. See *STC*, n. 344 (p. 126) and the notes to pp. 179-193.

Whatever one may think of this analysis,[5] it seems clear that these alternational patterns are peculiar to Tibetan dialects, and cannot be related to any broader "ablaut system" that can be reconstructed for PTB, or *a fortiori* for PST.

Although the search for "regular" or "paradigmatic" or "highly grammaticalized" patterns of PST/PTB rhyme variation seems doomed to failure, it is certainly true that there are a number of sporadic inter- and intra-linguistic variational patterns which have multiple examples, ranging from a few to a considerable number.[6] Many of these have already been discussed in passing above.[7] In the following sections we briefly summarize these and other important subtypes.

12.1 *-u- ⪰ *-i-

The best exemplified variational pattern in TB/ST rhymes is between the high vowels -i- and -u- in closed syllables,[8] especially in the environment of a labial initial or final consonant.[9] Since it occurs in Chinese as well as in many TB languages, it must be assigned to the ST stage itself. It seems to be a purely phonological phenomenon, devoid of grammatical significance.

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5. I personally feel it is more ingenious than convincing. It is certainly much less substantiated than the Indo-European notion of different "laryngeals" conditioning the development of the basic PIE vowel *-e to -o or -a in the various forms of the IE verb.

6. See JAM 1978a (*VSTB*):39-45.

7. See, *e.g.* §§5.5.3-5.5.6; 5.6.3-5.6.4, 7.2, 8.3-8.4.

8. A superficially similar phenomenon in open syllables occurs in such Lahu pairs as ŋâ-ku ⪰ ŋâ-kwi 'dried fish'; but these are to be explained in terms of a palatal diminutive suffix that deprives the preceding -u- of syllabicity (see JAM 1995a:58-9, as well as 5.8 and 11.6 above). There are also faint traces of such an alternation in Pumi Dayang, *e.g.* ʒdʒŭ ~ ʒdʒwĭ 'exchange'.

9. See Wolfenden 1929:114-5; *STC*:56, 80-4, 181-2; *VSTB*:41-3. Although the evidence is less clear, final liquids also seem to favor such variation (see below).

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(1)   *Variation or merger within a single language or subgroup*

(a)   *Tibetan*

Many words within WT and/or in different Tibetan dialects show **-u-** ⋈ **-i-** variation after labial initials:

phug-pa	⋈	phig-pa	'bore a hole'
ḥbug(s)-pa	⋈	ḥbig(s)-pa	'*id.*'
sbud-pa	⋈	sbid-pa	'bellows'
ḥbib(s)-pa	⋈	ḥbub(s)-pa	'be turned over / upside down'[a]
smyug-ma	⋈	smyig-ma	'cane / bamboo / reed pen'
pus-mo	⋈	pis-mo	'knee' [b]

a. See *TSR* #192, and above §8.4(4a).
b. This root also shows front/back variation in Chinese (see §3, below).

This variation is also occasionally found before WT labial finals as well: **śub-pa ⋈ śib-pa** 'whisper'. The Chinese comparandum points to the variant with front vowel: 聑 **ts'i̯əp ~ tsi̯əp**. See above 8.3(3c).

(b)   *Bodo-Garo*

Although Garo has some **-i-** ⋈ **-u-** alternation (*e.g.* 'name' ***r-miŋ** > Garo **miŋ** (v.) ⋈ **bumuŋ** (n.); 'forest' ***b-liŋ** > Garo **buruŋ ⋈ briŋ** (*STC* #378), it usually merges such rhymes in favor of ***-i-**. In Dimasa the front/back variation is even more pronounced, with the

Hills dialect frequently having **-i-** while the Plains dialect has **-u-** (often with loss of the final consonant):

	PTB	*STC#*	*Dimasa*
'bark (as dog)'	***priŋ**	377 [a]	**biriŋ ≍ buruŋ**
'brain / marrow'	***r-kliŋ**	126	**bithlim ≍ buthluŋ**
'conceal / bury'	***b/pip**	376	**bib ≍ bup** 'conceal oneself, hide'; **phip ≍ phup** 'bury'
'dive / sink / drown' [b]	***lip**	375	**lip ≍ lup** 'dive'; **gilip ≍ gulup** 'drown'
'ripen'	***s-min**	432	**min ≍ mun**
'snuff up / sip'	***s-rup**	384	**surup** 'sip, lap, smoke' ≍ **sirip** 'gargle'
'wrap / cover / wear'	***pun**	385	**phin ≍ phun**

a. *STC* (n. 245) suggests that Chang Naga **lăŋ** might be related to this root, though this seems unlikely in view of Lahu **lɔ̀** < ***laŋ** (*DL*:1404). Two separate roots are to be reconstructed, ***priŋ** and ***laŋ**. Many other forms deriving from ***laŋ** are found in *ZMYYC* #783, including: Namuyi **lu³³lu⁵⁵**; Yi Nanjian and Nanhua **lu³³**; Lisu **lo⁵⁵**; Naxi **lv³¹**, **lua¹³**; Jinuo **ło³³**; Anong **luŋ⁵⁵**; Nusu **lɔ̄³⁵**. Cf. also Lalo **ʔlw** (SB 1998). See above 7.2(4).

b. *Cf.* also Jg. **phūn-***líp* 'dive'; Garo **tśi-***rip* '*id.*', **srip** 'sink'; but Bodo **thrup** 'sink'.

As several of these examples show, dissyllabic forms with these rhymes exhibit vowel harmony, either having **-i-** in both syllables (**bithlim, sirip, gilip, biriŋ**), or **-u-** in both syllables (**buthluŋ, surup, gulup, buruŋ**).[10]

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10. For similar traces of vowel harmony in Chokri Naga, see above 4.1.3.

495

In the following examples, Garo has -i-, regardless of whether the majority of TB languages reflect *-i- or *-u- : [11]

Where general PTB has *-i- :				
	PTB	*STC#*	*Garo*	*Dimasa*
'bowels'	*pʷik	35	bibik	bubu
'eye'	*mik	402	mik	mu
'fill'	*pliŋ	142	---	phuluŋ
'name'	*r-miŋ	83	miŋ (v.) ≍ bumuŋ (n.)	bumu ≍ bumuŋ
'ripen'	*s-min	432	min	min ≍ mun
'shrimp / scorpion'	*s-diːk	56	na-tik	na-thu
Where general PTB has *-u- :				
	PTB	*STC#*	*Garo*	*Dimasa*
'hair (body)'	*g-mul	2	kimil	sao-khimi
'overflow / flood'	*brup ≍ *prup	151	brip	---
'scrape / scratch'	*ku(ː)t	383	kit	khu

(c)   Nungish

Nung prefers -i- to -u- in closed syllables, especially in cases where front ≍ back alternation is otherwise attested:

	PTB	*STC#*	*Nung*
'hair (body)'	*mul ≍ *mil	2	mil
'horn'	*ruŋ	85	riŋ
'mouthful'	*ʔuːm	108	im
'pillow'	*m-kum	482	məkhim
'warm'	*lum ≍ *lim	381	lim

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11. Note that several of the above examples ('shrimp/scorpion', 'brain/marrow', 'scrape/scratch') are not in the environment of a labial consonant.

(d) *Lolo-Burmese*

While WB keeps the two rhymes ***-im** and ***-um** quite distinct, they have merged in several Loloish languages, including Lahu and Akha, which reflect both of them by -ɛ and syllabic -**m**, respectively:

	PLB	*WB*	*Lahu*	*Akha*
'three'	*sum²	sûm	šɛ̄	sɪ̀m ~ sɪ́m
'use'	*zum²	sûm	yɛ̂	zɪ̀m
'warm'	*lum¹	lum	lɛ̀	lɪ́m
'house'	*yim¹	ʔim	yɛ̀	ñɪ́m
'cloud'	*dim¹	tim	---	dɪ́m
'low'	*ʔ-nim¹/³	nim, hnim ⋊⋉ nim', hnim'	nɛ̀	---

WB shows -**um** ⋊⋉ -**im** variation in the following root:

'meet'	*g/krum ⋊⋉ *g/krim [a]	JAM 1974, #270; LaPolla 1987, #171
	*g/krum	Thulung Rai grɯɯm; Jg. khrɯ́m; Dulong (Nujiang) tɯ³¹xrɯɯm⁵³ ; WB krum; Motuo Menba rum (with prefixization of the initial)
	*g/krim	WB krim

Lolo-Burmese shows ***-up** ⋊⋉ ***-ip** variation in the following roots, which should probably be set up with ***-up** at the PTB level on the testimony of Jingpho:

'wrap up'	*tup ⋊⋉ *tip [b]	*TSR* #23
	*tup	Jg. thúp 'wrap, bundle up'; WB tup 'tie together', thup 'wrap up' ; Akha tɔ́q 'wrap around and tie'; Hani toʔ³³; Woni t'u⁵⁵
	*tip	Lahu thîʔ; Lisu (Fraser) htē²; Akha tɤ́q 'fold up, make a small package'
'wring / crumple'	*(t)syup ⋊⋉ *(t)syip [c]	*TSR* #66; *ZMYYC* #554; *TBL* #1533

*(t)syup	Jg. tšùp 'close, as the hands when catching a ball; gather, as the mouth of a sack', šùp 'wring, squeeze out'; WB chup 'clench the fist', Atsi (Zaiwa) tsʔup '*id.*'; Langsu (Maru) tʃap⁵⁵; Akha tsúq 'sink the claws into, as eagle to chicken'; also perhaps Bai Jianchuan tsue̯³³, tsui⁴⁴; Tujia tɕiu⁵³
*(t)syip	Lahu chî̀ʔ 'crumple, clench, squeeze into a ball'

a. Note the internal variation in WB.
b. Note the internal variation in Akha. This etymon also shows final stop ⋉ nasal variation; see below 12.5.1.
c. Possibly related is a similar root with liquid final *tsyir ⋉ *tsyuːr 'wring / sqeeze' (*STC* #188); see above 9.2.2.

(2) *Variation across TB subgroups*

(a) *Before labial consonants* [12]

'beat / strike'	*d/tup ⋉ *d/tip	*STC* #399
	*d/tup	Bahing tyup; Sunwar tup; Jg. dùp, mədùp
	*d/tip	Bahing töp, tip; [a] Nung dip, əthip; Mikir dip-dip 'beat (heart, pulse)', thip 'beat (as drum)'
'conceal / bury'	*b/pup ⋉ *b/pip [b]	*STC* #376
	*b/pup	Bodo phop ~ fop 'bury'
	*b/pip	WT byib-pa 'cover, wrap up, conceal'; Mikir pip 'bury'
'dusk; dark'	*rum ⋉ *rim	*STC* #401
	*rum	WT rum 'darkness, obscurity'; perhaps also WB hrûm 'lose, be defeated'
	*rim	Jg. rìm 'be dusk, dark', nīng-rīm ~ n̄-rīm 'evening'; Nung rim-rim wɛ 'twilight'
'house'	*k-yum ⋉ *k-yim [c]	*STC* #53
	*k-yum	Lepcha khyum; Miri əkum; Namsang hum; Meithei yum
	*k-yim	WT khyim; WB ʔim; Vayu kim ~ kem; Mru kim; Mikir hem; Limbu him; Lushai and Lai Chin ʔin

'set (of the sun)' [d]	*g(l)um ≋ *g(l)im		---
	*gum	PLB *gum[1] > Lahu qὲ [e], Yi Nanjian ɣu⁵⁵, Lisu *go³³* ʒe⁴⁴, Naxi (Lijiang and Yongning) gv³¹, Hani Caiyuan (Biyue) kɔ³³, Hani Shuikui (Haoni) *kɔ³³* ji⁵⁵	
		Baic *gum > Jianchuan ɣo⁴² [*ZMYYC*], ɣu̠²¹ [*TBL*]; Dali o⁴²	
	*gim	Proto-Kiranti *gim (Michailovsky 1989) > Dumi giːm, Thulung gam	
		Qiangic *gim > Qiang (Mawo) a qe [*ZMYYC*], ɑ qɑ [*TBL*]; Shixing miɛ³³ɣĩ⁵⁵ [*ZMYYC*], gĩ [*TBL*]; Namuyi mi³³*qæ⁵³* (*cf.* n̠i⁵⁵mi⁵⁵ 'sun')	
	*glim ≋ *glum	Forms with affricates or clusters that might point to an earlier *cluster include:	
		Nungish *glim ≋ *glum > Anong Nu dʑim⁵⁵, Dulong glɔm⁵³	
		Lolo-Burmese *glum or *gyum > Yi Weishan ʐɛ⁵⁵; Yi Nanhua dʑo³³; Yi Wuding ɖɣ¹¹; Sani tɬɣ³³; Jinuo krɔ³³ [*TBL*], kɹa³⁵ [*ZMYYC*]	
		Qiangic *glim or *glum [f] > Daofu (Ergong) nə *ndʑo*, Queyu pu⁵⁵*tɕha¹³*, Lusu ne³³*tɕu⁵³* , Pumi (Taoba) nə³⁵ *dʐɛ³⁵*, Pumi (Jinghua) nə¹³*dzie⁵⁵*, Ersu tɕho⁵⁵	
'sink / suppress'	*s-nu(ː)p ≋ *s-ni(ː)p [g]		*STC* #400; *TSR* #159; *DL*:766-7
	*s-nu(ː)p	WT nub-pa 'sink, set (*e.g.* sun), decay', snub-pa 'cause to perish, suppress'; Lepcha nŭp 'be covered with water'	
	*s-ni(ː)p	Jg. nìp 'shade, cast a shadow'; Nung nəm-*nip*-lam 'west' ("sun-sink-side"), Bahing nip 'compress'; WB nip 'be kept down', hnip 'crush, oppress'; Lahu ní 'squeeze, press'	
'sleep'	*s-yup ≋ *s-yip		*STC* #114; *TSR* #180
	*s-yup	Jg. ʔyúp; Miri yup	

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12. See above 8.3(3b), 8.4(4a).

	*s-yip	WT **yib-pa** 'hide oneself'; Jg. **(y)íp** 'cover, conceal (information)' [h]; Tsangla **(y)ip** 'sleep'; Bunan **ib**; Bahing **ip**; Nung **ip**; Ao Naga **yip**; Abor **ip**; WB **ʔip** 'sleep', **sip** 'put to sleep'; Lahu **yɨ̀ʔ** 'sleep', **í** 'put to sleep'; Rawang (Mutwang) **yɨp** 'sleep', **śəyɨp** 'put to sleep'; Zahao Chin **ʔit ~ ʔiʔ**
'suck / breast / milk'	PTB ***dzyoːp > *dzyup / *tsyup ⪥ *dzyip / *tsyip [⪥ *dzyut ⪥ *dzyuk ⪥ *dzyəw ⪥ *dzyow]**	
	*tsyup ⪥ *dzyup	Lahu **chɔ̀ʔ** 'suck' (< PLB ***C-tšup**) ⪥ PLB ***ʔ-dzyup** > Lahu **cú** 'milk'; Atsi **suʔ-c̣ʔup**, Maru **c̣ʔap**, Achang **tṣop⁵⁵**, Akha **cúq**, Hani Mojiang **tʃhɣ³¹**, Jinuo **tʃhu⁵⁵** (all 'suck'). Extra-LB cognates with back vowels include: Mikir **iŋ-jùp**; rGyalrong **scçup**; Bokar Luoba **bjuŋ** *tçop* .
	*tsyip ⪥ *dzyip	WT **ẖdźibs-pa** 'suck'; Cuona Menba *dzip³⁵*pa⁵³, Lusu **tçhi³¹**; Geman Deng **jip⁵⁵**; Lisu **tʃh i³¹**; Naxi **tçhi⁵⁵**; Bai Jianchuan **tç i³³**

a. Note the language-internal variation in Bahing.
b. Dimasa shows internal variation: **bib ~ bub** 'conceal oneself', **phip ~ phup** 'bury'.
c. Intralingual variation is shown by Magar **im ~ yum** and Nung **kyim ~ tśim ~ tśum**.
d. See above 7.2(1) and JAM 2000d ("3 TB word families"). Most of the supporting forms for this etymology are to be found in *ZMYYC* #752 and *TBL* #1512.
e. The Lahu form could come from either *-im* or *-um*, though the other Loloish reflexes seem to point to a PLB *back vowel.
f. The Daofu, Lusu, and Pumi first syllables mean 'sun' (< PTB ***nəy**).
g. There is another allofam ***s-nyap**, with medial *-ya-* (below 12.2.1).
h. Note the internal variation in Jingpho.

(b)   *Before liquids* [13]

'dull / buttock / heel / rounded part' [a]	*r-tul ⪥ *r-til	JAM 1994d, 2000b
	*r-tul	WT **rtul-po** 'blunt, dull'; Abor-Miri **ko-***dun* 'buttock'; Meithei **məthun** 'buttock'; Wancho **chi-***dun* 'heel' (**chi** 'foot'); Khözha **šú-***dò* ; Lisu **khi²¹***du²¹* 'buttock' (**khi²¹** 'excrement'); Phunoi **pi³³***tun¹¹* 'heel'
	*r-til	Jingpho **šətīn** 'buttock', **ləthīn** 'heel'
'fly (v.)'	*pur ⪥ *pir [b]	*STC* #398

	*pur	WT ḥphur-ba
	*pir	Central Tibetan ḥphir-ba; Garo **bil**; Dimasa **bir**
'hair (body)'	*s-mul ≍ *s-mil [c]	*STC* #2
	*s-mul	Lushai **hmul**; Moshang **kəmul**
	*s-mil	Mikir aŋ-*mi* ; Nung **mil**; Garo **kimil**
'skin'	*pʷul ≍ *pʷil [d]	JAM 1997a (PSLTB):43
	*pul	Chepang **pun**; Dulong **pɯn**[55] [e]
	*pil	Lushai **pil**; Dulong aŋ[31]*pin*[53] ; Bokar Lhoba, Gallong, and Tagin **a-pin**
	*wul	Meithei **ul**, *un*-sa; Maring **un**, **wun**; Geman Deng **ung**; Kham *ol*-ko-ta; PNN (French 1983) *wur (> Chang **kho**-*(w)un* , Nocte **kho**-*wan* , a-*khuon* ; Lushai, Chinbok, and Kom Rem **vun**; Thado **vún**; Maring **un**, **vun**, **wun**; Tiddim sa-*vun* ; Lakher **vo**; rGyalrong *wu*-ʃan-dʒi; Puiron **mun** (with unexplained nasal initial); Lotha o-*ɸħu* ; Kaman (Miju) **uŋ**[35]; perhaps also Qiang Mawo ꞌ*uɛ*-piɛ.
	*wil	Moyon **vin**
'sweet'	*hul ≍ *hil	JAM 1997a (PSLTB):37
	*hul	Thulung **ol-ol**
	*hil	Milang *hil*-ma
'wash'	*hur ≍ *hir [f]	JAM 1997a (PSLTB):38
	*hur	Thulung **hur**- 'wash hair / head'; Kulung **hur**-su; Dimasa **hu**; Zeme **hui**; Apatani *har*-su; Miri *hɯr*- kak-na; Bengni/Bokar **hɯr**
	*hir	Newar **hir**-, **hi(l)**- 'wash clothes'

a. There are good Chinese comparanda meaning both 'dull' and 'buttock' (below §3).

b. Note the internal variation in Tibetan. Chinese has good comparanda for both allofams (see below). There is evidence for a related root *byer (see above 9.2.2, 9.2.3(1)). There is a similar Proto-Mon-Khmer root *pʌr (> *e.g.* Kmhmuʔ **pɯr**); *cf.* TB forms like Nung əphər 'shake (as a cloth)', khoŋ-*phər* 'moth'.

13. See 9.2.2 and 9.3.2 above. Three of the following examples ('fly', 'hair', 'skin') also have labial initials, which might also favor this variation. *Cf.* also the liquid-finalled 'dust' and 'poor' (below §3), which show vocalic variation between TB and Chinese.

c. This root also displays *-i- ⋊ *-ya- variation; see below 12.2.1. There are excellent Chinese comparanda for both TB allofams (below §3).

d. See above 7.2(3), 9.3.2. This reconstruction is revised from *ul (JAM 1997a:43). We must also assume *-ul ⋊ *-un variation in this root to account for the -n reflexes in languages that preserve *-l as such (*e.g.* Lushai).

e. Note the internal variation in Dulong and Lushai.

f. This set is perhaps related to *hus 'wet / moisture', above 10(10.3).

(c)   Elsewhere

Four examples have been found before dental stops, two in *TSR* [14], one in *GSTC*, and one in *VSTB*:

'wipe / sweep'	*sut ⋊ *sit	*TSR* #120
	*sut	Jingpho kətsút; WB sut
	*sit [a]	Lahu šî̃ʔ; Akha síq; Sani sz̩⁴⁴; Lisu (Fraser) si²; Nasu sʅʔ³²
'tear / rip' [b]	*m-džut^L ⋊ *m-džit^L (PLB)	*TSR* #110
	*m-džut^L	WB cut 'be torn', chut 'tear, sever sthg'
	*m-džit^L	Atsi cheʔ; Lahu jì̃ʔ; Sani tɕi⁴⁴; Lisu (Fraser) chï²
'copula / be the case'	*s-rut ⋊ *s-riː-t	*GSTC* (JAM 1985a):19
	*s-rut	WB hut
	*s-riː-t	WT srid-pa 'existence'; Lahu hêʔ 'be the case'; WB hri' 'be, be there'
'lungs / exhale' [c]	*tsut ⋊ *(t)si-t [d]	*TSR* #56, #119; *VSTB*:119-21; *DL*:163, 557; *ZMYYC* #274; *TBL* #143
	*tsut	WB chut; Atsi tsʔut; Hayu ɹot; Lakher pa-*chao*
	*tsəy² (PLB)	Lahu ò-*chî̂*-phôʔ; Sani tshɨ̀, Lalo *tshì*-fw̃
	*(t)sit	Axi tsʅ⁴⁴-pu²²; Lisu (Fraser) sï³ 'whistle'; WT sid-pa '*id.*'; Garo raʔŋ-*sit* 'breathe, exhale'

a. Possibly related directly to this allofam is Proto-Tani *tit (> Bokar Lhoba *tit*-kak 'wipe, erase', Abor-Miri tit, Bengni *tit*-kyak 'wipe off'). See J. Sun 1993.

b. Possibly related is PLB *m-dziːt^L ⋊ *m-tsiːt^H (*TSR* #88) 'split off'. Another resemblant form is *dzik (> Lushai and Lai tsik 'split, cut') ⋊ *dziŋ 'split, mince' (> WB câñ 'mince, cut, chop').

c. See above 8.3(2) and 8.4(3a).

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14. The rhyme alternation in these roots is not recognized in *TSR*.

d. For initial fricative ⪤ affricate variation, see above 3.3. More cognates are to be found in *ZMYYC* #274 and *TBL* #143, including many Qiangic forms which are so far difficult to assign to a particular proto-allofam, *e.g.* rGyalrong **tərtshos**, Pumi Taoba **tshø³⁵**, Ergong **ʐtshe**, Muya **tshɯ⁵³**, Ersu **tshu⁵⁵**, Shixing **tsho⁵⁵**, Namuyi *ntshu³³* **phu⁵⁵** (*cf.* Lahu **ɔ̀-chî-phô?**).

There is also an apparent case of ***-u-** ⪤ ***-i-** variation before a final velar:

	PTB	***tuk** ⪤ ***tik**
'frog'	***tuk**	PTani ***tɯk** (> *e.g.* Apatani **ta-tɯ?**, Bengni & Bokar **ta-tɯk**, Gallong **tatik**, Pailibo **tik**,ᵃ Milang **pu-duk**); Dulong *dɯ⁵⁵* **ɹi⁵³**
	*tik	Tamang (Sahu) **kal-ʈek-ʈek**, Chepang **tik**; Pumi **pʋ⁵⁵***de⁵⁵*; Proto-Karen (Jones 1961) **dìG**; Lahu **pā-***té***-nɛ̆?**; Jinuo **phɔ⁴⁴the³³lɛ³³** (these latter two forms < PLB ***?-dikᴸ** or ***?-dekᴸ**)

a. The Gallong and Pailibo forms indicate that -u- ⪤ -i- variation occurs within Tani as well. RSC points out the similarity of these forms to PTB ***s-diːk** 'scorpion', another 'verminous / venomous' species. See 8.3(1) above. The first syllables of the Milang , Pumi, Lahu, and Jinuo forms are < ***s-bal** 'frog', above 9.3.1(1).

(3)   *Involving Chinese*

A number of roots show this type of vocalic variation internally within Chinese, or as between Chinese and TB. In the most interesting cases, both Chinese and TB show this variation, implying that it may be imputed all the way back to the PST stage.[15]

(a)   *Where PTB has *-u- and Chinese has *-i-*

'block / pillow'	PTB ***m-kum** (*STC* #482), but Nung **məkhim**	
	Proto-Chinese ***k(y)im**	枕 OC **t̂i̯əm** (*GSR* #656g) 'pillow; use as a pillow'
'dust'	WT **rdul** (*STC*:173)	
	Proto-Chinese ***d'il**	塵 OC **d'i̯ĕn** (*GSR* #374a) 'dust'
'poor'	PTB ***d-bul** > WT **dbul** (*STC, ibid.*), Qiang Mawo **bʋ**	
	Proto-Chinese ***b'il**	貧 OC **b'i̯ən** (*GSR* #471v) 'poor'

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15. See *STC*, nn. 460, 461, 464, 474, 476, 477, 479.

(b)　　　*Where TB has -i- and Chinese shows *-u- ⋇ *-i- variation*

'writing brush'a	WT **pir** 'writing brush, pencil' (*STC* p. 178)	
	Proto-Chinese ***blit**	筆 OC **pli̯ət** or **pli̯ĕt** (*GSR* #502d) 'writing brush'
	Proto-Chinese ***blut**	律 OC ***b-li̯wət** (*GSR* #502c) 'pitch-pipe'
		聿 OC ***bi̯wət** (*GSR* #502a) 'writing stylus, pencil'

a. Benedict surmises that this might be a loan from Austro-Tai into ST; *cf.* PAT ***bulut** 'body hair, fur, fibre' (*STC*:178).

(c)　　　*Where PTB has *-u- ⋇ *-i- variation and Chinese has *-u-*

'buttocks / dull' a	PTB ***r-tul** ⋇ ***r-til** (above §2b)	
	Proto-Chinese ***dul**	屍 OC **d'wən** (*GSR* #429a) 'buttocks'
		臀 OC **d'wən** (*GSR* #429c) 'buttocks'
		殿 OC **tiən** (*GSR* #429d) 'rear of an army'
		沌 OC **d'wən** (*GSR* #427h) 'confused, stupid'
		鈍 OC **d'wən** (*GSR* #427i) 'dull'
		頓 OC **twən** (*GSR* #427j) 'worn, dull, spoiled'
'house' b	PTB ***k-yum** ⋇ ***k-yim** (*STC* #53)	
	Proto-Chinese ***kyum**	宮 OC **ki̯ôŋ** (*GSR* #1006a-d) 'dwelling-house; palace, apartment; temple'

a. See above 9.3.4.

b. See above 7.2(1b).

(d) *Where PTB and Chinese both show* *-u-* ≽ *-i-* *variation*

'hair (body) / eyebrow'	PTB *mul ≽ *mil ᵃ (*STC* #2)
	Proto-Chinese *mur 毛 OC mog (*GSR* #1137a-b) 'hair; fur, feathers'
	Proto-Chinese *mir 眉 OC mi̯ər ~ mi̯wər (*GSR* #567a-c) 'eyebrow'
'enter / sink'	PTB *nuːp ≽ *niːp (*STC* pp. 84, 181)
	Proto-Chinese *nuːp 納 OC nəp (*GSR* #695h) 'bring in'
	內 OC nwəb (*GSR* #695e-g) 'interior, inside; enter'
	Proto-Chinese *n(y)ip 入 OC ńi̯əp (*GSR* #695a-d) 'enter, bring in'
'fly (v.)'	PTB *pur ≽ *pir [see §2b above]
	Proto-Chinese *pur 翂 OC pi̯wən (*GSR* #471f) 'fly, soar'
	奮 OC pi̯wən (*GSR* #473a) 'spread wings, fly up'
	Proto-Chinese *pir 飛 OC pi̯wər (*GSR* #580a) 'fly'
'knee'	PTB *put (*STC* #7); WT pus-mo ≽ pis-mo (see §1a, above)
	Proto-Chinese *put 巿 OC pi̯wət (*GSR* #501a-b) (Mand. **fū**) 'knee covers'
	Proto-Chinese *pit 韠 OC pi̯ĕt (*GSR* #407m) (Mand. **bì**) 'knee cover'

a. See §2b above; also 9.3.2.

12.2 Other alternations involving front vowels in closed syllables [16]

12.2.1   *-i- ⋈ *-ya-

'alive / green / raw'	*s-riŋ ⋈ *s-ryaŋ	*STC* #404
	*s-riŋ	Manchati sriŋ 'alive'; Lushai hriŋ 'fresh, green'; Mikir reŋ 'live'; Jg. tsīŋ 'grass', *etc*.
	*s-r(y)aŋ	WB hraŋ 'alive'; Garo thaŋ 'live', gathaŋ 'green'; Dimasa gathaŋ 'alive; green, unripe'
'drip / drop' [a]	*g-t(y)ik ⋈ *m-dz(y)ak	*TSR* #82
	*g-tik	WT gtig-pa, thigs-pa
	*m-dz(y)ak	WT ḥdzags/ḥtshag; Tamang syak-pa; rGyalrong nthɐk; Ersu nthoᵖᵖ... Ersu ntho⁵⁵; Naxi ndə³³; WB cak; Lahu jâʔ; Luquan Lolo nts'aʔ²²
'eight' [b]	*-ryat ⋈ *-rit	*STC* #163; *TSR* #171; *GSTC* #41
	*b-r-gyat ⋈ *b-g-ryat [c]	WT brgyad; Thulung yet; Jg. mətsát; Garo tśhet; Lushai riat
	*ʔ-rit (PLB)	WB hrac; Lahu hí
'eye'	*s-mik ⋈ *s-myak	*STC* #402; *TSR* #145
	*s-mik	WT mig; Limbu mik; Jg. myìʔ; Garo mik; Lushai mit; Meithei mit; Mikir mek, *etc*.
	*s-myak	rGyalrong təmńak; WB myak; Lahu mɛ̂ʔ-šī ; Akha myáq, *etc*.
'hair' [d]	*s-mil ⋈ *s-myal ⋈⋈ *s-mul	*STC* #2
'iron' [e]	*syiːr ⋈ *syaːl	*STC* #372
	*syiːr	Dhimal śir; Dimasa śer; Lushai thiːr; Garo sil
	*syaːl	(Kiranti) Bahing syaːl; Sangpang syel ~ sel; Dumi sel; also Darang (Taraon) sɑi⁵³.
'marrow'	*r-kliŋ ⋈ *r-kl(y)aŋ	*STC* #126 and n. 128

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16. See above 5.5.3-5.5.6; also 8.2(1b) and 8.3(1b).

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	*r-kliŋ	Mikir **ar-kleŋ**; Lushai **thliŋ**
	*r-kl(y)aŋ	WB *khraŋ*-chi; Lahu ɔ̀-*cɔ*-pɔ (< PLB *ʔ-glaŋ[1])
'one / only' [f]	*g-t(y)ik ⪥ *tyak	*STC*:84, 94, *etc.*; *TSR* #'s 31, 48, 70
	*g-t(y)ik	WT **gtśig** 'one'; WB **tac** '*id.*'; Akha **tìq** '*id.*'; Lahu **tí** 'only' (< PLB *ʔ-dik[L]), **a-cí** 'a little bit' (< PLB *ʔ-gyik); WB **kyac** 'be diminutive, smaller than ordinary'
	*tyak	Bumthang **t(h)ek**; Cuona Monpa **t'eʔ**[54]; Bai **tia**
'pheasant' [g]	*s-rik ⪥ *s-ryak	*STC* #403
	*s-rik	Jg. **ù-*rìʔ***; WB **rac**; Garo do-*grik* (< *g-rik); Lushai **va-*hrit***
	*s-ryak	WT **sreg-pa**; West Tib. **śrag-pa**; Lepcha *kəhryak*-fo
'pinch / squeeze; press / oppress'	*s-nip ⪥ *s-nyap [h]	*STC* p. 84 and #192; *TSR* #159, #147
	*s-nip	Bahing **nip** 'compress, express'; WB **nip** 'be kept down', **hnip** 'crush, put down, oppress'; Jg. **nìp** 'set (of the sun), grow dark, cast a shadow, be dim'; Nung **nəm nip lam** 'west' ("sun-sink-path")
	*s/r-nyap	WT **rnyap-pa** 'seize or snatch together'; Jg. **nyàp** 'squeeze, extort'; WB **ńap** 'be squeezed', **hńap** 'pinch, squeeze; blacksmith's tongs'; Lahu **nôʔ** 'pinch, squeeze', **khɨ-nôʔ** 'shoes' ("foot-pinchers"), **mɛ́-nôʔ** 'scissors'
'very / real / certain'	*tik ⪥ *t(y)ak	*STC* p.52
	*tik	WT **tig-tig** 'certainly'; Mikir **ʔəthik** 'just'

	*t(y)ak	WT **thag-pa** 'be sure, decided, certain'; WB **tak-tak ~ tyak-tyak** 'very'; Lushai **tak** 'very real, exact'; Tiddim **tak** 'be right, correct; rightside'; Lahu **dàʔ** 'good' (< *mdak) ⪤ **qha-dɛ̀ʔ** 'well' (< *mdyak) ⪤ **tɛ̀ʔ** 'quotative particle' (< *dyak; *i.e.* "that is really what was said")
'wash / bathe'	*m/b-sil ⪤ *m/b-syal	*STC* #493
	*m-s(y)il	WT **bsil-ba**; Jg. **šín, kəšìn**; Lushai **sil**; Tangkhul **gerśil**; Thado **śil, kiśil**; Khami **məse**; Lakher **pəśi**; Mikir **iŋ**-*thi*
	*m-syal	WT **bśal-ba** 'wash, clean by washing'; Rawang **thi** *zal* 'bathe' (**thi** 'water')
'wear clothes'[i]	*wit ⪤ *w(y)at	*STC* p. 24; *TSR* #181
	*wit	Lahu **vɔ̀ʔ** 'wear' ⪤ **fɨ́** 'dress smn'; Ahi **viʔ⁴⁴**; Luquan **i⁵⁵**; Naxi **vi⁵⁵**
	*w(y)at	WB **wat**; Zaiwa **vut**; Rawang **nuŋ**-*wat* 'wear'; rGyalrong **tewyet** 'clothes'

a. For the Chinese comparanda of this etymon, see above 8.2(1e), 8.3(1e).

b. See above 8.2(2).

c. Many other allofams of this etymon are reconstructed at various subgroup levels of TB in JAM 1995b ("Numerals"; see Index, p. 236).

d. See above 12.1(2b) for the *-u- ⪤ *-i- variation in this root. The Lepcha doublet **ă-myal** ⪤ **ă-myel** possibly reflects -i- ⪤ *-ya- variation as well: **ă-myal** < *s-mal ⪤ **ă-myel** < *s-myal. For Lepcha medial -y- as a reflex of PTB *s-, see above 4.2.1.

e. See above 9.2.2.

f. This complex word family is discussed in more detail in JAM 1995b ("Numerals"):128-30.

g. Lh. **ɣɔ̀ʔ** 'silver pheasant [*Lophura nycthemera*]', 'bartailed pheasant [*Syrmaticus humiae*]' apparently derives from PLB *rwak^L, thus establishing -y- ⪤ -w- variation in this root as well. See *DL*:1141.

h. There is still another allofam, *s-nup (above 12.1(2a), and perhaps also *s-nyit, above 8.3(3b). For the Chinese comparanda to this etymon, see above 8.2(3e) and 8.3(3c).

i. For some further, more speculative connections of this root, see above 8.2(2b).

12.2.2   *-i- ⋟ *-ye-

'fly'	*pur ⋟ *pir ⋟⋟ *byer [a]	
	*pur ⋟ *pir	*STC* #398 (see above 12.1)
	*byer	Bahing **byer**; Abor-Miri **ber**

a. *STC* (n. 249) claims that these are distinct roots, but they certainly seem allofami-
cally related.

12.2.3   *-ya- ⋟ *-e-

'low'	*s-nem ⋟ *nyam	*STC* #348 and p. 85
	*s-nem	Jg. **nèm**; Nung **ənem** 'low', **śənem** 'make low'; WB **nim'** [a]; Lahu **nɛ̀**
	*s-nyam	Lushai **hniam**

a. The creaky tone of this WB form indirectly reflects the *s- prefix; see above 4.2.

12.2.4   *-i(y) ⋟ *-ey; *-i(y) ⋟ *-əy [17]

There are several cases of alternation between *-**ey** and short *-**i** or long *-**əy** (= *-**iy**).
In any case the reflexes of *-**i** and *-**ey** are identical (*i.e.* -**i**) for many languages, including
WT, WB, Jingpho, and Lahu.

'penis' [a]	*m-ley ⋟ *m-li	*STC* #262; *GSTC* #49
	*m-ley	WT **mdźe**
	*m-li	Kanauri **kut-***li*, Bahing **bli**, Garo *ri*-**gaŋ**, Dimasa **li**
'aunt' [b]	*ney ⋟ *ni(y)	*STC* #316
	*ney	WT **ʔəne**, Tsangla **ənye**, Kanauri **əne**
	*ni(y)	Lushai **ni**, Garo **ma-ni**, Mikir **ni**
'earth'	*m-ley ⋟ *m-ləy	*STC* #152; *GSTC* #152 [c]
	*m-ley	Lushai **lěi**, Tangkhul **ŋərəy**, Lahu **mì**
	*m-ləy	Muya (Qiangic) **məli**, WB **mre**, Hpun (Samong) **təmli**, Mikir **mili** ⋟ **meli** 'sandbank'
'tiger'	*d-kəy ⋟ *d-key	*STC*:116; *GSTC* #52

17. See above 5.5.4, much of which is repeated here for ease of reference.

*d-key	Mikir **teke**, Lakher **tśəkei**, Proto-Kiranti ***key-ba** 'tiger', Miri **si-ke** 'species of civet'
*d-kəy	WB *khye*-sac 'leopard cat'

a. WB **lî** and Lahu **nī** (with preemption by the prefix and assimilation of the prefix to the original root-initial) could descend from either variant. Jg. **mənè ~ məné?** (with similar assimilation of the initial to the prefix) seems to reflect neither of these allofams, but could descend from PTB ***m-le** (see above 5.4).

b. Jg. **nī** could descend from either variant.

c. *STC* does not recognize the variant in *-ey. By coincidence these sets are numbered the same in *STC* and *GSTC*!

*12.2.5   *-i(y) ⩶ *-ay* [18]

'left'	*r-bi(y) ⩶ *b(w)ay [a]	*STC* #47 and p. 68; *GSTC* #'s 80 and 124
	*r-bi(y)	Mikir **arvi**
	*bʷay	WB **bhai** 'left' ⩶ **lak-wâi** 'left hand', Jg. **pāi**, Lushai **vei**, *etc*.
'ten' [b]	*ts(y)i(y) ⩶ *tsyay	*STC* #408; *GSTC* #'s 2 and 73
	*ts(y)i(y)	Jg. **(t)śī**, Garo **tśi**, Dimasa **dźi**, *etc*.
	*tsyay	WB **?əchai**, Lahu **chi**
'copula'	*way ⩶ *ray	Alongside the basic copular morpheme *way ⩶ *ray (*GSTC*) is a group of others with *-i or *-əy vocalism: *rəy, *s-ri, *s-rin, *s-rit (JAM 1985a: 63-4)

a. The -ɛ vowel in the Lahu reflex **là?-***mē* 'left hand' is irregular, as in 'tail' (below 12.2.6); the Lahu initial is also irregular in this complex etymon.

b. For more discussion see JAM 1995b ("Numerals"), §3.22, pp. 134-5.

*12.2.6   *-ey ⩶ *-ay* [19]

'bamboo strip (for tying)'	*?-nay¹/² ⩶ *?-ney	*GSTC* #130
	*?-ney	WB **hnî**; Proto-Karen ***ñai** 'fiber' (Mazaudon 1984); Proto-Tamang **hnãi** (*ibid.*)
	*?-nay¹/²	Lahu **vâ-***ne* (**vâ** 'bamboo') [< PLB Tone *1]; Akha **á-nè** [< *2]; Bisu **nɛ́-phɔ̀**
'bridge / ladder' [a]	*s-lay ⩶ *s-ley	*GSTC* #133 and n.78

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18. See above 5.5.5.

	*s-ley	Lushai lei; Tiddim lèi; Lakher *hlei*-ri
	*s-lay	Chepang hlayʔ; Tangkhul śay 'small bridge', *śay*-ron 'ladder'
'buy / barter' [b]	*b-rey ≳ *r-ley ≳≳ *g/m-lay	*STC#*'s 283, 293; *GSTC* #54
		Cf. e.g. Jg. mərī 'buy' ≳ gəlái 'exchange / barter'
'near'	*s-ney ≳ *s-naːy	*STC*:68; *GSTC* #55
	*ney	Jg. nì, WB nî
	*s-naːy	Lushai hnai, Lahu nê
'pass / exceed'	*s-lay ≳ *s-ley	*STC* #301; *GSTC* #58
	*s-ley	Lakher hlei 'more than others'.
	*s-lay	Jg. lài ≳ šəlài, Dimasa lai, Mikir le, Lushai lei ≳ hlei, Tiddim laːi, Lakher lai-pa 'leftovers'
'rice / paddy' [c]	*may ≳ *mey	*STC* :65, 192; *GSTC* #57
		Cf. e.g. Dimasa mai, Garo mi ~ me- (in comp.)
'tail'	*r-may ≳ *r-mi or *r-mey [d]	*STC* #282; *GSTC* #72
	*r-mey	WB ʔəmrî, Akha dɔ̀-mì
	*r-may	Jg. ǹ-mài
'tongue' [e]	*s-ley ≳ *s-lay ≳ *s-l(y)a	*STC* #281; *GSTC* #56
	*m/s-lay	WT ltśe, Jg. lài (couplet form), Dimasa salai, Lushai lei, Mikir de
	*-ley	Tiddim Chin lei, Jg. śiŋ-*li* (another couplet form); PNN *C-ley) > Yogli li, Wancho le, Konyak yi, Phom yei
	*s-lya	WB hlya, Lahu *ha*-tɛ̄.

a. There is also an excellent Chinese comparandum, 梯 OC *tిǝr (*GSR* #591*l*), Mand. tī.

b. Contra *STC* (n. 205, p.64) this root certainly seems allofamically related to *g/m-lay 'change/exchange' (*STC* #283). Benedict claims that *b-rey ≳ *r-ley is a loan from Austro-Tai [PAT *(m)baḷi]. See above 5.5.2(1).

19. See above 5.5.3, repeated here for ease of reference.

c. The rhyme of this etymon (attested mostly in Bodo-Garo) is not reconstructed with certainty in *STC*: "*m[a/e]y". There is also evidence for a monophthongal allofam *ma. See JAM 1995a "Palatal suffixes", and above 11.6.

d. Lushai **mei** is consistent with either reconstruction; Mikir has a doublet: **arme** ⪥ **-mí**. French (1983) reconstructs PNN *C-meːy. The Lahu reflex **mɛ̄(-tu)** is not regular for either proto-rhyme (see also 'left', above 12.2.5).

e. This highly variable root displays both *-ey ⪥ *-ay and *ay ⪥ *a variation. For the latter, see above 11.6 ("Palatal suffixes"), where this root is not presented.

12.2.7   *-ey ⪥ *-eŋ [20]

STC (pp. 79, 171, 183) sets up a PTB root ***sre[ŋ]** 'squirrel / weasel', on the basis of WT *sre*-**moŋ** 'weasel', Mikir **iŋ-*ren*** 'mongoose', and WB **hrañ** 'squirrel'.[21] Several additional forms cited in *GSTC* #151 point to a variant in ***-ey** (Lushai **hlĕi** 'squirrel', Abor-Miri *lí*-**po**, Tangkhul Naga **saŋ**-*ri*, **khərəy**, **ci-*reŋ***), leading to a pan-allofamic formula like *s-ley ⪥ *s-leŋ ⪥⪥ *s-rey ⪥ *s-reŋ.[22]

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20. See above 5.5.6.

21. *STC* sets up the nasal-finalled allofam with *-ŋ, even though *-n seems equally likely, probably because the putative Chinese cognate, 狌 / 鼪 OC *srĭĕŋ 'weasel' (*GSR* #812t-u) has -ŋ .

22. This alternation between final semivowel and nasal is similar to the much better attested *-ay ⪥ *-an, below 12.4.

12.3 *Other alternations involving back vowels*

12.3.1 **-u- ⋇ *-a- and *-o- ⋇ *-a-*

'descend'	**s/ʔ-yuk ⋇ *zak*	*STC* p. 30 and n. 289; *TSR* #121
	*s/ʔ-yuk	Jg. ʔyúʔ (Maran), juʔ⁵⁵ (Dai *et al.*) [a] 'descend', šəyúʔ 'let down' (causative); Lushai **zuk** 'verbal affix indicating downward motion'
	*zak[L] (PLB)	WB **sak**; Lahu **yàʔ**; Sani **zeʔ²²**; Hani **zaʔ²¹**, *etc.*
'grass / weeds'	**mruk ⋇ *mrak*	*STC* #149, #363 [b]; *TSR* #138; *DL*:1006
	*mruk	Lahu **mùʔ**; Akha **mòq**; Lisu **mùʔ**, Lalo **mùq**, *etc.*
	*mrak	WT **ḥdźag-ma** [c]; Kanauri **myag**; WB **mrak**
'smell / scent / fragrant'[d]	**suŋ ⋇ *saŋ*	*STC* #405
	*suŋ	WT **bsuŋ** 'smell, fragrance'; Jg. **sūŋ** 'scent, odor, smell'
	*saŋ	WB **sâŋ** 'emit a pleasant odor'

a. This Jingpho form was inadequately recorded as "**yu**" in the sources used in *STC*, leading Benedict to reconstruct two separate roots, ***yu(w)** and ***zak**. See above 11.5.

b. *STC* #363, note 238 attributes PLB ***muk** 'weeds, grass' to me (although I have no recollection of such a reconstruction!), relating this etymon to words meaning 'detritus/dust' (< PTB ***mu:k**) rather than to 'grass/weeds'. See above 8.4(1b).

c. This WT form led Benedict to revise his PTB reconstruction to ***m-lyak** (*STC*, n. 142).

d. A Chinese comparandum (suggested by RSC, 2002) is the etymon represented by 皀(薌) OC χịang 'fragrance of grain' (*GSR* #714ab,m) and 香 OC χịang 'fragrance' (*AD* 142, *GSR* #717a).

There is also one good example of **-o- ⋇ *-a-* variation: 'fear' ***k/grak ⋇ *k/grok**. See above 8.2(1e).

12.3.2 **-u- ⋇ *-wa- and *-o- ⋇ *-wa-*

Parallel to the **-i- ⋇ *-ya-* variation discussed above (12.2.1), a few roots exhibit an alternation of the type **-u- ⋇ *-wa*. In three etyma originally reconstructed with medial *-u- ('horn', 'neck', 'sour / acid'), Lepcha has a reflex in -o- or -ó- (where the acute accent

indicates a long vowel). Since the usual Lepcha reflex of medial ***-u-** is **-a-** (above 7.2(5), 8.4(1c)), Benedict later revised the rhymes of these etyma to ***-wa-** (*STC*, n. 231):

	STC	*PTB-1*	*PTB-2*	*Lepcha*
'horn / corner' [a]	#85	*ruŋ	*rwaŋ	ăróŋ
'neck'	#393	*tuk	*twak	tŭk-*tok*
'sour / acid'	#42	*skyuːr ⪥ *suːr	*s-kywaːr ⪥ *swaːr	tśor

> a. There is also an open-syllable allofam ***rwa**, which shows a similar ***-u** ⪥ ***-a** alternation in WT **grwa** ⪥ **gru** 'angle, corner'; **rwa** ⪥ **ru** 'horn' (*STC*, p. 113).

Several allofamically related roots, showing both ***-u-** ⪥ ***-wa-** and ***-i-** ⪥ ***-ya-** variation, are reconstructed in JAM 1997a ("Laryngeals"):48 : [23]

'heat up / burn'	*hul ⪥ *hwal	Thulung **hal** ~ **ul** 'heat slightly', **wal** 'boil lightly', *etc*.
'sweat'	*hur ⪥ *hwar ⪥⪥ *hir ⪥ *hyar	
	*hur	Gallong **a-***ur*, **a-***ɯr*, **a-***yɯr*; Darang **ha**ː-*u*
	*hwar	Miri **har**; Bokar **ho-***war* len; Lhoba **fioŋ-***ŋar* (with assimilation to the final of the first syllable)
	*hir	Milang *hiːl*-**ma**; Mikir **ing-***i*; Anong **in**[55]
	*hyar	Tagin **ha-***cer*, **ha-***yer*

We have also noted an example of ***-o-** ⪥ ***-a-** variation: 'outer covering' ***r-kwa(ː)k** ⪥ ***kok**; see above 8.6(1).

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23. These roots are actually part of an even larger word-family with meanings related to 'heat' (*op. cit.*, pp. 44-46). See above 9.6.

12.3.3   *-ow ≱ *-aw [24]

There are several roots where Jg. has -**au** corresponding to WB (and Lahu) -**u**, pointing to proto-variation between *-**aw** and *-**ow**:

		STC#	Jg.	WB	Lahu
'cross over'	*gow ≱ *gaw	318	gāu	kû	---
'thick'	*tow ≱ *taw	319	dāu	thu	thu
'pine / fir'	*row ≱ *raw	320	mərāu	thâŋ-rû	---

12.3.4   *-ow ≱ *-u(w) [25]

There are also a few roots where variation must be posited between *-**ow** and the diphthong reconstructed as *-**əw** or *-**uw** (above 5.3.1; STC p. 69):

	General TB	STC#	Dimasa [a]	Lushai
'thorn'	*tsow	276	busu < *tsu(w)	---
'steal'	*r-kəw	33	khau < *kow	---
'hammer'	*tow	317	---	*tu*-bauʔ < *tu(w)

a. Dimasa regularly has -**u** < *-**u** or *-**əw**, and -**au** < *-**ow**.

12.4   *-ay ≱ *-an [26]

Several cases of *-**an** ≱ *-**ay** variation in TB/ST word families have been identified:[27]

'crab'	*d-k(y)aːy ≱ *d-k(y)an	STC #51; GSTC #'s 4, 59
	*d-k(y)aːy	Tangkhul Naga *khai*-reu; Khoirao tśəɣai; Khami təai; Lushai ai; Lahu á-*cè*-gu ~ á-*ci*-ku
	*d-k(y)an [a]	Jingpho tšəkhán; PNorthern Naga (French 1983:469) *graːn > Wancho san, Chang hin

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24. See above 5.6.3.

25. See above 5.6.4.

26. See above 7.1(2).

'red'	*t(y)a ≼ *t(y)an ≼ *t(s)aːy [b]	*STC*:17-18, *etc.*; *GSTC* #150; Pal. suff. #7.
	*t(y)a	WB **ta**, **tya** 'flaming red'
	*t(y)an [c]	Lushai **śen**, Tiddim **san** ≼ **tśhan**
	*t(s)aːy	Lushai **tâi** 'rosy, ruddy, red'; Lakher **sai** '*id.*', *sai*-**law** 'scarlet'.
'single / one / whole / only'	PST *day ≼ *dan	*GSTC* #148; Pal. suff. #27
	*day	Jg. **tāi**; Boro **otay**; Lakher **dei**; Lahu **tê**
	*dan	Chinese 單 OC ***tân** 'single, simple' (*GSR* #147a-d)
'war / strife'	*g-raːl ≼ *g-ran ≼ *ray	*STC*:15, 71, 173, 191; *GSTC* #149
	*g-raːl	WT *ral*-**gri** 'sword' ("war-knife"); Lushai **raal** 'war against, warrior'; Tiddim **gaːl** 'battle, war, enemy'; Angami **te**-*hrə* 'war'; Kaman Mishmi **krau**[55] 'quarrel'
	*g-ran [d]	WT **ḫgran-pa** 'fight'; WB **ran** 'quarrel'
	*ray	Tangkhul **rai** 'war, battle, feud; *rai*-**kapiŋa** 'warrior', *rai*-**mi** 'soldier'

a. It is possible that the **-n** represents the "collective suffix", as suggested in *STC* (n. 184, p. 99); see above 11.2.3.

b. This complex etymon displays both ***-a** ≼ ***-ay** (see above 11.6) and ***-an** ≼ ***-ay** variation

c. Several Chinese comparanda support the nasal-final allofam, including 丹 OC ***tân** (*GSR* #150a-b) 'red; vermilion; cinnabar'.

d. There is a good Chinese comparandum in ***-n** (above 9.3.4).

12.5 *Variation between homorganic final nasals and stops*

This is perhaps the most important variational pattern in TB/ST word families.[28] Stop ≼ nasal variation in syllable-final position occurs both internally in Chinese and individual TB languages, as well as cross-linguistically among TB languages, or between TB and Chinese.[29]

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27. See *GSTC* (JAM 1985a:46-9; 64-6) and "Pal. suffixes" (JAM 1995a:54-5; 78-82).

28. Many examples have been given above in connection with particular rhymes, some of which are repeated in this section for ease of reference. See Courant 1903; Karlgren 1933; Wolfenden 1937; *STC* p. 156; JAM 1978a (*VSTB*):23-25.

Some of this stop ⚔ nasal interplay may be dismissed as low-level syntagmatic assimilatory effects, *e.g.*: 'poker / stick for stirring fire' PTB *yok > WT **yog-po** 'poker', **skyogs** 'ladle'; WB **yauk-ma'** ~ **yauŋ-ma'** 'pudding stick' (where the latter variant shows assimilation to the nasal initial of the suffix).[30] Such assimilations are especially frequent in the verb paradigms of "pronominalized" languages, *e.g.* Bahing **bap-to** 'scratch', but **bam-so** 'scratch oneself'; Thulung **sen-mu** 'to kill', **sen-na** 'you kill him', but **set-to** 'I killed him'; **rem-mu** 'to look', but **rep-to** 'I looked at him'.[31]

More interesting are alternations that cannot be explained away in assimilatory terms. These variations occur at all three positions of articulation, although the cases before velar finals are by far the most numerous. This is perhaps not surprising, given that velars are the most common final consonants in TB/ST in general.

12.5.1   *Nasal/stop variation with final labials*

'draw / scoop water'	*kam ⚔ *kaːp	*STC* #336; *TSR* #39; *VSTB*: 108-9
	*kam	Lahu **qho** 'draw water' (< PLB *kam[1]).
	*kaːp	PLB *C-kap[L] (> WB **khap**, Akha **xɔ̀q**, Lisu **hkaw[6]** 'draw water'; Lahu **qhɔ̀ʔ** 'cupped, concave'); Garo **ko**; Dimasa **khau**
'wrap up'	*tum ⚔ *tup [a]	*TSR* #23
	*tum	WT **ḥthum** 'cover over, wrap up, envelop'; WB **thum'** 'tie in a knot'
	*tup	Jg. **thúp** 'wrap, bundle up'; WB **tup** 'tie together', **thup** 'wrap up'; Akha **tɔ́q** 'wrap around and tie'; Hani **toʔ[33]**; Woni **t'u[55]**
'needle'	*k-ram ⚔ *k-rap	*STC* #52; *TSR* #191
	*k-ram	Chinese 針 OC **t̑i̯əm** (*GSR* #671o)
	*k-rap	WT **khab**; rGyalrong **tekyep**; Trung **ʔuop**; Pumi Dayang **qhǒ**; Namuyi **ʁo[33]**; PLB *rap[L] ⚔ *k-rap[H] (> WB **ʔap**; Lahu **ɣɔ̀**; Akha **à-ɣɔ̀q**, Sani **ɣɤʔ[22]**; Bisu **kjāw**, Hani **ko[33]**, Lisu **wɔʔ[2]**)

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29. Frequently, though not always, Chinese attests to the variant with final nasal, while TB languages (especially those in the Lolo-Burmese group) have the final stop.
30. See *STC*:14.
31. These Thulung examples are from Lahaussois 2002.

'swell up / be swollen / stout / calf of leg'	*bwap ≋ *s-bwam	*STC* #172; *TSR* #92
	*s-bwam	WT **sbom-pa** 'thick, stout'; Jg. **bōm** 'to swell', **bòm** 'round and chubby'; WB **phwam'** 'plump', Lushai **puam** 'swollen; to swell'
	*bwap	Jingpho *bòp*-lé-lé, **bòp**, **ləbòp** 'calf of leg'; Lahu **phòʔ** 'swell up' < PLB *C-pwap^L

a. This root also shows **-u-** ≋ **-i-** variation; see above 12.1(1d).

12.5.2 Nasal/stop variation with final dentals

'braid / plait / interweave'	*p/ban ≋ *p/bat	*GSTC* #'s 31, 37 [a]
	*pan ≋ *ban	WB **pân** 'go around the end of a thing', **phan** 'shuffle cards'; Lahu **phê** 'to braid'; Lushai **phǎn** 'knit, crochet; net'; Tiddim **phan** 'weave, plait'; Garo **panʔ** 'wind into a ring'; Boro **phan** 'twist'; Chinese 辮 OC **b'i̯an** (not in *GSR* #219) 'braid, plait' and 編 OC **pian** '*id.*' ≋ **b'ian** 'arrange in series' (*GSR* #246e)
	*pat ≋ *bat	Mpi **pheʔ¹** < PLB *C-pat^L; Dulong **blɑt⁵⁵** 'braid' (*ZMYYC* #655) [b]; WB **pat** 'wind around, encircle'; Jg. **bàt** 'wind around'
'cut / slice / castrate'	*mwan ≋ *mwat	
	*mwan	Jg. **mōn** 'cut fine; castrate (hog)', **mòn** 'cut, slice (as tobacco) into fine particles'; Shixing **m̥ĩ⁵⁵βɛ⁵⁵** 'castrate'; Yi Nanjian **muɯ²¹**; Jinuo **mɤ⁴⁴**; Bai (Dali) **mio³⁵**, (Jianchuan) **miɛ⁵⁵**
	*mwat	Jg. **mòt** 'shave, cut, slice (as tobacco leaves or the like)'
'fart'	*pyen ≋ *pyet	JAM
	*pyen	WT **phyen**, **ḥphyen**
	*pyet	Jg. **phyèt**

'load / burden / transport'	*wan ≍ *wat	*GSTC* #38
	*wan	WT ḫon 'bring'; WB wan 'load; PNN (French 1983:459) *wən 'bring, take' > Chang o-*on*, u-*wan* 'load, burden'
	*wat	Tangkhul (Bhat 1969) wot, (Pettigrew 1918) ot 'thing; work, subject, substance, service; load', *ot* kaphei 'unload' (kaphei 'dismantle')
'pour / spill; sow broadcast' [c]	*sywan ≍ *sywat	*GSTC* #40
	> *swan[1/2] (PLB)	WB swan 'pour out, spill, shed' ≍ swân 'pour upon, cast by pouring liquid into a mold'; Lahu šē 'pour; sow broadcast'; Akha sὲ 'sow seeds', sjὲ 'pour'; Mpi se[1] 'sow broadcast, scatter seed'
	> *swat[H] (PLB)	Lahu šêʔ 'pour, spill'; Akha sjέq; Sani xɣ[44]; Bisu šὲt
'rub off / grind'	*pwan ≍ *pwat [d]	
	*pwan	WB pwân 'be rubbed off, abraded'
	*pwat	WB pwat 'rub, grind, churn; lathe'
'run / dance / kick'	*gan ≍ *k(y)at	*TSR* #18; *GSTC* #39
	*gan	WB kan 'kick, kick back, rebound'
	*k(y)at	Akha tjέq 'run'; Lisu hchye[2]; Sani cɛ[44]; Bodo khat; Garo kat; Mikir kát; Jg. gàt 'run', kəgàt 'flee', khàt ~ ləkhàt 'kick (as a horse)', khàt-khàt 'show the heels, hurry'; Lahu qā-*qhêʔ* 'dance'
'extinguish / shut / blink'	*s-miːn ≍ *s-miːt	*STC* #374
	*s-miːn	WB hmîn 'have the eyes shut'

	*s-miːt	WT **med-pa** 'not exist'; Mikir **met** , Lushai **timit**, Garo **kimit** 'extinguish'; WB **hmit** 'shut the eye, blink'; Lahu **mèʔ** 'shut abruptly (as the mouth or eyes); wink, blink; go on and off rapidly, flicker' (*DL*:1008); Akha **míq** 'be extinguished', **myáq míq** 'close the eyes'; Chinese 滅 OC **mi̯at** (*GSR* #294b) 'drown; extinguish, destroy'
'spirit / illness-causing demon' [e]	*nan ⪥ *nat	*TSR* #136; *VSTB*:110-111, 254-5; *GSTC* #36
	*nan	Lahu **nê**, Sani **ni⁵⁵**, Lisu **ni⁵** 'spirit'; Ch. 難 OC **nân** (*GSR* #152d-f) 'be in difficulty, suffer'
	*nat	Jg. **nát**; WB **nat**; Akha **nèq** 'spirit'; WT **nad** 'illness'; Lushai **nat** 'ache, be in pain'
'untie / loosen' [f]	*pyin ⪥ *pyit	
	*pyin	Nung **phyit** 'to loose, untie'
	*pyit	Nung **phyin** '*id.*'

a. These two sets in *GSTC* should be combined into a single etymon.

b. The -l- in this form is unexplained.

c. Limbu has a complex set of related forms reflecting alternations among final -r, -n, -t, -s, and open syllable: -sɛr- ~ -sɛt- 'scatter, be split, go in separate directions' ⪥ sɛnd- ~ sɛn- 'split up, disperse, break up' ⪥ -sɛs- ~ -sɛ- 'scatter, spill, sow'. This set should actually be reconstructed with *-r at the PTB level (see above 9.2.1).

d. Perhaps the stopped allofam reflects a trace of the old causative *-s suffix; see above 11.4.4.

e. Both the -t and the -n in this etymon may be suffixal, ultimately deriving from *na 'ill; pain' (*STC* #80) > WB **na**, Lahu **nà**. We would then have a tripartite word family of the shape *na ⪥ *nan ⪥ *nat. See above 11.1.1.

f. An open-syllable allofam should be set up for Lolo-Burmese: PLB *prəy¹ > WB **phre**, Lahu **phɨ**, Akha **phý** (*DL*:917).

12.5.3   *Nasal/stop variation with final velars* [32]

'back / behind'	*s-nuŋ ⪥ *s-nuk	*STC* #354; *TSR* #155
	*s-nuŋ	WB **hnâuŋ** 'be after', **ʔəhnauŋ** 'back of a knife'; Lushai **hnuŋ** 'the back', **hnuŋ-a** 'after, behind'; Mikir **ənuŋ** 'back'.

	*s-nuk	WB **nauk** 'space behind, past time'; Lahu **qhɔ̂ʔ-nɔ́** 'back (of body), space behind, later time'
'cold'	*m-glaŋ ≍ *m/ʔ-glak	*STC* #120 and n. 124; *TSR* #99
	*m-glaŋ	WT **graŋ-ba**; Trung **glaŋ**; Lepcha **hyáŋ**; Lushai **ʈaŋ-thoːm**; Mikir **niŋ-kreŋ** 'winter', **paŋ-kleŋ** 'freeze, congeal'; Lahu **gɔ̀**; Chinese 涼 OC **glị̯aŋ** (*GSR* #755*l*)
	*m/ʔ-glak	WT **khyag(s)-pa**; Lahu **kâʔ**; Atsi **kyoʔ**; Maru **kyòʔ**; Akha **gáq**
'dream'	*r/s-maŋ ≍ *r/s-mak	*STC* #82; *TSR* #144
	*r/s-maŋ	WT **rmaŋ**; Jg. **ʔyúp-māŋ**; Nung **ip-maŋ**; Trung **mləŋ**; Lushai **máŋ**; Garo **džú-maŋ**; WB *hmaŋ*-**ca-saŋ'** 'walk in one's sleep'; Chinese 夢 OC **mị̯ŭng** (*GSR* #902a-b)
	*r/s-mak	WB **ʔip-***mak*; Lahu **yɨʔ-***mâʔ*; Akha **máq**
'eagle / vulture / bird of prey' [a]	*g-laŋ ≍ *g-lak	*STC* #333
	*g-laŋ	Garo **do-***reŋ* 'falcon', Bodo **dau-***leŋ*-a 'eagle', Dimasa **dau-***liŋ* 'kite' (**dau** 'bird'); Chinese 鷹 OC **ʔị̯əŋ** 'eagle, falcon' (*GSR* #890c)
	*g-lak	WT **glag** 'eagle, vulture'; perhaps also Chinese 雒 OC **glâk** 'kind of bird' (*GSR* #766q)
'good / beautiful' [b]	*l(y)aŋ ≍ *l(y)ak	JAM 1990b ("Dinguist's dilemma")
	*l(y)aŋ	Chinese 良 OC **lị̯aŋ** 'good' (*GSR* #735a-d) [c]
	*l(y)ak	WT **lags-pa ~ legs-pa** 'good; elegant; beautiful' and **yag-po ~ ḥdźag-po** 'good'; Chinese 易 'at ease, well ordered' OC **dị̯ĕk** (*GSR* #850a)
'heart / mind'	*s-niŋ ≍ *s-nik	*STC* #367; *TSR* #146

32. For *-ak ≍ *-aŋ see above 7.1; for *-uŋ ≍ *-uk see above 7.2(5), 8.4(1).

	*s-niŋ	WT **snyiŋ**; Kanauri **stiŋ**; Limbu **niŋ-wa**; Lushai **niŋ**; Garo **təniŋ**; Bisu **nɯŋ-ba**
	*s-nik	WB **hnac**; Zaiwa *nik⁵⁵*-lum²¹; Luquan niʔ²²; Lahu *ni*-ma (< PLB *ʔ-ni³)
'ink / black'	PST *s-maŋ ⪥ *s-mak (> PTB *s-nak)	*STC* p. 155; *TSR* #142
	*s-maŋ	WB **maŋ**, **hmaŋ** 'ink'; Seke (Tekang) **mraŋ** 'black', (Chuksang) **mlāŋ** '*id.*'; Sahu (Western Tamang) **mlāŋ** '*id.*'; Risiangku **mlaŋ-mlaŋ** '*id.*' (see Honda 2002) ᵈ
	*s-mak	Chinese 墨 OC **mək** 'ink' (*GSR* #904c) and 黑 OC **xmək** 'black' (*GSR* #904a-b)
	*s-nak	WT **nag-po** 'black', **snag** 'ink'; WB **nak** 'black'; Lahu **nâʔ**; Akha **náq**
'maggot'	*s-luŋ ⪥ *s-luk	*TSR* #186
	*s-luŋ	Lushai **lŭŋ**
	*s-luk	WB **lauk**; Zaiwa **luʔ**; Maru **lòk**; Sani **hlu⁴⁴**; Hani *hlu³³*-t'u³²; Akha *lúq*-tàɴ (all 'maggot'); Lahu pù-*lú*-qā 'butterfly'
'noun prefix'	*ʔaŋ- ⪥ *ʔak-	*GD* #71; *VSTB*:28, 238 ᵉ
	*ʔaŋ	Mikir **ang-** (*e.g.* **ang-hap** 'uvula', **ang-mi** 'body hair', **ang-ru** 'rust', **ang-kur** 'root'); Bisu **ʔaŋ-** (*e.g.*, **ʔaŋ-gàw** 'bone', **ʔaŋ-sà** 'breath', **ʔaŋ-dà** 'dawn', **ʔaŋ-ʔu** 'egg'); Phunoi **ʔã⁵⁵-** (*e.g.* **ʔã⁵⁵-hmot³³** 'body hair', **ʔã⁵⁵-jɑu¹¹** 'bone', **ʔã⁵⁵-do¹¹** 'brain'); Sangkong **aŋ³³-** (*e.g.* **aŋ³³-mbaŋ⁵⁵** 'body', **aŋ³³-tu³¹** 'head', **aŋ³³-tsham⁵⁵** 'hair of head', **aŋ³³-ndo̩³¹** 'brain'; Lahu **ɔ̀-** (*e.g.* **ɔ̀-šɛ̄** 'liver', **ɔ̀-mɛ** 'name', **ɔ̀-šī** 'fruit / round object', **ɔ̀-u** 'egg'
	*ʔak	Lahu **á-** (*e.g.* **á-lɛ̀ʔ** 'salt', **á-chɛ̀ʔ** 'goat', **á-thâ** "jew's harp", **á-bôʔ** 'blanket', **á-phɛ̂** 'cucumber')

'overcast / foggy / sullen'	*muːŋ ≍ *r-muːk	*STC* #363, #357 [f]
	*muːŋ	Lepcha so-*muŋ* 'cloudy weather'; Jg. mūŋ 'cloudy; sullen, sulky'; WB hmuiŋ 'dull, downcast', hmûiŋ 'very dark'.
	*r/s-muːk	WT rmugs-pa, smug-pa 'fog'; Lepcha muk 'foggy, misty', muk-muk 'dullness, darkness'; WB muik 'dark, ignorant; Lushai muːk 'dull (color)'; Jg. múʔ 'thunder, cloudy'; Angami Naga *hmuu*-tśa 'fog'
'sheep / yak'	PST *yaŋ ≍ *g-yak	JAM
	*yaŋ	Chinese 羊 OC zi̯ang (*GSR* #732a) (Mand. yáng); rGyalrong kəjo; Ersu tshi⁵⁵jo⁵⁵; Namuyi jo⁵⁵-tshɹ³⁵; Yi Xide tʂhɹ⁵⁵ʐo³³; Naxi Lijiang tshɯ⁵⁵ʑu³¹; Lahu yɔ̀; Lalo á-ʒú; Bai (Dali) jou²¹, (Jianchuan) jõ²¹; Tujia zo³⁵ (all 'sheep')
	*g-yak	WT gyag 'yak'
'sit'	*m-d/tuːŋ ≍ *m-duk	*STC* #361; *ZMYYC* #574
	*m-d/tuːŋ	Jg. dūŋ; WB thuiŋ; Naxi Lijiang ndzɯ³¹; Hani Dazhai dʑo⁵⁵; Bokar Adi duŋ; Sulong toŋ³³; Namuyi ndzu⁵⁵; Shixing dzũ⁵⁵
	*m-duk	WT ḥdug
'speak'	*s-br(w)aŋ ≍ *br(w)ak	*STC*:42, 118
	*s-br(w)aŋ	WT smraŋ 'word, speech', smra-ba 'speak, talk'
	*br(w)ak	WB mrwak ≍ prwak; Lushai biak; Lakher bi
'step on'	PLB *s-naŋ ≍ *s-nak	*TSR* #149
	*s-naŋ	PLB *naŋ² (> WB nâŋ; Zaiwa náŋ; Akha nɔ̀); Lai Chin neʔ-*(h)naŋ* 'footsteps' (< *s-naŋ)
	*s-nak	PLB *s-nak[H] > Lahu nâʔ
'stone'	*r-luŋ ≍ *k-luk	*STC* #88; *TSR* #190; *ZMYYC* #42

	*r-luŋ	Bahing **luŋ**; Lepcha **lăŋ**; Jingpho **ǹ-lùŋ**; Magari **hluŋ**; Lushai **luŋ**; Garo **roŋ**; Dimasa **loŋ**; Mikir **ar-loŋ**; Qiang Mawo **ʁlu**; Idu **a³¹laŋ⁵⁵**; Bokar Adi **ɯ-luŋ**; Akha **lō**, Hani (Gao 1955) **hlu²¹**
	*k-luk	WB **kyauk** 'stone' (**klauk** in Inscriptions), **mi'**-*kyauk* 'flint' ("fire-stone"); Lahu **mí**-*jɔʔ* 'flint' (**à-mī** 'fire'); Lashi **lūk**; Langsu *lauk³¹* **tsaŋ³¹**
'thunder / dragon'	*m-bruŋ ⩿ *m-bruk	Gong 2001:24
	*m-bruŋ	Chinese 龍 'dragon' (OC **li̯uŋ**; *GSR* #1193a-e).
	*m-bruk	WT **ḫbrug** 'thunder; dragon'
'valley / river'	*klu(ː)ŋ ⩿ *k(l)uk	*STC* #127; Gong 2001:30
	*kluːŋ	WT **kluŋ** 'river', **luŋ-pa** 'valley'; WB **khyauŋ** 'valley', **khyâuŋ** 'stream'
	*k(l)uk	WB **khyauk** 'chasm, gulf, abyss'; Chinese 谷 'valley' (OC **kuk** ~ **gi̯uk**; *GSR* #1202a-c).ᵍ
'wood / tree'	*siŋ ⩿ *sik	*STC* #233; *TSR* #118
	*siŋ	WT **śiŋ**; Bahing **siŋ**; Lushai **thĭŋ**; Mikir **theŋ**; Bisu **tsɯ̀ŋ**; Sgaw Karen **θe**; Chinese 薪 OC **si̯ĕn** 'firewood' (*GSR* #382n)
	*sik	WB **sac**; Atsi **sik**; Lahu **šîʔ**; Nasu **siʔ³²**
'year'	*s-niŋ ⩿ *s-nik	*STC* #368
	*s-niŋ	WT **na-niŋ** 'last year'; Tsangla **niŋ** 'year'; Jg. **nīŋ**; Mikir **niŋ**; Chinese 年 OC **nien** (*GSR* #364a-c)
	*s-nik	WB **ʔəhnac**

a. This etymon is apparently an old loan into TB from a Mon-Khmer prototype with final velar nasal.

b. See above 3.4.2(4c) and 8.2(1e).

c. Gong 2001:29 relates this Chinese form rather to WT **draŋ-po** 'straight, right, sincere, honest'.

d. The medial liquids in these Tamangic forms are unexplained, perhaps reflecting an alternant with a liquid prefix, ***r-maŋ**.

e. *Cf.* also my note 335 in *STC*:121. For more details, see above 4.2.2(2).

f. Two separate roots, *mu:ŋ (#363) and *r/s-mu:k (#357) are set up in *STC*, though they are explicitly recognized as doublets (p. 78).

g. For an alternative Chinese comparandum see above 7.2(5).

12.5.4   Internal nasal/stop variation in Chinese

Alternations between final nasals and stops in Chinese etyma and word-families have been observed for a century. Sometimes the same character has a double reading, but often different characters are used for each reading. Sometimes there is considerable semantic repartition between the variants, but there are also cases where the two variants are roughly synonymous. Among the OC examples cited by M. Courant (1903) are the following:[33]

		GSR	*OC*
With labial finals			
'grasp'	擥	616g (擸)	ʔi̯am ≍ ʔi̯ap
With dental finals			
'decide (legal), adjudicate'	讞	252i; AD153	ngi̯an ≍ ngi̯at
'luxuriant'	苑	260d	ʔiwăn ≍ ʔiwət
'say, speak'	云	460a	gi̯wən
	日	304a	gi̯wăt
'scatter, pour'	散	156a	sân
	撒	AD767	sât
With velar finals			
'plunder, rob'	掠	755k	gli̯aŋ ≍ gli̯ak
'wide'	廣	707h	k'wâŋ
	廓	774g	k'wâk

Another example with velar finals, pointed out by Gong (2001:27-8):[34]

'go to meet, receive'	迎	699d	ŋi̯ăŋ
'go against; go to meet, receive'	逆	788c	ŋi̯ăk

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33. Cited in *STC*:156.

34. The TB relatives of this root have final nasals, WB ŋraŋ 'contradict, deny'; Nung ŋyeŋ 'deny'; Lushai ṭaŋ '*id.*' See *STC* #155.

Similar alternations occur synchronically in Cantonese.[35] Bauer & Benedict (1997:92-94) list 25 such pairs of verbs, 15 with labial finals, 8 with velars, but only two with dentals,[36] *e.g.*:

		With labial finals			
tɐm	嘞	'let fall, drop'	tɐp	揰	'fall, drop down'
khiːm	拑	'pinch, nip'	kiːp	挾	'pinch, squeeze together'
niːm	拈	'pick up w/ fingers'	niːp	捻	'pinch, twist w/ fingers'
				鑷	'forceps, pincers; to nip, pinch'
tsaːm	嶄	'blink, wink'	tsaːp	眨	'*id.*'
		With dental finals			
fuːn	寬	'be wide'	fuːt	闊	'*id.*'
saːn	散	'disperse, spread'	saːt	撒	'scatter, sow, spill'[a]
		With velar finals			
tœːŋ	啄	'peck (of birds)'	tœːk	啄	'peck, preen'
kwɔːŋ	廣	'expand, spread'	kwɔːk	擴	'enlarge, extend'
neŋ	擰	'carry in hand'	nek	搦	'*id.*'
tshoŋ	匆	'be hurried, hasty'	tshok	促	'be hurried, urgent'

a. See above 12.5.2.

12.6   Heterorganic final consonant reflexes

A number of TB/ST word families include reflexes with final consonants at different positions of articulation, with all three mathematically possible variations attested: dental ⋇ velar, labial ⋇ velar, labial ⋇ dental.[37] These heterorganic reflexes are almost always secondary and regularly conditioned in a particular language. Occasionally, however, no conditioning is apparent and the variation cannot be explained.

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35. See *VSTB*:24.
36. Tone marks are omitted.
37. See *VSTB*: 29-33 and 238-9.

12.6.1 Final *velars > final dentals

(1) *-ik > -it [38]

In Lushai and other Chin languages, the PTB rhyme *-ik is usually fronted to -it:[39]

	PTB	*Lushai*
'eye'	*s-mik	mit
'pheasant'	*s-rik	va-*hrit*
'scorpion'	*s-diːk	tiːt

There is, however, a counterexample:

'louse'	*sr(y)ik	hrik [a]

a. L. Löffler (p.c. 1975) claims that dentalization only occurs when the nuclear vowel is preceded by -y-, *i.e.* that only *-yVk acquires Lushai -t. While this accounts for the retention of the velar in 'louse', as well as for the Lushai secondary dental in 'sweep' (PTB **pyak** > Lu. **phiat** [*STC* #174]), it requires an unjustified assumption of pre-Lushai prototypes **s-myak** and **s-ryak** for 'eye' and 'pheasant' (see above 12.2.1), and does not explain the dental in 'scorpion'.

In several good examples, TB *-ik corresponds to a final dental in OC, although the velar seems to represent the original ST articulation:

	PTB	*STC*	*TSR*		*OC*	*GSR*	*Ch. Gloss*
'fear'	*lik [a]	p. 175	---	慄	li̯ĕt	403d	*id.*
'joint'	*tsik	64	45	節	tsiet	399e-f	'knot; joint'
'louse'	*s-r(y)ik *or* *ś-rik	pp. 165, 170	---	蝨	śri̯ɛt [b]	506a	*id.*

a. *Cf.* WT ḥdźigs-pa 'be afraid; fear, dread; fearful'. *STC* had previously compared the OC form to WT źed-pa 'fear, be afraid'.

b. This reconstruction is revised in *STC* from *GSR* și̯ɛt.

As mentioned in 8.4(3) above, the root *(d)z(y)uːk 'pierce / plant / erect' (which underlies forms like WT ḥdzugs, WB **cuik**, Lahu **jû?**, Lushai **fuk**) has several allofamic

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38. Similar to this assimilatory change after high front vowel are the regular developments of PTB */ -ik -it -ek -et / and */ -iŋ -in -eŋ -en / to the WB palatal rhymes -ac and -añ, above 7.4, 8.3(1,2).

39. See *STC*:14.

reflexes that point to final ***-ut**: WT ḥdzud-pa 'put, lay', ḥtshud 'be put into'; Jingpho džút 'be pierced', šədžút 'pierce'.

In two other etyma, either TB or Chinese shows internal ***-k ⪥ *-t** variation. In 'tie / bind', TB varies while OC has **-t**; in 'lick / tongue', OC varies while TB has **-k**.

	PTB	*STC*	*TSR*		*OC*	*GSR*	*Ch. Gloss*
'lick / tongue'	*s/m-lyak	211	179	舌	d̑'i̯at	288a	'tongue'
				膡	g'i̯ok	803h	'tongue' a
'tie / bind'	*k/gyit ⪥ *kik b	484	---	結	kiet	393p	'tie, knot'

a. The gloss given in *GSR* is 'palate, interior of the mouth', but this seems to be spurious (see Karlgren's comment on #776a).

b. Cf WT ḥkhyig-pa 'bind' (< *kik) ⪥ Jg. kyít 'gird, girdle', gyìt 'tie, bind', šìŋ-*kyít* 'girdle'. WB kyac 'twist hard and tight' could reflect either *-it or *-ik, but Lahu chì̱ʔ 'tie, knot' points specifically to PLB *-ik. See above 8.3(1a).

(2)   **-iŋ > -in*

In Lushai, ***-iŋ**, unlike its stopped counterpart ***-ik**, retains the velar articulation:

	PTB	*Lushai*	*STC#*
'name'	*r-miŋ	hmiŋ	83
'fresh / green'	*s-riŋ	hriŋ	404
'wood / tree'	*siŋ	thiŋ	233

Lushai has, however, developed a dental from the rhyme ***-yim** (below 12.6.3).

There are two good examples of ST/TB ***-iŋ** > Old Chinese ***-in**. Both TB roots also happen to show homorganic nasal ⪥ stop alternation (see above 12.5.3).

'wood / tree'	PTB *siŋ	*STC* #233; *TSR* #118
	WT śiŋ; Bahing siŋ; Lushai thĭŋ; Mikir theŋ; Bisu tsɯ̀ŋ; Sgaw Karen θe	
	Chinese 薪 OC si̯ĕn 'firewood' (*GSR* #382n)	
'year'	PTB *s-niŋ	*STC* #368
	WT na-niŋ 'last year'; Tsangla niŋ 'year'; Jg. nīŋ; Mikir niŋ	
	Chinese 年 OC *nien 'harvest; year' (*GSR* #364a-c)	

Another possible example is the following: 'relatives / ancestors' PTB ***dziŋ** (not in *STC*) > WB **cañ** 'place in a continuous row', **ʔəcañ** 'succession, order, always', **phûi-*cañ*-bauŋ-chak** 'line of ancestors'; Lai Chin (KVB) *tsiŋ*-**la** 'line of ancestors'; Chinese 親 (OC **ts'iĕn** 'parents, relatives'; *GSR* #382o-p).[40]

In the following etymon both TB and OC show final velar �every dental alternation:

	PTB	STC		OC	GSR	Ch. Gloss
'name; order / command'	*r-miŋ �every *miːn [a]	#83; p. 180	名	miĕŋ	826a-c	'name'
			命	miĕn ~ miăŋ	762a-b	'order / command / name / designation'

a. *Cf.* WB **min'** 'speak authoritatively, command', prob. �every **mrañ** 'find fault with, scold' (see Gong 2001:24). See above 7.5(5,6).

(3)   Tripartite variation involving final velars and dentals

'pierce / plant / erect / thorn' [a]	PTB *tsow �every *(d)z(y)uːk �every *dz(y)ut
	*tsow — Kanauri **tso**; Lepcha **dźu**; Jg. **dźú**; WB **chû**; Lahu **í-chû** (all 'thorn') [b]
	*(d)z(y)uːk — WT **ḥdzugs-pa** ~ **zug-pa** 'prick; set into', **ḥdźug** 'enter / put into'; WB **cuik** 'erect / set upright / plant'; Lahu **jûʔ** 'pierce / stab'
	*dz(y)ut — WT **ḥdzud-pa** 'put, lay into', **ḥtshud** 'be put into'; Jg. **dźút** 'be pierced', **šədžút** 'cause to pierce'

a. See *VSTB*:32; *STC* #276. See above 5.6.1, 8.4(3).

b. WT **mtshon** 'any pointed or cutting instrument / forefinger' (with suffixal **-n**) is perhaps related. See *STC* n.200.

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40. According to the etymology provided in *STC*, this Chinese form is to be attributed to the root ***tsa** 'child' plus the collectivizing suffix ***-n**. See above 11.2.4.

12.6.2   Final labials ⋟ final velars (gravity alternations)

(1)   Where the directionality is clear

In the Lianghe dialect of Achang (Burmish group), PLB final ***labials** seem regularly to have become velars, a development which did not occur in other Achang dialects (Longchuan, Luxi):[41]

	PLB	*Longchuan*	*Luxi*	*Lianghe*
'bridge'	*dzam¹	tšam⁵⁵	tsam²¹	tšyaŋ⁵⁵
'stand'	*ʔ-rap^L	ʐap⁵⁵	liap²¹	ʐɯk⁵⁵

(2)   Variation with no obvious conditioning

In one PTB root (not in *STC*) there is unexplained variation between a final labial and velar stop:[42]

'early morning'	*m-nak ⋟ *m-nap	*TSR* #131
	*m-nak	WB mənak; Lahu tê *nàʔ* 'early', mû-*nàʔ* 'morning'; Lisu ná⁶; Bisu ʔaŋ-*dà*
	*m-nap	Jg. mənàp; Ao Naga tənap; Mikir mənap ~ pənap

(3)   Where there is -m / -ŋ variation between TB and Chinese

There are at least five etyma where final labial ⋟ velar nasal variation occurs in TB and/or Chinese, although each case is somewhat different from the others:

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41. See JAM 1991c ("Jiburish revisited"):94-95.
42. *Cf.* also *m/kuːk 'angle / knee' (> *e.g.* WT khug, khugs), but Lushai khuːp. See above 8.4(1c).

- PTB *-**m** corresponds to OC -**ŋ** after a back vowel

'bee / wasp'	PTB *plyum
	Thulung **plium**; Nusu **pɹə̯⁵³**; Proto-Karen (Solnit 2002) ***prɨum** [A1] > Pa-o **phrùm**, Kayah Li **plū̄**, Kayaw **phɨ́**, Blimaw **phlú**, Pho **phlə̀n**, Sgaw **phlɔ́**
	Chinese 蜂 OC **p'i̯ung**, MC **p'i̯wong** (*GSR* #1192s)
'house'	PTB *k-yum (≽ *k-yim) *STC* #53
	WT **khyim**; Miri **əkum**; Meithei **yum**; WB **ʔim**; Lahu **yɛ̂**
	Chinese 宮 'dwelling-house; palace, apartment; temple' OC **ki̯ôŋ** (*GSR* #1006a-d)

- TB shows -**m** ≽ -**ŋ** variation; OC has -**ŋ**

'use'	PTB *zum ≽ *zuŋ
	Jingpho **súŋ** (v.), **ʔəsúŋ** (n.); ≽ PLB *zum² > WB **sûm**, Lh. **yɛ̂**; Anong **dzom³¹** [a]
	Chinese 用 OC **di̯ung** (*GSR* #1185a-e)

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a. Many other cognates that probably reflect a final labial are to be found in *ZMYYC* #679, though their eroded finals make it difficult to be sure, *e.g.*: (Qiangic) Ersu **zi⁵⁵**, Namuyi **zy⁵⁵**; Shixing **tsʅ⁵⁵**; (Loloish) Yi Xide **zi³³**, Yi Nanjian **ʑy²¹**, Yi Nanhua **zɯ²¹**, Yi Mile **zi²¹**, Lisu **ze³¹**; (Baic) Dali **zv³¹**. Jianchuan Bai **jõ⁴²** is probably a loan < Chinese.

- TB has -**ŋ**; OC -**m** > MC -**ŋ**

'wind (n.)'	PTB *buŋ
	Jg. **m̀-būŋ**; Dulong **năm⁵³ bŭ̄ŋ⁵³**; Geman Deng **bauŋ³⁵**
	Chinese 風 OC **pi̯ŭm** > MC **pi̯ŭŋ** > Mand. **fēng** (*GSR* #625h)

- TB has -**m**; OC -**m** > MC -**ŋ**

'bear (n.)'	PTB *d-wam (*STC* #461)
	WT **dom**; rGyalrong **twŏm**; Bahing **wam**; Lushai **sa-vom**
	Chinese 熊 OC **gi̯um** > MC **ji̯ung** > Mand **xiōng** (*GSR* #674a-b)

- No TB cognates, but OC -**m** > MC -**ŋ**

Several words with both labial initials and labial finals in OC dissimilated the second labial to a velar by the MC stage, *e.g.*:

		OC	MC	Mand.	GSR#
'luxuriant / bushy'	芃	b'ŭm	b'ung	péng	625g
'phoenix'	鳳	b'i̯ŭm	bi̯ung	fèng	625j-m

If it were not for the TB cognates, 'wind' would also belong in this category. 'Bee' (above) has an original OC -ŋ, which remained as such in MC.

12.6.3 *Final labials ⋈ final dentals*

(1)   With phonological conditioning

· *-am > Jingpho -en

In four etyma (two of them with medial -y-), Jingpho reflects PTB *-am by -en:[43]

	PTB	WB	Jingpho
'breath / voice' a	*sam	ʔəsam	nìŋsén ~ ǹ-sén
'fly (v.)' b	*byam	pyam	pyēn
'rough / coarse'	*gram	krâm	grèn
'snow / ice; cold'	*kyam	khyâm	khyēn

a. *Cf.* Chinese 心 OC si̯əm (*GSR* #663a-b). WT shows a similar -am ⋈ -em variation in this root: **sem(s)** 'soul, mind, spirit', **sems-pa** 'think' vs. **bsam** 'fut. of sems-pa', **bsams** 'perf. of sems-pa', **bsam-pa** 'thought, imagination, fancy'.

b. *Cf.* also Lahu **pò**, Ahi **thö**, Nyi **tlö**, rGyalrong **kabyam**, and many other cognates in *ZMYYC* #782 and *TBL* #1318.

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43. See above 7.1(1) and *STC*:51.

· *-am > Lushai (and other Chin) -in

	PTB	*Lushai*
'drink'	*ʔam ᵃ	in

   a. *Cf.* also Bawm in; Hakha im ~ lim; Mru yem; Chinese 飲 OC ʔi̯əm (*GSR* #654). See above 7.5(1).

· *-yim / *-yip > Lushai -in / -it

	PTB ᵃ	*Lushai*
'house'	*k-yim ⋈ *k-yum	in
'sleep'	*yip ⋈ *yup	it

   a. For the *-i- ⋈ *-u- variation in the following etyma, see above 12.5.1.

· Where a PTB etymon in *-p corresponds to an Old Chinese word with final dental

'lungs'	PTB *s-wap ⋈ *r-wap ⋈ *p-wap	(see *VSTB*:113-119)
	Chinese 肺 OC p'i̯wăd, MC p'i̯wɑi- (*qùshēng*) , Mand. fèi (*GSR* #501g)	

The final dental in Old Chinese perhaps arose by assimilation to the Proto-Chinese suffix *-s that has been hypothesized as the source of MC *qùshēng* (departing tone), supposing a schematic development like ***p-wap-s > pwat-s > pwas > pwài** *(qùshēng)*.[44] A simpler explanation would be that the final labial has dissimilated from the labial initial, a tendency noted above (12.6.2) in etyma like 'wind', 'luxuriant', 'phoenix'.

(2)   *Unexplained -t ⋈ -p variation*

    There are a handful of examples of variation between -t and -p, especially after a high front vowel, e.g.:

'bag / sack'	*ʔip ⋈ *ʔiːtᵃ	WB ʔit; Lushai, Lai ʔip

   a. The WB rhyme motivates the reconstruction of a long vowel; see above 8.2(2). For a similar case, but where the final -t is clearly secondary, *cf.* Lai Chin ʔit 'sleep' < PTB *s-yip.

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44. See above 11.4.5(2).

In a couple of words, Jingpho shows synchronic variation between -**t** and -**p**, or a final -**p** where a -**t** would be expected by the comparative evidence:

'tongue'	Jg. šìŋ-lèt ⋊ šìŋ-lèp
'horse-leech'	*m-liːt (*STC* #396) (> Lepcha **hlet-bu**, Lushai **hliːt**, Mikir **iŋlit**, Ao Naga **melet**), but Jg. líp '*sp.* of horse-leech'.

Conclusion

One cannot very well end a book with the word "horse-leech", and so a few concluding philosophical remarks seem appropriate. Perhaps the best way to organize this discussion is in terms of a set of adjectives with the *-ive* suffix.

13.1   Cumulative

In linguistics as in other disciplines, it is a constant temptation to try to overthrow the work of one's predecessors, so that one's own research will appear to be the *fons et origo* of the truth.[1] This tendency has been especially characteristic of generative grammar, where "theories of language" have a built-in planned obsolescence, with each new theory claiming to invalidate all previous ones.

Historical linguists are hardly exempt from this primal urge for revolutionary novelty — the desire to be different just for the sake of being different. This can take many forms, some of them trivial and innocuous, like replacing a phonetic symbol in a previous reconstruction by a new but equivalent one; or changing the name of a subgroup of a language family.[2] More serious is the itch to carve out totally novel subgroupings,[3] a process rather similar to the decennial gerrymandering of congressional districts in the

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1.   I have referred to this phenomenon in Freudian terms as "patricidal" (keynote address at the Summer Institute of the Linguistic Society of America, Ann Arbor 1973).

2.   Hence the proliferation of alternate names even for well-established subgroups like Lolo-Burmese (Burmese-Lolo, Yi-Burmese, Burmese-Yi, Burmese-Yipho, Yi-Myanmar, Myanmar-Yipho, etc.). T. Shintani has recently (2002) proposed the euphonious neologism "Brakaloungic" for Karenic.

3.   I have called this "neosubgroupitis" (JAM 2000b "On Sino-Bodic"). Trying to establish higher-order combinations of TB subgroups is premature at best. Even Indo-Europeanists are still unable to do so unequivocally for their much better documented family. See the discussion in JAM 1978a (*VSTB*):1-12.

House of Representatives. At an extreme level we find "megalocomparative" proposals of genetic relationship that turn received notions upside down (*e.g.* Sino-Mayan, Sino-Caucasian, Sino-Austronesian, Japanese-Dravidian), and which can lead the unwary down fruitless paths, obscuring the differences among cognates, borrowings, and chance resemblances.[4]

Perpetual revolution gets to be fatiguing after a while.[5] Surely it is preferable to build on the past rather than to repudiate it. Historical linguistics is a cumulative enterprise. Thanks to the foundation laid by pioneering scholars, especially Paul K. Benedict, a solid body of TB/ST etymological knowledge has been accumulated, in terms of which new etymologies must be evaluated. No longer can one get away with reconstructing whatever one pleases, no matter how typologically bizarre or *ad hoc* or mechanistic the reconstruction might be.[6]

There is a dialectical relationship between synchronic data and sound laws. The "laws" are derived by inference from the data in the first place, but once proto-forms are reconstructed, they can be used to guide us in our hunt for cognates in languages not yet examined (even if they have undergone semantic change). Almost every TB/ST etymology so far proposed presents problems and complications — irregularities — in some language or other, which is par for the course even in the much better known Indo-European family. Part of our task is to indicate where the exceptions, problems, and irregularities lie, in the hope that they can ultimately be explained.

The concept of "regularity" itself is by no means simple, nor does it mean the same thing to different scholars.[7] The Nostraticist or Sino-Mayanist can convince himself that his fantastical comparisons are "perfectly regular". Given sufficient semantic latitude and proto-forms that are complex enough, one can formulate "sound laws" in such a way that they appear exceptionless. Paradigmatically one can multiply the number of proto-phonemes. If you reconstruct 35 proto-vowels, any anomalous vowel correspondence can be regarded as "regularly reflecting" a separate proto-vowel.

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4. See JAM 1990a ("On megalocomparison"). Megalocomparison has the apparent advantage of non-falsifiability, since, as Haudricourt has observed, one can never prove that any two languages are not related. But non-falsifiable hypotheses are not scientific. When presented with alternative non-falsifiable proposals it is impossible to choose among them.

5. As Leon Trotsky found to his cost in 1940.

6. Those who lack what I have called "Proto-Sprachgefühl" (JAM 1982a) can produce reconstructions bristling with strange symbols but devoid of any phonetic or typological plausibility; see *e.g.* Sedláček 1970; Weidert 1975, 1979, 1981, 1987; Peiros & Starostin 1996.

7. See JAM 1992 ("Following the marrow") and 1994a ("Regularity and variation").

Syntagmatically, if you reconstruct etyma like ***mrgsla**, and the monstrous proto-cluster ***mrgsl-** occurs only in a single etymon, any set of reflexes in the daughter languages can be said to be "regular".[8]

As the alternative to such "proto-form stuffing", one must have recourse to proto-variation, though in a controlled and constrained way. Not everything may be said to vary with everything else.[9] This *Handbook* places special emphasis on variational patterns in TB/ST, and attempts to classify them according to how well attested they are.[10] As I put it 30 years ago, "We must steer an Aristotelian middle path between a dangerous speculativism and a stodgy insensitivity to the workings of variational phenomena in language history."[11]

The time-depth of PST is perhaps 6000 years B.P., about at the limits of the comparative method. We can hardly afford to insist on "perfect regularity", though we must never settle for a roseate Greenbergian haze.[12]

13.2   Self-corrective

A few of our etyma are only set up provisionally, and some individual forms are assigned only tentatively to a certain etymon. It must be admitted that a lot of guesswork is involved in etymologizing material from hundreds of languages and dialects at once, without having established the "sound laws" in advance. The problems are especially acute when comparing phonologically depleted languages with those having richer syllable canons. When there is a partial phonological similarity between distinct etyma with the same meaning (*e.g.* ***sem** and ***sak** 'mind / breath'; ***muːr** and ***muk** 'mouth'; ***s-maːy** and ***s-mel** 'face'; ***s-r(y)ik** and ***s(y)ar** 'louse'), it is not easy to decide by simple inspection to which etymon we should assign a phonologically slight form in a daughter language (*e.g.* **sɒ** 'mind', **mɔ** 'mouth', **hmɛ** 'face').[13]

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8. This is actually the proto-form offered in Weidert 1981:25 for an etymon meaning 'spirit, ghost, shadow' (reconstructed as ***m-ḥla** in *STC* #475). As I have observed, "It is always possible and sometimes necessary to invent an *ad hoc* explanation for an anomalous case. It is even true that some such *ad hoc* 'solutions' are more plausible than others. The only harm is in deluding oneself that an explanation which covers only a single case establishes a 'regularity'." (JAM 1982a:22).

9. This issue is the major theme of JAM 1978a (*VSTB*).

10. Note the large percentage of PTB roots for which proto-variation is posited in the *Index of Proto-Forms*, below.

11. JAM 1972b ("Tangkhul Naga and comparative TB"):282.

12. See Greenberg 1987, and my review of it (JAM 1990a).

13. See JAM 1994a ("Regularity and variation"):54-55.

There are all too many ways in which one can make etymological mistakes. A rough taxonomy of errors would have to include the following:

· *Treating a loanword as native*

I was at first delighted when I ran across the Jingpho form wéʔ-wū 'screw', since its first syllable looked like an excellent match with Lahu ɔ̀-vɛ̀ʔ '*id.*', for which I then had no etymology. Could this be a precious example of the rare PTB rhyme *-ek ?[14] But the screw is hardly an artifact of any great antiquity, and it would be *prima facie* implausible that a root with such a meaning would have existed in PTB. The truth quickly became apparent. The modern Burmese form for 'screw', wɛ́ʔ-ʔu (WB wak-ʔu), the obvious source from which both Jingpho and Lahu borrowed these words, means literally "pig-intestine". The semantic association is the squiggly corkscrew-like appearance of a pig's small intestine.[15] This etymology is also interesting from the viewpoint of distinguishing native vs. borrowed co-allofams. The usual, native words for 'pig' in Jingpho and Lahu are wàʔ and vàʔ, respectively; but the doublets borrowed from Burmese have front vowels, as in spoken Burmese. Unless a native speaker of Jingpho knows Burmese, s/he is unlikely to realize that the first syllable of wéʔ-wū means 'pig', especially since this syllable is in the high-stopped tone, while 'pig' is low-stopped. The native Lahu speaker is even less likely to recognize the source of ɔ̀-vɛ̀ʔ, since the morpheme for 'intestine' has been completely dropped from the original Burmese compound,[16] rather like the way our word camera (< Lat. 'room; chamber; vaulted enclosure') is a shortening of the old compound *camera obscura* ("dark chamber").[17]

· *Combining reflexes of unrelated roots*

When two forms bearing a semantic resemblance in a phonologically depleted language differ only in tone, it is tempting to try to relate them. I once entertained the possibility that such pairs of Lahu forms as phu 'silver, money' / phû 'price, cost' and mu 'high, tall' / mû 'sky' were co-allofams, though they can easily be shown to descend from quite separate etyma: phu < PTB *plu (*STC* p. 89) / phû < PTB *pəw (*STC* #41); mu < PTB *mraŋ (*STC* p. 43) / mû < PTB *r-məw (*STC* #488).[18]

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14. See above, 8.4(1).

15. See the photographs of a pig being butchered in a Lahu village in JAM 1978a, between pp. 168 and 169. This same semantic association is to be found with the root *riːl, above 9.3.2(3).

16. The Lahu cognate to WB ʔu 'intestine' is ɣù (usually in the compound ɔ̀-ɣù-tɛ̂ʔ).

17. There is a difference in detail between the two cases, however: the deleted 'intestine' is the head of the compound "pig-intestine", but the deleted obscura is the modifier in the collocation "dark-chamber".

18. See JAM 1973b (*GL*:29); such speculations were debunked in the 2nd Printing (1982) of *GL*, p. 675.

· *Failure to recognize that separately reconstructed etyma are really co-allofams*

An opposite type of error is to overlook the etymological identity between sets of forms, assigning them to separate etyma when they are really co-allofams. Thus *STC* sets up two independent PTB roots, both with the shape ***dyam**, one meaning 'full; fill' (*STC* #226) and the other glossed as 'straight' (*STC* #227). Yet it can be shown that the latter root also means 'flat', and that all reflexes of #226 and #227 may be subsumed under a single etymon, with the underlying idea being "perfection in a certain dimension".[19] Similarly, I was slow to recognize that two roots I had set up separately, PLB ***dzay²** 'cattle; domestic animal' (*GSTC* #129) and Kamarupan ***tsaːy** 'elephant; cattle' (*GSTC* #143) are really one and the same.[20]

· *Double-dipping*

This embarrassing situation occurs when an author inadvertently assigns the same form in a daughter language to two different etyma, perhaps within the pages of the same book, but more likely in separate articles.[21] At different times I have compared Chinese 唇 'lip' (OC ȡ̑i̯wən) to both PTB ***dyal** (above 9.2.1) and ***m-ts(y)ul**, finally deciding in favor of the latter (above 9.22(4), 9.2.4). It is perfectly legitimate to change one's mind, as long as one explains why. The best course is to present the alternative etymologies together, inviting the reader to choose between them.

· *Misanalyses of compounds*

A vast number of words in TB languages are di- or tri-syllabic compounds, a fact which greatly complicates the task of etymologization.[22] Many traps lie in wait for the analyst, leading to potential errors of several kinds, all of which I have been guilty of at one time or another:

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19. See JAM 1988a:4-9, and above 3.4.2(c), 7.5(6).

20. I have argued that a third root set up in *GSTC* (#106), ***(t)saːy ≍ *(d)zaːy** 'temperament / aptitude / talent', is also related, the common notion being 'property (either material or intellectual)'. See JAM 1985a:44-45; 1988a:10-13; and above 5.5.2(1b), 5.5.2(2).

21. The computer can be very useful in deciding between alternative etymologies. Once "sound-laws" have been formulated, computer checking can test whether a particular reconstruction follows the laws, identifying inconsistencies in the reflexes of the same proto-element in a given language. Such a methodology has been applied to the Tamangic languages, using the "reconstruction engine" developed by J.B. Lowe at STEDT in collaboration with Martine Mazaudon and Boyd Michailovsky during their sojourns at Berkeley as visiting scholars (1987-89, 1990-91).

22. See JAM 1978a (*VSTB*):58-72.

(a)   *Wrong segmentation*

This can happen when a form in an inadequately transcribed source is not syllabified. The Pochury and Sangtam forms for 'star', transcribed as **awutsi** and **chinghi**, respectively, in the little glossaries compiled by the *Nagaland Bhasha Parishad*,[23] should be segmented as **a-wu-tsi** and **ching-hi**, and not as **a-wut-si** and **chi-nghi**, as I imprudently did in JAM 1980:21.

(b)   *Misunderstanding the meaning of a constituent*

A special case of this problem is mistaking an affix for a root, especially likely to occur when no grammatical description exists for a language. Several Naga languages have dissyllabic forms for 'moon' with similar final syllables, *e.g.* Chang **litnyu**, Konyak **linnyu**, Phom **linnyü**, Sangtam **chonu**, Liangmai **chahiu**. Yet these final elements do not constitute a new root meaning 'moon', as I had originally guessed; rather they represent an abstract formative, ultimately grammaticalized from a root ***n(y)u** 'mother', that occurs in nouns from all sorts of semantic fields (*e.g.* Chang **chinyu** 'center', **henyu** 'ladder', **lamnyu** 'road', **pinyu** 'snake').[24]

(c)   *Choosing the wrong syllable of a compound for an etymology*

This can happen when two different syllables of a compound are phonologically similar, especially if one is dealing with a poorly known language with depleted final consonants, *e.g.* Guiqiong Ganzi **tʃhə^{55} sõ^{55}** and Ersu **ʂʅ^{55} ji^{55}** 'otter'. Which syllables are to be ascribed to PTB ***sram** ? [25]

(d)   *Semantic leaps*

Deciding how much semantic latitude to allow among putative cognates is definitely an art rather than a science. Here as elsewhere a middle-of-the-road approach is necessary, neither overly conservative nor too wildly speculative. As a positive example of a promising new etymology involving a semantic leap, we may offer ***m-t(s)i** 'salt / yeast'.[26] Phonologically the reflexes correspond perfectly well. On the other hand, the semantic association between 'salt' and 'yeast' has yet to be attested elsewhere, even

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23. *Hindi Pochury English Dictionary* (1972); *Hindi Sangtam English Dictionary* (1973). Kohima: Linguistic Circle of Nagaland.
24. See JAM ("Stars, moon, spirits")1980:35; for the suffixal use of morphemes meaning 'mother', see JAM 1991e.
25. See above 7.1(1).
26. Above 3.3.1.

though it has great initial plausibility. Both are efficacious substances that have dramatic effects on the taste of food or drink; their lack renders the food or drink insipid.[27]

* * *

Although I feel that we are entering a new era of etymological responsibility in TB/ST studies — the bar has been raised, as it were — I am not suggesting that we turn our field into a "tough neighborhood" like that of the Indo-Europeanists. In particular I hope we can avoid the "*Gotcha!*" attitude,[28] whereby if a single error, real or fancied, is found in an article or book, the whole work is impugned. This attitude is encapsulated in the dreadful maxim *Falsum in uno, falsum in omnibus*.[29]

Historical linguists cannot afford to be too thin-skinned, as long as criticism is fair, constructive, and proportionate. As I have said in print, "I ask nothing better than to be corrected."[30] Or again, "We can take comfort from our mistakes. Reconstruction of a proto-lexicon is a piecemeal process. It is hardly surprising that we stumble along from one half-truth to another, as we try to trace the [phonological and] semantic interconnections among our reconstructed etyma. We should not be discouraged if we barge off down blind alleys occasionally, or if the solution to one problem raises as many questions as it answers." [31]

After all, a computerized etymological enterprise by its very nature is eminently revisable.

13.3   Desiderative

I am acutely aware of the incompleteness of this *Handbook*. As noted in the Preface, we still have a long way to go before comparative/historical TB/ST studies are as advanced as they deserve to be. Despite the quickening pace of research, our knowledge

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27. Yeast is used for brewing liquor rather than for baking bread in East and SE Asia.

28. Non-American readers might need a word of explanation here: "Gotcha" is an attempt to render the colloquial pronunciation of "(I've) got you (now)!", a triumphant phrase used by someone who feels he has won an argument.

29.   "If one thing is wrong, it's all wrong." This was the approach of Miller's (1974) bitter review of *STC*, in which he tried to kill the *Conspectus* just as it was born. In my "rejection" of his "Conspectus inspection" I characterized his strategy as follows: (a) make some criticism of a particular point, no matter how trivial, irrelevant or obfuscatory; (b) claim that *tout se tient*, and that the entire work stands or falls on the point in question; (c) beat the point elaborately to death; (d) avoid any substantive comments by pleading lack of space (JAM 1975a:157).

30. JAM 1985b ("Out on a limb"):422.

31. JAM 1988a:13.

of the various branches of this multifarious family remains highly uneven. With a few important exceptions,[32] reliable reconstructions at the subgroup level are not yet available, so that "teleo-reconstruction" has to be resorted to.[33] Many more roots remain to be reconstructed at all taxonomic levels of the family.

Much remains to be done on the Chinese side as well, and we seem destined for a period of flux until the dust settles and competing reconstructions have sorted themselves out.

A large lacuna in this *Handbook* is the lack of a systematic treatment of tone. This is not because the topic does not interest me, but rather because it merits a book-length treatment by itself. We are only just coming to appreciate the richness and variety of TB tone systems as more and more data become available.[34] The big questions are still open, especially the key issue of monogenesis vs. polygenesis: Can we reconstruct a single tonal system at the PTB level? At the PST level? If so, was this original system primarily phonational or melodic? Or are tonogenesis and tonoexodus cyclical processes, with tones having arisen repeatedly and independently in the various branches of TB, so that even if there was an "original" system, it can no longer be recovered?

All in all, it is hard not to be optimistic about the future of TB/ST linguistics, as fieldwork opportunities increase and new generations of talented researchers enter the discipline. Eventually it seems inevitable that scholars throughout the world will share their information more and more, granting mutual access to their databases for the common good. On the other hand, too many TB languages are endangered, and may well disappear before they have been adequately recorded.

In any case, "the reconstruction of PTB is a noble enterprise, where a spirit of competitive territoriality is out of place. We should pool our knowledge and encourage each other to venture outside of our specialized niches, so that we begin to appreciate the full range of TB languages..." [35]

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32. These bright spots include Proto-Karen (Haudricourt, Jones, Solnit), PNN (French), Proto-Tani (J. Sun), Proto-Tamangic (Mazaudon), Proto-Kiranti (Michailovsky), Proto-Central Chin (VanBik), Proto-Lolo-Burmese (Burling, Matisoff, Bradley). See the References.

33. See Benedict 1973.

34. For a rough typology of TB tone systems, see JAM 1999a. Weidert (1987) is an attempt to reduce all TB tone systems to a single proto-phonational contrast among clear, breathy, and creaky voice qualities, but is marred by an over-formalistic and disorganized presentation which renders it virtually incomprehensible. See the review by JAM (1994c).

35. JAM 1982a:41.

A Concise Introduction to Old Chinese Phonology

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A.1   Overview

Although modern scholarship on reconstructing the pronunciation of Old Chinese (OC) has been ongoing since the early part of this century, there is still no general consensus among experts in the field on a "correct" system of reconstruction. This has resulted in an unfortunate situation for the comparative Tibeto-Burmanist, who is faced with a variety of competing, and often mutually incompatible, reconstructions for OC,[1] each of which claims to best explain the Chinese textual evidence while still admitting ignorance of the solutions to a number of long-standing problems.[2]

Indeed, one of the goals of the *STEDT* project is, through comparison with solidly reconstructed Tibeto-Burman protoforms, to bring new evidence to bear on the problem of OC reconstruction, hopefully resolving the question of which system is "best", and then helping to refine that system.

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1.   As an example of the differences among these systems, consider the word 水 *shuǐ* 'water', which is reconstructed *śi̯wər, *hwrjidx, *h(l)jujʔ by Karlgren, Li, and Baxter, respectively.

2.   For example, the question of exactly which initial consonant clusters existed in Old Chinese, and for which words they should be reconstructed, remains to a certain degree intractable in all reconstruction systems proposed so far.

This discussion is intended first to be a general introduction to issues and methodology in the reconstruction of Old Chinese, aimed at the historical linguist with little knowledge of Chinese or the Chinese philological tradition. Work in historical Chinese philology involves a number of ancient textual sources and a good deal of specialized and arcane nomenclature, which can be a daunting barrier to the non-specialist. To help crack this code, a glossary of commonly encountered Chinese terms is included in §10 below.

The general and introductory nature of this discussion will necessitate a certain degree of over-simplification, and the skirting of some complexities. An attempt will be made not to get bogged down in details within the main text. Further discussion is provided in the footnotes.

The discussion will focus on the reconstruction systems of Li Fang-Kuei and William H. Baxter, with some additional comparisons with the earlier reconstruction of Bernhard Karlgren.

A.2   What is Old Chinese?

Old Chinese is generally considered to be the Chinese language as spoken in the first half of the first millennium BC, and reflected in the rhyming patterns of the *Shi Jing* [*Book of Songs* or *Book of Odes*] and in the phonetic elements of early Chinese characters.[3] It is the earliest reconstructable stage of Chinese.[4] Internal reconstruction of Old Chinese, combined with Tibeto-Burman evidence, has led some scholars to speculate on the nature of an earlier stage of the language, which is referred to as Proto-Chinese.[5] According to the most commonly held view of the Sino-Tibetan family, Proto-Chinese may be considered the sister language of Proto-Tibeto-Burman [PTB]; both are descended from a common ancestor, Proto-Sino-Tibetan [PST].[6]

Looking in the other direction, Old Chinese is generally considered to have two descendants: Proto-Min and Middle Chinese. The modern Min dialects (spoken primarily in China's Fujian Province) are descended from Proto-Min; all the other modern Chinese

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3.   Within the body of this Appendix, *pinyin* transcriptions of Chinese terms will be given in italics without tone marks. A complete transcription with tone marks, as well as Chinese characters, may be found in the appended glossary.

4.   There is considerable variation in the dates assigned to Old Chinese by different scholars. The nature of the textual data does not currently permit a more narrow periodization.

5.   See, for example, Bodman 1980.

6.   Most Chinese scholars in the field consider the Tai and Miao-Yao groups also to be descended from PST.

dialects are descended from Middle Chinese. Middle Chinese is the Chinese literary language as spoken in the sixth through tenth centuries AD.[7]

Karlgren employed the terms Archaic Chinese and Ancient Chinese for what are now generally referred to as Old Chinese and Middle Chinese, respectively. Although his terms still appear in the literature, we will here use the latter designations, and often abbreviate them as OC and MC respectively.

A.3   How is Old Chinese reconstructed?

There are three primary sources of data for the reconstruction of Old Chinese:

> • The rhymes in the classic work of poetry known as the *Shi Jing* [*Book of Songs*]. This compilation contains poems dating from the 8th through 5th centuries BC.
> • The phonetic elements of Chinese characters created during the Old Chinese period.
> • The reconstruction of Middle Chinese, which is presumed to be a direct descendant of Old Chinese.

Most of the 305 poems of the *Shi Jing* have identifiable rhyme schemes. Based on these rhymes, scholars have classified the approximately 2000 distinct rhyming characters into "rhyme groups" (also called "rhyme categories"), the number of such groups presumably reflecting the number of distinct vowel-plus-coda combinations of Old Chinese.

The phonetic elements of Chinese characters allow them to be grouped into "phonetic series". A phonetic series consists of one basic character, and one or more other characters which employ that basic character as a phonetic element. For example, the characters 方 妨 芳 放 房 are members of a single phonetic series.[8] It is postulated that (1) words in the same phonetic series are in the same rhyme group and (2) the initial consonants of words in the same phonetic series share place of articulation. Both of these assumptions are based on the observation of recurring patterns. They have generally proven consistent with

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7.   Because textual evidence used in the reconstruction of Middle Chinese spans several centuries, Middle Chinese may be further classified into Early Middle Chinese (approximately sixth century) and Late Middle Chinese (approximately tenth century). There is considerable controversy over the nature of Middle Chinese and its relationship to medieval and modern Chinese dialects. The assumption that all Chinese dialects aside from Min can be traced directly to Middle Chinese is now viewed with increasing skepticism.

8.   The modern Mandarin pronunciations and meanings of these characters are *fāng* 'square', *fáng* 'hinder', *fāng* 'fragrant', *fàng* 'release', *fáng* 'house, room', respectively.

other internal and external evidence for the reconstruction of Old Chinese and remain valuable working hypotheses. The phonetic element (or "phonetic") thus provides a general indication of the pronunciation of the word.

The *Shi Jing* and phonetic series data are thus complementary. The *Shi Jing* provides a phonological framework for Old Chinese rhymes. The phonetic series allow almost every character in Chinese to be classified within this framework,[9] and further provide some information about Old Chinese initials.

The resulting phonological structure of Old Chinese can be filled in with phonetic values by comparison with reconstructed Middle Chinese.[10]

The interpretation of all three data sources — the rhyming patterns of the *Shi Jing*, the phonetic elements found in early Chinese characters, and reconstructed Middle Chinese — is fraught with methodological difficulties and inherent ambiguities. This is one reason why no single OC reconstruction scheme has enjoyed universal support.[11]

A.4   The OC reconstruction of Bernhard Karlgren

Karlgren's reconstruction of what he called "Archaic Chinese" was the first serious, systematic attempt by a modern linguist to apply the methodology of historical linguistics to the unique textual legacy of Chinese. Building on his earlier reconstruction of "Ancient Chinese" (Middle Chinese), Karlgren used the data and methodology described above to

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9.   The vast majority of Chinese characters either contain a phonetic component or serve as a phonetic component in other characters. There remain some characters, however, which are difficult to classify within this framework.

10. In practice, this process is quite complex and the results are incomplete. Among the problems are, first, that determining the number of rhyme groups reflected in the *Shi Jing* is not straightforward. The process is complicated by irregular rhymes, variable rhyme schemes, and uncertainties regarding corruption or revision of the received text. Second, for a number of characters it is not apparent which element, if any, is the phonetic. Third, there is no way to determine the number of distinct initial consonants, or to determine with certainty which words should be reconstructed with cluster initials. Fourth, there remain disagreements over the nature and reconstruction of Middle Chinese. Fifth, the nature and extent of dialectal variation in Old Chinese is largely unknown.

11. One may well ask why Old Chinese is not reconstructed according to the comparative method. The answer is that we have insufficient data to do so. The large number of modern Chinese "dialects" (many of which are in fact mutually unintelligible languages) reflect a complex history of migration and contact, not only with each other but also with non-Chinese languages. This history is still barely understood. Moreover, data has not yet been collected for a sufficient number of dialects to permit rigorous comparison. For now, then, work on early stages of the language must rely primarily on textual analysis. It should be apparent at this point that what are generally termed "reconstructions" of Old Chinese and Middle Chinese are in fact not reconstructions in the normal technical sense of the term. Rather, they are complex, but nevertheless incomplete, structured sets of inferences about the phonological properties of spoken forms presumed to underlie the textual evidence from those periods.

reconstruct OC.[12] His results were eventually codified in *GSR* (1957), which lists thousands of Chinese characters grouped by phonetic series, and provides for each of Karlgren's Old Chinese and Middle Chinese reconstructions, as well as glosses and early citations.

While Karlgren's Old Chinese reconstruction is now considered to be significantly flawed, *GSR* remains the most accessible work on Old Chinese, particularly for those outside the field of Chinese historical linguistics. Furthermore, the unique number assigned to each character in *GSR* has become a *de facto* standard for identifying Chinese characters.[13] Karlgren's reconstruction is provided here not as a serious object of comparison with Tibeto-Burman, but as a convenience to the reader who might already be familiar with *GSR*, and to facilitate comparison with works on Tibeto-Burman and Sino-Tibetan (such as Benedict's *Conspectus*) which make use of Karlgren's reconstructions.

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12. Traditionally, reconstructed Middle Chinese forms are cited without a preceding asterisk. The question of whether or not a historical form is "attested" is a tricky one in Chinese, since the writing system provides early attestations without accurate phonological information. Because Middle Chinese reconstructions are based in part on the so-called "rhyme tables" of the Song dynasty, which list words in a grid pattern where one axis represents the initial consonant and the other the quality of the vowel, MC forms are traditionally considered to be attested, while Old Chinese forms are not.

13. Even characters not in *GSR* are often identified by their presumed *GSR* phonetic series, *e.g.* "would be in *GSR* #732" or "not in *GSR* #732". There is unfortunately no standard method for providing unique *GSR*-type numbers to characters which are not actually found in *GSR*.

Karlgren's reconstruction is now recognized to have the following problems:

• Karlgren further subdivided the rhyme groups of the *Shi Jing* in ways that are now considered incorrect; they were based on a mistaken discovery of patterns which do not in fact exist. (See the discussion of final consonants, below.)

• Karlgren reconstructed different vowels for words in the same rhyme group, often employing a bewildering array of diacritical marks to do so. He presumed that vowels needed only to be similar, not identical, in order to rhyme.

• Kalrgren was unaware of, or ignored, a number of important Middle Chinese distinctions (such as the *chongniu* phenomenon),[a] which his Old Chinese reconstruction failed to account for.

• Karlgren reconstructed a four-way manner distinction for Old Chinese obstruents.

• Karlgren projected many initial consonants of Middle Chinese back onto Old Chinese essentially unchanged, without taking patterns of complementary distribution sufficiently into account.

{a}See the glossary entry for *chongniu*, below §10.

These criticisms are in no way meant to detract from the magnitude of Karlgren's contributions. His work was seminal, and without it later advances in the field would not have been possible. Indeed many of the "problems" listed above were unavoidable given the state of the field when Karlgren carried out his ground-breaking research.

A.5   The OC reconstruction of Li Fang-Kuei

Li's system revolutionized the field when it was published in 1971, and has remained extremely influential to this day.[14] It synthesized a number of conceptual breakthroughs that had been proposed by Li and others in the field (such as Yakhontov and Pulleyblank) in previous decades. Although it is not a complete reconstruction (in that a reconstructed form is not given for the entire Old Chinese lexicon), Li's examples are so numerous, and his methodology and phonological system are laid out so clearly, that it is a relatively simple matter to determine the reconstruction of any particular word according to Li's system.[15]

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14. Li 1976 was an important revision of Li 1971. Li 1980 combines the 1971 and 1976 publications in a single volume.

15. For instance, Schüssler 1987 contains complete reconstructions according to Li's system, as well as Schüssler's own modification thereof.

The most important features of Li's reconstruction are as follows:

• Four simple vowels (***i *u *ə *a**) and three diphthongs (***iə *ia *ua**). {a}

• Medial elements ***-r-**, ***-j-**, and ***-rj-** accounting for the vowel distinctions found in Middle Chinese, while permitting the reconstruction of just one Old Chinese vowel per rhyme group. These same medial elements also account for the derivation of several series of Middle Chinese initials.

• A labiovelar series (***kw-**, ***gw-**, *etc.*), appearing in both initial and final position. {b}

• No medial ***-w-**. {c}

• No open syllables. Words which developed as open syllables in Middle Chinese are reconstructed with voiced consonant codas (***-b, *-d, *-g, *-gw**) in order to explain their affiliations in rhymes and phonetic series with checked syllables ending in ***-p, *-t, *-k, *-kw**. {d}

{a} This reconstruction shares similarities with, and may have been inspired by Li's work on, Tai. See Li 1977.

{b} As final consonants, these could be interpreted as a rounded off-glide followed by a velar stop, *i.e.* ***-wk**, ***-wg**, etc.

{c} This is based on Tung T'ung-ho's (1948) discovery that Middle Chinese contrasts between syllables without medial *-w-* (so-called *kaikou* words) and vowels with medial *-w-* (so-called *hekou* words) occur mostly with velar initials. MC medial *-w-* after velars can be explained as the result of re-analysis of OC *labiovelar initials as plain velar initials followed by a labial glide. Only in descendants of OC words with *dental finals is there a *kaikou/hekou* contrast in Middle Chinese, and for these words Li does in fact reconstruct ***-u-** as the first element of a diphthong.

{d} In fact, Li was careful to state that the phonetic nature of this contrasting series of final consonants was uncertain. But as a result of his use of symbols normally representing voiced stops to write this series, their reconstruction as voiced consonants is now widely accepted by Li's followers.

Li made no use of Tibeto-Burman evidence in reconstructing Old Chinese. A number of scholars have since used Li's system in comparison with Tibeto-Burman, and some continue to use it today with modifications. Among these scholars are Gong Hwang-cherng, W. South Coblin, and Axel Schüssler.[16] Each uses his own particular revision of Li. The most common revisions involve changes in the distribution and effects of the medial elements, revised initial consonant clusters, and the reversal of Li's initial *l- and *r-.

A.6   *The reconstruction of William H. Baxter*

Baxter's system, which incorporates many of the ideas of his teacher Nicholas C. Bodman, is relatively recent (1992) and is still being evaluated by the academic

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16. See Gong 1990, 1994, 1995, 1997, 2000; Coblin 1986 ; Schüssler 1987.

community. It has, however, already received considerable acclaim for its systematicity, methodological rigor, and careful use of all types of available evidence, and has increasingly been adopted as the reconstruction of choice by Western sinologists. In some respects it is fundamentally different from Li's system, and as such represents a major challenge to it. Features in which it differs from Li's system include:

- A six-vowel system (***i *ɨ *u *e *a *o***), which is predicated on further subdivisions of some of the traditional rhyme groups.
- No final voiced consonants. Instead, open syllables are reconstructed, some of which have off-glides ***-j**, ***-w**.
- Middle Chinese departing tone (*qusheng*) words have two distinct origins in OC, ***-Vs** and ***-Cs**. [a]

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[a] See the glossary (§10 below) for a discussion of the Chinese tonal system.

Baxter has recently proposed some revisions to his system which may be of considerable import for Sino-Tibetan comparison.[17] The most significant is the elimination of medial ***-j-** from his OC reconstruction and its replacement with a vowel length distinction.[18] All syllables previously reconstructed with ***-j-** are now reconstructed with short vowels, while the others are reconstructed with long vowels. This brings Baxter's system closer to the similar system proposed by Starostin.[19]

A.7   Comparison of Li's and Baxter's systems

Let us compare and contrast the reconstructions of Li and Baxter, starting with the syllable canons and then proceeding to a comparison of each position in the syllable.

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17. For a summary of these revisions, see Baxter and Sagart 1998.
18. Other changes include the largely orthographic change of ***ɨ** to ***ə**, and the revision of final ***-n** in some words to final ***-r**.
19. See Starostin 1989.

A.7.1   Syllable structure

In both reconstruction systems, the abstract syllable may be expressed as **IMVE-T** :

- **I**   *initial*   a simple consonant, a consonant cluster, or a glide
- **M** *medial*   one of *-r-, *-j-, or *-rj-
- **V**   *vowel*
- **E**   *ending*   a consonant or, in Baxter's system, a glide
- **T**   *tone*

Here the word "tone" is used only in a loose sense: in Li's system, tone is indicated by an arbitrary orthographic convention, and in Baxter's system this slot is occupied by a post-final consonant which led to the development of tonal contrasts in Middle Chinese.[20] A slightly more concrete representation of the syllable in both systems would look like this:

Li	*Baxter*
Ci(r)(j)VCf-(x/h)	Ci(r)(j)V(Cf)-(ʔ/s)

While the overall syllable structure is strikingly similar in the two systems, there are significant differences in the values that can fill each slot, especially the vowel and final consonant slots.

A.7.2   Initial consonants

In both systems, the initial may be simple or clustered. The simple consonant inventories are similar in both systems:

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20. Li declines to speculate on the phonetic nature of the "tonal" distinction, leaving open the possibility that it involved either a segmental element or a tonal/prosodic feature.

Li Fang-Kuei

p	t	ts	k	kw	·	·w
ph	th	tsh	kh	khw		
b	d	dz	g	gw		
	s		h	hw		
m	n		ng	ngw		
hm	hn		hng	hngw		
	l, r					
	hl					

The raised dot <·> represents a glottal stop /ʔ/; the digraph <ng> represents a velar nasal /ŋ/, and <w> is not a separate segment but part of a digraph indicating a labio-velar or labio-laryngeal consonant.

Baxter

p	t	ts	k	kʷ	ʔ	ʔʷ
ph	th	tsh	kh	kʷh		
b	d	dz	g	gʷ		
	s		x			
	z		ɦ			
m	n		ng	ngʷ		
hm	hn		hng	hngʷ		
w	l, r	j				
hw	hl, hr	hj				

The digraph <ng> represents a velar nasal /ŋ/. Initials preceded by <h>, such as ***hm** and ***hj** represent voiceless resonants.

Baxter uses capitalized versions of his initials when they develop irregularly into Middle Chinese, or when their phonetic nature is uncertain.[21]

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21. Example include: (1) ***L-**, a voiced counterpart of ***hl-** which is nonetheless distinct in its MC reflexes from ***l-**; (2) ***K-**, ***KH-**, etc., representing velars which unexpectedly palatalize before back vowels; (3) ***C-**, an unspecified (but probably voiced) stop occurring in clusters like ***C-r-**; (4) ***S-** for a pre-initial which behaves differently in clusters from ordinary pre-initial ***s-**; etc.

In the following discussion we will use the cover symbols **P**, **T**, **TS**, **K(W)**, **H(W)** to indicate consonant classes by place of articulation.

Both systems reconstruct a three-way manner distinction for stops, a two-way manner distinction for resonants, and five distinct places of articulation.[22]

The two systems also agree on the basic principle used to reconstruct cluster initials: a consonant cluster is reconstructed whenever the MC initial of two words in the same phonetic series differ in their place of articulation.[23]

While certain alternations in phonetic series between MC initials are well represented, a significant number of these series have alternations that are rare and difficult to reconcile by reconstructing cluster initials.[24] The two systems differ not only in their specific reconstructions, but also in which alternations they consider to be irregular and thus not requiring a cluster reconstruction. Neither system claims to have fully solved the problem of initial clusters, and this is one area where Tibeto-Burman comparison should be of significant help. To illustrate the variety of approaches that may be taken, we can compare the proposed reconstructions for two phonetic series according to the reconstruction systems of Karlgren, Li, Gong Hwang-cherng (a revision of Li), and Baxter.[25]

	Karlgren	*Li*	*Gong*	*Baxter*	*MC reflex*
聿 *yù* 'thereupon'	*bi̯-	*brj-	*l-	*rj-	ji-
筆 *bǐ* 'pencil'	*pli̯-	*pj-	*pl-	*prj-	pj-
律 *lù* 'law, rule'	*bli̯-	*blj-	*rj-	*b-rj-	lj-

TABLE 1. **Reconstruction of initials for GSR #502** [a]

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22. The development of the OC voiceless nasals in Middle Chinese is as follows:

OC *hm-, *hng-, *hngw- > MC x-

OC *hn- > MC th-

They are reconstructed for OC words whose Middle Chinese reflexes have the initials indicated in the chart above but which are in phonetic series with words having ordinary nasal initials. For example, 黑 *hēi* 'black' (MC x-) and 墨 *mò* 'ink' (MC m-) are in the same phonetic series. By reconstructing OC initials *hm- and *m- respectively, we can explain the use of 黑 as phonetic in 墨 and also illuminate the etymological relationship between the words. Moreover, there appear to be regular correspondences between some OC voiceless nasals and Tibetan prefix s-. See Mei Tsu-lin 1989.

23. This principle follows from the assumption that the initial consonants of words with the same phonetic must share the same place of articulation. For example, consider the words 京 *jīng* 'capital' and 涼 *liáng* 'cool, cold'. In Middle Chinese the former has initial **k**- and the latter has initial **l**-, yet at the time of Old Chinese 京 was used as phonetic in 涼 . This suggests that an old Chinese velar cluster initial be reconstructed for 涼 *liáng* 'cool, cold'. (Compare Written Tibetan *grang-ba* 'cold, cool'.)

24. Alternation between MC stop initials and **l**- is probably the most common (see the previous note). A list of problematic phonetic series may be found in Tung (1948:42).

{a}In Karlgren's system, simple voiced initials *b-, *d-, *g-, *z- drop without a trace. (Karlgren reconstructed MC voiced initials as aspirated *bh-, *dh-, etc. He derives these from OC voiced aspirates. This left him free to reconstruct unaspirated voiced initials for OC, which dropped out in MC.) In Li's system, *b- drops before *-rj-, so he is able to reconstruct labials for all three words. Since Gong posits that medial *-l- palatalizes to MC -j- (parallel with initial *l- > ji-), he can reconstruct 聿 *yù* and 筆 *bǐ* with laterals, but is forced to reconstruct 律 *lǜ* with *r-. Note that Baxter's system looks neatest here (all three have *r and the initial of the phonetic 聿 is contained within the cluster initials of the other characters), but he has to posit two degrees of clustering: *pr- versus *b-r- (the latter contrasting with *br- > b-).

	Karlgren	*Li*	*Gong*	*Baxter*	*MC reflex*
羊 *yáng* 'sheep'	*zi̯-	*r-	*l-	*(l)j-	ji-
姜 *jiāng* [clan]	-- {a}	*kj-	*kl-	*k(l)j-	kj-
羌 *qiāng* [clan]	--	*khj-	*khl-	*kh(l)j-	khj-
祥 *xiáng* 'lucky'	*dzi̯-	*rj-	*lj-	*z(l)j-	zj-

TABLE 2. **Reconstruction of initials for some characters in GSR #732** [b]

{a}Note that two of the characters here are not listed in *GSR* #732; Karlgren thus sidestepped the problem of accounting for velar initials in this phonetic series. In order to account for the velar initial in these, Tung (1948:31-32) later proposed reconstructing an initial *gd- or *gz- for 羊 .

{b}For MC ji-, Baxter (1992) reconstructs *lj- when MC ji- alternates in phonetic series with MC d-, ś-, l- etc. (as 悦 , p. 197); *r- when MC ji- alternates with with MC l- (as 聿 , p. 200); and *j- when MC ji- shows no alternation (p. 202). None of the three cases holds here because of the alternation with velars. Baxter appears to have suggested the possible presence of *l in these forms only to account for the phonetic series.

A chart summarizing the development of OC initials is included in the Tables of Equivalences, §9 below.

A.7.3   Medials

As noted above, both systems reconstruct medials *-r-, *-j-, and *-rj-. Medial *-r- is reconstructed for those words which develop so-called "second division" rhymes in Middle Chinese, accounting for a particular class of MC vowels.[26] At the same time, it accounts for the development of MC retroflex initials from OC dentals. Medials *-j- and *-rj- are reconstructed for so-called "third division" MC rhymes, which are characterized by a palatalizing medial -j-; they account also for MC palatal initials. The distribution and function of the compound medial *-rj- is different, however, in the two systems. In the chart below the roman numerals I, II, III, IV are used to represent the Middle Chinese

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25. In both series all the words are MC third division. I have included medial elements in the charts since they are important conditioning factors for the development of initials. Note that Karlgren's *-i̯- is equivalent to *-j-.

26. There is by no means universal agreement on the nature of this "second division" vocalism. See the glossary (§A.10) for an explanation of *division*.

divisions, with III-3 and III-4 used to indicate *chongniu* division 3 and *chongniu* division 4 rhymes respectively.[27]

Li			Baxter		
*Pj-	>	P- III	*Pj-	>	P- III-4
(*Prj-	>	P- III)	*Prj-	>	P- III-3
*Tj-	>	Tś- III	*Tj-	>	Tś- III
*Trj-	>	Ṭ- III	*Trj-	>	Ṭ- III
*TSj-	>	TS- III	*TSj-	>	TS- III
*TSrj-	>	TṢ- III	*TSrj-	>	TṢ- III
*K(W)j-	>	K- III	*K(W)j-	>	K- III-4, Tś- III
*K(W)rj-	>	Tś- III {a}	*K(W)rj-	>	K- III-3
*H(W)j-	>	H- III	*H(W)j-	>	H- III-4, Tś- III
*H(W)rj-	>	Tś- III	*H(W)rj-	>	H- III-3

TABLE 3. **Development of OC initials under the influence of medials**

{a}Li's original reconstruction did not have combinations *Prj-, *K(W)rj-, *H(W)rj-. In a 1976 revision of his system, however, he proposed that the words in Middle Chinese with palatal affricate initials **Tś-** in phonetic series with velar- or laryngeal-initial words be reconstructed with ***K(W)rj-** or ***H(W)rj-**. (In his original system they had been reconstructed as clusters ***sKj-**.) In this same work he acknowledged that ***Prj-** should also be possible, but found no direct evidence for it. The system presented here incorporates Li's 1976 revisions.

In both systems, ***-rj-** after dental initials conditions the development of Middle Chinese retroflexes. In Li's system, ***-rj-** also palatalizes velar and laryngeal initials in Middle Chinese.[28] But in Baxter's system, ***-rj-** conditions the *chongniu* split.[29]

We should note, however, that more recent revisions of Li's system by scholars such as Gong Hwang-cherng have followed Baxter in adopting the "***-rj-** hypothesis" to account for MC *chongniu* distinctions.[30] It is fair to say then that as used by linguists today, the Li and Baxter reconstruction systems are nearly the same in their treatment of Old Chinese initials and medials.[31]

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27. For an explanation of *chongniu*, see §A.10 below.

28. In Baxter's system, this palatalization is determined by the frontness of the main vowel. There are a significant number of exceptions which remain unaccounted for.

29. This idea was first proposed by Pulleyblank (1962). In Li's system, the *chongniu* split is conditioned by a *-jV-, *-jiV- distinction. For a discussion of the *chongniu* problem, see the glossary.

30. See *e.g.* Gong 1997.

A.7.4　Vowels

Both systems represent a significant reduction in vowel inventory from Karlgren's. This reduction was made possible by the reconstruction of the medial element *-r-, which conditions many vowel splits and accounts for some of the complexity of the Middle Chinese vowel system. Li's vowel system has four simple vowels and three diphthongs, while Baxter's is a six-vowel system:

Li			Baxter		
i		u	i	ɨ	u
	ə		e		o
	a			a	
ia	iə	ua			

TABLE 4. **Comparison of the Li and Baxter vowel systems**

Baxter's *ɨ is equivalent to Li's *ə in many, but not all, cases. The main difference between the systems lies (a) in Baxter's reconstruction of *e and *o, which very roughly correspond to Li's *iə *ia and *ua; and (b) in the wider distribution in Baxter's system of *i and *u, which are quite restricted in Li. This involves more than just two differing phonetic interpretations of the same phonological distinctions. Baxter's six-vowel system is predicated on an analysis of the *Shi Jing* which proposes more rhyme groups than does the traditional analysis which Li follows.[32]

All occurrences of *iə and *ia in Li are reconstructed as *e by Baxter, and all occurrences of *ua in Li are reconstructed by Baxter as *o.[33] Baxter claims that these reconstructions are all supported by *Shi Jing* rhyming patterns. In Baxter's system there are additional splits of traditional rhyme groups (as with words ending in bilabials) which

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31. Here we are considering *-l- to be, properly speaking, an element of a cluster initial and not a medial. Similarly, we consider Li's onglide *-u- to be part of the vowel, and not a medial element. The question of whether medial *-j- should be reconstructed at all for Old Chinese remains hotly debated. Baxter himself has removed *-j- altogether from his system.

32. Thus, for example, where Li argues that rhymes *-an, *-ian, and *-uan are all in the *Shi Jing* 元 *Yuan* rhyme group, Baxter would reconstruct these as *-an, *-en, and *-on and place them in distinct rhyme groups. In either case the development into Middle Chinese is similar, but Baxter is making an additional argument that these three endings did not in fact rhyme, while Li says that they do. Baxter's statistical analysis claims to show that the traditional *Yuan* rhyme category should in fact be split into three, *i.e.* that the rhymes between them are best considered irregular.

33. In the first case, the difference is due to conflicting interpretations of the nature of 4th division vowels in Middle Chinese; in the second case, Baxter follows Yakhontov's proposal on the breaking of *o to **ua**.

do not correspond to Li's diphthongs; here Baxter's arguments rely more on appeals to symmetry and a handful of Tibetan and Burmese cognates. (See the chart of rhymes below.)

While Li's four-vowel and Baxter's six-vowel system may appear quite similar, especially if we simply "rewrite" Li's diphthongs as simple vowels, they in fact have quite different ramifications for the reconstruction of the Proto-Sino-Tibetan vowel system.

A.7.5   Final Consonants and Tones

One of the most salient differences between the two systems is Li's reconstruction of a series of final voiced stops (*-**d**, *-**g**, *-**gw**) where Baxter reconstructs open syllables.

Karlgren was the first to reconstruct final voiced stops in some syllables. He was trying to account for the relationships he observed in rhyming and phonetic series between Middle Chinese final voiceless stops (-**p**, -**t**, -**k**) and Middle Chinese open syllables, especially in the departing tone. His solution was to reconstruct a corresponding voiced final series *-**b**, *-**d**, *-**g**, which was lost before the MC period.[34] Karlgren reconstructed these endings for those departing tone words which showed connections with final voiceless stops (*i.e.* entering tone words), and then for those level and rising tone words which in turn showed connections with those departing tone words.

Later scholars such as Tung T'ung-ho demonstrated the arbitrariness of Karlgren's dividing lines between those sets of syllables to be reconstructed with voiced endings and those to be left open, and resolved the problem by reconstructing voiced endings for nearly *all* MC open syllables. This is the policy that Li followed, with minor modifications.[35] Despite Li's explicit statement that his *-**b**, *-**d**, *-**g** are merely convenient symbols, whose exact phonetic nature has not been determined, this reconstruction has been taken at face value by others in the field.

Criticisms of this reconstruction have ranged from universalist arguments (languages without open syllables are excessively rare) to comparative arguments (TB cognates show no evidence of final stops in many of these morphemes) to internal methodological arguments (rhyming and phonetic series connections between level and rising tone words on the one hand and entering tone words on the other are in fact quite rare).

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34. Voiced final *-**b** merged with *-**d** early in the Old Chinese period. In Baxter's reconstruction, this change would be described as *-**ps** > *-**ts**. Note the symmetry in the development of Karlgren's consonantal system: OC voiced stops were lost in both initial and final position.

35. Such as the addition of *-**r**, so that in his system all OC syllables are closed.

Before discussing Baxter's approach to this problem, it will be helpful first to discuss the problem of tone in Old Chinese. We have no direct evidence that there were phonemic tonal contrasts in Old Chinese. Ever since Haudricourt (1954) demonstrated that Vietnamese tones had their origin in post-vocalic consonants, scholars have sought to find equivalent tonogenetic segments in Chinese. Li Fang-Kuei took an agnostic attitude toward the phonetic nature of tonal contrasts in Old Chinese, but he marked the distinctions by appending the symbol -**x** to rising tone words and -**h** to falling tone words. The latter symbol was meant to be reminiscent of the putative Vietnamese development *-**s** > *-**h** > /falling tone/.

A number of scholars, such as Pulleyblank, had long argued based on Chinese transliterations of foreign words and other evidence that Chinese falling tone did in fact have its origin in an Old Chinese post-final *-**s**. Glottalization, or a post-final glottal, was also proposed to account for the development of the rising tone.

Given the hypothesis that post-final *-**s** accounted for the development of Middle Chinese departing tone, an immediate corollary was that departing tone words could have had their Old Chinese origin either in *-**Vs** syllables or in *-**VCs** syllables. Baxter argues that those MC departing tone words which show affiliations (in rhymes or phonetic series) with final stop consonants (*i.e.* entering tone syllables) can be reconstructed *-**VCs**, while those which show affiliations with level and rising tone words can be reconstructed *-**Vs**.

Phrased more concretely, some words which Li reconstructed *-**ag** would be *-**aks** in Baxter's system, while others would be *-**as**. The later development *-**Cs** > *-**s** led to the merger of these two syllable types.

Baxter's solution would appear to satisfy all the criticisms directed against Li's reconstruction of final voiced stops. His Old Chinese has open syllables and is therefore not typologically bizarre; it has only one series of final stops, like most TB languages; it matches TB cognates more closely; it still accounts for the connections found in rhyming and phonetic series; and it accounts for tonogenesis.

However, there is one phenomenon in Old Chinese which Li's reconstruction seems to explain better than Baxter's, namely morphological alternations between open syllables and nasal-ending or stop-ending syllables. There are many such alternations; two typical examples are 亡 *wáng* 'not have; perish' and 無 *wú* 'not have'; and 往 *wǎng* 'go' and 于 *yú* 'go'. Here one member of each pair ends in *-**ng**; in Li's system the other member ends in *-**g**, but in Baxter's is an open syllable.[36]

The following table shows the vowels and final consonants of each system, and indicates which combinations occur.

-Ø	-k, -g, -ng	-kw, -gw	-t, -d, -n	-r	-p, -m
--	a	a	a, ua	a, ua	a
--	ə	ə	ə	--	ə
--	u	--	--	--	--
--	i	--	i	--	--

TABLE 5. **OC rhymes according to Li Fang-Kuei**

Note: **iə* and **ia* occur in the same environments as **ə* and **a* respectively. **ua* occurs only before dentals, as shown.

-Ø	*-k, -ng*	*-w, -wk*	*-t, -n*	*-j*	*-p, -m*
a	a	a	a	a	a
ɨ	ɨ	--	ɨ	ɨ	ɨ
u	u	--	u	u	u
--	--	i	i	i	i
e	e	e	e	(e)	e
o	o	--	o	o	o

TABLE 6. **OC rhymes according to Baxter**

A chart comparing these reconstruction systems organized by traditional rhyme group is included in §A.9.

A.7.6   Summary

On the face of it, Baxter's OC reconstruction, in terms of phonological system and syllable canon, appears more similar to Proto-Tibeto-Burman, as well as to many individual Tibeto-Burman languages (such as Written Tibetan), than does Li Fang-Kuei's. But it is fair to say that it still remains to be seen whether this superficial similarity reflects a deeper concordance; that is to say, whether or not Baxter's system provides better correspondences to Tibeto-Burman than does Li's. Again, this is one area where *STEDT* will be able to provide some answers.

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36. This type of alternation is most common with velar finals. One possible way out of this problem is to propose a number of Old Chinese suffixes with still unclear morphological function, like *-**ng**, *-**k**, etc.; but this proposal itself raises a number of other difficult problems.

A.8 Methodological Considerations

Given the hypothesis that Chinese and Tibeto-Burman make up the two main branches of the Sino-Tibetan family, it is an uncontroversial proposition that reconstructed OC and reconstructed PTB should be compared to arrive at a reconstruction of their ancestor, Proto-Sino-Tibetan. But it could be argued that using Tibeto-Burman forms to aid in the reconstruction of Old Chinese is methodologically unsound--a violation of the principles of the comparative method.

In theory, of course, the comparative method involves first the comparison of closely related languages to reconstruct their ancestor languages, then the comparison of these reconstructed "meso-level" languages to reconstruct still more distant ancestor languages, and so on, until the limits of the method are exhausted and the earliest proto-language is reconstructed.

It must be stressed, however, that Old Chinese is not a reconstruction arrived at by the comparative method. It is, in fact, a hypothetical linguistic construct derived through textual analysis. It is therefore not so different in kind from a "reconstructed" Old Tibetan based on analysis of Written Tibetan forms and on comparison with modern Tibetan dialects. Because Chinese, unlike Tibetan, was not written in an alphabetic script, the process of "reconstruction" for Old Chinese is much more challenging and complex, and the number of unresolved problems is greater. But some of the problems surrounding Old Chinese will be familiar to anyone who has worked on historical linguistic problems through the medium of ancient texts: What is the relationship between the preserved texts and spoken form(s) of speech? What sort of linguistic information is omitted, obscured, or misrepresented due to the nature of the writing system or to archaisms preserved within it? How can we decide between competing interpretations of particular symbols or combinations of symbols?

The comparative method itself has nothing to say about how we approach problems such as these. It is common practice to make use of all sorts of philological and linguistic evidence in the "reconstruction" of linguistic systems underlying received texts, including evidence from related languages. If reconstructed Proto-Tibeto-Burman, or cognate forms in Tibeto-Burman languages, can shed light on the correct interpretation of Old Chinese textual sources, there is no methodological injunction against their use.

Barring the future discovery of a cache of texts from the Old Chinese period, we have only a fixed supply of textual evidence for the reconstruction of Old Chinese. Progress in OC reconstruction over the past century has stemmed from ever more insightful and

systematic analyses of the existing pool of data. Indeed, this process is continuing, as scholars in the last decade have advanced a number of hypotheses about Old Chinese derivational morphology.[37] But there is a limit to what can be achieved this way. If additional progress is to be made, comparative Tibeto-Burman evidence, both phonological and morphological, is essential.

If Tibeto-Burman data is used judiciously, and work on Old Chinese progresses, then the resulting OC reconstruction should more and more closely model real speech forms underlying the early Chinese texts. This revised reconstruction can then be compared with Proto-Tibeto-Burman in order to apply the comparative method to the task of reconstructing Proto-Sino-Tibetan.[38]

For these reasons, in addition to the principal task of reconstructing Proto-Tibeto-Burman, the STEDT project should be able to make significant contributions to the reconstruction of Old Chinese as well as to the reconstruction of Proto-Sino-Tibetan.

A.9   Tables of Equivalences

A.9.1   Initials

The following are charts of Middle Chinese initials, showing their Old Chinese origins in the systems of Karlgren (1957), Li (1971,1976), Gong (1990,1994) and Baxter (1992).

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37. See for example Sagart 1999. Work on Old Chinese morphology is based on re-examining word family alternations in Chinese—alternations that have been recognized for some time—using the more sophisticated tools afforded by recent OC reconstruction systems like that of Baxter. While still in the early stages, this work suggests that Chinese had a rich derivational morphology, perhaps involving prefixes, suffixes, infixes, and ablaut.

38. This begs the question of whether the working hypothesis that Chinese and Tibeto-Burman form two coordinate branches of the Sino-Tibetan family tree is correct. This question, like the many other questions pertaining to the subgrouping of Tibeto-Burman, can only be answered in the process of carrying out the work of Sino-Tibetan reconstruction.

A.9.1.1   Labials

MC [a]	Karlgren	Li	Gong	Baxter
幫 p-	p	p	p, pl [b]	p
滂 ph-	ph	ph	ph, phl	ph
並 b-	bh	b	b, bl	b
明 m-	m	m	m, ml	m, Np

[a] Traditionally, each Middle Chinese initial is named by a Chinese character which has that initial. These characters are listed along with the MC reconstruction.

[b] When *-l- appears as a medial element in Gong, it palatalizes to MC -j-, yielding a third division word.

A.9.1.2   Dental Stops

MC	Karlgren	Li	Gong	Baxter
端 t-	t	t		t, k-l, (p-l)
透 th-	th	th, hn, hl		th, hn, hl, hr, kh-l, (ph-l)
定 d-	dh	d		d, l, g-l, (b-l)
泥 n-	n	n		n, Nt

來 l-	l, gl	l, gl, bl	r, (grj, drj, brj) [a]	g-r, b-r, C-r [b]

[a] *grj-, *drj-, *brj- > lj- is from Gong 1990; In light of the general system of OC clusters presented in Gong 1994b, these developments need to be revised as follows: *grj- > gj- (part of the general rule *Krj- > Kj-), presumably *brj- > bj- (as part of the general rule *Prj- > Pj-), although he offers no examples), and (although no explicit mention is made of it) *drj- > dj-.

[b] Baxter (1992) argues that MC l- is always derived from an OC cluster with -r- (p. 199-200). The initial consonant is represented by *C- when its identity cannot be determined from *xiesheng* contacts or TB cognates. Note that *b-r- and *g-r- (and *C-r-), which become MC l-, are distinct from *gr- and *br-, which become MC g- and b- (second division). Note also Baxter's use of *k-l- > t- as opposed to **kl- > *kr- > k. The exact phonetic nature of the difference is not specified.

A.9.1.3 Supradental (Retroflex) Stops

MC	Karlgren	Li		Baxter
知 ṭ-	tE,[a] tj	tr		tr
撤 ṭh-	thE, thj	thr, hnr, hlj		trh, hnr, hlr, hrj
澄 ḍ-	dhE, dhj	dr		dr, lr
娘 ṇ-	nE, nj	nr		nr, Ntr

{a}I have used the arbitrary symbol E to represent any second-division vowel in Karlgren's OC system; or, to be more precise, any vowel which conditioned the development of MC second division rhymes. (Karlgren does not posit a medial element of any sort to account for the development of MC second division rhymes; he uses distinct OC vowels to account for it.) Thus *t- followed by a second division vowel became MC ṭ- (written t̂- in Karlgren).

A.9.1.4 Dental Affricates

MC	Karlgren	Li	Gong	Baxter
精 ts-	ts	ts		ts, St [a]
清 tsh-	tsh	tsh, sth		tsh, sr, sn, Sth
從 dz-	dzh	dz, sd, sg		dz, Sd
心 s-	s	s, st, sm, sn, sk, sk^w		s, sl, snj, sm, sŋ, sŋ^w, sw,[b] sp, sk
邪 z-	dz	rj, sgj, sg^wj	sl, lj [c]	z,[d] zl, znj, zm, zŋ, zŋ^w, zw, zp, zk

{a}Baxter writes *S- for his "metathesizing s" which behaves differently from ordinary *s- and had a different origin. Thus *St- > ts-, but *st- > s- (although examples of the latter are extremely rare, p. 228). The phonetic difference between *S- and *s- is not clear.

{b}*sw- appears to be a cluster of pre-initial *s- and initial *w-, rather than a rounded dental sibilant *s^w-.

{c}Gong 1990 has *sl-. In Gong 1994b there are a few characters listed with *lj- > zj-. It is unclear whether Gong intended to revise all earlier instances of *sl- to *lj-.

{d}Baxter is not convinced of the existence of OC *z-, and suspects it should be reconstructed as *ɦis-, at least in some cases, although he uses *z- for orthographic convenience. See pp. 198, 224.

A.9.1.5   Supradental (Retroflex) Affricates

MC	Karlgren	Li		Baxter
照二 tṣ-	tsE, tṣj	tsr		tsr, Str
穿二 tṣh-	tshE, tṣhj	tshr		tshr, Sthr
床二 dẓ-	dzhE, dẓhj	dzr		dzr, Sdr
審二 ṣ-	sE, ṣj	sr, smr, snr, sl, sml, snl		srj
(俟 ẓ-)				zr

A.9.1.6   Palatal Affricates

MC	Karlgren	Li	Gong	Baxter
照三 tś-	t͡ɕ	tj, krj [a]	tj, plj, klj	tj, kj [b]
穿三 tśh-	t͡ɕh	thj, khrj	thj, phlj, khlj	thj, khj
床三 dź-	d͡ʑh	dj, grj	dj, blj, glj	dj, gj
日 ń- [c]	ń	nj, ŋrj	nj, mlj, ŋlj	nj, ŋj [d]
審三 ś-	ś	snj, hnj, sthj, hrj	snj, hnj, hlj [e]	hnj, hlj, hj, [f] hŋj, stj
禪 ź-	d͡ʑ	dj, grj		Lj [g]

{a} Reconstructions listed here and in Li 1976 as *Krj- (where *K represents any velar initial) were reconstructed as *sKj- in Li 1971.

{b} According to Baxter, the series *Kj- became MC Tś- only before front vowels (there are exceptions). Otherwise *Kj- > K- (pp. 210-212). In his notation, Baxter writes capitalized velars (*e.g.* *KH-) in exceptional cases where such velars palatalized despite being followed by a back vowel.

{c} Li, following Karlgren, reconstructs MC ńź- for this initial; ń- would be a more natural representation.

{d} *ŋj- > ń- before front vowels only. See p. 212.

{e} Note that Gong's *hlj- can be interpreted either as a cluster of *h- and *-l- (parallel in development to the other velar cluster *Klj-) or as a single voiceless lateral initial (parallel in development to *hnj- and identical to Baxter's *hlj-).

{f} *hj- is a "default" reconstruction when *xiesheng* evidence does not point to contacts with *n- or *l- (pp. 202-3).

{g} Baxter uses *Lj- to represent some sort of voiced counterpart to *hlj- > śj-. This is a notational device only; Baxter speculates that *Lj- might represent *ɦhlj- > *ɦisj- > źj-, or that it simply represents *lj- with dialectal variation in development (p. 198). More recently, Baxter has proposed replacing *L- with *ml-.

A.9.1.7 Velars

MC	Karlgren	Li		Baxter
見 k-	k	k, kʷ		k, kʷ
溪 kh-	kh	kh, khʷ		kh, kʷh
群 g-	ghj	gj, gʷji {a}		gj, gʷ
疑 ŋ-	ŋ	ŋ, ŋʷ		ŋ, ŋʷ, Nk
曉 x-	x, xm	h, hʷ, hm, hŋ, hŋʷ		x, hʷ, {b} hŋ, hŋʷ, hm
匣 ɣ-	gh	g, gʷ		g, ɦ, w

{a}Note that in Li's system MC **g-**, **ɣ-**, and **j-** are all reflexes of *g-. Li considers these three MC initials to be in complementary distribution, with **j-** appearing mostly in *hekou* words and **g-** appearing mostly in *kaikou* words.

{b}It's not clear why Baxter reconstructs the rounded counterpart to *x- as *hʷ- rather than *xʷ-.

A.9.1.8 Laryngeals and Zero Initial

MC	Karlgren	Li	Gong	Baxter
影 ʔ-	ʔ	ʔ, ʔʷ		ʔ, ʔʷ
喻三 j-	g	gʷj	gʷrj	wj, {a} ɦj
喻四 ji-	d, z, (b, g)	r, grj, brj	l	r, lj, j {b}

{a}Only before front vowels. Otherwise, *wj- > ɣ- (p. 217).

{b}*j- is a "default" reconstruction when *xiesheng* evidence does not point to contacts with *r- or *lj- (pp. 202-3).

A.9.2 Rhymes

The following are charts of Old Chinese rhymes in the systems of Li (1971) and Baxter (1992), showing their relationships to the traditional rhyme groups. This chart is adapted from Baxter (1992:562-4):

A.9.2.1 Acute codas

Rhyme group	真 Zhēn	文 Wén	
Baxter	*-in	*-ɨn	*-un
Li	*-in	*-ən	

Rhyme group	元 *Yuán*
Baxter	*-en
Li	*-an

Rhyme group	質 *Zhì*	物 *Wù*	
Baxter	*-it	*-ɨt	*-ut
Li	*-it	*-ət	

Rhyme group	月 *Yuè* / 祭 *Jì*
Baxter	*-et
Li	*-at / *-ad

Rhyme group	脂 *Zhī*	微 *Wēi*	
Baxter	*-ij	*-ɨj	*-uj
Li	*-id	*-əd	

Rhyme group	歌 *Gē*
Baxter	(*-ej)
Li	*-ar

A.9.2.2   Back and zero codas

Rhyme group	之 *Zhī*	幽 *Yōu*	
Baxter	*-ɨ	*-u	*-iw
Li	*-əg	*-əgw	

Rhyme group	支 Zhī [佳 Jiā]	魚 Yú	侯 Hóu
Baxter	*-e	*-a	*-o
Li	*-ig	*-ag	*-ug

Rhyme group	職 Zhí	覺 Jué
Baxter	*-ɨk	*-uk *-iwk
Li	*-ək	*-əkw

Rhyme group	錫 Xī	鐸 Duó	屋 Wū
Baxter	*-ek	*-ak	*-ok
Li	*-ik	*-ak	*-uk

Rhyme group	蒸 Zhēng	冬 Dōng [中 Zhōng]
Baxter	*-ɨng	*-ung
Li	*-əng	*-əngw

Rhyme group	耕 Gēng	陽 Yáng	東 Dōng
Baxter	*-eng	*-ang	*-ong
Li	*-ing	*-ang	*-ung

Rhyme group	宵 Xiāo	
Baxter	*-ew	*-aw
Li	*-agw	

Rhyme group	藥 *Yào*	
Baxter	*-ewk	*-awk
Li	*-akw	

A.9.2.3　　Bilabial codas

Rhyme group	侵 *Qīn*
Baxter	*-im
Li	*-əm

Rhyme group	談 *Tán*
Baxter	*-em
Li	*-am

Rhyme group	緝 *Qī*
Baxter	*-ip
Li	*-əp

Rhyme group	盍 *Hé* [葉 *Yè*]
Baxter	*-ep
Li	*-ap

A.10　Glossary of Sinological Terms

This glossary attempt to provide brief, simple descriptions of Chinese and English terminology often encountered in works on Old Chinese reconstruction. Terms are arranged by topic. For each term, the full *pinyin* transcription (with tone) is provided,

along with the Chinese characters and a working English translation, followed by a one-paragraph definition. In the interest of brevity, generalizations are sometimes made, and there are no doubt points on which certain scholars would disagree with my interpretations. Page numbers for further reading are listed for Baxter 1992 (B) and Norman 1988 (N).

A.10.1 Basic terms

Shànggǔ Hànyǔ / Shànggǔ yīn 上古漢語 上古音
Old Chinese / Old Chinese phonology

> The Chinese language spoken in the first half of the first millenium BC, as reflected in the rhyming patterns of the *Shi Jing* and in the *phonetic* elements of early Chinese characters. Called 'Archaic Chinese' by Karlgren and other Western scholars. 'Old Chinese' is a newer term intended to better reflect the sense of the Chinese. It is considered the earliest reconstructible stage of Chinese.

Zhōnggǔ Hànyǔ / Zhōnggǔ yīn 中古漢語 中古音
Middle Chinese / Middle Chinese phonology

> The Chinese literary standard spoken roughly from the 6th to the 11th centuries. It may be further subdivided into Early Middle Chinese (reflected in the early *rhyme books* like the *Qie Yun*) and Late Middle Chinese (reflected in the *rhyme tables* such as the *Yun Jing*). Called 'Ancient Chinese' by Karlgren and other Western scholars. The phonological systems of most modern dialects can be correlated with Middle Chinese.

A.10.2 Terms related to the reconstruction of Old Chinese

Shī Jīng 詩經
Book of Songs

> A compilation of lyric poetry whose works are thought to date from the 8th to 5th centuries BC. The received version contains the lyrics to 305 poems, and is said to have been compiled by Confucius. With approximately 2000 rhyming words, it is the primary source of information on the phonological structure of the vowels and finals of Old Chinese. The Old Chinese *rhyme categories* are determined by analysis of the *Shi Jing*. (N:42-3)

xiéshēng 諧 聲
phonetic series

> This term refers to a set of Chinese characters (or to the words written with those characters) which all share the same *phonetic*; it also includes the character which is itself

that phonetic. For example, the characters 方 妨 芳 放 房 are members of one *xiesheng* series (the latter four use the first as phonetic). More loosely, any character which contains a phonetic may be referred to as a *xiesheng* character (a 'phonetic compound'). Two characters which are in the same phonetic series are sometimes said to show '*xiesheng* contact'. It is generally assumed that, at the time of the creation of a character, the words in a phonetic series had the same main vowel and ending, and shared the place of articulation of the initial. (B:11-12, N:43-44)

yùnbù 韻部

rhyme group or rhyme category (of Old Chinese)

Based on the rhyming patterns of the *Shi Jing*, the words of Old Chinese are divided into rhyme categories. All the words within a single category may rhyme freely. Because of difficulties in the interpretation of the *Shi Jing* rhyme patterns, there is disagreement over the number and nature of the OC rhyme categories. The traditional rhyme categories are those established by the Qing Dynasty philologists, and which still serve as the basis for scholarship today. Each of these categories is named with one of the words included in it. For a list of the traditional categories, see the table of rhymes included in §A.9.2.

A.10.3   Terms related to the reconstruction of Middle Chinese

yùnshū 韻書

rhyme book

Rhyme books began appearing in the sixth century AD; the earliest surviving one is the *Qie Yun*. Rhyme books are dictionaries which group characters according to their rhymes. Each rhyme is named with one of the characters contained in it. Within each rhyme, homophonous characters are subgrouped together, and their pronunciation is indicated according to the *fanqie* spelling system. (B:33-35)

Qiè Yùn 切韻

Segmenting Rhymes

A *rhyme book* dated 601 AD which is the primary source of information on the phonological system of Early *Middle Chinese*. (B:35-8, N:24-8)

Guǎng Yùn 廣韻

Expanded Rhymes

An enlarged revision of the *Qie Yun* dating to 1007 AD. Because it is a much more convenient reference work to use than the *Qie Yun*, and because it represents essentially the same phonological system as the *Qie Yun*, it is the *rhyme book* most often

used and cited. (B:38-40)

fǎnqiè 反切

turning and cutting

> A system employed in the *rhyme books* for indicating the pronunciation of Chinese characters. A character is spelled with two other characters, the first of which indicates the initial and the second of which indicates the final (including tone). By combining the initial of the first character with the final of the second, the correct pronunciation is achieved. (B:33, N:27)

yùntú 韻圖

rhyme table

> Rhyme tables appear in the Late *Middle Chinese* period, but are useful for interpreting data in the *Qie Yun* and thus for reconstructing Early Middle Chinese. The most commonly referenced is the *Yun Jing*. In the rhyme tables, characters are laid out in tables indicating their phonological properties. (B:41-42, N:28-34)

Yùn Jìng 韻鏡

Mirror of Rhymes

> A *rhyme table* dating to no later than the 12^[th] century, but probably representing an earlier tradition. (B:42-3). The *Yun Jing* lays out characters on a grid-like pattern. Each column represents a distinct *initial* consonant, and the rows represent different *rhymes*, *tones*, and *divisions* (*i.e.* characteristics of the *final*). Each grid is also labeled as *hekou* or *kaikou*. The *Yun Jing* thus provide a complete phonological framework for Middle Chinese.

děng 等

division

> This is a complex and difficult term, which in different contexts may have different meanings. It refers primarily to the way that Chinese characters are laid out in the *rhyme tables* (such as the *Yun Jing*). Under each tone, there are four rows in the grids of the *Yun Jing*, each corresponding to a division. These divisions are generally thought to relate to the quality of the vowel: first division vowels are back, second division vowels are front (but not high), third division vowels contain a palatal medial glide, and fourth division vowels are high and front.

> The four divisions may be labeled by a roman numeral (I, II, III, or IV). The adjective 'nth-division' may refer to a particular character (indicating its placement in the rhyme tables), or to an entire *rhyme* (indicating the nature of the vowel of that rhyme). This can lead to a sometimes confusing situation wherein a third-division word (so

identified by virtue of belonging to a third-division rhyme, *i.e.* one reconstructed by Karlgren with a palatal glide), is also a fourth-division word (by virtue of being placed in the fourth row in the rhyme tables). I would propose using a roman numeral to indicate division in the broad sense (the division of the rhyme as a whole), followed (if necessary) by an arabic numeral to indicate in which row of the rhyme tables the character appears. Thus the so-called 'third division *chongniu*' words could by abbreviated as III-3, while 'fourth-division *chongniu*' words would be abbreviated III-4.

Further complicating the issue is the fact that the term 'division' is often used loosely (and inaccurately) to refer to words or rhymes of earlier or later stages of Chinese which developed into or from particular divisions of Middle Chinese. For example, Old Chinese words with medial *-r- are sometimes referred to as "second division" because they developed second-division vocalism in Middle Chinese. Finally, the term may be used to refer to particular series of consonants. (For example, the palatal affricates of Middle Chinese occur only with third-division words, so they may be referred to as "third-division initials"). (B:42-3, N:32)

chóngniǔ 重紐

doublets

> A phenomenon found in the *rhyme tables* where some words in a given *rhyme* with a given *initial* are placed in the third division, while other words with the same initial and rhyme are placed in the fourth division. The distinction is usually thought to be located in the *medial*, but the exact phonetic nature of the distinction is highly disputed. Karlgren did not take these doublets into account in his reconstruction. In Li Fang-Kuei's revision of Karlgren's MC reconstruction, the distinction is indicated orthographically by medial -j- vs. medial -ji-. (B:75-81)

yùn 韻

rhyme (of Middle Chinese, or of any rhyme book)

> The Middle Chinese equivalent of Old Chinese *rhyme categories*, rhymes are groupings of words which may rhyme freely. They have the same rhyme (*i.e.* main vowel plus ending) and serve as the main organizational unit in the *rhyme books*. See also the entry for *yun* below.

A.10.4   Terms related to the Chinese syllable and Chinese characters

shēngmǔ 聲母

initial

> The initial consonant of a Chinese syllable. In Old Chinese, this may be a consonant cluster.

yùnmǔ 韻母

final

> The part of the Chinese syllable consisting of the medial, main vowel, and ending (that is, everything but the initial and tone). The initial and final together make up a complete syllable.

jièyīn 介音

medial

> The on-glide of a Chinese syllable.

yùn 韻

rhyme

> The part of a Chinese syllable consisting of the main vowel and ending, and sometimes the tone, *i.e.* that portion of the syllable which determines its rhyming properties. See also the entry for *yun* on the previous page.

yùnwěi 韻尾

ending

> The part of a Chinese syllable which follows the main vowel. It may be a consonant or an off-glide.

shēngdiào 聲調

tone

> Middle Chinese had four distinct lexical tones. While their exact contours are not known, their traditional names (which date to the Early Middle Chinese period) give a good indication of their general properties. (Note that the four tones of modern Mandarin do not correspond isomorphically to the four tones of Middle Chinese.) The level, rising, and departing tones occur with open syllables and syllables with nasal endings; the entering tone occurs with syllables with final stop endings.

píngshēng	平聲	level tone
shǎngshēng	上聲	rising tone
qùshēng	去聲	departing tone
rùshēng	入聲	entering tone

kāikǒu 開口

unrounded, *i.e.* lacking medial -**w**-

> In the *rhyme tables*, this refers to syllables which do not contain a rounded *medial* ele-

ment -w-. The term is often used more generally to refer either to (a) syllables lacking a rounded medial element at any stage of Chinese; (b) syllables which are ancestral to MC syllables lacking such an element.

hékǒu 合口

rounded, *i.e.* containing medial -w-

In the *rhyme tables*, this refers to syllables which contain a rounded *medial* element -w- (or sometimes a rounded main vowel). The term is often used more generally to refer either to (a) syllables having a rounded medial element at any stage of Chinese; (b) syllables which are ancestral to MC syllables with such an element.

shēngfú 聲符

phonetic/phonophoric

The component of a Chinese character which, because it is itself a character—or a modification of a character—used to write another Chinese word, gives an approximate indication of the pronunciation of the character. (For example, the phonetic of the character 芳 *fāng* 'fragrant' is 方 *fāng* 'square'.) The vast majority of Chinese characters are phonetic compounds containing such an element. These characters make up *phonetic series*.

yìfú 義符

signific

The non-*phonetic* component of a *xiesheng* character. The role of the signific can be thought of as distinguishing near-homophonous words by giving a rough indication of the semantic category of the word being written. The signific often, but not always, corresponds to the "radical", *i.e.* the compononent of the character used for classification purposes (as in dictionaries and indices). For example, the signific of the character 坊 *fāng* 'place' is 土 *tǔ* 'earth'.

APPENDIX B *Karlgren's Transcriptional Conventions*

By *Richard S. Cook* and *Zev J. Handel*

Elements of 高本漢 Bernhard Karlgren's (1889-1978) *Archaic* and *Ancient Chinese* transcriptions are compared to [IPA] in the following tables. (Archaic = 上古 = Old Chinese = OC; Ancient = 中古 = Middle Chinese = MC.)

TABLE 1. **Full vowels**

i	[i]			u	[u]
e	[e]	ö	[ɵ]	ô	[o]
ä	[ɛ]	ə	[ə]	o	[o̞]
ε	[æ]	ɐ	[ɐ]	å	[ɔ]
a	[a]			â	[ɑ]

TABLE 2. **Short** [ɤ̆] [ɤ̱] **and non-syllabic** [ɤ̯] **vowels**

i̯	[i̯]	ĕ	[ĕ]	e̱	[e̱]	ə̆	[ə̆]	ə̱	[ə̱]
ŭ	[ŭ]	ŏ	[ŏ̞]	ô̱	[ŏ]	ă	[ă]	â̱	[ă]

TABLE 3. **Consonant symbols**

·	[ʔ]	γ	[ɣ]	ń	[ɳ]	ḍ	[ɖ]
ʼ	[ʰ]	j	[j]	ś	[ɕ]	ṣ	[ʂ]
ng	[ŋ]	t̂	[tɕ]	ź	[ʑ]	ẓ	[ʐ]
χ	[x]	d̂	[dʑ]	ṭ	[tʂ]	O	[Ø]

TABLE 4. **Tone marks (following MC syllable "x")**

x	平聲	"even tone"	x:	上聲	"rising tone"	x-	去聲	"falling tone"

NOTES: Karlgren made use of Johan August Lundell's (1879) Swedish dialect alphabet (1915:227-228) • " j-" (initial) and "-i̯-" (rhyme onglide "yod") are distinct in MC " ji̯-" • *over-breve* and *under-dot* are both used to indicate short *syllabic* vowels • *under-breve* indicates a short *non-syllabic* vowel (as in IPA) • both " a " and " *a* " in *GSR* are [a] (" *a* " is *italic* " a ") • likewise, both " ɐ " and " ɒ " are [ɐ] • on " ô " vs. " o ": "something like French *tôt* as against *tonne*, Germ. *so* as against *Sonne*" (K. 1954: 346[136]; c*f*. 1940:38); " *o* as in Germ. *Sommer* ; *ô* as in French *beau* " (1957:4) • " ɐ as in Engl. *but* " ([ɐ], more central than cardinal [ʌ]) • " *ä* as in Germ. *bär* " • " ε " is "a still more open, slack *ä* sound (Engl. *man*)" (1957:4) • "palatals" ("predorsum against the alveoli", 1957:3) are pre-palatals, i.e. *alveolo-palatals* ("curly-tails") • *under-dot* marks both components of the *affricate* (stop and fricative) as *retroflex* in *AD* • *GSR*'s *italic Greek gamma* is IPA *gamma* • K's diacritic for aspiration is " ' " (not " ' ") • the diacritic for *glottal stop* is a full-width superscript dot (above x-height) • *zero initial* ("smooth vocalic ingress") written " O " (1957:3), is unmarked in reconstructions • " ö " [ɵ] ≈ [ö] occurs only in transitional (OC > MC) forms, for *centralized* " o " and " ô " (c*f*. 1940:38) • Mandarin: " ü " [y]; " ê " [ɤ]; " ï " for *apical vowels* [ɻ , ɹ̩] ≈ [ʐ̩ , z̩] • other symbols (for tones, Cantonese, Japanese) appear in *AD*.

SELECTED SOURCES: Lundell (1879), Karlgren (1915 *Études*, 1923 *AD*, 1940 *GS*, 1954 *Compendium*, 1957 *GSR*), LI Fang-Kuei (1971), Norman (1988), CHOU Fa-kao (1984), YU Nae-wing (1985, 2000), Baxter (1992), Pullum & Ladusaw (1996), Ulving (1997), Pan (2000).

Index of Proto-Forms

· PROTO-SYLLABLES

This is an index arranged by proto-root-syllables, where all etyma with roots that reconstruct with the same phonological shape are grouped together. Any affixes reconstructed for a given etymon are disregarded for the purposes of this grouping. Prefixes or suffixes are separated from their roots by hyphens, *e.g.* ***m-kum**, ***na-n**. See, for example, the list of roots under the proto-syllable ***wa**:

> ***wa**
>   ***b-wa** 'white/yellow'
>   ***g-wa-t** 'bite/chew'
>   ***k-wa** 'satiated'
>   ***r-wa ⋈ *g-wa** 'village'
>   ***r-wa ⋈ *s-wa ⋈ *g-wa** 'rain'
>   ***r-wa** 'bamboo'
>   ***s-wa** 'go'
>   ***wa** 'bird/feather'
>   ***wa** 'man/father/husband/person'
>   ***wa** 'trap'
>   ***wa-y ⋈ *ra-y** 'fontanelle'
>   ***wa²** 'bamboo' (PLB)
>   ***wa²** 'snow/frost/ice/hail' (PLB)
>   *Cf.* **pʷa** 'man/husband/father/person'
>   *Cf.* ***m-gʷya²** 'chew' (PLB)
>   *Cf.* ***pʷa** 'bamboo'
>   *Cf.* ***ra-y ⋈ *wa-y** 'fontanelle'
>   *Cf.* ***swa** (or ***s-wa**) 'tooth'
>   *Cf.* ***wal** 'snow/frost/ice/hail'

- *ALPHABETICAL ORDER*

No forms are reconstructed with initial vowel, but there are a number of etyma which reconstruct with *glottal stop plus vowel. The order of consonants in this *Index* is as follows:

ʔ, b, d, dz, dzy, g, h, k, l, m, n, ŋ, p, r, s, sy, t, ts, tsy, w, y, z, zy.

The fricate initials /**dz dzy sy ts tsy zy**/ are considered to be unit proto-phonemes. On the other hand the palatalized dentals /**ty**/ and /**dy**/ are treated as clusters, so that etyma with these initials are to be found under /**t**/ and /**d**/, respectively. This leads to the anomaly of **ty**- preceding **ts**- in the alphabetical order.

The order of proto-vowels is: **a, e, ə, i, o, u**. Long vowels are alphabetized after the corresponding short ones.

For the purpose of alphabetization, parentheses are ignored; thus "t(y)a" is treated the same as "**tya**". (For the meaning of these parentheses, see "Variation / Allofamy", below.)

- *GLOSSES*

Multiple English translations are frequently offered to show the full semantic scope of the etymon. These alternative glosses are separated by slashes, with no attempt to indicate the relative semantic distance among the subsenses, *e.g.*:

*g-raːl �End *g-ran ⋈ *ray 'enemy / fight / quarrel / strife / sword / war'

All glosses that appear in this *Index* are listed in alphabetical order in the *Index of Proto-Glosses*, below.

- *LEVELS OF RECONSTRUCTION*

Unless otherwise marked, reconstructed forms are to be interpreted as PTB. A number of reconstructions at lower taxonomic levels are also included and labelled as such, provided that they are specifically mentioned in the text. These are mostly Proto-Lolo-Burmese, but also include occasional forms set up for other groups, *e.g.* Proto-Northern Naga, Proto-Chin, Proto-Karenic. Tones are provided for the PLB reconstructions.

- *VARIATION / ALLOFAMY*

As in Indo-European, a large number of roots show variation in their phonological shape, i.e. etyma frequently have more than one allofam. As explained in the text, the

types of variation "permissible" within ST/TB word families are quite different from what is encountered in IE.

Sometimes a head entry in this *Index* is itself an allofamic group. In these cases, all etyma under the head entry are claimed to show the same variational pattern, *e.g.*:

> ***graŋ �closs *kraŋ**
>   ***graŋ ⋉ *kraŋ** 'measure/count'
>   ***graŋ ⋉ *kraŋ** 'strong/firm/tight/distended'

Care is taken to include all root-variants that are mentioned in the text, with mutual cross-references -- unless the variants are very close to each other in the alphabetical order, when multiple listings would be tedious.

No attempt is made in this *Index* to show the chronological depth of the observed variation, i.e. whether it may be imputed all the way back to PST or PTB, or whether it is only the effect of an innovation at a subgroup level. For such clarifications (when it is possible to give them), the text should be consulted.

This *Index* uses four types of notation to indicate variation:

(a)   Separate alternative reconstructions, connected by the allofam-sign ⋉ :

   *grum ⋉ *krum

(b)   A single reconstruction with alternating elements separated by slashes:

   *gyit/k   (= ***gyit ⋉ *gyik**)
   *m/s-nam   (= ***m-nam ⋉ *s-nam**)

(c)   When two allofams are attested, one with and one without a given element, parentheses may enclose the optional material:

   *t(y)a   (= ***ta ⋉ *tya**)
   *(t)saːy   (= ***tsaːy ⋉ *saːy**)

As mentioned above, parentheses are ignored for the purposes of alphabetization; thus ***t(y)a** and ***tya** would appear under the same proto-syllable.

(d)   In cases where it is not possible to choose between slightly different reconstructions on the basis of the available data, the alternative possibilities are separated by the word *or*:

*ʔaːr *or* *haːr	'fowl/chicken/quail'
*s-wam *or* *hwam	'dare'
*sram *or* *s-ram	'otter'

Many roots display more than one type of variation:

*r/s-ŋ(y)a	'borrow/lend'
*kla-k/y/t ≽ *gla-k/y/t	'fall'

If clarity does not suffer, sometimes the index offers a pan-allofamic formula that does not appear as such in the text, *e.g.* *d-kʷəy-n 'dog', where the text only has *d-kʷəy or *kʷəy-n.

The choice of notation in an individual case is an esthetic one, with clarity the foremost consideration. Conventionally we avoid beginning a reconstruction with alternative root-initial consonants separated by slashes (*e.g.* not **k/grum, but **krum ≽ *grum**), since this would complicate the alphabetical order of proto-syllables. Similarly we avoid indicating vocalic alternations by slashes, since this would be hard to interpret (*e.g.* not **gru/im, but **grum ≽ *grim**).

In cases of multiple types of variation within the same etymon it would usually be quite confusing to indicate each type by slashes. Although a root with the four allofams **krum ≽ *grum ≽ *krim ≽ *grim** could theoretically be notated as **k/gu/im**, it is far preferable to use cross-references:

> *krum ≽ *krim
>   *Cf.* *grum ≽ *grim .

When there is alternation between a short vowel and the corresponding long vowel followed by a consonant, parenthesized notation is avoided in favor of the allofam sign. Thus, **kwa ≽ *kwaːy** is used instead of **kwa(ːy)**. This avoids putting the vowel-length symbol inside parentheses.

Alternation or uncertainty between a long and a short high vowel is shown by parenthesized notation: **-i(y), *-u(w)**. This is merely for convenience, since long high vowels in the text are reconstructed with schwa-plus-semivowel: **-əy, *-əw**. For the

equivalence between *-**iy** and *-**əy**, and between *-**uw** and *-**əw**, see 5.3.1 and 5.3.2, above.

· CROSS-REFERENCES

Pains have been taken to provide liberal cross-references. These are of two basic types, semantic and phonological:

    (a)   references to other roots with similar meaning (where no phonological/etymological relationship is implied), *e.g.*:

> *m/s-twa 'spit/spittle'
>   *Cf.* *m/s-tuːk 'spit/spew'

    (b)   references to co-allofams within the same word-family, *e.g.*:

> *pʷul ≍ *pʷil 'skin'
>   *Cf.* *ʔul, *wul ≍ *wun 'skin'
>   *Cf.* *pun ≍ *pin 'skin'

The text will have to be consulted when it is not clear which type of cross-reference is intended.

Occasionally the user will have to go through several cross-references in order to locate all the allofams of an etymon, *e.g.*:

*krim:	*Cf.* *grim ≍ *krim 'meet'
*grim ≍ *krim:	*Cf.* *grum ≍ *krum 'meet'
*grum ≍ *krum:	*Cf.* *grim ≍ *krim 'meet'
*krum:	*Cf.* *grum ≍ *krum 'meet'

*ʔ

*ʔa ≽ *ga

   *ʔ-ga² (PLB) 'mute/dumb/
     stupid' {57, 165}

   *m-ʔa 'mute/dumb/stupid'
     {57, 176}

*ʔal

   *ʔal 'right (correct)/good'
     {406}

*ʔam

   *ʔam 'eat/drink' {298,
     533}

*ʔaŋ- ≽ *ʔak-

   *ʔaŋ- ≽ *ʔak- 'noun pre-
     fix' {522}

*ʔap ≽ *gaːp

   *ʔap ≽ *gaːp 'needle'
     {57}

   *ʔap ≽ *gaːp 'shoot' {57,
     137, 340}

   Cf. ***kap** 'needle'

   Cf. ***k-rap ≽ *k-ram**
     'needle'

*ʔaːr

   *ʔaːr *or* ***haːr** 'fowl/chick-
     en/quail' {58, 385, 386,
     392, 401, 426}

*ʔaw

   *ʔaw 'vomit' {227}

*ʔaːw

   *ʔaːw 'shout' {225}

*ʔay

   *ʔay 'go/directional parti-
     cle/transitive motion'
     {209, 482, 483}

   Cf. ***yay ≽ *ʔay** 'mother/
     grandmother/maternal
     aunt'

*ʔew

   *ʔew 'lean back' {231}

*ʔik

   *ʔik 'elder brother' {344}

   *ʔik 'strangle' {344, 348}

   *ʔu²-(y)ikᴸ (PLB) 'elder
     sibling' {86, 154}

   Cf. ***ʔ-wyikᴸ** (PLB) 'elder
     sibling'

*ʔiŋ

   *ʔiŋ 'bear (endure)/suffer'
     {281}

*ʔip ≽ *ʔiːt

   *ʔip ≽ *ʔiːt 'bag/sack'
     {533}

*ʔit

   *ʔit 'one' {352}

*ʔok

   *ʔok 'below/under' {377}

*ʔoːl

   *ʔoːl 'finish/loose/relax'
     {421, 426}

*ʔol

   *ʔol 'throat/gullet' {58,
     421}

*ʔon

   *ʔon 'nauseated/vomit'
     {292}

*ʔu

   *ʔu 'egg/sit on eggs' {199}

   *ʔu² (PLB) 'head' {477}

   *ʔu³ (PLB) 'egg/sit on
     eggs' {180}

   Cf. ***d-bu** 'head'

*ʔuk ≽ *kuk

   *ʔuk ≽ *kuk 'crooked/
     bent/knee/angle/return/
     back' {57}

   Cf. ***gu(ː)k ≽ *m-ku(ː)k**
     'crooked/bent/knee/angle'

   Cf. ***kuk** 'return/year'

*ʔul

   *ʔul 'hand' {58}

   *ʔul 'skin' {58}

   Cf. ***pʷul ≽ *pʷil** 'skin'

*ʔuːm

   *ʔuːm 'mouthful' {496}

   *m-ʔuːm 'hold in the
     mouth' {276, 308}

*ʔum ≽ *kum

   *ʔum ≽ *kum 'block/pil-
     low' {57}

*ʔup ≽ *gup

   *ʔup ≽ *gup 'hatch/cover'
     {57, 369}

*ʔur

   *ʔur 'make noise/hum/chat/
     babble' {385, 396, 402}

   Cf. ***kur ≽ *ʔur** 'hand'

*ʔuːr

   *ʔuːr 'fire/burn/kindle/
     roast' {428}

   Cf. ***b-war ≽ *p-war**
     'fire/burn/kindle/roast'

*ʔut

   *ʔut 'swaggering/noisy'
     {364}

*b

*ba

   *ʔ-ba¹ (PLB) 'patch' {163}

   *ʔ-ba² (PLB) 'civet cat'
     {163}

   *ʔ-ba² (PLB) 'frog' {74,
     113, 428}

   *ba 'carry on back' {24}

   *ba 'thin' {24, 162, 169,
     440}

*ba-y 'cheek' {486}

*ba-y 'what' {488}

*ba² (PLB) 'cheek' {163}

*ba² (PLB) 'nearby place/ vicinity' {163}

*ba² (PLB) 'thin' {19}

*m-ba 'shine/bright' {123, 163}

*m-ba 'wave (in water)' {174}

*m-ba²/³ (PLB) 'tail' {123}

Cf. *pʷa 'patch/sew'

*ba ≍ *baːy

*s/m-ba ≍ *s/m-baːy 'throw' {170, 231, 483}

*bak

*ʔ-bakᴸ (PLB) 'side' {113}

*baːk

*baːk 'bat' {325, 326}

*bal

*bal 'tired' {386, 404, 406, 427}

*s-bal 'frog' {404, 405, 428}

Cf. *ʔ-ba² (PLB) 'frog'

*baːl

*baːl 'filth/excrement' {385, 404, 407, 425}

*ban/t ≍ *pan/t

*ban/t ≍ *pan/t 'braid/ plait/interweave' {260, 518}

*ban/t ≍ *pan/t 'thin' {440}

*baŋ

*d-baŋ 'strength' {140}

*l-baŋ ≍ *m-baŋ 'deaf' {267}

*m-baŋ¹ (PLB) 'lazy/tired

of' {265}

*s-baŋ 'dung' {264}

*bap

*m-bap 'fall over' {336}

*baːr

*baːr 'bloom/flower' {384, 386, 387, 392, 425}

*bat

*bat 'smell/odor' {330}

*bat 'wind around' {330}

*bay

*bay 'repeat/practice' {208, 220}

Cf. *pay ≍ *bay 'encir- cled/ringed/striped'

*baːy

Cf. *paːy ≍ *baːy 'lame/ limp/askew'

*be

*be 'bean/legume' {203}

*be ≍ *pe

*be-s ≍ *pe-s 'break off a piece' {204}

*bəw

*ʔ-bəw² (PLB) 'grandfa- ther' {183}

*bəw 'carry on back' {178, 199}

*bəw 'insect/vermin/bug/ snake' {130, 139, 148, 154, 178, 184}

*bəw² (PLB) 'carry on back' {183, 477}

*bəw² (PLB) 'insect/ver- min/bug/snake' {19, 183}

Cf. *pəw 'grandfather'

*bəy

*bəy-k 'give' {132, 200, 442, 480}

*bəy² (PLB) 'give' {19}

*s-bəy-n 'give' {191}

*bi

*bi¹ (PLB) 'anvil' {187}

*bik

*ʔ-bikᴸ (PLB) 'mosquito' {344}

*bip ≍ *pip ≍ *bup ≍ *pup

*b/pip ≍ *b/pup 'con- ceal/hide (v.)/bury' {352, 354, 370, 495, 498}

*bi(y)

*r-bi(y) 'left' {219, 510}

*ble

*ble 'slip' {203}

*blen

*m-blen 'pus/boil (n.)' {291}

*m-blen¹ (PLB) 'pus' {69, 74, 124}

*bleŋ ≍ *pleŋ

*bleŋ ≍ *pleŋ 'straight(en)' {281, 292}

Cf. *pleŋ 'flat surface/ plank'

*bliŋ

*bliŋ 'string/thread/cord' {307}

*bliŋ ≍ *pliŋ

*ʔ-bliŋ¹ (PLB) 'full/plen- ty' {74}

*bliŋ ≍ *pliŋ 'full/fill' {281, 282, 296, 307, 496}

*blu

*ʔ-blu¹ (PLB) 'porcupine' {74, 113, 180, 241}

*blu-t-s 'ransom' {456}

*s-blu 'porcupine' {74, 184}

*blum
    *blum² (PLB) 'taro' {273}

*bok
    *bok 'white' {378}

*bop
    *bop 'calf of leg' {381}
    Cf. *bwap ≍ *bwam
      'calf of leg'
    Cf. *bwap ≍ *bwam
      'swell up'

*boy
    *boy 'cowlick' {228}

*bral ≍ *pral
    *bral ≍ *pral 'leave/de-
      part/separate' {423}

*bran
    *ʔ-bran³ (PLB) 'spread
      wide' {260}
    *bran 'convalesce' {258,
      386}
    *bran 'ring (for finger)'
      {69}

*braŋ
    *braŋ 'give birth' {264}
    *s-braŋ 'fly (n.)/bee'
      {302}

*brat ≍ *prat
    *brat ≍ *prat 'cut apart/
      cut open' {334}
    *C-prat^L ≍ *ʔ-brat^L
      (PLB) 'cut apart/cut into'
      {330}

*bray
    *bray 'effaced' {209}
    *bray² (PLB) 'flaring'
      {209}

*brəy
    *m-brəy¹ (PLB) 'tears'
      {124}

*broŋ
    *broŋ 'wild yak/buffalo'
      {294}

*bruk
    *bruk 'piebald/speckled'
      {363}

*bruːl
    Cf. *s-b-ruːl 'snake'

*brum
    *s-brum 'pregnant' {308}

*bruŋ ≍ *bruk
    *m-bruŋ ≍ *m-bruk
      'thunder/dragon' {524}

*brup ≍ *prup
    *brup ≍ *prup 'overflow/
      flood' {134, 369, 496}

*br(w)aŋ ≍ *br(w)ak
    *s-br(w)aŋ ≍ *br(w)ak
      'speak' {523}

*bu
    *d-bu-s 'head/center'
      {140, 198, 442, 477}
    *s-bu 'bud/open' {184}
    Cf. *ʔu² (PLB) 'head'

*bul ≍ *bil
    *d-bul ≍ *d-bil 'poor'
      {419, 423}

*bul ≍ *pul
    *bul ≍ *pul 'stump/tree/
      root' {416, 424}

*bun
    *bun¹ (PLB) 'finish' {249,
      279}

*buŋ
    *buŋ 'wind (n.)' {531}

*bup
    *m-bup 'rot/spotted/write'
      {369}
    Cf. *b/pip ≍ *b/pup

      'conceal/hide (v.)/bury'

*bwa
    *bwa-n 'grandmother'
      {448}

*bʷaŋ ≍ *pʷaŋ
    *bʷaŋ ≍ *pʷaŋ 'uncle/el-
      der brother/senior male
      relative' {269, 303}

*bwap ≍ *bwam
    *bwap ≍ *s-bwam
      'swell up/be swollen/stout/
      calf of leg' {252, 341,
      518}
    Cf. *pwap ≍ *pwam
      'swell up'

*bʷar
    *bʷar 'spindle' {61}

*bʷar ≍ *hʷar
    *bʷar ≍ *hʷar 'throw
      (away)/divorce (a spouse)'
      {55, 394, 425}

*bʷar ≍ *pʷar
    *bʷar ≍ *pʷar 'fire'
      {305}
    Cf. *b-war ≍ *p-war
      'fire'
    Cf. *pwa(ː)r 'fire'

*bʷat
    *bʷat 'flower' {61}
    Cf. *b/s-wat 'flower'

*bʷay
    *bʷay *or* *b(w)ay 'left
      side/lefthand' {61, 211,
      214, 219, 510}
    Cf. *paːy ≍ *baːy 'lame/
      askew'

*bwəy
    *bwəy 'bamboo rat' {196}

*bya
    *bya 'bee/bird' {63, 68,

169, 171}

*bya² (PLB) 'bee' {19, 34, 63}

*byam

    *byam 'fly (v.)/run' {68, 118, 252, 257, 532}

    *byam¹ (PLB) 'fly (v.)' {19, 34, 74, 255}

*byar ≍ *pyar

    *byar ≍ *pyar 'affix/sew/plait/braid' {390, 401}

*byer

    *byer 'fly (v.)' {399, 402, 509}

*b(y)et

    *b(y)et 'vulva/vagina' {375}

*byon

    *byon 'go/come' {291}

*d

*da

    *ʔ-da¹ (PLB) 'bow' {163}

    *ʔ-da² (PLB) 'put/place' {113}

    *da¹ (PLB) 'stick (n.)' {163}

    *m-da 'arrow' {50}

    *m-da¹ (PLB) 'fern/bracken' {163, 164}

    Cf. *b-la 'arrow'

*da ≍ *ta

    *da ≍ *ta 'negative imperative' {162, 172}

*dak

    *dakᴸ (PLB) 'cockspur/hoof' {317}

    *m-dakᴸ (PLB) 'mutually/

reciprocal action' {318, 320}

*dal

    *r-dal 'spread/extend/develop' {424}

*dam

    Cf. *g-tam ≍ *g-dam 'talk/speak'

*dan

    *dan 'cut' {258, 259}

    *m-dan 'crossbow' {301, 310}

*dan ≍ *day

    *dan ≍ *day 'single/one/whole/only' {262, 516}

*daŋ

    *daŋ² (PLB) 'speech/language' {19}

    *m-daŋ¹ᐟ² (PLB) 'think/feel an emotion' {266}

*daŋ ≍ *doŋ

    *m-daŋ ≍ *m-doŋ 'peacock/partridge/pheasant' {129, 294}

    *m-daŋ¹ ≍ *m-doŋ¹ (PLB) 'drink' {123}

*daŋ ≍ *taŋ

    *daŋ ≍ *taŋ 'tense/tight' {267}

*dap

    Cf. *trap ≍ *drap 'fireplace'

*dar

    *s-dar 'bind/fasten/tether' {401}

*dat

    *datᴸ (PLB) 'alive' {330}

*daw

    *daw 'risk/defy/hostile'

{225}

*daw *or *dow

    *daw *or* *dow 'bird' {226, 227}

*day

    *day 'do/make' {208}

    *day 'shallow' {209}

    *day 'this/that' {207}

    *m-day³ (PLB) 'zone/expanse of territory' {211}

    Cf. *m/s-taːy 'belt/zone/waist'

*daːy

    *daːy 'dew' {210}

*day ≍ *dan

    *day ≍ *dan 'single/one/whole/only' {262, 516}

*daːy ≍ *taːy

    *daːy ≍ *taːy 'pound/crush' {210}

*dek

    *r/g-dek 'kick' {372}

    *tekᴴ (PLB) 'kick' {315}

*dey

    *m-dey¹ (PLB) 'lump/hunk/slab' {206}

*di

    *di¹ (PLB) 'worm' {188}

*dik

    *ʔ-dikᴸ (PLB) 'one/only' {346}

    Cf. *t(y)ak ≍ *t(y)ik 'one/only'

*diːk

    *s-diːk 'scorpion/crab/shrimp' {345, 496, 503, 527}

*dim

    *dim 'shallow' {271}

*diŋ
   *diŋ 'top/summit' {307}
   *m-diŋ¹ ≍ *ʔ-diŋ¹ (PLB) 'settled/come to rest' {123, 308}
   *m/s-diŋ 'settled/fix/establish' {307}

*dip ≍ *tip
   *dip ≍ *tip 'beat/strike' {498}

*dit
   *ʔ-ditᴸ (PLB) 'whistle/trill' {349}

*do
   *do 'be related (as kin)' {204}

*doŋ ≍ *daŋ
   *m-doŋ ≍ *daŋ 'peacock/partridge/pheasant' {129, 294}
   *m-doŋ¹ ≍ *m-daŋ¹ (PLB) 'drink' {123}

*dow
   Cf. *tow ≍ *dow 'hammer'
   Cf. *tow-n ≍ *dow-n 'thick'

*dow *or* *daw
   *dow *or* *daw 'bird' {226, 227}

*doy
   *doy 'younger sibling' {221, 228}

*du
   *du¹ (PLB) 'irrealis particle' {180}
   Cf. *dut 'tie/knot'
   Cf. *m-tu ≍ *m-du 'nephew/descendant'
   Cf. *tu ≍ *s/m-du 'dig'

Cf. *tu-n/t ≍ *du-n/t 'join/bring together/tie/knot'

*duk
   *ʔ-dukᴸ (PLB) 'burn/kindle' {315}
   *duk 'burn/kindle' {331, 362}
   *g-duk 'daytime/noon' {363}

*duk ≍ *tuk
   *duk ≍ *tuk 'poison' {357, 363}

*dul ≍ *tul
   *r-dul ≍ *r-tul 'dust' {415, 422}

*duŋ
   *duŋ 'wing' {285}
   *duŋ¹ (PLB) 'wing' {19}
   *m-duŋ 'sword/spear' {284}
   *m/r-duŋ 'mountain/hillock' {285, 310}
   *r-duŋ 'beat/strike' {309, 363}

*duːŋ
   *duːŋ 'post/column' {287}

*duŋ ≍ *tuːŋ
   *duŋ ≍ *tuːŋ 'long/length' {288}

*duŋ/k ≍ *tuŋ/k
   *m-duŋ/k ≍ *m-tuŋ/k 'sit' {288, 523}

*dup ≍ *tup
   *dup ≍ *tup 'beat/strike' {498}

*dut
   *s-dut 'tie/knot/conclude/finish' {368}
   Cf. *tu-n/t ≍ *du-n/t

'join/bring together/tie/knot'

*dwan ≍ *twan
   *dwan ≍ *twan 'wrinkle/shrink' {258}

*dwaːŋ
   *dwaːŋ 'hole/cave/pit/well (for water)' {269}
   *dwaŋ² (PLB) 'well (for water)' {249}

*dway
   *dway 'put together/be even with/come up to' {214}

*dway ≍ *nway
   *dway ≍ *nway 'hang from/cling to/creeper' {214}

*dyak
   *dyak 'hand/arm' {65}
   Cf. *g-l(y)ak 'hand/arm'

*d(y)ak
   *m-d(y)ak 'good' {51}
   Cf. *l(y)ak ≍ *l(y)aŋ 'good/beautiful'

*d(y)al
   *d(y)al 'lip' {405}

*dyal ≍ *tyal
   *dyal ≍ *tyal 'village' {65, 406}

*dyam ≍ *tyam
   *dyam ≍ *tyam 'straight/flat/full' {51, 65, 307}

*dyuŋ
   *dyuŋ 'insect/bug' {310}

*dz

*dzak
>***ʔ-dzak**[L] (PLB) 'join'
> {315}
>***s-dzak** 'join' {317}

*dzam
>***m-dzam** 'bridge' {251,
> 257}
>***m-dzam**[1] (PLB) 'bridge'
> {19, 253, 254, 530}

*dzaːn
>***ʔ-dzan**[1] (PLB) 'arrow'
> {260}
>***(la)-dzaːn** 'arrow' {260}

*dzar
>***dzar** 'sister (of a man)'
> {34, 385, 388, 391}

*dzas
>***r-dzas** 'thing' {432, 437}

*dzay
>***dzay** 'cattle/livestock/do-
> mestic animal' {209}

*(d)zaːy ≱ *(t)saːy
>***(d)zaːy ≱ *(t)saːy** 'tal-
> ent/aptitude/tempera-
> mant' {210, 221}

*dzəw
>***m-dzəw**[2] (PLB) 'ruler/
> lord/emperor' {123}

*dzəy
>***ʔ-dzəy**[1] (PLB) 'send on
> an errand/causative' {199}
>***ʔ-dzəy**[2] (PLB) 'cough'
> {189}
>***dzəy** 'seed' {31, 190}
>***dzəy**[2] (PLB) 'sap' {189}
>***m-dzəy**[1] (PLB) 'liquor'
> {19, 189}

*dzi
>***ʔ-dzi**[2] (PLB) 'dew' {187}

*dzik
>*Cf.* ***dz(y)ik ≱ *ts(y)ik**
> 'drip/drop (n.)'
>*Cf.* ***tsik** 'joint'

*dzik ≱ *dziŋ
>***dzik ≱ *dziŋ** 'split/
> mince' {31, 502}

*(d)zil
>***(d)zil** 'dew' {188}

*dzim
>***g-dzim** 'sleep' {305}

*dzin
>***dzin** 'exhaust/come to an
> end' {306}

*dziŋ
>***dziŋ** 'plant (n.)/tree'
> {281}
>***dziŋ** 'relatives/ancestors'
> {31, 529}

*(d)ziːt ≱ *(t)siːt
>***(d)ziːt ≱ *(t)siːt** 'split'
> {350}
>***m-dziːt**[L] **≱ *m-tsiːt**[H]
> (PLB) 'split' {502}

*dzoŋ
>***dzoŋ** 'wait/watch for'
> {31, 294}

*dzum ≱ *tsum
>***dzum ≱ *tsum** 'pair'
> {272}

*dzwan
>***dzwan** 'hawk/kite (bird of
> prey)' {63, 258, 301}
>***dzwan**[1] (PLB) 'hawk/kite
> (bird of prey)' {30, 259}

*dzwaŋ
>***dzwaŋ** 'lofty/elevated'

{269}

*dzy

*dzya
>***dža**[1] (PLB) 'rice' {19, 30,
> 163}
>***dža**[2] (PLB) 'eat' {19, 30}
>***dzya** 'eat/food/feed' {34,
> 162, 165, 166, 169, 172,
> 251, 440, 442}
>***dzya** 'rice' {168}
>***dzya-n** 'blush/red' {451}
>***dzya-n/k** 'eat/food/feed'
> {177, 440, 442, 480}
>***dzya-s** 'eat/food/feed'
> {433, 440}
>***dzya-t** 'eat/food/feed'
> {440, 454}
>***m-dzya** 'edge/side'
> {169}
>***they** 'eat' {205}

*dz(y)ak ≱ *ts(y)ak
>***m-dz(y)ak** 'drip/drop
> (n.)' {324, 506}
>***m-tsak ≱ *t(s)ik** 'drip/
> drop (n.)' {327}
>***m-tsak**[H] (PLB) 'drip/
> drop (n.)' {329}
>*Cf.* ***dz(y)ik ≱ *ts(y)ik**
> 'drip/drop (n.)'

*dzyaːl
>***dzyaːl** 'far' {66, 406,
> 425}

*dzyan
>***džan**[1] (PLB) 'haze/fog'
> {260}
>***jan** 'haze/fog' {260}

*dzyan ≱ *tsyan
>***ʔ-džan**[3] **≱ *ʔ-tšan**[3]
> (PLB) 'stretch out' {260}

*g

*gaːl ≽ *kal
   *s-gaːl ≽ *m-kal 'kidney/
     small of back/loins' {404,
     405, 428}

*gam
   *gam 'put into mouth/seize
     with mouth/jaw/molar'
     {299}
   *m-gam 'ladder/ramp'
     {250}

*gan
   *gan 'run/dance/kick'
     {519}
   Cf. *gaːr ≽ *ga 'dance/
     sing/leap/stride'

*gaŋ
   *ʔ-gaŋ[1] (PLB) 'roast/toast/
     burn/be dry' {268}
   *s-gaŋ 'hill/ridge/moun-
     tain' {266, 303}
   Cf. *kaŋ[1] (PLB) 'hill/high
     ground'

*gaːp
   Cf. *ʔap ≽ *gaːp 'needle'

*gaːp ≽ *ʔap
   *gaːp ≽ *ʔap 'shoot' {57,
     137, 340}

*gar
   *gar 'leave/abandon'
     {390}

*gaːr ≽ *ga
   *gaːr ≽ *s-ga 'dance/sing/
     leap/stride' {392, 401,
     425, 427}
   Cf. *gan 'run/dance/kick'

*gaːr ≽ *kaːr
   *gaːr ≽ *kaːr 'solid/fro-
     zen' {392, 426}

*gaw
   *gaw 'call' {225, 226}

Cf. *gow ≽ *gaw 'cross
   over'

*gay ≽ *kay
   *gay ≽ *kay 'plant (v.)'
     {209}

*gəw
   *gəw-n ≽ *kəw-n 'elder
     brother/senior male rela-
     tive' {450}
   *gəw[2] (PLB) 'nine' {182,
     477}
   Cf. *d/s-kəw 'nine'

*gil
   *gil 'turn/corner' {410,
     412}

*gip
   *gip 'ten' {353}

*gla
   *ʔ-gla[2] (PLB) 'between/
     have a space between/in-
     terval' {71, 163}
   *gla 'musk deer' {176}
   *gla[2] (PLB) 'hear/listen'
     {19, 72, 163}
   Cf. *kaːl 'between/inter-
     val'
   Cf. *kla-k/y/t ≽ *gla-k/
     y/t 'fall'

*glak
   Cf. *klak ≽ *glak 'cook/
     boil (v.)'

*glan
   *glan 'repair/mend' {301}

*glaŋ
   *ʔ-glaŋ[1] (PLB) 'marrow/
     brain' {265, 507}
   *glaŋ 'eagle/vulture/fal-
     con/bird of prey' {23, 75}
   *glaŋ 'elephant' {302}
   *glaŋ 'willow/poplar'

{304}

*glaŋ ≽ *glak ≽ *graŋ
   *ʔ-klak[H] ≽ *m-klak[H]
     (PLB) 'cold' {72}
   *glaŋ 'cold/freeze' {262,
     325, 521}
   *graŋ 'cold/freeze' {262,
     302}
   *m-glaŋ[1] (PLB) 'cold/
     freeze' {72}
   *m/ʔ-glak 'cold/freeze'
     {325, 521}

*glaŋ ≽ *klaŋ
   *glaŋ ≽ *klaŋ 'word/lan-
     guage/speech/sound'
     {267}

*glay
   *glay 'wide/apart' {221}

*gleːk
   *gleːk 'thunderbolt/light-
     ning' {373}

*g(l)im ≽ *g(l)um
   *gim[1] (PLB) 'set (of the
     sun)' {249}
   *g(l)im ≽ *g(l)um 'set
     (of the sun)' {274, 499}

*gliŋ
   *gliŋ 'land' {280}
   *gliŋ 'tube/flute' {280}

*glun
   *m-glun 'kidney' {73,
     125, 198}

*glwak
   *glwak 'shine/flash' {328}

*go
   Cf. *r-ko-t ≽ *r-go-t 'dig
     out/scoop up'

*gow ≽ *gaw
   *gow ≽ *gaw 'cross over'
     {224, 226, 515}

*gra
 *gra 'long (time)' {175}
 *gra 'stranger/guest/ene-
  my' {173}

*grak
 *grak 'cord/tie/bind' {327}
 Cf. *k/grok ≍ *k/grak
  'fear'

*gram
 *gram 'net' {299}
 *gram 'rough/coarse'
  {252, 532}

*graŋ
 *graŋ 'deny' {81}
 *graŋ 'provide (food)'
  {303}

*graŋ ≍ *kraŋ
 *graŋ ≍ *kraŋ 'measure/
  count' {303}
 *graŋ ≍ *kraŋ 'strong/
  firm/tight/distended'
  {267, 303}

*gray
 *ʔ-gray[1] (PLB) 'insert/put
  into' {212}

*graːy
 *graːy 'scatter/sow (seeds)/
  disperse' {211}
 *graːy 'star' {212}

*gres
 *b-gres 'old' {437}

*grəy
 *ʔ-grəy[1] (PLB) 'star' {23}
 *grəy 'copper' {189}
 *grəy[2] (PLB) 'copper'
  {19}
 *s-grəy[1] (PLB) 'melt'
  {190}
 *s/m-grəy 'melt' {189}

*gril
 Cf. *s-ril ≍ *s-gril
  'move/roll'

*grim
 *grim 'hasten' {305}
 *s-grim 'catch/hold fast'
  {305}

*grim ≍ *krim
 *grim ≍ *krim 'meet'
  {497}
 Cf. *grum ≍ *krum
  'meet'

*grip
 *ʔ-grip[L] (PLB) 'bug/ant/
  insect (lac)/cochineal'
  {316, 376}
 Cf. *s-krep 'bug/ant/insect
  (lac)/cochineal'

*grok
 *grok 'ravine/gulf' {378}
 Cf. *k/grok ≍ *k/grak
  'fear'

*grol
 *grol 'finish/loose/relax'
  {423}
 *grol 'overbearing/exploit-
  ative' {421}

*groːl
 *groːl 'wash/clean' {421}

*groy
 *groy 'crow (v.)/howl'
  {228}

*grum
 *s-grum 'contracted/stunt-
  ed/dwarfish' {272}

*grum ≍ *krum
 *grum ≍ *krum 'meet'
  {497}
 Cf. *grim ≍ *krim 'meet'

*gruŋ
 *gruŋ 'horn' {145}
 Cf. *g-ruŋ 'horn'

*grup ≍ *drup
 *grup ≍ *ʔ-grup ≍
  *ʔ-drup 'sew' {141}

*grwa
 *grwa 'birch' {175}
 *grwa 'taro/potato' {173}
 *s-grwa 'feather' {172}

*grwak
 *grwak 'friend/assist'
  {327}

*grwas
 *grwas 'speak/word'
  {437}

*grwat
 *grwat 'belly/stomach/in-
  testines' {334}
 *grwat 'travel/go through'
  {335}

*grwəy
 *ʔ-grwəy[2] (PLB) 'sweat'
  {82, 195}
 Cf. *s-krul ≍ *s-ŋrul
  'sweat'

*grwil ≍ *krwil
 *grwil ≍ *krwil 'fall (as
  leaves)/cause to fall'
  {410}

*gryum
 *gryum 'salt' {308}

*gu
 *m-gu[1/3] (PLB) 'prepare/
  practice/rehearse' {180}

*gu ≍ *ku
 *gu ≍ *ku 'owl' {199}

*gu(:)k ≍ *ku(:)k
 *gu(:)k ≍ *m-ku(:)k

'crooked/bent/knee/angle' {124, 141, 357, 358, 362}
  *guk^L (PLB) 'crooked/bent/knee/angle' {315}

*guːl
  *guːl 'bulge/bend' {418}

*gum ⋡ *kum
  *gum ⋡ *kum 'die/kill' {308}

*guŋ
  *guŋ 'body' {309}
  *guŋ^1 (PLB) 'body' {19}

*guːŋ
  *r-guːŋ 'edge/shin' {127, 287}

*guŋ ⋡ *kuŋ
  *guŋ ⋡ *kuŋ 'hollow/hole/empty' {285, 310}
  *guŋ^2 ⋡ *kuŋ^2 (PLB) 'hollow/hole/empty' {285}

*gup ⋡ *ʔup
  Cf. *ʔup ⋡ *gup 'hatch/cover'

*gwa
  *gwa 'fox' {167, 173}

*gwa ⋡ *kwa
  *gwa-n ⋡ *kwa-n 'net (casting)' {177, 258, 280, 450}
  *gwa-n ⋡ *kwa-n 'wear/put on/clothe' {168, 172, 177, 259, 333, 334, 452}
  *gwa^2 (PLB) 'wear' {25}
  Cf. *kwa ⋡ *gwa ⋡ *k/gwaːy 'bee (dammer)'
  Cf. *s-g-w(y)a-n/t 'wear/clothe'

*gwap ⋡ *krap
  *m-gwap^L ⋡ *C-krap^L (PLB) 'munch/bite down on' {338}

*g^{w}əy
  *ʔ-g^{w}əy^2 (PLB) 'comb' {25}
  Cf. *k^{w}i 'comb'

*gwi(y)
  *m-gwi(y) 'elephant' {200}

*g^{w}ya
  *m-g^{w}ya$^{1/2}$ (PLB) 'trumpet' {26}
  *m-g^{w}ya^2 (PLB) 'chew' {26, 85}
  Cf. *g-wa-t 'bite/chew'

*gya
  *b-r-gya 'hundred' {129, 162, 165, 168, 251}

*gyan ⋡ *kyan
  *ʔ-gyan^1 ⋡ *ʔ-kyan^1 (PLB) 'filter/strain' {248, 260}

*gyaŋ
  *ʔ-gyaŋ^1 (PLB) 'spin' {266}
  *m/ʔ-gyaŋ$^{1/3}$ (PLB) 'practice/train' {265}

*gyap
  *gyap 'narrow/crowded' {338, 342}
  *gyap^L (PLB) 'narrow' {315}

*gyar ⋡ *hyar
  *gyar ⋡ *hyar 'run/ride/go by vehicle' {58, 65, 391}

*gyat
  *gyat 'hero' {335}

*gyat ⋡ *ryat
  *b-r-ryat ⋡ *b-g-ryat 'eight' {149, 151, 331, 334, 352, 506}
  Cf. *ʔ-rit^L (PLB) 'eight'

*gyəy
  *gyəy^2 (PLB) 'parrot' {189}

*gyi ⋡ *dzyi
  *gyi ⋡ *dzyi 'ride (horse)' {188, 200}

*gyik
  *ʔ-gyik 'little bit' {346}
  Cf. *t(y)ak ⋡ *t(y)ik 'one/only'

*gyiŋ
  *ʔ-gyiŋ^2 (PLB) 'narrow/constricted' {282}

*g(y)ip
  *g(y)ip 'ten' {198, 352, 356}

*g(y)it/k ⋡ *k(y)it/k
  *g(y)it/k ⋡ *k(y)it/k 'tie/bind' {345, 347, 528, 344}

*gyoŋ
  *s-gyoŋ 'guard/tend grazing animals' {294}

*gyuay
  *C-gyuay 'comb' {26}

*gyuk ⋡ *dzyuk
  *gyuk 'waist' {357}
  *gyuk^L ⋡ *džuk^L (PLB) 'waist' {72, 358}

*g(y)wal ⋡ *k(y)wal
  *g(y)wal ⋡ *k(y)wal 'slave/servant' {261, 408, 424}
  *gywan^1 (PLB) 'slave' {248, 261}

*h

*ha ≼ *ka

*ha ≼ *r-ka 'earth/ground/ soil' {57, 127}

*ha(ː)k ≼ *kak

*ha(ː)k ≼ *kak 'gag/ choke' {57, 325}

*hal

*hal 'snore' {406, 424}

*haŋ

*haŋ² (PLB) 'cooked rice/ food to eat with rice' {264}

Cf. ***h(y)an** 'curry/vegetable dish'

*haːŋ

*haːŋ 'black' {268}

*hap

*hap 'bite/snap at/mouthful' {58, 335, 341}

*har

*har 'phlegm' {391}

*haːr

*haːr *or* ***ʔaːr** 'fowl/chicken/quail' {58, 385, 386, 392, 401, 426}

*haːy

*haːy 'lie/deceive/dissemble' {210}

*haːy 'mango' {210}

Cf. ***h(w)aːy** 'flurried/ dazed/foolish'

*heːr

*heːr-s 'dry' {400, 426}

*hew

*m-hew 'spoiled/wasted' {231}

*hiːl

Cf. ***kiːl ≼ *hiːl** 'bind/ twist/roll/angle'

*hir ≼ *hur

Cf. ***hur ≼ *hir** 'wash'

*hla

*hla³ (PLB) 'spirit' {56}

*m-hla 'god/soul/beautiful' {162, 172}

*ho ≼ *hol

*ho ≼ *hol 'fall' {58, 421, 428}

*hor

*hor 'distribute' {58, 400}

*hrew

*hrew 'burrow' {231}

*hu

*hu 'rear (offspring)/raise (to maturity)/nourish' {58}

*hu ≼ *kəw

*hu ≼ *r-kəw 'steal' {57}

*hul ≼ *hil

*hul ≼ *hil 'sweet' {58, 419, 501}

*hul ≼ *hwa(ː)l

*hul ≼ *hwa(ː)l 'heat up/ burn' {58, 429, 514}

*hur ≼ *hir

*hur ≼ *hir 'wash' {397, 501}

*hur ≼ *hir ≼ *hyar ≼ *hwar

*hur ≼ *hir ≼ *hyar ≼ *hwar 'sweat' {399, 429, 514}

*hus

*hus 'wet/dew' {435}

*hwa

*hwa-t 'light/brightness/ shine' {334, 429, 444, 463}

*hwal

*s-hwal 'joint/wrist' {407, 423}

*hwa(ː)l

Cf. ***hul ≼ *hwa(ː)l** 'heat up/burn'

*hwal ≼ *hwar

*hwal ≼ *hwar 'fire/ shine' {409}

*hwam

*hwam 'burn/shine' {429}

Cf. ***s-wam** *or* ***hwam** 'dare'

*hwan ≼ *hwat

*hwan/t 'shine/bright/ light' {429}

*hwaŋ

*hwaŋ 'come/enter' {269}

*hwaŋ 'encircle/fence' {269}

*hwaŋ 'shine/bright/yellow' {430}

*hwar

*hwar 'hawk' {393}

Cf. ***hur ≼ *hir ≼ *hyar ≼ *hwar** 'sweat'

*hwaːr

*hwaːr 'fire/burn/shine/ white' {385, 402, 426}

Cf. ***pwaːr**

*hʷar

Cf. ***bʷar ≼ *hʷar** 'throw (away)/divorce'

*hwaːr ≼ *yar

*hwaːr ≼ *yar 'white/yellow/bright/shine' {429}

*hwaːy
    *hwaːy 'wither/fade' {214}

*h(w)aːy
    *h(w)aːy 'flurried/dazed/ foolish' {214}

*hway ⩗ *kwa(ː)y
    *hway ⩗ *kwa(ː)y 'hide (v.)/conceal/shun' {57, 213}

*hwel
    *hwel 'mix/stir' {420}

*hya
    *hya 'swidden/field (mountain)' {171}
    *hya¹ (PLB) 'swidden/ field (mountain)' {56}

*hyak
    *hyak 'back' {65}
    *hyak 'scratch' {65, 323}

*hyal
    *hyal 'take/keep' {65, 406}

*hyam
    *hyam 'mat' {65}
    *hyam 'salty' {299}

*h(y)an
    *h(y)an 'curry/vegetable dish' {65}
    Cf. ***haŋ²** (PLB) 'cooked rice/food to eat with rice'

*hyar
    Cf. ***gyar ⩗ *hyar** 'run/ ride/go by vehicle'

*hyar ⩗ *hwar
    Cf. ***hur ⩗ *hir ⩗ *hyar ⩗ *hwar** 'sweat'

*hyen
    *hyen 'hear/listen/look/ see' {65}

*hyop ⩗ *hyom
    *hyop ⩗ *hyom 'jump' {65}

*hyu ⩗ *huy
    *hyu ⩗ *huy 'whistle' {65}

*hywəy
    *s-hywəy 'blood' {66, 85, 102, 194, 201, 230, 464}

*k

*ka
    *b-ka-n 'bitter/liver' {20, 24, 162, 164, 167, 170, 172, 176, 451}
    *ka 'span/divaricate' {24}
    *ka 'word/speech/lan- guage' {174}
    *ka-n 'crow (n.)' {447}
    *ka-y 'which/like/deictic' {488}
    *ka¹ (PLB) 'all' {163}
    *ka¹ (PLB) 'grain of rice' {163}
    *ka² (PLB) 'back/loins' {428}
    *ka³ (PLB) 'sow (seeds)' {163}
    *m-ka 'open/opening/ mouth/door' {21, 125, 170, 173}
    *m-ka-n 'heavens/sky/ sun' {177, 450}
    *m/s-ka-y 'go/stride' {484}
    *s-ka ⩗ *m-ka-y 'jaw/ chin' {24, 170, 486}
    Cf. ***ha ⩗ *r-ka** 'earth/ ground/soil'

*kak
    *kak 'expensive/at its peak' {317, 328}
    *kakᴴ (PLB) 'village' {319}
    *m-kak (PLB) 'crawl / creep' {120}
    Cf. ***ha(ː)k ⩗ *kak** 'gag/ choke'

*kaːk
    *kaːk 'phlegm' {325}
    *s-kaːk 'fork/branch' {325}
    Cf. ***ʔ-gakᴸ** (PLB) 'branch'

*kal
    *kal 'congeal' {404, 405}
    Cf. ***kaːr ⩗ *gaːr** 'solid/ frozen'
    Cf. ***ka²** (PLB) 'back/ loins'
    Cf. ***s-gaːl ⩗ *m-kal** 'kidney/small of back/ loins'

*kaːl
    *kaːl 'between/interval' {422}
    Cf. ***ʔ-gla²** (PLB) 'be- tween'

*kam
    Cf. ***kaːp ⩗ *kam** 'draw water/scoop water/con- cave'

*ka(ː)m
    *r-ka(ː)m 'edge/bank/ precipice/lip/mouth' {127, 251, 298}

*kan
    *kan 'dry up' {258, 259}
    Cf. ***m-ka-n** 'heavens/ sky/sun'

*kaŋ
　*kaŋ 'father/grandfather' {302}
　*kaŋ 'which/like/deictic' {488}
　*kaŋ¹ (PLB) 'hill/high ground' {265}
　*kaŋ² (PLB) 'spread/stretch out' {266}
　*m-kaŋ 'spider' {266}
　Cf. *s-gaŋ 'hill/ridge/mountain'

*ka(ː)ŋ
　*ka(ː)ŋ 'roast/toast/burn/be dry' {268}

*kaŋ ≽ *keŋ
　*r-kaŋ ≽ *keŋ 'leg/foot/stem/stalk' {283, 293, 311}

*kaŋ ≽ *waŋ
　*kaŋ ≽ *waŋ 'spider/spin' {57}
　Cf. *pʷaŋ 'spin/spindle'

*kap
　*kap 'fork/crotch/groin' {336, 340, 341}
　*kap 'needle' {198, 251, 342}
　Cf. *ʔap ≽ *gaːp 'needle'
　Cf. *k-rap ≽ *k-ram 'needle'

*kaːp ≽ *kam
　*kaːp ≽ *kam 'draw water/scoop water/concave' {341, 517}

*kar
　*kar 'lead (metal)/bronze' {390}
　*s-kar 'star' {386, 387, 391}

*kaːr ≽ *gaːr
　*kaːr ≽ *gaːr 'solid/frozen' {392, 426}
　Cf. *kal 'congeal'

*kaw
　*kaw 'basket' {225}

*kaːw
　*kaːw 'grasshopper' {226}

*kaːy
　*kaːy 'pull/drag/lead (v.)' {210}

*kay ≽ *gay
　*kay ≽ *gay 'plant (v.)' {209}

*ke
　*s-ke-k 'neck/neck-shaped' {204, 481}

*keŋ
　Cf. *kaŋ ≽ *keŋ 'leg/foot/stem/stalk'

*ket
　*C-ketᴸ (PLB) 'break off a piece/notch/chip' {315, 375}

*kew
　*d-kew 'scratch' {231}

*key ≽ *kəy
　*d-key ≽ *d-kəy 'tiger' {139, 141, 217, 219, 510}

*kəw
　*d/s-kəw 'nine' {139, 140, 149, 178, 184, 199}
　*kəw-n/t 'smoke' {178, 184, 199, 451, 454}
　*kəw² (PLB) 'smoke' {182}
　*s-kəw 'body/corpse' {198}
　Cf. *gəw² (PLB) 'nine'

*kəw ≽ *kun ≽ *kut
　*kəw² (PLB) 'steal' {182}
　*r-kəw ≽ *r-kun ≽ *r-kut 'steal/thief' {127, 129, 178, 184, 198, 227, 441, 442, 454, 515}

*kəw-n
　Cf. *gəw-n ≽ *kəw-n 'elder brother/senior male relative'

*kəy
　*d-kəy 'deer (barking)' {139, 189}
　*s-kəy 'borrow/lend' {191, 443}
　Cf. *key ≽ *kəy 'tiger'

*kiːl ≽ *hiːl
　*hiːl 'bind/twist/roll/angle' {57}
　*s-kiːl 'bind/twist/roll/angle' {412, 413, 426}

*kla ≽ *gla
　*kla-k/y/t ≽ *gla-k/y/t 'fall' {34, 70, 165, 209, 231, 374, 462, 480, 483}

*klak ≽ *glak
　*ʔ-klakᴴ ≽ *glakᴴ (PLB) 'graze (forage)' {63, 317}
　*glak 'cooked' {70}
　*klak 'cook/boil (v.)' {70}
　*s-glak 'cook/boil (v.)' {63, 128, 317}

*klaŋ
　Cf. *glaŋ ≽ *klaŋ 'word/language/speech/sound'

*klaw
　*klaw 'dig out/weed (v.)' {23, 225}

*kləy
　*kləy 'excrement' {21,

189, 201}

*kliŋ ⪰ *kl(y)aŋ
   *r-kliŋ ⪰ *r-kl(y)aŋ
     'marrow/brain' {128, 282,
     283, 495, 507}
   Cf. ***ʔ-glaŋ**[1] (PLB) 'mar-
     row/brain'

*klum
   *s-klum 'sweet' {275}

*klu(:)ŋ ⪰ *k(l)uk
   *klu(:)ŋ ⪰ *k(l)uk 'val-
     ley/river' {287, 524}

*klup
   *klup 'cover/wrap' {369}

*kl(y)aŋ
   Cf. ***r-kliŋ ⪰ *r-kl(y)aŋ**
     'marrow/brain'

*klyoŋ
   *klyoŋ 'stream/river/val-
     ley' {294}

*ko ⪰ *go
   *r-ko-t ⪰ *r-go-t 'dig out/
     scoop up' {127, 129, 380,
     461, 463}

*kok ⪰ *kwa(:)k
   *ʔ-guk[L] (PLB) 'outer cov-
     ering/bark (n.)/rind/skin'
     {378}
   *kok 'outer covering/bark
     (n.)/rind/skin' {378, 514}
   *r-kwa(:)k 'outer cover-
     ing' {328, 514}

*kor
   *kor 'horse' {385, 400}

*koːr
   *koːr 'peel/husk' {385,
     401, 426}

*kor ⪰ *kwar
   *kor ⪰ *kwar 'hole/pit/

valley/cave' {395, 401}

*koy
   *koy 'bend/curved' {228}

*kra
   *s-kra 'hair (head)' {102}

*krak
   *krak[H] (PLB) 'crossbow'
     {61, 146}
   *m-krak 'scratch/rake (v.)'
     {318}
   Cf. ***k/grok ⪰ *k/grak**
     'fear'

*kram
   *kram 'fence/garden' {22,
     299}
   *kram[1] (PLB) 'fence/gar-
     den' {253}

*kraŋ
   *kraŋ 'mosquito/firefly'
     {262}
   Cf. ***graŋ ⪰ *kraŋ** 'mea-
     sure/count'
   Cf. ***graŋ ⪰ *kraŋ**
     'strong/firm/tight/distend-
     ed'

*krap
   *krap 'shell/shield' {342}
   *krap 'weep' {137, 336,
     339, 342}
   Cf. ***m-gwap**[L] ⪰
     *C-krap[L] (PLB)
     'munch/bite down on'

*krep
   *s-krep 'bug/ant/insect
     (lac)/cochineal' {376}
   Cf. ***ʔ-grip**[L] (PLB) 'bug/
     ant/lac insect/cochineal'

*kres
   *b-kres 'hungry/famine'
     {437}

*kret
   *m-kret 'scratch/scrape'
     {375}

*krəw
   *krəw 'thread/string/plait'
     {199}
   *krəw-k 'horn' {23, 75,
     184, 480}
   *krəw-t 'wash' {461}
   *krəw[1] (PLB) 'horn' {72,
     182}

*k(r)əw
   *m-k(r)əw 'dove' {125,
     134, 199}
   *m-krəw[2] (PLB) 'dove'
     {16}

*krəy
   *krəy ⪰ *m-kri(y)-t-s
     'gall/bile/sour' {22, 118,
     189, 193, 436, 456}
   *krəy 'foot/footstool' {22,
     71, 189, 200, 201}
   *krəy 'moon/moonlight'
     {189}

*kri
   *kri-t 'fear' {462}

*krim
   *krim 'custom/prohibition'
     {305}
   *krim 'threaten/terrify'
     {271}
   Cf. ***grim ⪰ *krim** 'meet'

*krin
   *krin[2] (PLB) 'bowl/dish/
     cup' {278}

*kriːn
   Cf. ***kyiːn ⪰ *kriːn** 'time/
     occasion'

*kriŋ
   *kriŋ 'thread/string' {23}

*kriŋ[1] (PLB) 'thread/
string' {282}

*kriːt
*kriːt 'grind' {69, 350}

*kri(y)
*kri(y) 'fear' {193}
Cf. *krəy ⪴
*m-kri(y)-t-s 'gall/bile/
sour'

*krok ⪴ *grok ⪴ *k/grak
*k/grok ⪴ *k/grak 'fear/
frighten' {327, 377, 513}

*kroy
*kroy 'borrow/debt' {229}
*kroy 'shellfish' {228}
*kroy 'surround' {229}

*k(r)u ⪴ *g(r)u
*k(r)u-t ⪴ *g(r)u-t
'hand' {365}

*kruk
*d-kruk 'six' {23, 71}
*kruk 'pen/corral' {357}
*kruk 'rouse/awaken/dis-
turb' {363}

*krul ⪴ *ŋrul
*s-krul ⪴ *s-ŋrul 'sweat'
{83, 102, 129, 414}
Cf. *ʔ-grwəy[2] (PLB)
'sweat'

*krum
Cf. *grum ⪴ *krum
'meet'

*kruŋ
*kruŋ 'born/give birth/
alive/green' {285, 288}

*kruːŋ
*kruːŋ 'cage' {287}

*krwap
*krwap 'rustle' {82, 338}

*krwəy
*ʔ-grwəy[2] (PLB) 'sweat'
{82}
*krwəy 'son-in-law/
daughter-in-law' {22, 69,
82, 194, 200}
Cf. *krul ⪴ *ŋrul 'sweat'

*krwil
Cf. *grwil ⪴ *krwil 'fall
(as leaves)/cause to fall'

*krwi(y)
*krwi(y) 'sew' {82}

*ku
Cf. *gu ⪴ *ku 'owl'

*kuk
*kuk 'basket/pouch' {356,
359, 361}
*kuk 'return/year' {357,
358}
*kuk 'wear on head' {357}
*m-kuk 'collide/butt
against' {357}
Cf. *ʔuk ⪴ *kuk 'crook-
ed/bent/knee/angle/return/
back'

*kuːk
*kuːk 'shear/strip/pare'
{359, 361}
*kuːk 'weep/wail' {363}
Cf. *gu(ː)k ⪴ *m-ku(ː)k
'crooked/bent/knee/angle'

*kul
*m-kul 'twenty/all' {24,
119, 384, 385, 388, 414,
416, 425}
*s-kul 'instruct/explain/ad-
monish' {423}
Cf. *s-gal 'load/burden'

*kum
Cf. *gum ⪴ *kum 'die/
kill'

*ku(ː)m
*ku(ː)m 'arched/vaulted/
convex/concave' {276}

*kum ⪴ *kim
*m-kum ⪴ *m-kim
'block/pillow' {125, 147,
198, 272, 275, 308, 496,
503}
*m-kum[2] (PLB) 'block/
pillow' {124, 249}
Cf. *ʔum ⪴ *kum 'block/
pillow'

*kun
*kun 'all' {278}
Cf. *m-kul 'twenty/all'
Cf. *r-kəw ⪴ *r-kun ⪴
*r-kut 'steal/thief'
Cf. *r-kəw-n/t 'steal/
thief'

*kuŋ
Cf. *guŋ ⪴ *kuŋ 'hollow/
hole/empty'

*kuːŋ
*kuːŋ 'tree/branch/stem'
{287, 310}

*kur ⪴ *ʔur
*kur ⪴ *ʔur 'hand' {396}

*kut
Cf. *r-kəw ⪴ *r-kun ⪴
*r-kut 'steal/thief'

*ku(ː)t
*ku(ː)t 'scrape/carve/
scratch' {364, 496}

*ku(w)
*ku(w) 'mouth' {198}

*kwa
*kwa 'hoof' {170}
*s-kwa 'nine' {24}
Cf. *d/s-kəw 'nine'
Cf. *gwa-n ⪴ *kwa-n

*l

*la

*ʔ-la² (PLB) 'trousers' {56, 112, 163}

*b-la 'cotton' {130, 251}

*g-la 'pay/give for' {173}

*g/b/m-la-y 'arrow' {50, 80, 133, 145, 165, 486}

*k-la 'tiger' {70, 173, 393}

*k-la² (PLB) 'tiger' {138}

*la 'salt' {173}

*la-y 'come/arrive' {165, 172, 220, 231, 484}

*la-y 'question particle' {209, 231, 488}

*la² (PLB) 'question particle' {163}

*s-la 'leaf/tea' {48}

*s-la 'trousers' {29, 165, 169, 172}

*s/ʔ-la³ (PLB) 'moon/month' {39, 164}

*s/ʔ-la³ (PLB) 'soul/spirit' {39, 164}

*s/g-la 'moon/month' {34, 52, 134, 162, 165, 168, 172}

Cf. *m-da 'arrow'

Cf. *m-hla 'god/soul/beautiful'

*lak

*ʔ-lak^L (PLB) 'youth (youngster)' {53}

*g-lak 'hand' {319}

Cf. *g-laŋ ≍ *g-lak 'eagle/vulture/falcon/bird of prey'

Cf. *g-l(y)ak 'hand/arm'

*lam

*lam 'road' {47, 48, 250}

*s-lam 'womb/placenta'

{250}

*la(ː)m

*la(ː)m 'fathom' {48, 251, 298}

*s-lam¹/² (PLB) 'fathom' {249, 253, 254}

*laŋ

*ʔ-laŋ¹ (PLB) 'wait' {112, 266}

*laŋ 'bark (as dog)' {495}

*laŋ 'lift/raise' {303}

*laŋ¹ (PLB) 'lightweight' {265}

*laŋ¹ (PLB) 'river/valley' {266}

*laŋ ≍ *lak

*g-laŋ ≍ *g-lak 'eagle/vulture/falcon/bird of prey' {263, 393, 521}

*lap

*ʔ-lap^L (PLB) 'dry in sun' {112, 337}

*lap 'leaf' {336, 342}

*lap^L (PLB) 'enter' {337}

*s-lap^H (PLB) 'split apart/split open' {337}

*laːp

*b-laːp 'forget' {132, 340}

*lay

*lay 'leaf/paper' {209}

*laːy

*laːy 'dig up' {210}

*lay ≍ *ley

*g/m/s-lay ≍ *r-ley 'change/exchange/buy/barter' {49, 208, 216, 217, 511}

*m/s-lay ≍ *s-ley 'tongue' {48, 102, 119, 124, 141, 208, 215, 217,

487, 511}

*s-lay ≍ *ley 'pass/exceed' {208, 216, 511}

*s-lay ≍ *s-ləy 'bridge/ladder' {216, 220, 511}

Cf. *s-l(y)a 'tongue'

*laːy ≍ *tay

*laːy ≍ *s-tay 'navel/middle/center' {52, 102, 208, 210, 217}

*lep

*lep 'butterfly' {377}

*s-lep 'slice/pare off' {376}

*lep ≍ *lyap

*lep ≍ *lyap 'thin/flat/flat object' {51, 339, 377}

*ley

*m-ley ≍ *m-li 'penis' {47, 49, 153, 219, 509}

Cf. *lay ≍ *ley

Cf. *m/s-lay ≍ *s-ley 'tongue'

*ley ≍ *ləy

*m-ley ≍ *m-ləy 'earth/ground/soil/mud/country' {48, 71, 81, 191, 201, 218, 464, 509}

*ley/ŋ ≍ *rey/ŋ

*s-ley/ŋ ≍ *s-rey/ŋ 'squirrel/weasel' {77, 292, 296, 311, 512}

*ləy

*b-ləy 'four' {48, 50, 69, 130, 147, 149, 153, 192, 200}

*b-ləy 'run' {189}

*b-ləy² (PLB) 'run' {213}

*b/ʔ-ləy² (PLB) 'four' {56, 477}

*b/m-ləy 'grandchild/

nephew' {71, 80, 133, 192, 201, 464}

*d/s-ləy 'bow/slingshot' {48, 50, 140, 192}

*g-ləy 'wind (n.)' {50, 134, 192, 194, 247}

*m-ləy 'boat' {192}

*s-ləy 'flea' {48, 50, 69, 192}

*s/ʔ-ləy[1] (PLB) 'wind (n.)' {39}

Cf. ***m-ley ≍ *m-ləy** 'earth/ground/soil/mud/country'

*ləy ≍ *rəy

*s-ləy-t ≍ *s-rəy-t 'heavy' {49, 50, 192, 201, 455, 471}

*li

*g-li 'armpit/tickle' {186}

Cf. ***m-ley ≍ *m-li** 'penis'

*lik

*lik 'fear' {527}

*r-lik 'penis/testicles' {344, 374}

Cf. ***liŋ² ≍ *lik^L** (PLB) 'python'

*lim

Cf. ***s-lum ≍ *s-lim** 'warm/make warm'

*liŋ

*b-liŋ 'forest/field' {130, 280, 282, 494}

*m-liŋ 'neck' {280, 296, 307}

*m-liŋ[1] (PLB) 'neck' {39}

*liŋ ≍ *lik

*liŋ² ≍ *lik^L (PLB) 'python' {281}

*lip

*lip 'conceal/hide (v.)/ bury' {495}

*lip^L (PLB) 'roll (n.)/curled object' {353}

*s-lip 'scale (of fish or reptile)' {353}

*lip ≍ *lup

*lip ≍ *lup 'sink into/ dive' {354, 370}

*liːt

*m-liːt 'horse-leech' {134, 350, 352, 534}

*loŋ

*m-loŋ 'boat' {294}

*s-loŋ[1] (PLB) 'loris' {285}

*low

*low 'field' {48, 226}

*low 'long' {224}

*lu

*ʔ-lu³ (PLB) 'fry' {112, 180}

*luk

*luk 'custom/manner' {363}

*luk 'enough' {357}

*luk 'sheep' {363}

Cf. ***r-luŋ ≍ *k-luk** 'stone'

*luk ≍ *luŋ

*s-luk ≍ *s-luŋ 'maggot' {522}

*lum ≍ *lim

*s-lum ≍ *lim 'warm/ make warm' {272}

*s-lum ≍ *s-lim 'warm/ make warm' {272, 275, 496}

*luŋ

*m-luŋ 'mind/heart/liver' {141}

*luŋ ≍ *luk

*r-luŋ ≍ *k-luk 'stone' {47, 50, 70, 127, 128, 288, 523}

*s-luŋ ≍ *s-luk 'maggot' {522}

*lup

Cf. ***lip ≍ *lup** 'sink into/ dive'

*lwan

*lwan 'bore/pierce' {258, 280, 386}

*lwap

*s-lwap 'practice/learn' {342}

*lwat

*g/s-lwat 'free/release/ loose/relax' {70, 82, 84, 136, 332, 334}

*k-lwat^H (PLB) 'release' {315}

*lwa(ː)y

*lwa(ː)y 'easy' {213, 485}

*lwaːy

*lwaːy 'buffalo' {213}

*lway ≍ *rway

*s/ʔ-lway ≍ *s/ʔ-rway 'divert/push aside' {214}

*lwi(y)

*lwi(y) 'flow/stream/river' {197}

*l(y)a

*s-l(y)a 'tongue' {50, 165, 171, 215, 487, 511}

Cf. ***m/s-lay ≍ *s-ley** 'tongue'

*lyak
    *m-lyak 'grass' {80, 482}
    *m/s-lyak 'lick/tongue/eat (of animals)/feed (animals)' {23, 48, 80, 81, 92, 124, 137, 153, 323, 327, 528}

*l(y)ak
    *g-lak^L (PLB) 'hand/arm' {53, 319}
    *g-l(y)ak 'hand/arm' {51, 65, 129, 130, 134, 148, 317, 327}
    Cf. *d-yak 'hand/arm'
    Cf. *g-yak 'armpit/tickle/cubit'

*l(y)ak ≍ *l(y)aŋ
    *l(y)ak ≍ *l(y)aŋ 'good/beautiful' {327, 51, 327, 521}
    Cf. *d(y)ak 'good/beautiful'

*lyam
    *s-lyam 'tongue/flame' {299}

*lyaŋ
    *lyaŋ 'wait' {266}
    Cf. *laŋ¹ (PLB) 'wait'

*l(y)aŋ
    Cf. *l(y)ak ≍ *l(y)aŋ 'good/beautiful'

*lyap
    *s-lyap 'glitter/flash/lightning' {338}
    Cf. *lep ≍ *lyap 'thin/flat/flat object'

*m

*ma
    *ma-n 'mother/feminine suffix' {175, 448}
    *ma-t 'exhausted/spent' {334}
    *ma-t 'join/bring together' {461}
    *ma-y 'negative' {172, 488}
    *ma-y 'rice/paddy' {231}
    *ma-y 'what' {488}
    *ma² (PLB) 'not' {38}
    *-ma³ (PLB) 'noun suffix' {38}
    *r-ma-t 'wound/injured' {81, 127, 334, 461}
    *s/ʔ-ma¹ᐟ² (PLB) 'teach' {38, 113, 163, 241}

*ma ≍ *mey
    *ma-y ≍ *mey 'rice/paddy' {216, 217, 221, 231, 486, 511}

*mak
    *d-mak 'war/soldier' {99, 318}
    *mak^L (PLB) 'soldier' {35}
    *s-mak^H (PLB) 'dream' {37, 117}

*maːk
    *ʔ-mak^L (PLB) 'son-in-law' {37, 474}
    *s-maːk 'son-in-law' {233, 325}

*man
    *s-man 'medicine' {37}

*maŋ
    *maŋ 'big/elder (brother or uncle)' {264, 302}

*s-maŋ 'corpse' {265}

*maŋ ≍ *mak
    *r/s-maŋ ≍ *mak 'dream' {268, 302, 310, 325, 521}
    *s-mak^H (PLB) 'dream' {37, 117}
    *s-maŋ ≍ *s-mak 'black/ink/deep' {317, 522}
    Cf. *s-nak 'black/ink/deep'

*maːy
    *maːy 'good/well' {132, 207, 210}
    *maːy 'pumpkin' {210}
    *s-maːy 'face' {210, 537}

*may ≍ *mey ≍ *mi
    *r-may 'tail' {81, 106, 127, 208, 216, 217, 221, 511}
    *r-mey 'tail' {216, 511}
    *r-mi 'tail' {216}

*mel
    *s-mel 'face' {422, 537}

*men
    *r-men 'mole (blemish)/wen' {81, 290, 296}

*mey
    *mey 'fire' {141, 205, 206, 217}
    *s/ʔ-mey² (PLB) 'fire' {39}
    Cf. *ma ≍ *mey 'rice/paddy'
    Cf. *may ≍ *mey ≍ *mi 'tail'

*məw
    *ʔ-məw¹ (PLB) 'body hair' {40, 100}
    *ʔ-məw¹ (PLB) 'mushroom' {183}

*g/s-məw 'mushroom'
  {134, 184}
*məw 'eagle/hawk' {185}
*məw² (PLB) 'sky/heav-
  ens' {183}
*məw²-ts(y)a¹ (PLB)
  'sunlight' {30}
*r-məw 'sky/heavens/
  clouds' {81, 129, 184}
Cf. *mul ≍ *mil ≍
  *myal 'body hair'
Cf. *tsa-t 'hot/hurt/pain/
  ill'

*mi
  *mi 'female/girl' {187}
  *mi²/³ (PLB) 'female/girl'
    {38, 187}
  *r-mi(y)-n 'man/person'
    {81, 88, 118, 201, 449}
  *s/ʔ-mi¹ (PLB) 'catch/
    overtake' {37}
  Cf. *may ≍ *mey ≍ *mi
    'tail'

*mik ≍ *myak
  *s-mik ≍ *s-myak 'eye'
    {40, 63, 66, 99, 141, 319,
    324, 327, 346, 347, 371,
    496, 506, 527}
  *s-myakᴴ (PLB) 'eye'
    {35, 39, 63, 100, 315, 474}

*mil
  Cf. *mul ≍ *mil ≍
    *myal 'hair (body)'

*min
  *s-min 'ripe/sweet/deli-
    cious' {277, 296, 495,
    496}
  *s/ʔ-min¹ (PLB) 'ripe/
    sweet/delicious' {39}

*miːn
  *miːn 'name (v.)/order/
    command' {306, 307,

529}
  Cf. *r/s-miŋ 'name (n.)'

*miːn ≍ *miːt
  *miːtᴸ (PLB) 'blink/shut
    abruptly' {315}
  *s-miːn ≍ *s-miːt 'extin-
    guish/shut/blink' {350,
    352, 519}

*miŋ
  *ʔ-miŋ¹/³ (PLB) 'name'
    {248}
  *r/s-miŋ 'name/order/
    command' {81, 127, 280,
    296, 298, 307, 496, 528,
    529}
  Cf. *miːn 'name (v.)'

*miːt
  Cf. *s-miːn ≍ *s-miːt
    'extinguish/shut/blink'

*mlyəw
  *mlyəw-k 'swallow (v.)'
    {81, 84}

*mow
  *mow 'woman/female rel-
    ative' {223, 227}
  *mow 'work/move' {224}

*moy
  *moy 'beautiful/perfectly'
    {220, 228}
  *r-moy 'bud/blossoming'
    {81, 228}

*mra ≍ *mya
  *mra ≍ *mya 'much/
    many' {80, 169}
  *mra² (PLB) 'many' {39,
    164}

*mrak
  *mrak 'cut/tear' {80}
  Cf. *mruk ≍ *mrak
    'grass/weeds'

*mraŋ
  *ʔ-mraŋ³ (PLB) 'high'
    {82, 249}
  *mraŋ 'see/look toward'
    {37, 80, 267, 303}
  *mraŋ² (PLB) 'horse' {82,
    249}
  *s-mraŋ¹ (PLB) 'show'
    {268}
  Cf. *k-m-raŋ ≍ *s-raŋ
    'horse'

*mriŋ
  *mriŋ 'sound/noise' {307}

*mruk
  *mruk 'monkey' {80, 145}
  Cf. *myuk 'monkey'

*mruk ≍ *mrak
  *mruk ≍ *mrak 'grass/
    weeds' {80, 482, 513}

*mu
  *ʔ-mu² (PLB) 'brood/incu-
    bate' {112, 180}
  *ʔ-mu² (PLB) 'soot/acrid
    (smoke)' {112, 180}

*muk
  *muk 'mouth' {537}

*muːk
  *muːk 'cubit/armlength'
    {359, 361}
  *muːk 'detritus/dust' {359,
    513}
  *muːk 'weeds' {360}
  Cf. *muːŋ ≍ *r/s-muːk
    'overcast/foggy/dark/sul-
    len'

*mul
  *mul 'silver' {415}
  Cf. *d-ŋul 'silver'

*mul ≍ *mil ≍ *myal
  *g-mul 'hair (body)' {496}

*s-mul ⋉ *s-mil ⋉
  *s-myal 'hair (body)/fur/
  feather' {83, 384, 386,
  388, 414, 419, 423, 496,
  501, 505, 506, 508}

*muːm
  *muːm 'bud' {276}

*mun
  *ʔ-mun¹/³ (PLB) 'powder'
    {249, 279}
  *s-mun 'dark' {309, 310}

*muːŋ ⋉ *muːk
  *muːŋ ⋉ *r/s-muːk
    'overcast/foggy/dark/sul-
    len' {81, 127, 289, 309,
    310, 359, 360, 523}
  Cf. *s-mun 'dark'

*muːr
  *muːr 'mouth/face/gills/
    beak' {397, 402, 426,
    537}

*mut
  *s-mut 'blow' {99, 364}
  *s-mutᴴ (PLB) 'blow'
    {37, 315}

*mwa
  *mwa-t 'curse/revile'
    {176, 462}

*mwan ⋉ *mwat
  *mwan ⋉ *mwat 'cut/
    slice/castrate' {518}

*mwat
  *mwatᴸ (PLB) 'hungry'
    {37, 38}
  *mwatᴸ (PLB) 'star/moon'
    {332}
  Cf. *s-ŋʷ(y)a-t 'star/
    moon'
  Cf. *mwan ⋉ *mwat
    'cut/slice'

*mwat ⋉ *ŋ(w)at
  *mwatᴸ ⋉ *ŋ(w)atᴸ
    (PLB) 'hungry' {332}

*mwəy
  *mwəy 'fine/delicate'
    {201}
  *r/s-mwəy 'sleep' {195,
    200}
  *s-mwəy 'spindle/twirl'
    {195}

*mya
  Cf. *mra ⋉ *mya 'much/
    many'

*myak
  *s-myak 'vanish/get lost'
    {322}
  Cf. *s-mik ⋉ *s-myak
    'eye'

*myal
  Cf. *mul ⋉ *mil ⋉
    *myal 'hair (body)'

*myaŋ
  *ʔ-myaŋ¹/³ 'long (time)'
    {265}

*myel
  *myel 'sleepy' {420, 427}

*m(y)ik
  *s-m(y)ik 'bamboo
    sprout' {344, 348}

*myuk
  *myukᴸ (PLB) 'monkey'
    {37, 39, 96}
  *s-myukᴴ (PLB) 'mon-
    key' {39}

*n

*na
  *ʔ-na¹ (PLB) 'good/per-

missible' {163}
  *ʔ-na² (PLB) 'ear' {40,
    100, 112}
  *g-na-s 'be/live/stay/rest/
    alight/perch' {433, 442,
    471, 477}
  *m-na 'mother' {173}
  *na-n ⋉ *na-t 'ill/suffer/
    hurt/evil spirit' {38, 162,
    168, 333, 335, 440, 452,
    520}
  *na-ŋ '2nd person pro-
    noun' {2, 177, 264}
  *na¹ (PLB) 'ear/listen'
    {38}
  *na² (PLB) 'be/live/stay/
    rest/perch' {477}
  *r/g-na 'ear/hear/listen'
    {129, 134, 162, 165, 168,
    172, 176}
  *s-na 'crossbow' {172}
  Cf. *naŋ¹ (PLB) '2nd per-
    son pronoun'
  Cf. *s-na ⋉ *s-naːr
    'nose'

*na ⋉ *naːr
  *s-na ⋉ *s-naːr 'nose'
    {102, 103, 162, 165, 172,
    386, 426, 427}

*nak
  *ʔ-nakᴸ (PLB) 'deep' {37,
    38, 39, 40, 100, 112, 117,
    128, 242}
  *s-nak 'black/ink/deep'
    {317, 326, 522}
  *s-nakᴴ (PLB) 'black'
    {39, 117, 242, 319}
  Cf. *s-maŋ ⋉ *s-mak
    'black/ink/deep'

*nak ⋉ *naŋ
  *s-nak ⋉ *s-naŋ 'step on'
    {523}

*nak ≱ *nap
　　*m-nak ≱ *m-nap 'early
　　　morning' {129, 326, 530}

*nam
　　*ʔ-nam¹ (PLB) 'side/rib'
　　　{40, 100, 112}
　　*m/s-nam 'smell' {103,
　　　119, 250, 251}
　　*nam¹/²/³ (PLB) 'smell'
　　　{253}
　　*s-nam 'daughter-in-law'
　　　{104, 251}
　　*s-nam 'good' {104}
　　*s-nam 'sesame' {250}
　　*s-nam¹ (PLB) 'ear
　　　(grain)' {253, 254}
　　*s/ʔ-nam² (PLB) 'sesame'
　　　{38, 253}

*naŋ
　　*naŋ¹ (PLB) '2nd person
　　　pronoun' {2, 37, 249}
　　*s-naŋ 'follow/repeat'
　　　{263, 302}
　　Cf. *na-ŋ '2nd person pro-
　　　noun'
　　Cf. *s-nak ≱ *s-naŋ
　　　'step on'

*naːŋ
　　*s-naːŋ 'heavy/thick (of
　　　liquids)/viscous' {302}

*nap
　　*ʔ-napᴸ (PLB) 'snot' {99,
　　　112}
　　*s-nap 'enter' {104}
　　*s-nap 'snot' {37, 102,
　　　336}
　　Cf. *m-nak ≱ *m-nap
　　　'early morning'

*naːr
　　Cf. *s-na ≱ *s-naːr
　　　'nose'

*nas
　　*s-nas 'leaf' {432}

*naːw
　　*naːw 'younger sibling'
　　　{225, 226}

*nay
　　*nay 'languid/leisurely'
　　　{209}

*naːy
　　*m-naːy 'twist/knead'
　　　{210}
　　*s-naːy 'pus' {210}

*nay ≱ *ney
　　*ʔ-nay¹/² (PLB) 'bamboo
　　　strip (for tying)' {216,
　　　510}
　　*ʔney 'bamboo strip (for
　　　tying)' {216, 510}

*naːy ≱ *ney
　　*s-naːy ≱ *s-ney 'near'
　　　{215, 220, 511}

*neːk
　　*neːk 'sticky' {374}

*nem ≱ *nyam
　　*s-nem ≱ *s-nyam 'low/
　　　soft' {248, 290, 299, 509}

*nes
　　*s-nes 'lip/beak' {435}

*ney
　　*ney 'hair (head)' {206}
　　*ney 'look/try to' {206}
　　*r-ney-t 'get/have/obtain'
　　　{206, 217, 460}
　　Cf. *s-naːy ≱ *s-ney
　　　'near'

*ney ≱ *ni(y)
　　*ney ≱ *ni(y) 'aunt'
　　　{193, 218, 509}

*nəw
　　*nəw 'breast/milk' {198}
　　*s-nəw² (PLB) 'awake(n)/
　　　conscious' {182}
　　*s-nəw² (PLB) 'wither'
　　　{182}

*nəy
　　*nəy 'sun/day' {191, 201,
　　　464}

*ni
　　*ʔ-nit ≱ *ši² (PLB) 'sev-
　　　en' {477}
　　*ʔ-nit ≱ *ni² (PLB) 'two'
　　　{351, 477}
　　*ʔ-ni¹ (PLB) 'red' {40,
　　　100}
　　*ʔ-ni³ (PLB) 'heart/mind/
　　　brain' {347}
　　*g/s-ni-s 'two' {135, 149,
　　　241, 351, 352, 434, 477,
　　　481}
　　*r-ni 'red' {412, 428}
　　*r/s-ni-l 'gums' {48, 103,
　　　241, 410, 423, 427}
　　*s-ni-s 'seven' {44, 103,
　　　149, 153, 351, 352, 434,
　　　477}
　　Cf. *s-niŋ ≱ *s-nik
　　　'heart/mind/brain'

*nil
　　*r/s-nil 'gums' {241, 427}
　　Cf. *r/s-ni-l 'gums'

*niŋ
　　*niŋ 'way/method/custom'
　　　{281}

*niŋ ≱ *nik
　　*s-niŋ ≱ *s-nik 'heart/
　　　mind/brain' {39, 102, 103,
　　　283, 347, 480, 521}
　　*s-ni(ː)ŋ ≱ *s-nik 'year'
　　　{282, 283, 475, 524, 528}
　　Cf. *ʔ-ni³ (PLB) 'heart/

mind/brain'

*nip ⋊⋉ *nyap ⋊⋉ *nup
   *ʔ-nip[L] (PLB) 'press'
     {112}
   ***s-ni(ː)p ⋊⋉ *r/s-nyap ⋊⋉
    *s-nu(ː)p** 'pinch/
    squeeze/press/oppress/
    sink into/submerge/enter'
    {339, 342, 355, 356, 370,
    499, 505, 507}

*nis
   Cf. ***g/s-ni-s** 'two'
   Cf. ***s-ni-s** 'seven'

*ni(y)
   Cf. ***ney ⋊⋉ *ni(y)** 'aunt'

*not ⋊⋉ *nut
   *s-not ⋊⋉ *s-nut 'womb/
    mouth/vessel' {381}

*now
   *now 'tender/soft' {223,
    224}
   *now[2] (PLB) 'tender/soft'
    {38}

*nu
   *ʔ/s-nu[1] (PLB) 'awn (of
    grain)/panicle' {180}
   Cf. ***n(y)u** 'mother'

*nuk
   *ʔ-nuk[L] (PLB) 'back'
    {315}
   *s-nuk 'bean' {356}
   *s-nuk 'brain' {357}
   *s-nuk[H] (PLB) 'bean' {39,
    40, 100, 315}
   *s-nuk[H] (PLB) 'brain'
    {39}
   Cf. ***s-nuŋ ⋊⋉ *s-nuk**
    'back/behind/after'

*nuːl
   *nuːl 'rub/wear down'

{417, 426}

*nuŋ ⋊⋉ *nuk
   *s-nuŋ ⋊⋉ *s-nuk 'back/
    behind/after' {102, 286,
    289, 479, 520}

*nup
   Cf. ***s-ni(ː)p ⋊⋉ *r/
    s-nyap ⋊⋉ *s-nu(ː)p**
    'pinch/squeeze'

*nwa
   *nwa[2] (PLB) 'cattle' {38,
    40}
   Cf. ***ŋwa** 'cattle'

*nway
   *s/ʔ-n(w)ay 'cohesive/
    elastic' {214}
   *m-n(w)ay 'yam' {215,
    217}
   Cf. ***dway ⋊⋉ *nway**
    'hang from/cling to/creep-
    er'

*nwi(y)
   *m-nwi(y)-k 'laugh'
    {117, 119, 197, 481}

*nya
   *nya 'woman' {173}
   *n(y)a-n 'blush/red' {177,
    451}
   *s-nya-k 'meat/flesh'
    {481}

*nyak
   *ʔ-nyak[L] (PLB) 'sticky'
    {374}
   *s-nyak 'pulverize/shatter/
    diminutive' {323}
   *s-nyak 'wet' {323, 374}

*nyam
   *s-nyam 'think' {299}
   Cf. ***s-nem ⋊⋉ *s-nyam**
    'low/soft'

*nyap
   Cf. ***nip ⋊⋉ *nyap ⋊⋉
    *nup** 'pinch/squeeze'

*nye
   *nye-s 'punish' {203, 291}

*nyen
   *s-nyen 'hurt/oppress'
    {204, 290, 296}

*nyey
   *nyey 'younger sibling'
    {206}

*n(y)ik ⋊⋉ *n(y)ek
   *s-n(y)ik ⋊⋉ *s-n(y)ek
    'filth(y)/excrement' {36,
    346}

*nyit
   *s-nyit 'squeeze' {349,
    355}

*nyiːt
   *g/r-nyiːt 'sleep/nod' {36,
    350}

*n(y)u
   *n(y)u 'mother' {540}

*nyuŋ
   *s-nyuŋ 'sad/ill/achy/
    tired' {284}

*ŋ

*ŋa
   *d-ŋa 'tooth' {175}
   *l/b-ŋa 'five' {130, 149,
    162, 165, 166, 167, 170,
    173, 251}
   *ŋa-n 'goose' {177, 259,
    449}
   *ŋa-y '1st person pronoun/
    self' {1, 38, 162, 165, 167,
    173, 174, 208, 231, 487}

*ŋa² (PLB) 'fish' {38, 40}
*ŋa² (PLB) 'five' {477}
*s/ʔ-ŋa² (PLB) 'borrow/
  lend' {38, 40}
Cf. *s-ŋya 'fish'

*ŋak
*ʔ-ŋakᴸ (PLB) 'open wide'
  {117, 242}
*s-ŋak 'bird' {317, 319}
*s-ŋak 'plantain/banana'
  {318}
*s-ŋakᴴ (PLB) 'plantain/
  banana' {242}

*ŋar
*s-ŋar 'frost' {390}

*ŋas
*ŋas 'possess/keep' {432}

*ŋaw
*r-ŋaw 'roast/fry' {127,
  128, 227}

*ŋaːw
*ŋaːw 'ape' {227}

*ŋay
*ŋay 'small/inferior/off-
  spring' {209}

*ŋəw
*ŋəw 'weep' {185}
*ŋəw¹ (PLB) 'weep' {182}

*ŋor
*s-ŋor 'snore' {400}

*ŋow
*s-ŋow 'blue/green' {223}

*ŋoy
*ŋoy 'gentle/quiet' {229}

*ŋra
*ŋra 'meet' {81}

*ŋraŋ
*ŋraŋ 'contradict/deny'
  {81}

*ŋrəw
*ŋrəw 'dark/faded/with-
  ered' {184}

*ŋul
*d-ŋul 'silver' {83, 414,
  415, 424}
Cf. *mul 'silver'

*ŋwa
*d-ŋwa 'goat' {23}
*ŋwa 'cattle' {63, 167,
  170, 176}
Cf. *nwa² (PLB) 'cattle'

*ŋwal
*ŋwal 'mix/stir' {408}

*ŋ(w)at
Cf. *mwatᴸ ≍ *ŋ(w)atᴸ
  'hungry'

*ŋʷ(y)a
*s-ŋʷ(y)a-t 'star/moon'
  {24, 26, 85, 332, 335}

*ŋya
*s-ŋya 'fish' {162, 165,
  167, 169, 172, 475}
Cf. *ŋa² (PLB) 'fish'

*ŋ(y)a
*r/s-ŋ(y)a 'borrow/lend'
  {162, 168}

*p

*pa
*pa 'search for/seek' {24}

*pak
*ʔ-pakᴴ (PLB) 'collapse'
  {113}
*r-pak 'leaf' {48, 317}

*pan ≍ *pat
Cf. *ban/t ≍ *pan/t
  'braid/plait/interweave'

Cf. *ban/t ≍ *pan/t 'thin'

*pap
*m-papᴴ (PLB) 'blanket'
  {337}

*par
*par 'trade/buy/sell' {391}

*pat
*m-pat 'vomit' {330, 335,
  442}
*pat (PLB) 'flail/flap'
  {330}
*C-patᴸ (PLB) 'vomit'
  {315}

*pay
*pay 'come/go' {209}
*r-pay 'spleen' {208, 221}
Cf. *ʔ-pray¹ (PLB)
  'spleen'

*paːy
*paːy 'conceive/pregnant'
  {210}

*pay ≍ *bay
*pay ≍ *bay 'encircled/
  ringed/striped' {208}

*paːy ≍ *baːy
*paːy ≍ *baːy 'lame/limp/
  askew' {210, 221}
Cf. *bʷay 'left side/left-
  hand'

*pe
Cf. *be-s ≍ *pe-s 'break
  off a piece'

*peːr
*peːr 'flat/thin' {386, 400,
  426}

*pey
*pey 'leg' {205}

*pəw
*pəw 'grandfather' {178}

*pəw 'price' {184}
*pəw² (PLB) 'price' {183}
Cf. *ʔ-bəw² (PLB) 'grand-father'

*pəy
*ʔ-pəy 'grandmother' {191, 201}
*pəy² (PLB) 'rot/disinte-grate' {189}

*pip
Cf. *b/pip ≽ *b/pup 'conceal/hide (v.)/bury'

*pir
Cf. *pur ≽ *pir 'fly (v.)'

*pleŋ
*pleŋ 'flat surface/plank' {281, 292, 296}
Cf. *bleŋ ≽ *pleŋ 'straight(en)'

*pliŋ ≽ *bliŋ
Cf. *bliŋ ≽ *pliŋ 'full/fill'

*ploŋ
*ploŋ 'burn' {294}
*ploŋ 'run/flee' {294}

*plu
*plu 'white/silver/money' {71, 184}
*plu¹ (PLB) 'white/silver/money' {74, 180}

*plyum
*plyum 'bee/wasp' {531}

*po
*d-po 'shield' {204}

*pok
*s-pok 'time/occasion' {379}

*pop
*pop 'hole/crack' {381}

*pral
*d-pral 'forehead' {404, 405}
*pral 'cold/dry season' {405}
Cf. *bral ≽ *pral 'leave/depart/separate'

*praŋ
*praŋ 'loud/bright' {303}

*prat
Cf. *brat ≽ *prat 'cut apart/cut open'

*pray
*ʔ-pray¹ (PLB) 'spleen' {73}
Cf. *r-pay 'spleen'

*pret
*C-pret^L (PLB) 'be/be able' {374, 376}

*prəy
*prəy¹ (PLB) 'untie' {73}

*pri
*pri 'comb' {26}
Cf. *ʔ-gʷəy² 'comb'

*priŋ
*priŋ 'bark (as dog)' {280, 495}

*priŋ ≽ *pyiŋ
*priŋ¹/² ≽ *pyiŋ¹/² (PLB) 'release/send forth' {282}

*pro
*pro 'delight' {204}
*s-pro-k 'come out/emerge/bring out' {204, 480}

*p(r)ok
*p(r)ok 'jump' {378}

*prup
Cf. *brup ≽ *prup 'over-

flow/flood'

*prut
*prut 'boil (v.)' {364}

*pru(w)
*pru(w) 'womb' {199}

*pryo
*pryo-k 'soft/boiled' {205, 481}

*pu
*pu 'male/father/grandfa-ther' {24}
*pu² (PLB) 'pumpkin/gourd' {180}

*puk
*m-puk 'shoot' {357}
*m-pök^H (PLB) 'shoot' {315}

*puːk
*puːk 'belly/cave' {358, 359, 360, 362}

*pul
Cf. *bul ≽ *pul 'stump/tree/root'

*pun
*pun 'wrap/cover/wear' {495}

*pun ≽ *pin
*pun ≽ *pin 'skin' {418}
Cf. *pʷul ≽ *pʷil 'skin'

*pup
*m-pup 'satiated' {369}
*m-pup 'turn over/search for/seek' {337, 369}
Cf. *b/pip ≽ *b/pup 'conceal/hide (v.)/bury'
Cf. *pyap 'turn over'

*pur ≽ *pir
*pur ≽ *pir 'fly (v.)' {385, 397, 402, 501, 505, 509}

*pyaŋ

　　*pyaŋ¹ᐟ² (PLB) 'clear away/disentangle' {264}

*pyap

　　*pyapᴴ (PLB) 'turn over' {337}

　　Cf. *pup 'turn over'

*pyar

　　Cf. *byar ⪬ *pyar 'affix/ sew/plait/braid'

*pyen ⪬ *pyet

　　*pyen ⪬ *pyet 'fart' {518}

*pyin ⪬ *pyit

　　*pyin ⪬ *pyit 'untie/loosen' {520}

*py(w)ak

　　*py(w)ak 'sweep/broom' {66, 85, 128, 323, 527}

*r

*ra

　　*ʔ-ra¹ (PLB) 'winnow' {163}

　　*d-ra-t 'cut' {145}

　　*g-ra 'fishbone/spine' {173}

　　*g-ra² (PLB) 'buckwheat' {163}

　　*k-ra 'strength/win' {170}

　　*ra 'humans (classifier)' {170}

　　*ra-y ⪬ *wa-y 'fontanelle' {486}

　　*ra² (PLB) 'fontanelle' {163}

　　*ra² (PLB) 'humans (classifier)' {43}

　　*ra³ (PLB) 'get/obtain'

{41, 42, 43, 163}

　　*s-ra 'place' {78, 173}

　　*s/m-ra-ŋ 'horse' {177}

　　Cf. *g-ya ⪬ *g-ra 'right-hand/right side'

　　Cf. *mraŋ 'horse'

*rak

　　*ʔ-rakᴸ (PLB) 'rock/stone' {319}

　　*b-rak 'rock/stone' {318}

　　*k-rak 'fowl/chicken' {317, 319, 327}

　　*k-rakᴴ (PLB) 'fowl/ chicken' {53, 61, 138, 146}

　　*k-rakᴴ (PLB) 'gather together, scoop together' {319}

　　*rakᴸ (PLB) 'weave/drive/ chase' {41, 42, 43, 61, 146, 315, 319}

　　Cf. *t(r)ak 'weave'

*ral

　　*g-ral 'equal/line up/connect in a row' {422}

*raːl ⪬ *ran ⪬ *ray

　　*g-raːl ⪬ *g-ran ⪬ *ray 'enemy/fight/quarrel/ strife/sword/war' {44, 48, 261, 387, 388, 404, 407, 423, 425, 516}

*ram

　　*g-ram 'indigo' {299}

　　*ram 'forest/jungle/field/ country' {299}

　　*s-ram 'otter' {102, 191}

　　Cf. *k-rap ⪬ *k-ram 'needle'

　　Cf. *sram 'otter'

*ran

　　Cf. *g-raːl ⪬ *g-ran ⪬ *ray 'enemy/quarrel/war/

strife/sword'

*raŋ

　　*b-raŋ ⪬ *g-raŋ 'chest/ breast' {146}

　　*b-raŋ ⪬ *s-raŋ 'morning' {263}

　　*k-m-raŋ ⪬ *s-raŋ 'horse' {80, 102, 121, 267}

　　*m-raŋ 'high/long' {80, 267}

　　*raŋ² (PLB) 'green vegetable/cabbage/mustard' {265}

　　Cf. *mraŋ 'high'

　　Cf. *s-riŋ ⪬ *s-r(y)aŋ 'alive/green/raw/give birth/be born'

*raŋ ⪬ *waŋ

　　*raŋ² ⪬ *waŋ² (PLB) 'earring' {265}

*rap

　　*ʔ-rapᴸ (PLB) 'stand' {35, 56, 315, 339, 530}

　　*g-rap 'fireplace' {336}

　　Cf. *g-r(y)ap 'stand'

　　Cf. *trap ⪬ *drap 'fireplace'

*raːp

　　*s-raːp 'graze/almost hit/ passing close' {340}

*rap ⪬ *ram

　　*k-rap ⪬ *k-ram 'needle' {336, 517}

　　*k-rapᴴ (PLB) 'needle' {337}

　　Cf. *ʔap ⪬ *gaːp 'needle'

　　Cf. *kap 'needle'

*ras

　　*b-ras 'bear fruit/rice' {432, 437}

*g-ras 'class/category'
{437}

*raw

*raw 'withered/residue/
corpse' {225}
Cf. *row ⋊ *raw 'pine/
fir'

*ray

*b-ray-t 'fear' {132, 207}
*g-ray 'god' {48, 209,
212}
*ray 'things/stuff (n.)'
{209, 212}
*s-ray 'pluralizer' {209,
212}
Cf. *g-raːl ⋊ *g-ran ⋊
*ray 'enemy/quarrel/war/
strife/sword'
Cf. *r(y)ay ⋊ *r(y)a
'laugh'

*ray ⋊ *way

*ray ⋊ *way 'copula/
nominalizer/subordinator'
{35, 47, 209, 221, 482,
510}

*ray ⋊ *yay ⋊ *way

*s-ray ⋊ *s-yay ⋊
*s-way 'bold/heroic'
{209}

*ren

*s-ren 'equal/line up/con-
nect in a row' {291, 296,
311}

*rey

*b-rey 'buy/barter' {49,
132, 205, 216, 511}
*rey 'cane/rattan/rope' {48,
206, 217, 218}
*rey 'language/speech'
{205}

*rey/ŋ

Cf. *s-ley/ŋ ⋊ *s-rey/ŋ
'squirrel/weasel'

*rəw

*rəw² (PLB) 'bone' {35,
42, 43, 477}
Cf. *s/m/g-rus 'bone'

*rəy

*m-k-rəy¹ (PLB) 'skin/
outer covering' {189}
*rəy 'water' {250}
*rəy¹ (PLB) 'water' {42,
43, 189, 213}
Cf. *s-ləy-t ⋊ *s-rəy-t
'heavy'

*rəy ⋊ *ris ⋊ *rit

*b-rəy ⋊ *b-ris ⋊ *rit ⋊
*riːn 'draw/write/count'
{132, 441}
*rəy¹/³ (PLB) 'write/count'
{43}
Cf. *r-tsyəy 'count/num-
ber'

*ri

*ri 'gleet/purulent dis-
charge/rot' {145, 186}
Cf. *d-ri(y) 'filth/stench'

*rik

Cf. *s-r(y)ik 'louse'

*rik ⋊ *ryak

*s-rik ⋊ *s-ryak 'pheas-
ant/partridge' {78, 324,
328, 343, 346, 347, 371,
507, 527}

*ril

*s-ril 'choose/be fastidi-
ous' {410}

*riːl

*riːl 'belly/stomach/intes-
tines' {44, 385, 387, 412,

413, 426}

*ril ⋊ *gril

*s-ril ⋊ *s-gril 'move/
roll' {410, 411}

*rim

*b-rim 'distribute' {305}
Cf. *rum ⋊ *rim 'dark/
shade/dusk'

*ri(ː)m

*ri(ː)m 'cane/rattan' {43,
271}

*rin

*d-rin 'compassion/love'
{306}

*riːn

Cf. *b-rəy ⋊ *b-ris ⋊
*rit ⋊ *riːn 'draw/write'

*riŋ

*b-riŋ 'bark (as dog)'
{132}
*riŋ 'sun/sunshine' {281}
*s-riŋ 'long' {280, 282,
296}

*riŋ ⋊ *r(y)aŋ

*s-riŋ ⋊ *s-r(y)aŋ 'alive/
green/raw/give birth/be
born' {29, 78, 282, 283,
307, 506, 528}

*rip

*g/s-rip 'shade/shadow'
{353}

*ris

Cf. *b-rəy ⋊ *b-ris ⋊
*rit ⋊ *riːn 'draw/write/
count'

*rit

*ʔ-ritᴸ (PLB) 'eight' {56,
151, 315, 351, 506}
Cf. *b-rəy ⋊ *b-ris ⋊
*rit ⋊ *riːn 'draw/write'

Cf. ***b-r-gyat �día**
   *b-g-ryat 'eight'

*riːt
   *riːt 'reap' {350}
   *riːt^L (PLB) 'reap' {41, 42, 43}

*ri(y)
   *d-ri(y) 'dirt/filth/ordure/ stench' {145, 193}
   *k-ri(y)² (PLB) 'big' {190}
   *s-ri(y)-t 'copula/be/exist- ence' {186, 350, 502}
   Cf. ***ray ⋈ *way** 'copula'
   Cf. ***ri** 'gleet/purulent dis- charge/rot'
   Cf. ***s-rut** 'copula/be the case'

*roŋ
   *k-roŋ¹ (PLB) 'cat/wild- cat' {138}
   *s/k-roŋ 'cat/wildcat' {294}

*row
   *s-row 'nit' {224}

*row ⋈ *raw
   *row ⋈ *raw 'pine/fir' {224, 226, 515}

*ru
   *ru 'crazy' {181}
   *ru² (PLB) 'crazy' {180}
   *s-ru² (PLB) 'squirrel (fly- ing)' {180}

*ruk
   *d-k-ruk 'six' {44, 140, 145, 148, 149, 357, 360, 361, 363}
   *k-ruk^H (PLB) 'pick up' {96}
   *m-ruk 'monkey' {145}
   *s-g-ruk 'pick up' {357}

Cf. ***mruk** 'monkey'

*ruːk
   *m-ruːk 'steal' {80}
   Cf. ***r-kəw ⋈ *r-kun ⋈ *r-kut** 'steal/thief'

*ruːl
   *s-b/m-ruːl 'snake' {43, 44, 80, 81, 83, 134, 151, 235, 385, 387, 388, 414, 417, 424, 426}
   Cf. ***m-r-wəy¹** (PLB) 'snake'

*rum
   *d-rum 'long for/pine for' {141, 272}

*rum ⋈ *rim
   *rum ⋈ *rim 'dark/shade/ dusk' {273, 308, 498}

*ruŋ
   *g-ruŋ 'horn/corner' {145, 496, 514}
   *rwa(ŋ) 'horn/corner' {514}
   Cf. ***gruŋ** 'horn'

*rup
   *d/g-rup 'sew' {369}
   *s-rup 'snuff up/sip' {369, 495}

*rus
   *s/m/g-rus 'bone' {44, 48, 102, 387, 435, 437, 442, 465, 477}
   Cf. ***rəw²** (PLB) 'bone'

*rut
   *b-rut 'mischievous/row- dy/hooligan' {364}
   *s-rut 'copula/be the case' {502}
   Cf. ***s-ri(y)-t** 'copula/be the case'

*rwa
   *rwa-s 'rain' {44, 387, 433}
   Cf. ***ruŋ** 'horn/corner'

*rwak
   *g/p-rwak 'ant' {94, 139, 321}
   *p-rwak^H (PLB) 'ant' {154, 321}
   *rwak 'leaf' {321}
   *rwak^L (PLB) 'pheasant' {508}

*rwa(ŋ)
   Cf. ***ruŋ** 'horn/corner'

*rwat
   *rwat 'stiff/tough' {332}

*rway
   Cf. ***s/ʔ-lway ⋈ *s/ ʔ-rway** 'divert/push aside'

*rwəy
   *s-rwəy 'slant/slope' {195}
   *s-rwəy¹ (PLB) 'gold/yel- low' {191}

*rwi(y)
   *s-rwi(y) 'cane/rattan/ rope' {197, 218}

*r(y)a
   *s-r(y)a 'yam/potato' {78, 173}

*r(y)ak
   *s-r(y)ak 'a full day/spend the night' {77, 323, 328}
   *s-r(y)ak 'ashamed' {29, 46, 78, 317, 326}
   *s-ryak 'grease/oil' {323, 327}
   Cf. ***g-yak** 'ashamed'
   Cf. ***s-rik ⋈ *s-ryak**

wood'

*sil

   Cf. *m/b-s(y)il ≍ *m/ b-syal 'wash/bathe'

*sin

   *m-sin 'liver/bitter' {31, 33, 34, 56, 64, 119, 124, 134, 141, 154, 277, 291, 296, 306, 475}

   *sin 'body/owner/agentive nominalizer' {278, 306, 449}

   *sin^1 ≍ *tsin^1 (PLB) 'liver/bitter' {31}

*siŋ ≍ *sik

   *sik^H (PLB) 'tree' {315}

   *siŋ ≍ *sik 'tree/wood' {32, 33, 34, 282, 283, 347, 475, 524, 528}

*sip

   *C-sip^L (PLB) 'thirsty' {353}

*sit

   *sit 'whistle' {349}

   Cf. *sut ≍ *sit 'wipe/ sweep'

*si(y)

   *m-si-t 'comb/rake (v.)' {460}

   *m-si(y) 'comb/rake (v.)' {193}

*sow

   *m-sow 'arise/awake(n)' {56, 117, 223}

*soy

   *soy 'graze/almost hit/ passing close' {228}

*sram

   *sram *or* *s-ram 'otter' {69, 77, 102, 150, 250,

257}

   *sram^1 (PLB) 'otter' {255}

*srel

   *srel 'breed/bring up' {422}

*sriŋ

   *sriŋ 'sister/matrilineal lineage' {77, 307}

*sru(w)

   *sru(w) 'aunt/elder sister' {77, 198, 475}

*su

   *su^1 (PLB) 'who/remote 3rd person pronoun' {3, 180}

   *su^2 (PLB) 'resemble' {180, 199}

*sum

   *g-sum 'three' {32, 33, 56, 135, 149, 272, 275, 308}

*suŋ ≍ *saŋ

   *b-suŋ ≍ *b-saŋ 'smell/ scent/fragrant' {288, 482, 513}

*suːr ≍ *swaːr

   *suːr ≍ *swaːr 'sour/be acid' {85, 384, 398, 402, 426, 449, 475, 514}

   Cf. *kyuːr ≍ *kywaːr

*sut ≍ *sit

   *sut ≍ *sit 'wipe/sweep' {366, 502}

   *sut^H ≍ *sit^H (PLB) 'wipe/sweep' {315, 502}

*suy

   *suy 'marrow' {230}

*swa

   *swa *and* *s-wa 'tooth' {27, 166, 167, 171, 172}

*swa-n 'onion/garlic' {177, 301, 446, 448}

*swan

   Cf. *sywar ≍ *sywa-n/t 'flow/pour'

*swat

   *swat 'stick into' {332}

   Cf. *sywar ≍ *sywa-n/t 'flow/pour'

*sy

*sya

   *sya-n 'animal/body/flesh/ meat' {32, 88, 102, 118, 139, 140, 150, 162, 165, 169, 172, 177, 278, 448, 475}

   *C-ša^1 (PLB) 'easy/cheap' {36}

*syal

   Cf. *m/b-s(y)il ≍ *m/ b-syal 'wash/bathe'

*syaːl ≍ *syiːr

   *syaːl ≍ *syiːr 'iron' {395, 409, 426, 506}

*syam

   *syam 'iron' {255, 257}

*syaŋ

   *g/b-syaŋ 'excrement/ rust/blight' {36}

*s(y)ar

   *s(y)ar 'louse' {390, 402, 537}

   *syar 'rise/east' {391}

   Cf. *san$^{1/2}$ (PLB) 'louse'

*syay

   *syay 'noisy/agitated' {209}

*syen
Cf. *m-(t)syen 'nail/
claw'

*syey
*šey²/³ (PLB) 'know'
{477}
*syey-s 'know' {205, 206,
217, 465, 471, 477}

*s(y)il ≍ *syal
*m/b-s(y)il ≍ *m/
b-syal 'wash/bathe'
{409, 410, 413, 425, 508}

*syim
*syim 'dark-colored'
{271}
*syim 'sweep' {305}

*syip ≍ *syup
*syip ≍ *syup 'whisper'
{356}

*syiːr
Cf. *syaːl ≍ *syiːr 'iron'

*syow
*syow 'rat' {228}

*syup
Cf. *syip ≍ *syup 'whis-
per'

*syu(w)
*syu(w)-n 'grandchild'
{199, 449}

*sywar ≍ *sywa-n/t
*g/b-sywa 'flow/pour'
{427}
*swan¹/² ≍ *swatᴴ
(PLB) 'flow/pour' {261,
519}
*sywar ≍ *sywa-n/t
'flow/pour/scatter/spill/
sow broadcast' {66, 84,
386, 394, 402, 427}

*sywəy
*sywəy 'rub/scrape/shave'
{66, 85, 195}

*t

*ta
*l-ta-t-s 'look' {456}
*s-ta 'knife/axe/sword'
{162}
*s-ta-s 'hear' {433, 442,
443, 471}
*s-ta-t 'put/place' {162,
172, 250, 442, 454, 461}
*ta 'box/cabinet' {170}
*ta-y 'big' {231, 484}
*ta² (PLB) 'jewsharp'
{163}
*ta² (PLB) 'time/when'
{163}
Cf. *ʔ-da² (PLB) 'put/
place'
Cf. *da ≍ *ta 'negative
imperative'
Cf. *t(y)a-n 'red'

*ta ≍ *twa
*s-ta ≍ *m-twa 'hammer'
{170}

*tak
*l-tak 'ascend/lift/raise/
top' {317, 326}
*tak 'sharp' {318}
*takᴴ (PLB) 'sharp' {319}
Cf. *t(y)ak ≍ *t(y)ik
'one/only'
Cf. *t(y)ak ≍ *t(y)ik
'very/real/certain'

*tal
*tal 'arrow/bow' {387, 404,
422}
*tal 'charcoal/dust/ashes'

{422}

*tam
*tam 'carry on shoulder'
{298}

*tam ≍ *dam
*g-tam ≍ *g-dam 'talk/
speak' {299}

*tan
*tan 'dry' {258, 301}
*tan² (PLB) 'straight/up-
right' {260}
Cf. *tay ≍ *tan 'single/
one/whole/only'

*taŋ
*taŋ 'pine' {264}
Cf. *daŋ ≍ *taŋ 'tense/
tight'

*tap
*ʔ-tapᴴ (PLB) 'scoop with
both hands' {336, 337}
*g/l-tap 'fold/layer' {336,
341}
*m-tapᴴ (PLB) 'pack into/
put into' {337}
*tapᴴ (PLB) 'layer' {315}
Cf. *trap ≍ *drap 'fire-
place'

*taːp
*taːp 'capable/fit/beauti-
ful' {340}

*taːr
*taːr 'hang/impale' {392,
425}

*tas
*r-tas 'thick/solid/coarse'
{127, 128, 129, 432}

*tay
*tay 'big' {207, 220, 231}
*tay 'self' {208}
Cf. *laːy ≍ *s-tay 'navel/

middle/center'

*taːy

   *m-taːy 'retaliate/grudge (bear a)' {210}

   *m/s-taːy 'belt/zone/waist' {210, 220}

   *taːy 'sting/scold' {210}

   Cf. ***daːy ≽ *taːy** 'pound/crush'

*tay ≽ *tan

   *tay ≽ *tan 'single/one/whole/only' {262}

*ter

   *s-ter 'give/causative' {399}

*ti

   *ti-t 'awed/startled' {462}

   Cf. ***ti(y)** 'water'

   Cf. ***t(w)i(y)**

*tik

   *g-t(y)ik 'drip/drop (n.)' {506}

   Cf. ***dz(y)ik ≽ *ts(y)ik, ≽ *dz(y)ak ≽ *ts(y)ak** 'drip/drop (n.)'

   Cf. ***tuk ≽ *tik** 'frog'

   Cf. ***t(y)ak ≽ *t(y)ik** 'one/only'

   Cf. ***t(y)ak ≽ *t(y)ik** 'very/real/certain'

*til

   Cf. ***r-tul ≽ *r-til** 'dull/buttock/heel/rounded part'

   Cf. ***ts(y)il ≽ *til** 'spit/spittle/saliva'

*tip

   Cf. ***dip ≽ *tip** 'beat/strike'

*tip ≽ *tup ≽ *tum

   *tip ≽ *tup ≽ *tum 'wrap

up' {354, 370, 497, 517}

*to

   *m-to 'high' {204}

*toŋ

   *s-toŋ 'thousand' {294}

*tow

   *m-tow 'fly (n.)' {226}

*tow ≽ *dow

   *tow ≽ *dow 'hammer' {224, 227, 515}

   *tow-n ≽ *dow-n 'thick' {181, 222, 224, 226, 228, 452, 515}

*toy

   *toy 'younger sibling' {221, 228}

*toy *or* *tway

   *toy *or* *tway 'propitiate/appease' {229}

*t(r)ak

   *tak ≽ *dak 'weave' {318, 328, 374}

   Cf. ***rak** 'weave'

*trap ≽ *drap

   *g-rap 'fireplace' {336}

   *g-tap ≽ *g-dap 'fireplace' {336, 339}

*tu

   *s-tu 'vagina/vulva' {247}

*tu ≽ *du

   *m-tu ≽ *m-du 'nephew/descendant' {184, 200, 464}

   *tu ≽ *s/m-du 'dig' {23, 178, 184}

   *tu-n/t ≽ *du-n/t 'join/bring together/tie/knot' {367, 452, 460}

*tuk

   *m-tök^H (PLB) 'cut by a blow' {363}

   *m-tuk^H (PLB) 'peck/strike/hook onto' {358}

   *r-tuk 'strike' {363}

   *tuk 'cut/knock' {357}

   Cf. ***duk ≽ *tuk** 'poison'

*tuːk

   *m/s-tuːk 'spit/spew' {117, 359, 360}

   *tuːk 'deep/thick' {359, 360, 361}

   Cf. ***m/s-twa** 'spit/spittle/saliva'

*tuk ≽ *tik

   *tuk ≽ *tik 'frog' {503}

*tuk ≽ *twak

   *tuk ≽ *twak 'neck' {357, 359, 361, 514}

*tul

   *r-tul 'roll up/wrap' {127, 129, 415}

   Cf. ***r-dul ≽ *r-tul** 'dust'

*tul ≽ *til

   *r-tul ≽ *r-til 'dull/buttock/heel/rounded part' {419, 422, 500, 504}

*tum

   *tum¹ (PLB) 'numb/befuddled' {273}

   Cf. ***tip ≽ *tup ≽ *tum** 'wrap up'

*tuŋ

   *tuŋ¹ (PLB) 'set (a trap)/cock (a weapon)' {285}

*tuːŋ

   *tuːŋ 'inside/middle' {287, 310}

*tuŋ ≍ *tuk
    Cf. *m-duŋ/k ≍ *m-tuŋ/
      k 'sit'

*tup
    Cf. *dup ≍ *tup 'beat/
      strike'
    Cf. *tip ≍ *tup ≍ *tum
      'wrap up'

*tur
    *tur 'tremble/shake/pulse'
      {396}

*twa
    *m-twa 'handspan' {64,
      167, 171}
    *m/s-twa 'spit/spittle/sali-
      va' {173, 174}
    Cf. *m/s-tuːk 'spit/spew'
    Cf. *s-ta ≍ *m-twa
      'hammer'

*twak
    *ʔ-twak^H (PLB) 'come
      out/go out/emerge' {62,
      315}
    *s-twak 'come out/go out/
      emerge' {62, 321}
    Cf. *tuk ≍ *twak 'neck'

*twan
    Cf. *dwan ≍ *twan
      'wrinkle/shrink'

*tway *or* ***toy**
    *tway *or* ***toy** 'propitiate/
      appease' {229}

*t(w)i(y)
    *m-ti-s 'wet/soak' {434,
      351}
    *ti(y) 'water' {193, 194,
      471}
    *twəy 'flow/suppurate'
      {194}
    *twəy ≍ *dwəy 'water/
      egg/spit' {195}

*twəy-n 'water/river'
    {451}
*twi(y) 'sweet' {197}

*t(y)a
    *t(y)a-n 'red' {177, 262,
      452, 485, 516}
    Cf. *t(s)aːy 'red'

*tyak
    *tyak 'bear (endure)/suf-
      fer' {323}

*t(y)ak ≍ *t(y)ik
    *tyak ≍ *g-t(y)ik 'one/
      only' {346, 347, 507}
    *t(y)ak ≍ *t(y)ik 'very/
      real/certain' {65, 324, 507,
      508}

*tyam
    Cf. *dyam ≍ *tyam
      'straight/flat/full'

*tyaŋ
    *s-tyaŋ 'upper part/rise/
      raise' {304}
    *tyaŋ 'black/dark' {65}

*t(y)ik
    Cf. *dz(y)ik ≍ *ts(y)ik
      'drip/drop (n.)'
    Cf. *t(y)ak ≍ *t(y)ik
      'one/only'

*ts

*tsa
    *m-tsa 'sparrow' {168}
    *tsa 'salt' {31, 162, 165,
      168, 172, 174}
    *tsa-t 'hot/hurt/pain/ill'
      {32, 177, 462, 464}
    *ts(y)a^1 (PLB) 'hot/ill'
      {30}

*tsa ≍ *za
    *tsa-n ≍ *za-n 'child/son/
      relatives' {27, 31, 33, 34,
      154, 162, 165, 169, 171,
      172, 176, 188, 448, 450}
    *za^2 (PLB) 'child' {28}
    *za^2-mi^{2}/^3 (PLB) 'daugh-
      ter' {28}

*tsak
    Cf. *dz(y)ak ≍ *ts(y)ak
      'drip/drop (n.)'

*tsam ≍ *sam
    *tsam ≍ *sam 'hair
      (head)' {31, 32, 250, 299}

*tsan
    *b-tsan 'strong/firm'
      {260}
    Cf. *zan 'strong/firm'

*tsaŋ
    *tsaŋ^1 (PLB) 'person/hu-
      man being' {265}

*tsap
    *tsap 'repay' {336, 342}
    *tsap^H (PLB) 'stick into/in-
      sert' {337}

*tsat
    *tsat 'bite down on' {330}

*t(s)aːy
    *r-tsaːy 'vegetable' {221}
    *t(s)aːy 'red' {516, 262}
    Cf. *t(y)a 'red'

*(t)saːy
    Cf. *(d)zaːy ≍ *(t)saːy
      'talent/aptitude/tempera-
      mant'

*tsaːy ≍ *saːy
    *tsaːy ≍ *saːy 'rust/dross/
      stain/excrement' {210}
    *tsaːy ≍ *saːy 'scoop/dip
      out' {210}

*tsəy
  *r-tsəy 'medicine/juice/paint' {189, 201, 464}
  *tsəy² (PLB) 'lung/exhale' {502}
  *tsəy² (PLB) 'wash' {30, 189}
  Cf. *(t)si-t ⪤ *tsut 'lung/exhale'
  Cf. *tsu(w)-t ⪤ *tsəy 'stop up/plug up'

*t(s)i
  *m-t(s)i 'salt/yeast' {34, 540}

*tsik
  *ʔ-dzik^L (PLB) 'joint' {27, 315}
  *m-(t)sik 'burn/angry' {348, 344}
  *m-tsik 'itch' {344}
  *tsik 'joint' {31, 32, 241, 343, 344, 347, 527}
  Cf. *dz(y)ik ⪤ *ts(y)ik 'drip/drop (n.)'

*tsil
  *tsil 'fat/grease/oil' {410, 422}

*(t)sin
  *m-(t)sin 'nail/claw' {291}
  Cf. *m-(t)syen 'nail/claw'
  Cf. *sin¹ ⪤ *tsin¹ (PLB) 'liver/bitter'

*tsiːt
  *tsiːt 'goat' {350}
  *C-tšiːt^L (PLB) 'goat' {315}

*(t)siːt
  Cf. *(d)ziːt ⪤ *(t)siːt 'split'

*(t)si-t ⪤ *tsut
  *tsəy² (PLB) 'lung/exhale' {502}
  *(t)sit 'lung/exhale' {502, 367}
  *tsi-wap 'lung' {367}
  Cf. *tsywap 'lung'
  Cf. *wap 'soft/spongy'

*tsoŋ
  *b-tsoŋ 'onion' {311}

*tsot
  *tsot 'deer (sambar)/antelope' {380}

*tsow
  *tsow-s 'fat/omentum' {222, 224, 412, 471}
  *tsow-t 'thorn/pierce/plant (v.)/erect' {30, 222, 223, 224, 227, 454, 515, 529}

*tsum
  *tśrum 'mortar' {79}
  *t(s)um ⪤ *(t)sum 'mortar' {31, 32, 275}

*tsu(w) ⪤ *tsəy
  *tsəw-t 'stop up/plug up' {461}
  *tsu(w)-t ⪤ *tsəy 'stop up/plug up' {367}

*tswa
  *r-tswa-n 'grass' {177, 449}

*tswəy
  *tswəy 'rot/pus' {194}

*tsy

*tsyak
  *l-tsyak 'iron/iron instrument' {317}

*tsyak 'red/blood/gold' {323, 328}

*ts(y)ak
  Cf. *dz(y)ak ⪤ *ts(y)ak 'drip/drop (n.)'

*tsyan
  Cf. *dzyan ⪤ *tsyan 'stretch out'

*tsyap
  *ts(y)ap 'chop' {336}
  *tsyap 'join/connect' {336, 341}

*tsyar
  *tsyar 'sunshine' {391}

*tsyat
  *tsyat 'break/cut' {330, 334}

*tsyaːy
  *r-tsyaːy 'play' {210}

*tsyen ⪤ *syen
  *m-(t)syen 'nail/claw' {29, 278, 290, 296}

*tsyəw
  *tšəw² (PLB) 'widow' {182}
  *tsyəw 'hand' {199}

*tsyəy
  *r-tśrəy 'count/number' {79}
  *r-tsyəy 'count/number' {43, 80, 200}
  Cf. *b-rəy ⪤ *b-ris ⪤ *rit ⪤ *riːn 'draw/write/count'

*ts(y)i ⪤ *zəy
  *g-ts(y)i-t/n 'urine' {31, 187, 194, 454, 441}
  *m-(d)zyəy² (PLB) 'urine' {27, 189}
  *zəy 'urine' {31}

*wan ≽ *wat

    *wan ≽ *wat 'load/burden/transport' {519}

*waŋ

    *waŋ² (PLB) 'spin/spindle' {269}

    Cf. *kaŋ ≽ *waŋ 'spider/spin'

    Cf. *pʷaŋ 'spin/spindle'

*wap

    *p-wap 'lung' {342, 476, 533}

    *r/s-wap 'lung' {533}

    Cf. *tsi-wap, *and* *tsyap, *and* *tsywap 'lung'

*war

    *b-war ≽ *p-war 'fire/burn/kindle/roast' {428}

    Cf. *ʔuːr 'fire/burn/shine/white'

    Cf. *pwa(ː)r 'fire/burn/shine/white'

*was

    *was 'bee/honey' {432, 442}

*wat

    *ʔ-watᴸ (PLB) 'clothe' {331}

    *b/s-wat 'flower' {332}

    *k-r-watᴸ (PLB) 'leech' {83, 138}

    *s-watᴴ (PLB) 'bloom/flower' {36}

    *watᴸ (PLB) 'wear' {331}

    Cf. *bʷat 'flower'

    Cf. *k-r-pʷat 'leech'

    Cf. *wya 'wear'

*way

    *s-r-way 'lead (v.)/tend/watch/guard' {209}

    Cf. *ray ≽ *way 'copula/nominalizer/subordinator'

    Cf. *s-ray ≽ *s-yay ≽ *s-way 'bold/heroic'

*waːy

    *ŋ-(w)aːy 'love/make love' {210, 217, 220}

    *waːy 'whirl/brandish/wave (v.)' {210}

*wel

    *wel 'count/read' {420}

*wəy

    *g-wəy-n 'far' {452}

    *m-r-wəy¹ (PLB) 'snake' {83}

    *wəy² (PLB) 'far' {195}

    Cf. *s-b/m-ruːl 'snake'

*wik

    *ʔ-wikᴸ (PLB) 'stomach' {47, 344}

    *wik 'tusk/fang/canine tooth' {344}

    Cf. *pʷik 'stomach'

*woy

    *b-woy 'monkey' {229}

    *d/g-woy-n 'monkey' {24, 450}

    *woy 'fart' {229}

*wu

    *wu 'howl/grumble' {178}

    *wu¹ (PLB) 'intestines' {180}

*wul

    *wul 'tend grazing animals' {384, 416}

*wul ≽ *wun

    *wul ≽ *wun 'skin' {418}

    Cf. *pʷul ≽ *pʷil 'skin'

*wya

    Cf. *watᴸ (PLB) 'wear'

*w(y)a

    *s-g-w(y)a-n/t 'wear/clothe' {334, 335}

    *w(y)a-t ≽ *wit 'wear/clothe' {333, 508}

    Cf. *gwa-n ≽ *kwa-n 'wear/put on/clothe'

*wyik

    *ʔ-wyikᴸ (PLB) 'elder sibling' {36, 86, 97, 345}

    Cf. *ʔik 'elder sibling'

*y

*ya

    *ʔ-ya² (PLB) 'antelope' {163}

    *g-ya 'itch' {136}

    *ya 'diminutive' {482}

    *ya 'night' {165}

    Cf. *yal ≽ *wal 'chew (cud, betel)'

*ya ≽ *ra

    *g-ya ≽ *g-ra 'righthand/right side' {29, 46, 96, 134, 165, 169, 176}

*yak

    *ʔ-gyakᴴ (PLB) 'cubit' {51}

    *d-yak 'hand/arm' {51, 65}

    *g-yak 'armpit/tickle/cubit' {51, 317, 326, 329}

    *g-yak 'ashamed' {46, 95, 136, 317, 326}

    Cf. *g-lak 'hand/arm'

    Cf. *yaŋ ≽ *g-yak 'sheep/yak'

*zəy
    *ʔ-zəy¹ᐟ² (PLB) 'little/
      small/tiny' {191}
    *zəy² (PLB) 'barley'
      {189}
    *z(y)əy 'little/small/tiny'
      {66, 191}
    Cf. ***ts(y)i ⪴ *zəy** 'urine'

*zik
    *g-zik 'leopard' {343,
      344}
    *zik^L (PLB) 'leopard' {28}

*zim
    *zim 'collect/gather' {27}

*z(l)a
    *z(l)a-y 'sand' {486}
    Cf. ***sa** 'sand'

*zlum
    *zlum 'round' {78, 272}

*zril
    *zril 'worm' {78, 79, 188,
      388, 410, 412, 425}
    Cf. ***di¹** (PLB) 'worm'

*zryaŋ ⪴ *ryaŋ
    *zryaŋ ⪴ *ryaŋ 'uncle/a
      superior' {66, 79, 303}

*zum ⪴ *zuŋ
    *zum² (PLB) 'use' {28}
    *z(y)um ⪴ *zuŋ 'use'
      {34, 66, 276, 531}

*zuːr
    *zuːr 'rainy season' {397,
      426}

*zy

*z(y)aŋ
    *z(y)aŋ² (PLB) 'excre-
      ment/rust/blight' {36}

*zyaːw ⪴ *zyu(w)
    *zyaːw ⪴ *zyu(w) 'rot/
      decay/digest' {35, 66,
      227}

Index of Proto-Root-Syllables

This *Index of Proto-Root-Syllables*, computer-generated by Richard Cook on the basis of the *Index of Proto-Forms*, is divided into two parts. The first, *Proto-Finals by Proto-Initial*, is a list of all initials and the finals with which they occur. The second, *Proto-Roots by Proto-Final*, is a list of all finals, and the proto-root-syllables in which they occur. In these lists, the number in curly brackets indicates the frequency of occurrence.

These lists were created by expanding each proto-form containing optional elements into a list of all possible permutations. For example, in the formula ***(d)z(y)u(ː)k** 'suck' there are three optional elements, yielding a total of eight (2^3) syllables in the syllable canon:

*zuk

*zuːk

*zyuk

*zyuːk

*dzuk

*dzuːk

*dzyuk

*dzyuːk

In addition, the *medial on-* and *off-glides* have been given special treatment, so that, *e.g.*, ***dzyuːk** appears under both ***-yuːk** and ***-uːk**.

Proto-Finals by Proto-Initial

*ʔ- {29} *-a, *-ak, *-al, *-am, *-aŋ, *-ap, *-aːr, *-aw, *-aːw, *-ay, *-ew, *-ik, *-iŋ, *-ip, *-it, *-iːt, *-ok, *-ol, *-oːl, *-on, *-u, *-uk, *-ul, *-um, *-uːm, *-up, *-ur, *-uːr, *-ut.

*b- {65} *-a, *-ak, *-aːk, *-al, *-aːl, *-an, *-aŋ, *-ap, *-aːr, *-at, *-ay, *-aːy, *-e, *-et, *-əw, *-əy, *-ik, *-il, *-ip, *-iy, *-i, *-le, *-len, *-leŋ, *-liŋ, *-lu, *-lum, *-ok, *-op, *-oy, *-rak, *-ral, *-ran, *-raŋ, *-rat, *-ray, *-rəy, *-roŋ, *-ruk, *-ruːl, *-rum, *-ruŋ, *-rup, *-rwak, *-rwaŋ, *-u, *-ul, *-un, *-uŋ, *-up, *-wa, *-wam, *-ʷaŋ, *-wap, *-ʷar, *-ʷat, *-ʷay, *-ʷa, *-wəy, *-ya, *-yam, *-yar, *-yer, *-yet, *-yon.

*d- {41} *-a, *-ak, *-al, *-am, *-an, *-aŋ, *-ap, *-ar, *-at, *-aw, *-ay, *-aːy, *-ek, *-ey, *-ik, *-iːk, *-im, *-iŋ, *-ip, *-it, *-i, *-o, *-oŋ, *-ow, *-oy, *-rap, *-rup, *-u, *-uk, *-ul, *-uŋ, *-uːŋ, *-up, *-ut, *-wan, *-waːŋ, *-way, *-yak, *-yal, *-yam, *-yuŋ.

*dz- {25} *-ak, *-am, *-aːn, *-ar, *-as, *-ay, *-aːy, *-əw, *-əy, *-ik, *-il, *-im, *-in, *-iŋ, *-iːt, *-i, *-oŋ, *-oːp, *-u, *-uk, *-uːk, *-um, *-ut, *-wan, *-waŋ.

*dzy- {23} *-a, *-ak, *-aːl, *-an, *-aŋ, *-ay, *-əw, *-ik, *-im, *-ip, *-iːp, *-it, *-i, *-on, *-oːp, *-ow, *-u, *-uk, *-uːk, *-up, *-ut, *-wal, *-way.

*g- {89} *-a, *-ak, *-al, *-aːl, *-am, *-an, *-aŋ, *-aːp, *-ar, *-aːr, *-aw, *-ay, *-əw, *-ik, *-il, *-im, *-ip, *-it, *-la, *-lak, *-lan, *-laŋ, *-lay, *-leːk, *-lim, *-liŋ, *-lum, *-lun, *-lwak, *-o, *-ow, *-ra, *-rak, *-ram, *-raŋ, *-ray, *-raːy, *-res, *-rəy, *-ril, *-rim, *-rip, *-rok, *-rol, *-roːl, *-roy, *-ru, *-rum, *-ruŋ, *-rup, *-rwak, *-rwas, *-rwat, *-rwa, *-rwəy, *-rwil, *-ryum, *-u, *-uk, *-uːk, *-uːl, *-um, *-uŋ, *-uːŋ, *-up, *-wa, *-wal, *-wap, *-waːy, *-ʷəy, *-wiy, *-wi, *-ʷya, *-ya, *-yan, *-yaŋ, *-yap, *-yar, *-yat, *-yəy, *-yi, *-yik, *-yiŋ, *-yip, *-yit, *-yoŋ, *-yuay, *-yuk, *-ywal.

*h- {49} *-a, *-ak, *-aːk, *-al, *-an, *-aŋ, *-aːŋ, *-ap, *-ar, *-aːr, *-aːy, *-eːr, *-ew, *-il, *-iːl, *-ir, *-la, *-o, *-ol, *-or, *-rew, *-u, *-ul, *-ur, *-us, *-uy, *-wa, *-wal, *-waːl, *-wam, *-wan, *-waŋ, *-war, *-ʷar, *-waːr, *-wat, *-waːy, *-wel, *-ya, *-yak, *-yal, *-yam, *-yan, *-yar, *-yen, *-yom, *-yop, *-yu,

*-ʷak, *-ʷal, *-wam,
*-ʷam, *-wan, *-waŋ,
*-ʷaŋ, *-wap, *-war, *-ʷar,
*-waːr, *-wat, *-ʷat,
*-waːy, *-ʷa, *-wəy, *-ʷik,
*-ʷil, *-wiy, *-wi, *-ʷul,
*-ʷum, *-ʷu, *-yak, *-yaŋ,
*-yap, *-yar, *-yen, *-yet,
*-yin, *-yiŋ, *-yit, *-ywak.

*r-	{61}	*-a, *-ak, *-al, *-aːl, *-am, *-an, *-aŋ, *-ap, *-aːp, *-as, *-aw, *-ay, *-en, *-eŋ, *-ey, *-əw, *-əy, *-ik, *-il, *-iːl, *-im, *-iːm, *-in, *-iːn, *-iŋ, *-ip, *-is, *-it, *-iːt, *-iy, *-i, *-oŋ, *-ow, *-u, *-uk, *-uːk, *-uːl, *-um, *-uŋ, *-up, *-us, *-ut, *-wa, *-wak, *-waŋ, *-wat, *-way, *-wəy, *-wiy, *-wi, *-ya, *-yak, *-yal, *-yam, *-yaŋ, *-yap, *-yat, *-yay, *-yik, *-yum, *-yut.	***ts-**	{25}	*-a, *-ak, *-am, *-an, *-aŋ, *-ap, *-at, *-aːy, *-əy, *-ik, *-il, *-in, *-iːt, *-iy, *-i, *-oŋ, *-oːp, *-ot, *-ow, *-u, *-ul, *-um, *-uw, *-wa, *-wəy.

*-as, *-ay, *-aːy, *-er, *-ik,
*-il, *-ip, *-iy, *-i, *-o,
*-oŋ, *-ow, *-oy, *-rak,
*-rap, *-u, *-uk, *-uːk,
*-ul, *-um, *-uŋ, *-uːŋ,
*-up, *-ur, *-wa, *-wak,
*-wan, *-way, *-wiy, *-wi,
*-ya, *-yak, *-yal, *-yam,
*-yaŋ, *-yik.

*tsy-	{24}	*-ak, *-an, *-ap, *-ar, *-at, *-aːy, *-en, *-əw, *-əy, *-ik, *-il, *-ip, *-ir, *-iy, *-i, *-oːp, *-ow, *-uk, *-ul, *-up, *-uːr, *-wap, *-war, *-wat.			

*s-	{43}	*-a, *-ak, *-al, *-am, *-an, *-aŋ, *-ap, *-ar, *-at, *-aːw, *-aːy, *-em, *-ep, *-er, *-ey, *-əw, *-əy, *-ik, *-il, *-in, *-iŋ, *-ip, *-it, *-iːt, *-iy, *-i, *-ow, *-oy, *-ram, *-rel, *-riŋ, *-ru, *-ruw, *-u, *-um, *-uŋ, *-uːr, *-ut, *-uy, *-wa, *-wan, *-waːr, *-wat.	***w-**	{21}	*-a, *-ak, *-al, *-am, *-an, *-aŋ, *-ap, *-ar, *-as, *-at, *-ay, *-aːy, *-el, *-əy, *-ik, *-oy, *-u, *-ul, *-un, *-ya, *-yik.

*y-	{25}	*-a, *-ak, *-al, *-aŋ, *-aːŋ, *-aːp, *-ar, *-aːr, *-ay, *-en, *-əw, *-əy, *-ik, *-im, *-ip, *-it, *-ok, *-u, *-uk, *-um, *-uŋ, *-up, *-uy, *-war, *-wi.			

*sy-	{20}	*-a, *-al, *-aːl, *-am, *-aŋ, *-ar, *-ay, *-en, *-ey, *-il, *-im, *-ip, *-iːr, *-ow, *-u, *-up, *-uw, *-wa, *-war, *-wəy.	***z-**	{19}	*-a, *-ak, *-an, *-aŋ, *-aːy, *-əy, *-ik, *-il, *-im, *-iːt, *-la, *-lum, *-ril, *-ryaŋ, *-uk, *-uːk, *-um, *-uŋ, *-uːr.

*t-	{45}	*-a, *-ak, *-al, *-am, *-an, *-aŋ, *-ap, *-aːp, *-aːr,	***zy-**	{5}	*-aŋ, *-u, *-uk, *-uːk, *-uw.

Proto-Roots by Proto-Final

*-a {53} *ʔa, *ba, *bwa, *bʷa, *bya, *da, *dzya, *ga, *gla, *gra, *gwa, *gya, *ha, *hla, *hwa, *hya, *ka, *kla, *kra, *kwa, *la, *lya, *ma, *mra, *mwa, *mya, *na, *nwa, *nya, *ŋa, *ŋra, *ŋwa, *ŋʷa, *ŋya, *pa, *pʷa, *ra, *rwa, *rya, *sa, *swa, *sya, *sywa, *ta, *twa, *tya, *tsa, *tswa, *wa, *wya, *ya, *za, *zla.

*-ak {42} *ʔak, *bak, *brak, *dak, *dyak, *dzak, *dzyak, *gak, *glak, *grak, *hak, *hyak, *kak, *klak, *krak, *kwak, *kyak, *lak, *lyak, *mak, *mrak, *myak, *nak, *nyak, *ŋak, *pak, *pwak, *pʷak, *pyak, *rak, *rwak, *ryak, *sak, *tak, *trak, *twak, *tyak, *tsak, *tsyak, *wak, *yak, *zak.

*-aːk {5} *baːk, *haːk, *kaːk, *kwaːk, *maːk.

*-al {25} *ʔal, *bal, *bral, *dal, *dyal, *dzywal, *gal, *gwal, *hal, *hwal, *hyal, *kal, *kwal, *myal, *ŋwal, *pral, *pʷal, *ral, *ryal, *sal, *syal, *tal, *tyal, *wal, *yal.

*-aːl {7} *baːl, *dzyaːl, *gaːl, *hwaːl, *kaːl, *raːl, *syaːl.

*-am {28} *ʔam, *bwam, *byam, *dam, *dyam, *dzam, *gam, *gram, *hwam, *hyam, *kam, *kram, *kyam, *lam, *lyam, *nam, *nyam, *pwam, *pʷam, *ram, *ryam, *sam, *sram, *syam, *tam, *tyam, *tsam, *wam.

*-aːm {2} *kaːm, *laːm.

*-an {28} *ban, *bran, *dan, *dwan, *dzwan, *dzyan, *gan, *glan, *gyan, *han, *hwan, *hyan, *kan, *kyan, *lwan, *man, *mwan, *pan, *pwan, *ran, *san, *swan, *tan, *twan, *tsan, *tsyan, *wan, *zan.

*-aːn {1} *dzaːn.

*-aŋ {40} *ʔaŋ, *baŋ, *braŋ, *bʷaŋ, *daŋ, *dzwaŋ, *dzyaŋ, *gaŋ, *glaŋ, *graŋ, *gyaŋ, *haŋ, *hwaŋ, *kaŋ, *klaŋ, *kraŋ, *kyaŋ, *laŋ, *lyaŋ, *maŋ, *mraŋ, *myaŋ, *naŋ, *ŋraŋ, *praŋ, *pwaŋ, *pʷaŋ, *pyaŋ, *raŋ, *rwaŋ, *ryaŋ, *saŋ, *syaŋ, *taŋ, *tyaŋ, *tsaŋ, *waŋ, *yaŋ, *zaŋ, *zyaŋ.

*-aːŋ {5} *dwaːŋ, *haːŋ, *kaːŋ, *naːŋ, *yaːŋ.

*-ap {28} *ʔap, *bap, *bwap, *dap, *drap, *gwap, *gyap, *hap, *kap, *krap, *kyap, *lap, *lwap, *lyap, *nap, *nyap, *pap, *pwap, *pyap, *rap, *ryap, *sap, *tap, *trap, *tsap, *tsyap, *tsywap, *wap.

*-aːp {6} *gaːp, *kaːp, *laːp, *raːp, *taːp, *yaːp.

*-ar	{25}	*bʷar, *byar, *dar, *dzar, *gar, *gyar, *har, *hwar, *hʷar, *hyar, *kar, *kwar, *ŋar, *par, *pwar, *pʷar, *pyar, *sar, *syar, *sywar, *tsyar, *tsywar, *war, *yar, *ywar.
*-aːr	{11}	*ʔaːr, *baːr, *gaːr, *haːr, *hwaːr, *kaːr, *naːr, *pwaːr, *swaːr, *taːr, *yaːr.
*-as	{6}	*dzas, *nas, *ŋas, *ras, *tas, *was.
*-at	{24}	*bat, *brat, *bʷat, *dat, *gyat, *hwat, *kat, *kyat, *lwat, *mwat, *ŋat, *ŋwat, *pat, *prat, *pwat, *pʷat, *rwat, *ryat, *sat, *swat, *tsat, *tsyat, *tsywat, *wat.
*-aw	{7}	*ʔaw, *daw, *gaw, *kaw, *klaw, *ŋaw, *raw.
*-aːw	{5}	*ʔaːw, *kaːw, *naːw, *ŋaːw, *saːw.
*-ay	{30}	*ʔay, *bay, *bray, *bʷay, *day, *dway, *dzay, *dzyay, *dzyway, *gay, *glay, *gray, *kay, *kway, *lay, *lway, *may, *nay, *nway, *ŋay, *pay, *pray, *ray, *rway, *ryay, *syay, *tay, *tway, *way, *yay.
*-aːy	{22}	*baːy, *daːy, *dzaːy, *graːy, *gwaːy, *haːy, *hwaːy, *kaːy, *kwaːy, *kyaːy, *laːy, *lwaːy, *maːy, *naːy, *paːy, *pwaːy, *saːy, *taːy, *tsaːy, *tsyaːy, *waːy, *zaːy.
*-e	{5}	*be, *ble, *ke, *nye, *pe.
*-ek	{3}	*dek, *nek, *nyek.
*-eːk	{2}	*gleːk, *neːk.
*-el	{5}	*hwel, *mel, *myel, *srel, *wel.
*-eːl	{1}	*kyeːl.
*-em	{2}	*nem, *sem.
*-en	{10}	*blen, *hyen, *kyen, *men, *nyen, *pyen, *ren, *syen, *tsyen, *yen.
*-eŋ	{6}	*bleŋ, *keŋ, *kyeŋ, *leŋ, *pleŋ, *reŋ.
*-ep	{3}	*krep, *lep, *sep.
*-er	{3}	*byer, *ser, *ter.
*-eːr	{2}	*heːr, *peːr.
*-es	{3}	*gres, *kres, *nes.
*-et	{6}	*bet, *byet, *ket, *kret, *pret, *pyet.
*-ew	{4}	*ʔew, *hew, *hrew, *kew.
*-ey	{10}	*dey, *key, *ley, *mey, *ney, *nyey, *pey, *rey, *sey, *syey.
*-əw	{16}	*bəw, *dzəw, *dzyəw, *gəw, *kəw, *krəw, *kyəw, *məw, *nəw, *ŋəw, *ŋrəw, *pəw, *rəw, *səw, *tsyəw, *yəw.
*-əy	{27}	*bəy, *brəy, *bwəy, *dzəy, *grəy, *gʷəy, *gyəy, *kəy, *kləy, *krəy, *kʷəy, *ləy, *mwəy, *nəy, *pəy, *prəy, *pwəy, *rəy, *rwəy, *səy, *sywəy, *tsəy, *tswəy, *tsyəy, *wəy, *yəy, *zəy.
*-ik	{26}	*ʔik, *bik, *dik, *dzik, *dzyik, *gik, *gyik, *kik,

*kyik, *lik, *mik, *myik, *nik, *nyik, *pʷik, *rik, *ryik, *sik, *tik, *tyik, *tsik, *tsyik, *wik, *wyik, *yik, *zik.

*-iːk	{1}	*diːk.
*-il	{16}	*bil, *dzil, *gil, *gril, *hil, *mil, *nil, *pʷil, *ril, *sil, *syil, *til, *tsil, *tsyil, *zil, *zril.
*-iːl	{4}	*hiːl, *kiːl, *kyiːl, *riːl.
*-im	{14}	*dim, *dzim, *dzyim, *gim, *glim, *grim, *kim, *krim, *kyim, *lim, *rim, *syim, *yim, *zim.
*-iːm	{1}	*riːm.
*-in	{8}	*dzin, *krin, *min, *pin, *pyin, *rin, *sin, *tsin.
*-iːn	{4}	*kriːn, *kyiːn, *miːn, *riːn.
*-iŋ	{17}	*ʔiŋ, *bliŋ, *diŋ, *dziŋ, *gliŋ, *gyiŋ, *kriŋ, *liŋ, *miŋ, *mriŋ, *niŋ, *pliŋ, *priŋ, *pyiŋ, *riŋ, *siŋ, *sriŋ.
*-ip	{16}	*ʔip, *bip, *dip, *dzyip, *gip, *grip, *gyip, *lip, *nip, *pip, *rip, *sip, *syip, *tip, *tsyip, *yip.
*-iːp	{1}	*dzyiːp.
*-ir	{3}	*hir, *pir, *tsyir.
*-iːr	{1}	*syiːr.
*-is	{2}	*nis, *ris.
*-it	{12}	*ʔit, *dit, *dzyit, *git, *gyit, *kit, *kyit, *nyit, *pyit, *rit, *sit, *yit.
*-iːt	{10}	*ʔiːt, *dziːt, *kriːt, *liːt,

		*miːt, *nyiːt, *riːt, *siːt, *tsiːt, *ziːt.
*-iy	{14}	*biy, *gwiy, *kriy, *lwiy, *niy, *nwiy, *pwiy, *riy, *rwiy, *siy, *tiy, *twiy, *tsiy, *tsyiy.
*-i	{24}	*bi, *di, *dzi, *dzyi, *gwi, *gyi, *kri, *kʷi, *kyi, *li, *lwi, *mi, *ni, *nwi, *pri, *pwi, *ri, *rwi, *si, *ti, *twi, *tsi, *tsyi, *ywi.
*-la	{5}	*gla, *hla, *kla, *la, *zla.
*-lak	{3}	*glak, *klak, *lak.
*-lam	{1}	*lam.
*-laːm	{1}	*laːm.
*-lan	{1}	*glan.
*-laŋ	{3}	*glaŋ, *klaŋ, *laŋ.
*-lap	{1}	*lap.
*-laːp	{1}	*laːp.
*-law	{1}	*klaw.
*-lay	{2}	*glay, *lay.
*-laːy	{1}	*laːy.
*-le	{1}	*ble.
*-leːk	{1}	*gleːk.
*-len	{1}	*blen.
*-leŋ	{3}	*bleŋ, *leŋ, *pleŋ.
*-lep	{1}	*lep.
*-ley	{1}	*ley.
*-ləy	{2}	*kləy, *ləy.
*-li	{1}	*li.
*-lik	{1}	*lik.
*-lim	{2}	*glim, *lim.

*-liŋ	{4}	*bliŋ, *gliŋ, *liŋ, *pliŋ.	*-or	{3}	*hor, *kor, *ŋor.
*-lip	{1}	*lip.	*-oːr	{1}	*koːr.
*-liːt	{1}	*liːt.	*-ot	{2}	*not, *tsot.
*-loŋ	{2}	*loŋ, *ploŋ.	*-ow	{13}	*dow, *dzyow, *gow, *low, *mow, *now, *ŋow, *row, *sow, *syow, *tow, *tsow, *tsyow.
*-low	{1}	*low.			
*-lu	{3}	*blu, *lu, *plu.			
*-luk	{2}	*kluk, *luk.	*-oy	{10}	*boy, *doy, *groy, *koy, *kroy, *moy, *ŋoy, *soy, *toy, *woy.
*-lum	{5}	*blum, *glum, *klum, *lum, *zlum.			
*-lun	{1}	*glun.	*-ra	{5}	*gra, *kra, *mra, *ŋra, *ra.
*-luŋ	{2}	*kluŋ, *luŋ.	*-rak	{6}	*brak, *grak, *krak, *mrak, *rak, *trak.
*-luːŋ	{1}	*kluːŋ.			
*-lup	{2}	*klup, *lup.	*-ral	{3}	*bral, *pral, *ral.
*-lwak	{1}	*glwak.	*-raːl	{1}	*raːl.
*-lyaŋ	{1}	*klyaŋ.	*-ram	{4}	*gram, *kram, *ram, *sram.
*-lyəw	{1}	*mlyəw.			
*-lyoŋ	{1}	*klyoŋ.	*-ran	{2}	*bran, *ran.
*-lyum	{1}	*plyum.	*-raŋ	{7}	*braŋ, *graŋ, *kraŋ, *mraŋ, *ŋraŋ, *praŋ, *raŋ.
*-o	{7}	*do, *go, *ho, *ko, *po, *pro, *to.			
			*-rap	{4}	*drap, *krap, *rap, *trap.
*-ok	{7}	*ʔok, *bok, *grok, *krok, *pok, *prok, *yok.	*-raːp	{1}	*raːp.
			*-ras	{1}	*ras.
*-ol	{3}	*ʔol, *grol, *hol.	*-rat	{2}	*brat, *prat.
*-oːl	{2}	*ʔoːl, *groːl.	*-raw	{1}	*raw.
*-om	{1}	*hyom.	*-ray	{4}	*bray, *gray, *pray, *ray.
*-on	{3}	*ʔon, *byon, *dzyon.	*-raːy	{1}	*graːy.
*-oŋ	{9}	*broŋ, *doŋ, *dzoŋ, *gyoŋ, *loŋ, *ploŋ, *roŋ, *toŋ, *tsoŋ.	*-rel	{1}	*srel.
			*-ren	{1}	*ren.
			*-reŋ	{1}	*reŋ.
*-op	{3}	*bop, *hyop, *pop.	*-rep	{1}	*krep.
*-oːp	{4}	*dzoːp, *dzyoːp, *tsoːp, *tsyoːp.	*-res	{2}	*gres, *kres.

*-ret	{2}	*kret, *pret.	***-ruːk**	{1}	*ruːk.
*-rew	{1}	*hrew.	***-rul**	{2}	*krul, *ŋrul.
*-rey	{1}	*rey.	***-ruːl**	{2}	*bruːl, *ruːl.
*-rəw	{3}	*krəw, *ŋrəw, *rəw.	***-rum**	{4}	*brum, *grum, *krum, *rum.
*-rəy	{5}	*brəy, *grəy, *krəy, *prəy, *rəy.	***-ruŋ**	{4}	*bruŋ, *gruŋ, *kruŋ, *ruŋ.
*-ri	{3}	*kri, *pri, *ri.	***-ruːŋ**	{1}	*kruːŋ.
*-rik	{1}	*rik.	***-rup**	{5}	*brup, *drup, *grup, *prup, *rup.
*-ril	{3}	*gril, *ril, *zril.	***-rus**	{1}	*rus.
*-riːl	{1}	*riːl.	***-rut**	{2}	*prut, *rut.
*-rim	{3}	*grim, *krim, *rim.	***-ruw**	{2}	*pruw, *sruw.
*-riːm	{1}	*riːm.	***-rwak**	{2}	*brwak, *grwak.
*-rin	{2}	*krin, *rin.	***-rwaŋ**	{1}	*brwaŋ.
*-riːn	{2}	*kriːn, *riːn.	***-rwap**	{1}	*krwap.
*-riŋ	{5}	*kriŋ, *mriŋ, *priŋ, *riŋ, *sriŋ.	***-rwas**	{1}	*grwas.
*-rip	{2}	*grip, *rip.	***-rwat**	{1}	*grwat.
*-ris	{1}	*ris.	***-rwa**	{1}	*grwa.
*-rit	{1}	*rit.	***-rwəy**	{2}	*grwəy, *krwəy.
*-riːt	{2}	*kriːt, *riːt.	***-rwil**	{2}	*grwil, *krwil.
*-riy	{2}	*kriy, *riy.	***-rwiy**	{1}	*krwiy.
*-ro	{1}	*pro.	***-rwi**	{1}	*krwi.
*-rok	{3}	*grok, *krok, *prok.	***-ryaŋ**	{1}	*zryaŋ.
*-rol	{1}	*grol.	***-ryo**	{1}	*pryo.
*-roːl	{1}	*groːl.	***-ryum**	{1}	*gryum.
*-roŋ	{2}	*broŋ, *roŋ.	***-u**	{29}	*ʔu, *blu, *bu, *du, *dzu, *dzyu, *gru, *gu, *hu, *hyu, *kru, *ku, *lu, *mu, *nu, *nyu, *plu, *pru, *pu, *pʷu, *ru, *sru, *su, *syu, *tu, *tsu, *wu, *yu, *zyu.
*-row	{1}	*row.			
*-roy	{2}	*groy, *kroy.			
*-ru	{5}	*gru, *kru, *pru, *ru, *sru.			
*-ruk	{4}	*bruk, *kruk, *mruk, *ruk.	***-uay**	{1}	*gyuay.

*-uk	{22}	*ʔuk, *bruk, *duk, *dzuk, *dzyuk, *guk, *gyuk, *kluk, *kruk, *kuk, *luk, *mruk, *muk, *myuk, *nuk, *puk, *ruk, *tuk, *tsyuk, *yuk, *zuk, *zyuk.			*tsyuːr, *zuːr.
			*-us	{2}	*hus, *rus.
			*-ut	{12}	*ʔut, *dut, *dzut, *dzyut, *kut, *mut, *nut, *prut, *put, *rut, *ryut, *sut.
*-uːk	{10}	*dzuːk, *dzyuːk, *guːk, *kuːk, *muːk, *puːk, *ruːk, *tuːk, *zuːk, *zyuːk.	***-uːt**	{1}	*kuːt.
			*-uw	{6}	*kuw, *pruw, *sruw, *syuw, *tsuw, *zyuw.
*-ul	{15}	*ʔul, *bul, *dul, *hul, *krul, *kul, *mul, *ŋrul, *ŋul, *pul, *pʷul, *tul, *tsul, *tsyul, *wul.	***-uy**	{3}	*huy, *suy, *yuy.
			*-wa	{14}	*bwa, *grwa, *gwa, *hwa, *kwa, *mwa, *nwa, *ŋwa, *rwa, *swa, *sywa, *twa, *tswa, *wa.
*-uːl	{4}	*bruːl, *guːl, *nuːl, *ruːl.
*-um	{21}	*ʔum, *blum, *brum, *dzum, *glum, *grum, *gum, *klum, *krum, *kum, *kyum, *lum, *pʷum, *rum, *ryum, *sum, *tum, *tsum, *yum, *zlum, *zum.	***-wak**	{9}	*brwak, *glwak, *grwak, *kwak, *pwak, *pywak, *rwak, *twak, *wak.
			*-ʷak	{1}	*pʷak.
			*-waːk	{1}	*kwaːk.
*-uːm	{3}	*ʔuːm, *kuːm, *muːm.	***-wal**	{8}	*dzywal, *gwal, *gywal, *hwal, *kwal, *kywal, *ŋwal, *wal.
*-un	{6}	*bun, *glun, *kun, *mun, *pun, *wun.
*-uŋ	{17}	*bruŋ, *buŋ, *duŋ, *dyuŋ, *gruŋ, *guŋ, *kluŋ, *kruŋ, *kuŋ, *luŋ, *nuŋ, *nyuŋ, *ruŋ, *suŋ, *tuŋ, *yuŋ, *zuŋ.	***-ʷal**	{1}	*pʷal.
			*-waːl	{1}	*hwaːl.
			*-wam	{4}	*bwam, *hwam, *pwam, *wam.
*-uːŋ	{7}	*duːŋ, *guːŋ, *kluːŋ, *kruːŋ, *kuːŋ, *muːŋ, *tuːŋ.	***-ʷam**	{1}	*pʷam.
*-up	{18}	*ʔup, *brup, *bup, *drup, *dup, *dzyup, *grup, *gup, *klup, *lup, *nup, *prup, *pup, *rup, *syup, *tup, *tsyup, *yup.	***-wan**	{10}	*dwan, *dzwan, *hwan, *kywan, *lwan, *mwan, *pwan, *swan, *twan, *wan.
			*-waŋ	{6}	*brwaŋ, *dzwaŋ, *hwaŋ, *pwaŋ, *rwaŋ, *waŋ.
*-ur	{5}	*ʔur, *hur, *kur, *pur, *tur.	***-ʷaŋ**	{2}	*bʷaŋ, *pʷaŋ.
*-uːr	{6}	*ʔuːr, *kyuːr, *muːr, *suːr,	***-waːŋ**	{1}	*dwaːŋ.

	*tsyap.
*-yaːp {1}	*yaːp.
*-yar {7}	*byar, *gyar, *hyar, *pyar, *syar, *tsyar, *yar.
*-yaːr {1}	*yaːr.
*-yat {4}	*gyat, *kyat, *ryat, *tsyat.
*-yay {4}	*dzyay, *ryay, *syay, *yay.
*-yaːy {2}	*kyaːy, *tsyaːy.
*-ye {1}	*nye.
*-yek {1}	*nyek.
*-yel {1}	*myel.
*-yeːl {1}	*kyeːl.
*-yen {7}	*hyen, *kyen, *nyen, *pyen, *syen, *tsyen, *yen.
*-yeŋ {1}	*kyeŋ.
*-yer {1}	*byer.
*-yet {2}	*byet, *pyet.
*-yey {2}	*nyey, *syey.
*-yəw {5}	*dzyəw, *kyəw, *mlyəw, *tsyəw, *yəw.
*-yəy {3}	*gyəy, *tsyəy, *yəy.
*-yi {4}	*dzyi, *gyi, *kyi, *tsyi.
*-yik {10}	*dzyik, *gyik, *kyik, *myik, *nyik, *ryik, *tyik, *tsyik, *wyik, *yik.
*-yil {2}	*syil, *tsyil.
*-yiːl {1}	*kyiːl.
*-yim {4}	*dzyim, *kyim, *syim, *yim.
*-yin {1}	*pyin.

*-yiːn {1}	*kyiːn.
*-yiŋ {2}	*gyiŋ, *pyiŋ.
*-yip {5}	*dzyip, *gyip, *syip, *tsyip, *yip.
*-yiːp {1}	*dzyiːp.
*-yir {1}	*tsyir.
*-yiːr {1}	*syiːr.
*-yit {6}	*dzyit, *gyit, *kyit, *nyit, *pyit, *yit.
*-yiːt {1}	*nyiːt.
*-yiy {1}	*tsyiy.
*-yo {1}	*pryo.
*-yok {1}	*yok.
*-yom {1}	*hyom.
*-yon {2}	*byon, *dzyon.
*-yoŋ {2}	*gyoŋ, *klyoŋ.
*-yop {1}	*hyop.
*-yoːp {2}	*dzyoːp, *tsyoːp.
*-yow {3}	*dzyow, *syow, *tsyow.
*-yu {6}	*dzyu, *hyu, *nyu, *syu, *yu, *zyu.
*-yuay {1}	*gyuay.
*-yuk {6}	*dzyuk, *gyuk, *myuk, *tsyuk, *yuk, *zyuk.
*-yuːk {2}	*dzyuːk, *zyuːk.
*-yul {1}	*tsyul.
*-yum {5}	*gryum, *kyum, *plyum, *ryum, *yum.
*-yuŋ {3}	*dyuŋ, *nyuŋ, *yuŋ.
*-yup {4}	*dzyup, *syup, *tsyup, *yup.
*-yuːr {2}	*kyuːr, *tsyuːr.

Index of Proto-Glosses

This *Index* contains an alphabetical list of brief English glosses, referring the reader to the points in the text where the etyma with those meanings are discussed. The etyma are presented according to their proto-root-syllables, with the associated affixes stripped off. This *Index* does not indicate the level of the reconstruction (PTB, PLB, *etc.*). For full semantic and phonological details connected with each etymon, the reader is requested to consult the *Index of Proto-Forms*, as well as the body of the text itself.

In the *Index of Proto-Forms*, most of the etyma are glossed with multiple English equivalents, separated by slashes, in order to give a precise notion of their semantic range, *e.g.* ***g-na-s** 'be/live/stay/rest/alight/perch'. In this *Index of Proto-Glosses*, each of these alternative glosses is listed separately as a head-entry, without cross-references to the others. Occasionally, when the alternatives occur close to each other in the alphabetical order, this leads to a bit of redundancy, *e.g. shade* and *shadow*; *one* and *only*; *swell up* and *swollen*; *drip* and *drop*.

When an English gloss contains several words, such that the keyword does not come first (*e.g. flying squirrel*; *be at its peak*; *spend the night*), parentheses are resorted to: *squirrel (flying)*; *peak (be at its)*; *night (spend the)*. Parentheses are also used to clarify an ambiguous English gloss, or to indicate its part of speech. Thus we have sequences of entries like "the three *bear*'s":

> *bear* (endure)
> *bear* (n.)
> *bear fruit*

# #

1ST PERSON PRONOUN
  ⇒ *ŋa {1, 38, 162, 165, 167, 173, 174, 208, 231, 487}.

2ND PERSON PRONOUN
  ⇒ *na {2, 177, 264}; *naŋ {2, 37, 249}.

3RD PERSON PR. (remote)
  ⇒ *su {3, 180}.

3RD PERSON PRONOUN
  ⇒ *zaŋ {3, 28}.

A

ABANDON
  ⇒ *gar {390}.

ABLE
  ⇒ *pret {374, 376}.

ACCEPT
  ⇒ *dz(y)u {479}.

ACHY
  ⇒ *nyuŋ {284}.

ACID (v.)
  ⇒ *kyuːr �france *kywaːr {85, 384, 398, 402, 426, 449, 475, 514}; *suːr �france *swaːr {85, 384, 398, 402, 426, 449, 475, 514}.

ACRID (smoke)
  ⇒ *mu {112, 180}.

ADMONISH
  ⇒ *kul {423}.

AFFIX
  ⇒ *byar �france *pyar {390, 401}.

AFTER
  ⇒ *nuk �france *nuŋ {102, 286, 289, 479, 520}.

AGENTIVE NOMINALIZER
  ⇒ *sin {278, 306, 449}.

AGITATED
  ⇒ *syay {209}.

ALIGHT
  ⇒ *na {433, 442, 471, 477}.

ALIVE
  ⇒ *dat {330}; *kruŋ {285, 288}; *r(y)aŋ �france *riŋ {29, 78, 282, 283, 307, 506, 528}.

ALL
  ⇒ *ka {163}; *kul {24, 119, 384, 385, 388, 414, 416, 425}; *kun {278}.

ALMOST HIT
  ⇒ *raːp {340}; *soy {228}.

ANCESTORS
  ⇒ *dziŋ {31, 529}.

ANGLE
  ⇒ *gu(ː)k �france *ku(ː)k {124, 141, 315, 357, 358, 362}; *hiːl �france *kiːl {57, 412, 413, 426}; *kuk �france *ʔuk {57}.

ANGRY
  ⇒ *tsik {344, 348}.

ANIMAL
  ⇒ *sya {32, 88, 102, 118, 139, 140, 150, 162, 165, 169, 172, 177, 278, 448, 475}.

ANIMAL (domestic)
  ⇒ *dzay {209}.

ANT
  ⇒ *grip {316, 376}; *krep {376}; *rwak {94, 139, 154, 321}.

ANTELOPE
  ⇒ *tsot {380}; *ya {163}.

ANVIL
  ⇒ *bi {187}.

APART
  ⇒ *glay {221}.

APE
  ⇒ *ŋaːw {227}.

APPEASE
  ⇒ *toy *or* *tway {229}.

APTITUDE
  ⇒ *(d)zaːy �france *(t)saːy {210, 221}.

ARCHED
  ⇒ *ku(ː)m {276}.

ARISE
  ⇒ *sow {56, 117, 223}.

ARM
  ⇒ *dyak {65}; *l(y)ak {51, 53, 65, 129, 130, 134, 148, 317, 319, 327}; *yak {51, 65}.

ARMLENGTH
  ⇒ *muːk {359, 361}.

ARMPIT
  ⇒ *li {186}; *yak {51, 317, 326, 329}.

ARRIVE
  ⇒ *la {165, 172, 220, 231, 484}.

ARROW
  ⇒ *da {50}; *dzaːn {260}; *la {50, 80, 133,

145, 165, 486}; ***tal** {387, 404, 422}.

ASCEND
⇒ ***tak** {317, 326}.

ASHAMED
⇒ ***r(y)ak** {29, 46, 78, 317, 326}; ***yak** {46, 95, 136, 317, 326}.

ASHES
⇒ ***tal** {422}.

ASKEW
⇒ ***baːy** ⋇ ***paːy** {210, 221}.

ASSIST
⇒ ***grwak** {327}.

AUNT
⇒ ***ney** ⋇ ***ni(y)** {193, 218, 509}; ***sru(w)** {77, 198, 475}.

AUNT (maternal)
⇒ ***yay** ⋇ ***ʔay** {208}.

AWAKE
⇒ ***kruk** {363}; ***nəw** {182}; ***sow** {56, 117, 223}.

AWED
⇒ ***ti** {462}.

AWN (of grain)
⇒ ***nu** {180}.

AXE
⇒ ***pʷa** {61, 127, 171, 172}; ***ta** {162}.

B

BABBLE
⇒ ***ʔur** {385, 396, 402}.

BACK
⇒ ***hyak** {65}; ***ka** {428}; ***kuk** ⋇ ***ʔuk** {57}; ***nuk** {315}; ***nuk** ⋇ ***nuŋ** {102, 286, 289, 479, 520}.

BACK (small of)
⇒ ***gaːl** ⋇ ***kal** {404, 405, 428}.

BAG
⇒ ***ʔip** ⋇ ***ʔiːt** {533}.

BAKE
⇒ ***tsyow** {34, 223, 224, 227}.

BAMBOO
⇒ ***pʷa** {61, 62, 134, 162, 175, 305, 387}; ***wa** {44, 62, 305}.

BAMBOO SPROUT
⇒ ***m(y)ik** {344, 348}.

BAMBOO STRIP (for tying)
⇒ ***nay** ⋇ ***ney** {216, 510}.

BANANA
⇒ ***ŋak** {242, 318}.

BANK
⇒ ***ka(ː)m** {127, 251, 298}.

BARK (as dog)
⇒ ***laŋ** {495}; ***priŋ** {280, 495}; ***riŋ** {132}.

BARK (n.)
⇒ ***kok** ⋇ ***kwa(ː)k** {378, 514}.

BARLEY
⇒ ***zəy** {189}.

BARTER
⇒ ***lay** ⋇ ***ley** {49, 208, 216, 217, 511}; ***rey** {49,

132, 205, 216, 511}.

BASKET
⇒ ***kaw** {225}; ***kuk** {356, 359, 361}.

BAT
⇒ ***baːk** {325, 326}.

BATHE
⇒ ***s(y)il** ⋇ ***syal** {409, 410, 413, 425, 508}.

BE
⇒ ***na** {433, 442, 471, 477}; ***pret** {374, 376}; ***ri(y)** {186, 350, 502}.

BE THE CASE
⇒ ***rut** {502}.

BE THERE
⇒ ***dzyaŋ** {267}.

BEAK
⇒ ***muːr** {397, 402, 426, 537}; ***nes** {435}; ***ts(y)ul** {415, 423}.

BEAN
⇒ ***be** {203}; ***nuk** {39, 40, 100, 315, 356}.

BEAR (endure)
⇒ ***tyak** {323}; ***ʔiŋ** {281}.

BEAR (n.)
⇒ ***wam** {139, 140, 252, 253, 299, 531}.

BEAR FRUIT
⇒ ***ras** {432, 437}.

BEARD
⇒ ***yar** {390}.

BEAT
⇒ ***dip** ⋇ ***tip** {498}; ***dup** ⋇ ***tup** {498}; ***duŋ** {309, 363}.

BEAUTIFUL
⇒ *hla {162, 172}; *l(y)ak ⋇ *l(y)aŋ {51, 327, 521}; *moy {220, 228}; *taːp {340}.

BEE
⇒ *braŋ {302}; *bya {19, 34, 63, 68, 169, 171}; *plyum {531}; *was {432, 442}.

BEE (dammer)
⇒ *gwa ⋇ *k/gwaːy ⋇ *kwa {23, 213, 217, 486}.

BEFUDDLED
⇒ *tum {273}.

BEHIND
⇒ *nuk ⋇ *nuŋ {102, 286, 289, 479, 520}.

BELLY
⇒ *grwat {334}; *puːk ⋇ buːk {358, 359, 360, 362}; *pʷam {47, 61}; *riːl {44, 385, 387, 412, 413, 426}; *wam {46, 253}.

BELONG
⇒ *dz(y)u {479}.

BELOW
⇒ *ʔok {377}.

BELT
⇒ *taːy {210, 220}.

BEND
⇒ *guːl {418}; *koy {228}.

BENT
⇒ *gu(ː)k ⋇ *ku(ː)k {124, 141, 315, 357, 358, 362}; *kuk ⋇ *ʔuk {57}.

BETWEEN
⇒ *gla {71, 163}; *kaːl {422}.

BETWEEN (have a space)
⇒ *gla {71, 163}.

BIG
⇒ *maŋ {264, 302}; *ri(y) {190}; *ta {231, 484}; *tay {207, 220, 231}.

BILE
⇒ *krəy {22, 118, 189, 193, 436, 456}.

BIND
⇒ *dar {401}; *g(y)it/k ⋇ *k(y)it/k {344, 345, 347, 528}; *grak {327}; *hiːl ⋇ *kiːl {57, 412, 413, 426}.

BIRCH
⇒ *grwa {175}.

BIRD
⇒ *bya {63, 68, 169, 171}; *daw *or* *dow {226, 227}; *wa {165}; *ŋak {317, 319}.

BIRD OF PREY
⇒ *glaŋ {23, 75}; *lak ⋇ *laŋ {263, 393, 521}.

BITE
⇒ *gwap ⋇ *krap {338}; *hap {58, 335, 341}; *tsat {330}; *wa {460}.

BITTER
⇒ *ka {20, 24, 162, 164, 167, 170, 172, 176, 451}; *sin {31, 33, 34, 56, 64, 119, 124, 134, 141, 154, 277, 291, 296, 306, 475}.

BLACK
⇒ *haːŋ {268}; *mak ⋇ *maŋ {317, 522}; *nak {39, 117, 242, 317, 319, 326, 522}; *tyaŋ {65}.

BLANKET
⇒ *pap {337}.

BLIGHT
⇒ *syaŋ {36}; *z(y)aŋ {36}.

BLINK
⇒ *miːn ⋇ *miːt {315, 350, 352, 519}.

BLOCK
⇒ *kim ⋇ *kum {124, 125, 147, 198, 249, 272, 275, 308, 496, 503}; *kum ⋇ *ʔum {57}.

BLOOD
⇒ *hywəy {66, 85, 102, 194, 201, 230, 464}; *tsyak {323, 328}.

BLOOM
⇒ *baːr {384, 386, 387, 392, 425}; *wat {36}.

BLOSSOMING
⇒ *moy {81, 228}.

BLOW
⇒ *mut {37, 99, 315, 364}.

BLUE
⇒ *ŋow {223}.

BLUSH
⇒ *dzya {451}; *nya {177, 451}.

BLUSHING
⇒ *kyeŋ {292, 311}.

BOAT
⇒ *loŋ {294}; *ləy

BUD
⇒ *bu {184}; *moy {81, 228}; *muːm {276}.

BUFFALO
⇒ *broŋ {294}; *lwaːy {213}.

BUG
⇒ *bəw {19, 130, 139, 148, 154, 178, 183, 184}; *dyuŋ {310}; *grip {316, 376}; *krep {376}.

BULGE
⇒ *guːl {418}.

BURDEN
⇒ *gal {416, 423}; *wan ⤬ *wat {519}.

BURN
⇒ *duk {315, 331, 362}; *gaŋ {268}; *hul ⤬ *hwa(ː)l {58, 429, 514}; *hwam {429}; *hwaːr {385, 402, 426}; *ka(ː)ŋ {268}; *kyit {349}; *ploŋ {294}; *put {364}; *pwa(ː)r {402}; *tsik {344, 348}; *war {428}; *ʔuːr {428}.

BURROW
⇒ *hrew {231}.

BURY
⇒ *bip ⤬ *bup ⤬ *pip ⤬ *pup {352, 354, 370, 495, 498}; *lip {495}.

BUTT AGAINST
⇒ *kuk {357}.

BUTTERFLY
⇒ *lep {377}; *pur ⤬ *pwar {398}.

BUTTOCK
⇒ *til ⤬ *tul {419, 422,

500, 504}.

BUY
⇒ *lay ⤬ *ley {49, 208, 216, 217, 511}; *par {391}; *rey {49, 132, 205, 216, 511}; *ywar {63, 386, 388, 393}.

C

CABBAGE
⇒ *raŋ {265}.

CABINET
⇒ *ta {170}.

CAGE
⇒ *kruːŋ {287}.

CALF OF LEG
⇒ *bop {381}; *bwam ⤬ *bwap {252, 341, 518}.

CALL
⇒ *gaw {225, 226}.

CANE
⇒ *rey {48, 206, 217, 218}; *ri(ː)m {43, 271}; *rwi(y) {197, 218}.

CANINE TOOTH
⇒ *wik {344}.

CAPABLE
⇒ *taːp {340}.

CARD FIBERS
⇒ *ga {266}.

CARRY (on back)
⇒ *ba {24}; *bəw {178, 183, 199, 477}.

CARRY (on shoulder)
⇒ *tam {298}.

CARVE
⇒ *ku(ː)t {364, 496}.

CASTRATE
⇒ *mwan ⤬ *mwat {518}.

CAT
⇒ *roŋ {138, 294}.

CATCH
⇒ *grim {305}; *mi {37}.

CATEGORY
⇒ *ras {437}.

CATTLE
⇒ *dzay {209}; *nwa {38, 40}; *ŋwa {63, 167, 170, 176}.

CAUSATIVE
⇒ *dzəy {199}; *ter {399}.

CAVE
⇒ *dwaːŋ {269}; *kor ⤬ *kwar {395, 401}; *puːk ⤬ buːk {358, 359, 360, 362}.

CENTER
⇒ *bu {140, 198, 442, 477}; *laːy ⤬ *tay {52, 102, 208, 210, 217}.

CERTAIN
⇒ *t(y)ak ⤬ *t(y)ik {65, 324, 507, 508}.

CHAFF
⇒ *pwaːy {23, 25, 213, 217}.

CHANGE
⇒ *lay ⤬ *ley {49, 208, 216, 217, 511}.

CHARCOAL
⇒ *tal {422}.

COMMAND
⇒ *miŋ {81, 127, 280, 296, 298, 307, 496, 528, 529}; *miːn {306, 307, 529}.

COMPASSION
⇒ *rin {306}.

CONCAVE
⇒ *kam ⋊ *kaːp {341, 517}; *ku(ː)m {276}.

CONCEAL
⇒ *bip ⋊ *bup ⋊ *pip ⋊ *pup {352, 354, 370, 495, 498}; *hway ⋊ *kwa(ː)y {57, 213}; *lip {495}; *yip ⋊ *yup {56, 153, 192, 354, 369, 370, 499, 500, 533}.

CONCEIVE
⇒ *paːy {210}.

CONCLUDE
⇒ *dut {368}.

CONGEAL
⇒ *kal {404, 405}.

CONNECT
⇒ *tsyap {336, 341}.

CONNECT IN A ROW
⇒ *ral {422}; *ren {291, 296, 311}.

CONSCIOUS
⇒ *nəw {182}.

CONSTRICTED
⇒ *gyiŋ {282}.

CONTRACTED
⇒ *grum {272}.

CONTRADICT
⇒ *ŋraŋ {81}.

CONVALESCE
⇒ *bran {258, 386}.

CONVEX
⇒ *ku(ː)m {276}.

COOK
⇒ *glak ⋊ *klak {63, 70, 128, 317}; *tsyow {34, 223, 224, 227}.

COOKED
⇒ *glak ⋊ *klak {70}.

COPPER
⇒ *grəy {19, 189}.

COPULA
⇒ *ray ⋊ *way {35, 47, 209, 221, 482, 510}; *ri(y) {186, 350, 502}; *rut {502}.

CORD
⇒ *bliŋ {307}; *grak {327}; *kyak {318, 319}.

CORNER
⇒ *gil {410, 412}; *ruŋ ⋊ rwa(ŋ) {145, 496, 514}.

CORPSE
⇒ *kəw {198}; *maŋ {265}; *raw {225}.

CORRAL
⇒ *kruk {357}.

COTTON
⇒ *la {130, 251}.

COUGH
⇒ *dzəy {189}; *səw {199, 462}.

COUNT
⇒ *graŋ ⋊ *kraŋ {303}; *ris ⋊ *rit ⋊ *rəy ⋊ riːn {43, 132, 441};

*tsyəy {43, 79, 80, 200}; *wel {420}.

COUNTRY
⇒ *ley ⋊ *ləy {48, 71, 81, 191, 201, 218, 464, 509}; *ram {299}.

COVER
⇒ *gup ⋊ *ʔup {57, 369}; *klup {369}; *pun {495}.

COWLICK
⇒ *boy {228}.

CRAB
⇒ *diːk {345, 496, 503, 527}; *k(y)an ⋊ *k(y)aːy {139, 210, 212, 217, 220, 262, 515}.

CRACK
⇒ *pop {381}.

CRAWL
⇒ *kak {120}.

CRAZY
⇒ *ru {180, 181}.

CREEP
⇒ *kak {120}.

CREEPER
⇒ *dway ⋊ *nway {214}.

CROOKED
⇒ *gu(ː)k ⋊ *ku(ː)k {124, 141, 315, 357, 358, 362}; *kuk ⋊ *ʔuk {57}.

CROSS OVER
⇒ *gaw ⋊ *gow {224, 226, 515}.

CROSSBOW
⇒ *dan {301, 310}; *krak {61, 146}; *na {172}.

D

DESCEND
⇒ *yuk {318, 482, 513};
*zak {28, 317, 482, 513}.

DESCENDANT
⇒ *du ⋇ *tu {184, 200, 464}.

DESTROYED
⇒ *pyak {323}.

DETRITUS
⇒ *muːk {359, 513}.

DEVELOP
⇒ *dal {424}.

DEW
⇒ *(d)zil {188}; *daːy {210}; *dzi {187}; *hus {435}.

DHOLE
⇒ *kywal {261, 407, 423, 449}; *wan {261, 449}.

DIE
⇒ *gum ⋇ *kum {308}; *səy {27, 32, 34, 189, 194, 201, 442, 475}.

DIG
⇒ *du ⋇ *tu {23, 178, 184}.

DIG OUT
⇒ *go ⋇ *ko {127, 129, 380, 461, 463}; *klaw {23, 225}.

DIG UP
⇒ *laːy {210}.

DIGEST
⇒ *zyaːw ⋇ *zyu(w) {35, 66, 227}.

DIMINUTIVE
⇒ *nyak {323}; *ya {482}.

DIP OUT
⇒ *saːy ⋇ *tsaːy {210}.

DIRECTIONAL PARTICLE
⇒ *ʔay {209, 482, 483}.

DIRT
⇒ *ri(y) {145, 193}.

DISENTANGLE
⇒ *pyaŋ {264}.

DISH
⇒ *krin {278}.

DISINTEGRATE
⇒ *pəy {189}.

DISPERSE
⇒ *graːy {211}.

DISSEMBLE
⇒ *haːy {210}.

DISTENDED
⇒ *graŋ ⋇ *kraŋ {267, 303}.

DISTRIBUTE
⇒ *hor {58, 400}; *rim {305}.

DISTURB
⇒ *kruk {363}.

DIVARICATE
⇒ *ka {24}.

DIVE
⇒ *lip ⋇ *lup {354, 370}.

DIVERT
⇒ *lwəy ⋇ *rwary {214}.

DIVORCE *(a spouse)*
⇒ *bʷar ⋇ *hʷar {55, 394, 425}.

DO
⇒ *day {208}.

DOG
⇒ *kʷəy {20, 23, 24, 25, 62, 96, 141, 196, 201, 448}.

DOOR
⇒ *ka {21, 125, 170, 173}.

DOVE
⇒ *k(r)əw {16, 125, 134, 199}.

DRAG
⇒ *kaːy {210}.

DRAGON
⇒ *bruk ⋇ *bruŋ {524}.

DRAW
⇒ *ris ⋇ *rit ⋇ *rəy ⋇ riːn {132, 441}.

DRAW WATER
⇒ *kam ⋇ *kaːp {341, 517}.

DREAM
⇒ *mak {37, 117}; *mak ⋇ *maŋ {37, 117, 268, 302, 310, 325, 521}.

DRINK
⇒ *daŋ ⋇ *doŋ {123}; *ʔam {298, 533}.

DRIP
⇒ *dz(y)ak ⋇ *ts(y)ak {324, 327, 329, 506}; *dz(y)ik ⋇ *ts(y)ik {324, 327, 506}; *tik {506}; *yəw {441}.

DRIVE
⇒ *rak {41, 42, 43, 61, 146, 315, 319}.

DROP (n.)
⇒ *dz(y)ak ⋇ *ts(y)ak {324, 327, 329, 506};

*dz(y)ik ⋊⋉ *ts(y)ik
{30, 324, 327, 506}; *tik
{506}.

DROSS
⟹ *saːy ⋊⋉ *tsaːy {210}.

DRUNK
⟹ *yit {349}.

DRY
⟹ *gaŋ {268}; *heːr
{400, 426}; *ka(ː)ŋ
{268}; *tan {258, 301}.

DRY IN SUN
⟹ *lap {112, 337}.

DRY SEASON
⟹ *pral {405}.

DRY UP
⟹ *kan {258, 259}.

DULL
⟹ *til ⋊⋉ *tul {419, 422,
500, 504}.

DUMB
⟹ *ga ⋊⋉ *ʔa {57, 165,
176}.

DUSK
⟹ *rim ⋊⋉ *rum {273,
308, 498}.

DUST
⟹ *dul ⋊⋉ *tul {415,
422}; *muːk {359, 513};
*tal {422}.

DWARFISH
⟹ *grum {272}.

E

EAGLE
⟹ *glaŋ {23, 75}; *lak
⋊⋉ *laŋ {263, 393, 521};

*məw {185}.

EAR
⟹ *na {38, 40, 100, 112,
129, 134, 162, 165, 168,
172, 176}.

EAR (grain)
⟹ *nam {253, 254}.

EARLY MORNING
⟹ *nak ⋊⋉ *nap {129,
326, 530}.

EARRING
⟹ *raŋ ⋊⋉ *waŋ {265}.

EARTH
⟹ *ha ⋊⋉ *ka {57, 127};
*ley ⋊⋉ *ləy {48, 71, 81,
191, 201, 218, 464, 509};
*sa {176}.

EAST
⟹ *s(y)ar {391}.

EASY
⟹ *lwa(ː)y {213, 485};
*sya {36}.

EAT
⟹ *dzya {19, 30, 34, 162,
165, 166, 169, 172, 177,
205, 251, 433, 440, 442,
454, 480}; *ʔam {298,
533}.

EAT (of animals)
⟹ *lyak {23, 48, 80, 81,
92, 124, 137, 153, 323,
327, 528}.

EDGE
⟹ *dzya {169}; *guːŋ
{127, 287}; *ka(ː)m
{127, 251, 298}.

EFFACED
⟹ *bray {209}.

EGG
⟹ *t(w)i(y) {195}; *ʔu
{180, 199}.

EIGHT
⟹ *gyat ⋊⋉ *ryat {149,
151, 331, 334, 352, 506};
*rit {56, 151, 315, 351,
506}.

ELASTIC
⟹ *nway {214}.

ELDER (brother or uncle)
⟹ *maŋ {264, 302}.

ELDER BROTHER
⟹ *bʷaŋ ⋊⋉ *pʷaŋ {269,
303}; *gəw {450}; *ʔik
{344}.

ELDER SIBLING
⟹ *wyik {36, 86, 97,
345}; *ʔik {86, 154}.

ELDER SISTER
⟹ *sru(w) {77, 198,
475}.

ELEPHANT
⟹ *glaŋ {302}; *gwi(y)
{200}.

ELEVATED
⟹ *dzwaŋ {269}.

EMERGE
⟹ *pro {204, 480};
*twak {62, 315, 321}.

EMPEROR
⟹ *dzəw {123}.

EMPTY
⟹ *guŋ ⋊⋉ *kuŋ {285,
310}.

ENCIRCLE
⟹ *hwaŋ {269}.

FREE
⇒ *lwat {70, 82, 84, 136, 332, 334}.

FREEZE
⇒ *glak ⋇ *glaŋ ⋇ *graŋ {72, 262, 302, 325, 521}.

FRESH
⇒ *sar {385, 386, 387, 391}.

FRIEND
⇒ *grwak {327}; *kyaŋ {265}.

FRIGHTEN
⇒ *grok ⋇ *k/grak ⋇ *krok {327, 377, 513}.

FROG
⇒ *ba {74, 113, 428}; *bal {404, 405, 428}; *tik ⋇ *tuk {503}.

FROST
⇒ *pʷal {172, 408}; *wa {46, 171, 428}; *wal {387, 404, 428}; *ŋar {390}.

FROZEN
⇒ *gaːr ⋇ *kaːr {392, 426}.

FRUIT
⇒ *sey {31, 33, 129, 206}.

FRY
⇒ *lu {112, 180}; *ŋaw {127, 128, 227}.

FULL
⇒ *bliŋ ⋇ *pliŋ {74, 281, 282, 296, 307, 496}; *dyam ⋇ *tyam {51, 65, 307}.

FUR
⇒ *mil ⋇ *mul ⋇ *myal {83, 384, 386, 388, 414, 419, 423, 496, 501, 505, 506, 508}.

G

GAG
⇒ *ha(ː)k ⋇ *kak {57, 325}.

GALL
⇒ *krəy {22, 118, 189, 193, 436, 456}.

GARDEN
⇒ *kram {22, 253, 299}.

GARLIC
⇒ *swa {177, 301, 446, 448}.

GATHER
⇒ *zim {27}.

GATHER TOGETHER, SCOOP TOGETHER
⇒ *rak {319}.

GENTLE
⇒ *ŋoy {229}.

GET
⇒ *ney {206, 217, 460}; *ra {41, 42, 43, 163}.

GILLS
⇒ *muːr {397, 402, 426, 537}.

GINGER
⇒ *kyaŋ {302}.

GIRL
⇒ *mi {38, 187}.

GIVE
⇒ *bəy {19, 132, 191,

200, 442, 480}; *ter {399}.

GIVE BIRTH
⇒ *braŋ {264}; *kruŋ {285, 288}; *r(y)aŋ ⋇ *riŋ {29, 78, 282, 283, 307, 506, 528}.

GIVE FOR
⇒ *la {173}.

GLEET
⇒ *ri {145, 186}.

GLITTER
⇒ *lyap {338}.

GO
⇒ *byon {291}; *ka {484}; *pay {209}; *wa {173}; *ʔay {209, 482, 483}.

GO BY VEHICLE
⇒ *gyar ⋇ *hyar {58, 65, 391}.

GO OUT
⇒ *twak {62, 315, 321}.

GO THROUGH
⇒ *grwat {335}.

GOAT
⇒ *kyeːl ⋇ *kyiːl {388, 420, 426}; *tsiːt {315, 350}; *ŋwa {23}.

GOD
⇒ *hla {162, 172}; *ray {48, 209, 212}.

GOLD
⇒ *rwəy {191}; *tsyak {323, 328}.

GOOD
⇒ *d(y)ak {51}; *l(y)ak ⋇ *l(y)aŋ {51, 327, 521}; *maːy {132,

207, 210}; *na {163};
*nam {104}; *ʔal {406}.

GOOSE
⇒ *ŋa {177, 259, 449}.

GOURD
⇒ *pu {180}.

GRAIN OF RICE
⇒ *ka {163}.

GRANDCHILD
⇒ *ləy {71, 80, 133, 192, 201, 464}; *syu(w) {199, 449}.

GRANDFATHER
⇒ *bəw {183}; *kaŋ {302}; *pu {24}; *pəw {178}.

GRANDMOTHER
⇒ *bwa {448}; *bʷa ⪥ *pʷa {174}; *pəy {191, 201}; *yay ⪥ *ʔay {208}.

GRASS
⇒ *lyak {80, 482}; *mrak ⪥ *mruk {80, 482, 513}; *tswa {177, 449}; *yəy {189}.

GRASSHOPPER
⇒ *kaːw {226}.

GRAY
⇒ *pwəy {213}.

GRAZE
⇒ *raːp {340}; *soy {228}.

GRAZE (forage)
⇒ *glak ⪥ *klak {63, 317}.

GREASE
⇒ *r(y)ak {323, 327}; *saːw {32, 56, 225, 226,

227}; *tsil {410, 422}.

GREEN
⇒ *dz(y)im {19}; *kruŋ {285, 288}; *r(y)aŋ ⪥ *riŋ {29, 78, 282, 283, 307, 506, 528}; *ŋow {223}.

GRIND
⇒ *kriːt {69, 350}; *pwan ⪥ *pwat {519}.

GROIN
⇒ *kap {336, 340, 341}.

GROUND
⇒ *ha ⪥ *ka {57, 127}; *ley ⪥ *ləy {48, 71, 81, 191, 201, 218, 464, 509}; *sa {176}.

GRUDGE (bear a)
⇒ *taːy {210}.

GRUMBLE
⇒ *wu {178}.

GUARD
⇒ *gyoŋ {294}; *way {209}.

GUEST
⇒ *gra {173}.

GULF
⇒ *grok {378}.

GULLET
⇒ *ʔol ⪥ ʔor {58, 421}.

GUMS
⇒ *ni {48, 103, 241, 410, 423, 427}; *nil {241, 427}.

H

HAIL
⇒ *pʷal {172, 408}; *ryal {405}; *ser {399, 402}; *wa {46, 171, 428}; *wal {387, 404, 428}.

HAIR (body)
⇒ *mil ⪥ *mul ⪥ *myal {83, 384, 386, 388, 414, 419, 423, 496, 501, 505, 506, 508}; *məw {40, 100}.

HAIR (head)
⇒ *kra {102}; *ney {206}; *sam ⪥ *tsam {31, 32, 250, 299}.

HALF
⇒ *pwak {321}.

HAMMER
⇒ *dow ⪥ *tow {224, 227, 515}; *ta ⪥ *twa {170}.

HAND
⇒ *dyak {65}; *g(r)u ⪥ *k(r)u {365}; *kur ⪥ *ʔur {396}; *l(y)ak {51, 53, 65, 129, 130, 134, 148, 317, 319, 327}; *lak {319}; *tsyəw {199}; *wan {301}; *yak {51, 65}; *ʔul {58}.

HANDSPAN
⇒ *twa {64, 167, 171}.

HANG
⇒ *k(w)aːy {214}; *taːr {392, 425}.

HANG DOWN
⇒ *dzywal {31, 66, 84,

{336, 341}.

JOINT
⇒ *hwal {407, 423};
*tsik {27, 31, 32, 241,
315, 343, 344, 347, 527}.

JUICE
⇒ *tsəy {189, 201, 464}.

JUMP
⇒ *hyom ⋇ *hyop
{65}; *p(r)ok {378}.

JUNGLE
⇒ *ram {299}.

K

KEEP
⇒ *hyal {65, 406}; *ŋas
{432}.

KICK
⇒ *dek {315, 372}; *gan
{519}; *k(y)at {519}.

KIDNEY
⇒ *gaːl ⋇ *kal {404,
405, 428}; *glun {73,
125, 198}.

KILL
⇒ *gum ⋇ *kum {308};
*sat {12, 31, 136, 330,
335}.

KINDLE
⇒ *duk {315, 331, 362};
*war {428}; *ʔuːr
{428}.

KISS
⇒ *dz(y)oːp ⋇
*ts(y)oːp {31, 371, 382};
*dz(y)əw {382};
*dzyip ⋇ *dzyup {316,
382, 500}; *dzyow

{382}; *dzyuk {382};
*dzyut {382}; *tsyip ⋇
*tsyup {500}; *tsyuk
{30}.

KITE (bird of prey)
⇒ *dzwan {30, 63, 258,
259, 301}.

KNEAD
⇒ *naːy {210}.

KNEE
⇒ *gu(ː)k ⋇ *ku(ː)k
{124, 141, 315, 357, 358,
362}; *kuk ⋇ *ʔuk {57};
*put {364, 368, 436,
505}.

KNIFE
⇒ *ta {162}.

KNOCK
⇒ *tuk {357}.

KNOT
⇒ *du ⋇ *tu {367, 452,
460}; *dut {368}.

KNOW
⇒ *kyen {291, 311};
*syey {205, 206, 217,
465, 471, 477}.

L

LADDER
⇒ *gam {250}; *lay ⋇
*ley {216, 220, 511}.

LADLE
⇒ *yok {295, 517}.

LAME
⇒ *baːy ⋇ *paːy {210,
221}.

LAND
⇒ *gliŋ {280}.

LANGUAGE
⇒ *daŋ {19}; *glaŋ ⋇
*klaŋ {267}; *ka {174};
*rey {205}.

LANGUID
⇒ *nay {209}.

LAUGH
⇒ *nwi(y) {117, 119,
197, 481}; *r(y)a ⋇
*r(y)ay {12, 41, 42, 43,
170, 172, 208, 212, 334,
456, 463, 464, 487}.

LAY EGGS
⇒ *pʷum {57}.

LAYER
⇒ *tap {315, 336, 341}.

LAZY
⇒ *baŋ {265}.

LEAD (metal)
⇒ *kar {390}.

LEAD (v.)
⇒ *kaːy {210}; *way
{209}.

LEAF
⇒ *la {48}; *lap {336,
342}; *lay {209}; *nas
{432}; *pak {48, 317};
*rwak {321}.

LEAK
⇒ *yəw {441}.

LEAN BACK
⇒ *ʔew {231}.

LEAP
⇒ *ga ⋇ *gaːr {392, 401,
425, 427}.

LEARN
⇒ *lwap {342}.

LEAVE
⇒ *bral ⋇ *pral {423}; *gar {390}.

LEECH
⇒ *pʷat {61, 83, 94, 129, 138, 141, 151, 332}; *wat {83, 138}.

LEECH (horse-leech)
⇒ *liːt {134, 350, 352, 534}.

LEFT
⇒ *bi(y) {219, 510}; *bʷay {61, 211, 214, 219, 510}.

LEG
⇒ *kaŋ ⋇ *keŋ {283, 293, 311}; *pey {205}.

LEGUME
⇒ *be {203}.

LEISURELY
⇒ *nay {209}.

LEND
⇒ *kəy {191, 443}; *ŋ(y)a {162, 168}; *ŋa {38, 40}.

LENGTH
⇒ *duŋ ⋇ *tuːŋ {288}.

LEOPARD
⇒ *zik {28, 343, 344}.

LICK
⇒ *lyak {23, 48, 80, 81, 92, 124, 137, 153, 323, 327, 528}.

LIE (deceive)
⇒ *haːy {210}.

LIFE
⇒ *sak {144, 181, 233, 317, 326, 537}.

LIFT
⇒ *kyi {188}; *laŋ {303}; *tak {317, 326}.

LIGHT
⇒ *hwa {334, 429, 444, 463}; *hwan ⋇ *hwat {429}.

LIGHTNING
⇒ *gleːk {373}; *lyap {338}.

LIGHTWEIGHT
⇒ *laŋ {265}; *yaːŋ {127, 128, 263, 268}.

LIKE (similar)
⇒ *ka {488}; *kaŋ {488}.

LIMP
⇒ *baːy ⋇ *paːy {210, 221}.

LINE UP
⇒ *ral {422}; *ren {291, 296, 311}.

LIP
⇒ *d(y)al {405}; *ka(ː)m {127, 251, 298}; *nes {435}; *ts(y)ul {415, 423}.

LIQUOR
⇒ *dzəy {19, 189}; *yəw {45, 199}.

LISTEN
⇒ *gla {19, 72, 163}; *hyen {65}; *na {38, 129, 134, 162, 165, 168, 172, 176}.

LITTLE
⇒ *zəy {66, 191}.

LITTLE BIT
⇒ *gyik {346}.

LIVE
⇒ *na {433, 442, 471, 477}.

LIVER
⇒ *ka {20, 24, 162, 164, 167, 170, 172, 176, 451}; *luŋ {141}; *sin {31, 33, 34, 56, 64, 119, 124, 134, 141, 154, 277, 291, 296, 306, 475}.

LIVESTOCK
⇒ *dzay {209}.

LIZARD
⇒ *saŋ {127}.

LOAD
⇒ *gal {416, 423}; *wan ⋇ *wat {519}.

LOFTY
⇒ *dzwaŋ {269}.

LOINS
⇒ *gaːl ⋇ *kal {404, 405, 428}; *ka {428}.

LONG
⇒ *duŋ ⋇ *tuːŋ {288}; *low {224}; *raŋ {80, 267}; *riŋ {280, 282, 296}.

LONG (time)
⇒ *gra {175}; *myaŋ {265}.

LONG FOR
⇒ *rum {141, 272}.

LOOK
⇒ *hyen {65}; *ney {206}; *ta {456}.

M

N

NEGATIVE IMPERATIVE
⇒ **da* ⋇ **ta* {162, 172}.

NEPHEW
⇒ **du* ⋇ **tu* {184, 200, 464}; **ləy* {71, 80, 133, 192, 201, 464}.

NEST
⇒ **kʷəy* {25, 196}.

NET
⇒ **gram* {299}.

NET (casting)
⇒ **gwa* ⋇ **kwa* {177, 258, 280, 450}.

NEW
⇒ **sar* {385, 386, 387, 391, 402}; **sik* {144, 344}.

NIGHT
⇒ **ya* {165}.

NIGHT (spend the)
⇒ **r(y)ak* {77, 323, 328}.

NINE
⇒ **gəw* {182, 477}; **kwa* {24}; **kəw* {139, 140, 149, 178, 184, 199}.

NIT
⇒ **row* {224}.

NOD
⇒ **nyiːt* {36, 350}.

NOISE
⇒ **mriŋ* {307}.

NOISE (make)
⇒ **ʔur* {385, 396, 402}.

NOISY
⇒ **syay* {209}; **ʔut* {364}.

NOMINALIZER
⇒ **ray* ⋇ **way* {35, 47, 209, 221, 482, 510}.

NOON
⇒ **duk* {363}.

NOSE
⇒ **na* ⋇ **naːr* {102, 103, 162, 165, 172, 386, 426, 427}.

NOT
⇒ **ma* {38}.

NOTCH
⇒ **ket* {315, 375}.

NOUN PREFIX
⇒ **ʔak-* ⋇ **ʔaŋ-* {522}.

NOUN SUFFIX
⇒ **ma* {38}.

NOURISH
⇒ **hu* {58}.

NUMB
⇒ **tum* {273}.

NUMBER
⇒ **tsyəy* {43, 79, 80, 200}.

O

OBJECT TO
⇒ **k(y)an* {260}.

OBTAIN
⇒ **ney* {206, 217, 460}; **ra* {41, 42, 43, 163}.

OCCASION
⇒ **kriːn* ⋇ **kyiːn* {277}; **pok* {379}.

ODOR
⇒ **bat* {330}.

OFFSPRING
⇒ **ŋay* {209}.

OIL
⇒ **r(y)ak* {323, 327}; **saːw* {32, 56, 225, 226, 227}; **tsil* {410, 422}.

OLD
⇒ **ga* {127, 129}; **gres* {437}.

OMENTUM
⇒ **tsow* {222, 224, 412, 471}.

ONE
⇒ **dan* ⋇ **day* {262, 516}; **dik* {346}; **t(y)ak* ⋇ **t(y)ik* {346, 347, 507}; **tan* ⋇ **tay* {262}; **ʔit* {352}.

ONION
⇒ **swa* {177, 301, 446, 448}; **tsoŋ* {311}.

ONLY
⇒ **dan* ⋇ **day* {262, 516}; **dik* {346}; **t(y)ak* ⋇ **t(y)ik* {346, 347, 507}; **tan* ⋇ **tay* {262}.

OPEN
⇒ **bu* {184}; **ka* {21, 125, 170, 173}; **pwaŋ* {249}.

OPEN WIDE
⇒ **ŋak* {117, 242}.

OPENING
⇒ **ka* {21, 125, 170, 173}.

OPPRESS
⇒ **nip* ⋇ **nup* ⋇ **nyap* {339, 342, 355, 356, 370, 499, 505, 507};

*nyen {204, 290, 296}.

ORDER
⇒ *miŋ {81, 127, 280, 296, 298, 307, 496, 528, 529}; *miːn {306, 307, 529}.

ORDURE
⇒ *ri(y) {145, 193}.

OTHER
⇒ *yaːr {392}.

OTTER
⇒ *ram {102, 191}; *sram {69, 77, 102, 150, 250, 255, 257}.

OUTER COVERING
⇒ *kok �england *kwa(ː)k {328, 378, 514}; *rəy {189}.

OUTSIDE
⇒ *yaːr {392}.

OVERBEARING
⇒ *grol {421}.

OVERCAST
⇒ *muːk ⋈ *muːŋ {81, 127, 289, 309, 310, 359, 360, 523}.

OVERFLOW
⇒ *brup ⋈ *prup {134, 369, 496}.

OVERTAKE
⇒ *mi {37}.

OWL
⇒ *gu ⋈ *ku {199}.

OWNER
⇒ *sin {278, 306, 449}.

P

PACK INTO
⇒ *tap {337}.

PADDLE
⇒ *yaːp {45, 137, 339, 340}.

PADDY
⇒ *ma {231}; *ma ⋈ *mey {216, 217, 221, 231, 486, 511}.

PAIN
⇒ *tsa {32, 177, 462, 464}.

PAINT
⇒ *tsəy {189, 201, 464}.

PAIR
⇒ *dzum ⋈ *tsum {272}.

PALE
⇒ *pwəy {213}.

PALM
⇒ *pʷa {173, 175, 446}; *pʷak {61}.

PANICLE
⇒ *nu {180}.

PAPER
⇒ *lay {209}.

PARE
⇒ *kuːk {359, 361}; *lep {376}.

PARROT
⇒ *gyəy {189}.

PARTRIDGE
⇒ *daŋ ⋈ *doŋ {129, 294}; *rik ⋈ *ryak {78, 324, 328, 343, 346, 347, 371, 507, 527}.

PASS
⇒ *lay ⋈ *ley {208, 216, 511}.

PASSING CLOSE
⇒ *raːp {340}; *soy {228}.

PATCH
⇒ *ba {163}; *pʷa {61}.

PAY
⇒ *la {173}.

PEACOCK
⇒ *daŋ ⋈ *doŋ {129, 294}.

PEAK (be at its)
⇒ *kak {317, 328}.

PECK
⇒ *tuk {358}.

PEEL
⇒ *koːr {385, 401, 426}.

PEN
⇒ *kruk {357}.

PENIS
⇒ *ley {47, 49, 153, 219, 509}; *lik {344, 374}.

PERCH
⇒ *na {433, 442, 471, 477}.

PERFECTLY
⇒ *moy {220, 228}.

PERMISSIBLE
⇒ *na {163}.

PERSON
⇒ *mi {81, 88, 118, 201, 449}; *pʷa {165, 166, 170, 172, 173, 175}; *tsaŋ {265}; *wa {250}.

PHEASANT
⇒ *daŋ ⋈ *doŋ {129,

294}; *rik ⋈ *ryak {78,
324, 328, 343, 346, 347,
371, 507, 527}; **rwak**
{508}.

PHLEGM
⇒ *har {391}; *kaːk
{325}.

PICK UP
⇒ *ruk {96, 357}.

PIEBALD
⇒ *bruk {363}.

PIERCE
⇒ *(d)z(y)u(ː)k {31,
362, 529}; *dz(y)ut
{529}; *lwan {258, 280,
386}; *tsow {30, 222,
223, 224, 227, 454, 515,
529}.

PIG
⇒ *pʷak {61, 62, 96, 147,
318, 319, 328}; *wak
{62}.

PILLOW
⇒ *kim ⋈ *kum {124,
125, 147, 198, 249, 272,
275, 308, 496, 503};
*kum ⋈ *ʔum {57}.

PINCH
⇒ *nip ⋈ *nup ⋈
*nyap {339, 342, 355,
356, 370, 499, 505, 507};
*sik {344}.

PINE
⇒ *raw ⋈ *row {224,
226, 515}; *taŋ {264}.

PINE FOR
⇒ *rum {141, 272}.

PIT
⇒ *dwaːŋ {269}; *kor ⋈
*kwar {395, 401}.

PLACE
⇒ *da {113}; *ra {78,
173}; **ta** {162, 172, 250,
442, 454, 461}.

PLACENTA
⇒ *lam {250}.

PLAIT
⇒ *ban/t ⋈ *pan/t {260,
518}; *byar ⋈ *pyar
{390, 401}; *krəw
{199}.

PLANK
⇒ *pleŋ {281, 292, 296}.

PLANT (n.)
⇒ *dziŋ {281}.

PLANT (v.)
⇒ *(d)z(y)u(ː)k {31,
362, 529}; *dz(y)ut
{529}; *gay ⋈ *kay
{209}; *tsow {30, 222,
223, 224, 227, 454, 515,
529}.

PLANTAIN
⇒ *ŋak {242, 318}.

PLAY
⇒ *dz(y)ay {30};
*tsyaːy {210}.

PLEASANT
⇒ *sa {428}; *sal {404,
405, 428}.

PLENTY
⇒ *bliŋ ⋈ *pliŋ {74}.

PLUCK
⇒ *tsywat {332}.

PLUG UP
⇒ *tsu(w) ⋈ *tsəy
{367, 461}.

PLUMP
⇒ *pwam ⋈ *pwap

{249}.

PLURALIZER
⇒ *ray {209, 212}.

POISON
⇒ *duk ⋈ *tuk {357,
363}.

POKER
⇒ *yok {295, 517}.

POOR
⇒ *bil ⋈ *bul {419,
423}.

POPLAR
⇒ *glaŋ {304}.

PORCUPINE
⇒ *blu {74, 113, 180,
184, 241}.

POSSESS
⇒ *ŋas {432}.

POST
⇒ *duːŋ {287}.

POTATO
⇒ *grwa {173}; *r(y)a
{78, 173}.

POUCH
⇒ *kuk {356, 359, 361}.

POUND
⇒ *daːy ⋈ *taːy {210}.

POUR
⇒ *sywa-n/t ⋈ *sywar
{66, 84, 261, 386, 394,
402, 427, 519}.

POWDER
⇒ *mun {249, 279}.

PRACTICE
⇒ *bay {208, 220}; *gu
{180}; *gyaŋ {265};
*lwap {342}.

Q

R

218}; *ri(ː)m {43, 271}; *rwi(y) {197, 218}.

RAVINE
⇒ *grok {378}.

RAW
⇒ *dz(y)im {19}; *r(y)aŋ ⋇ *riŋ {29, 78, 282, 283, 307, 506, 528}.

RAZE
⇒ *put {364}.

READ
⇒ *wel {420}.

REAL
⇒ *t(y)ak ⋇ *t(y)ik {65, 324, 507, 508}.

REAP
⇒ *riːt {41, 42, 43, 350}.

REAR (offspring)
⇒ *hu {58}.

RECIPROCAL ACTION
⇒ *dak {318, 320}.

RED
⇒ *dzya {451}; *kyeŋ {292, 311}; *ni {40, 100, 412, 428}; *nya {177, 451}; *t(s)aːy {262, 516}; *t(y)a {177, 262, 452, 485, 516}; *tsyak {323, 328}.

REHEARSE
⇒ *gu {180}.

RELATED (as kin)
⇒ *do {204}.

RELATIVE (senior male)
⇒ *bʷaŋ ⋇ *pʷaŋ {269, 303}; *gəw {450}.

RELATIVES
⇒ *dziŋ {31, 529}; *tsa

⋇ *za {27, 31, 33, 34, 154, 162, 165, 169, 171, 172, 176, 188, 448, 450}.

RELAX
⇒ *grol {423}; *lwat {70, 82, 84, 136, 332, 334}; *ʔoːl {421, 426}.

RELEASE
⇒ *lwat {70, 82, 84, 136, 315, 332, 334}; *priŋ ⋇ *pyiŋ {282}.

REPAIR
⇒ *glan {301}.

REPAY
⇒ *tsap {336, 342}.

REPEAT
⇒ *bay {208, 220}; *naŋ {263, 302}.

RESEMBLE
⇒ *su {180, 199}.

RESIDUE
⇒ *raw {225}.

REST
⇒ *na {433, 442, 471, 477}.

REST (come to)
⇒ *diŋ {123, 308}.

RETALIATE
⇒ *taːy {210}.

RETURN
⇒ *kuk {357, 358}; *kuk ⋇ *ʔuk {57}.

REVILE
⇒ *mwa {176, 462}.

RHINOCEROS
⇒ *sey {220}.

RIB
⇒ *nam {40, 100, 112}.

RICE
⇒ *dzya {19, 30, 163, 168}; *ma {231}; *ma ⋇ *mey {216, 217, 221, 231, 486, 511}; *ras {432, 437}.

RICE (cooked)
⇒ *haŋ {264}.

RIDE (an animal)
⇒ *dzyi ⋇ *gyi {188, 200}; *dzyon {34, 66, 291}.

RIDE (vehicle)
⇒ *gyar ⋇ *hyar {58, 65, 391}.

RIDGE
⇒ *gaŋ {266, 303}.

RIGHT (correct)
⇒ *ʔal {406}.

RIGHT (side)
⇒ *ra ⋇ *ya {29, 46, 96, 134, 165, 169, 176}.

RIND
⇒ *kok ⋇ *kwa(ː)k {378, 514}.

RING (for finger)
⇒ *bran {69}.

RINGED
⇒ *bay ⋇ *pay {208}.

RIP
⇒ *dzyit ⋇ *dzyut {365, 502}.

RIPE
⇒ *min {39, 277, 296, 495, 496}.

RISE
⇒ *s(y)ar {391}; *tyaŋ {304}.

RISK
⇒ *daw {225}.

RIVER
⇒ *k(l)uk ⋊ *klu(:)ŋ {287, 524}; *klyoŋ {294}; *laŋ {266}; *lwi(y) {197}; *t(w)i(y) {451}.

ROAD
⇒ *lam {47, 48, 250}.

ROAST
⇒ *gaŋ {268}; *ka(:)ŋ {268}; *war {428}; *ŋaw {127, 128, 227}; *ʔuːr {428}.

ROCK
⇒ *rak {318, 319}.

ROLL
⇒ *gril ⋊ *ril {410, 411}; *hiːl ⋊ *kiːl {57, 412, 413, 426}.

ROLL (n.)
⇒ *lip {353}.

ROLL UP
⇒ *tul {127, 129, 415}.

ROOT
⇒ *bul ⋊ *pul {416, 424}.

ROPE
⇒ *kyak {318, 319}; *rey {48, 206, 217, 218}; *rwi(y) {197, 218}.

ROSE
⇒ *sey {31, 33, 129, 206}.

ROT
⇒ *bup {369}; *pəy {189}; *ri {145, 186}; *tswəy {194}; *zyaːw

⋊ *zyu(w) {35, 66, 227}.

ROUGH
⇒ *gram {252, 532}; *sak {318}.

ROUND
⇒ *wal {404, 406, 424}; *zlum {78, 272}.

ROUND OBJECT
⇒ *sey {31, 33, 129, 206}.

ROUNDED PART
⇒ *til ⋊ *tul {419, 422, 500, 504}.

ROUSE
⇒ *kruk {363}.

ROWDY
⇒ *rut {364}.

RUB
⇒ *nuːl {417, 426}; *sap {337}; *sywəy {66, 85, 195}.

RUB OFF
⇒ *pwan ⋊ *pwat {519}.

RUINED
⇒ *pyak {323}.

RULER
⇒ *dzəw {123}.

RUN
⇒ *byam {68, 118, 252, 257, 532}; *gan {519}; *gyar ⋊ *hyar {58, 65, 391}; *k(y)at {519}; *ləy {189, 213}; *ploŋ {294}.

RUST
⇒ *saːy ⋊ *tsaːy {210}; *syaŋ {36}; *z(y)aŋ

{36}.

RUSTLE
⇒ *krwap {82, 338}.

S

SACK
⇒ *ʔip ⋊ *ʔiːt {533}.

SAD
⇒ *nyuŋ {284}.

SAG
⇒ *dzywal {31, 66, 84, 407}.

SAIL
⇒ *yaːr {393, 403, 426}.

SALIVA
⇒ *til ⋊ *ts(y)il {79, 80, 119, 124, 410, 411, 424}; *twa {173, 174}; *yen {115}.

SALT
⇒ *gryum {308}; *la {173}; *ryum {134, 272, 275}; *t(s)i {34, 540}; *tsa {31, 162, 165, 168, 172, 174}.

SALTY
⇒ *hyam {299}.

SAND
⇒ *sa {176}; *z(l)a {486}.

SAP
⇒ *dzəy {189}.

SATIATED
⇒ *pup {369}; *wa {171}.

SCALE (of fish or reptile)
⇒ *lip {353}; *sep {316,

353, 376}.

SCATTER
⟹ *gra:y {211};
*sywa-n/t ⋇ *sywar
{66, 84, 386, 394, 402,
427}.

SCENT
⟹ *saŋ ⋇ *suŋ {288,
482, 513}.

SCOLD
⟹ *ta:y {210}.

SCOOP
⟹ *sa:y ⋇ *tsa:y {210}.

SCOOP UP
⟹ *go ⋇ *ko {127, 129,
380, 461, 463}.

SCOOP WATER
⟹ *kam ⋇ *ka:p {341,
517}.

SCOOP WITH BOTH HANDS
⟹ *tap {336, 337}.

SCORCH
⟹ *kyit {349}.

SCORPION
⟹ *di:k {345, 496, 503,
527}.

SCRAPE
⟹ *kret {375}; *ku(:)t
{364, 496}; *sywəy {66,
85, 195}.

SCRATCH
⟹ *hyak {65, 323};
*kew {231}; *krak
{318}; *kret {375};
*ku(:)t {364, 496}.

SEARCH FOR
⟹ *pa {24}; *pup {337,
369}.

SEE
⟹ *hyen {65}; *mraŋ
{37, 80, 267, 303}.

SEED
⟹ *dzəy {31, 190};
*yəw {35}.

SEEK
⟹ *pa {24}; *pup {337,
369}.

SELF
⟹ *tay {208}; *ŋa {1,
38, 162, 165, 167, 173,
174, 208, 231, 487}.

SELL
⟹ *par {391}; *ywar
{63, 386, 388, 393}.

SEND FORTH
⟹ *priŋ ⋇ *pyiŋ {282}.

SEND ON AN ERRAND
⟹ *dzəy {199}.

SEPARATE
⟹ *bral ⋇ *pral {423}.

SERVANT
⟹ *g(y)wal ⋇
*k(y)wal {261, 408,
424}.

SESAME
⟹ *nam {38, 250, 253}.

SET (a trap)
⟹ *tuŋ {285}.

SET (of the sun)
⟹ *g(l)im ⋇ *g(l)um
{249, 274, 499}.

SETTLED
⟹ *diŋ {123, 307, 308}.

SEVEN
⟹ *ni {44, 103, 149, 153,
351, 352, 434, 477}.

SEW
⟹ *byar ⋇ *pyar {390,
401}; *drup ⋇ *grup
{141}; *krwi(y) {82};
*pʷa {61}; *rup {369}.

SHADE
⟹ *rim ⋇ *rum {273,
308, 498}; *rip {353}.

SHADOW
⟹ *rip {353}.

SHAKE
⟹ *tur {396}.

SHALLOW
⟹ *day {209}; *dim
{271}.

SHARP
⟹ *ryam {77, 299}; *tak
{318, 319}.

SHARPEN
⟹ *kywan {260}.

SHATTER
⟹ *nyak {323}.

SHAVE
⟹ *sywəy {66, 85, 195}.

SHEAR
⟹ *ku:k {359, 361}.

SHEEP
⟹ *luk {363}; *yak ⋇
*yaŋ {29, 523}.

SHELL
⟹ *krap {342}.

SHELLFISH
⟹ *kroy {228}.

SHIELD
⟹ *krap {342}; *po
{204}.

SHIN
⟹ *gu:ŋ {127, 287}.

SHINE
⇒ *ba {123, 163};
*glwak {328}; *hwa
{334, 429, 444, 463};
*hwal �End *hwar {409};
*hwam {429}; *hwan
⋈ *hwat {429}; *hwaŋ
{430}; *hwaːr {385, 402,
426}; *hwaːr ⋈ *yar
{429}; *pwa(ː)r {402}.

SHOOT
⇒ *gaːp ⋈ *ʔap {57,
137, 340}; *puk {315,
357}.

SHOUT
⇒ *ʔaːw {225}.

SHOW
⇒ *mraŋ {268}.

SHRIMP
⇒ *diːk {345, 496, 503,
527}.

SHRINK
⇒ *dwan ⋈ *twan
{258}.

SHUN
⇒ *hway ⋈ *kwa(ː)y
{57, 213}.

SHUT
⇒ *dzyiːp {31, 353};
*miːn ⋈ *miːt {315,
350, 352, 519}.

SIDE
⇒ *bak {113}; *dzya
{169}; *nam {40, 100,
112}.

SILVER
⇒ *mul {415}; *plu {71,
74, 180, 184}; *ŋul {83,
414, 415, 424}.

SINEW
⇒ *sa {127, 128, 129,
162, 166}.

SING
⇒ *ga ⋈ *gaːr {392, 401,
425, 427}.

SINGLE
⇒ *dan ⋈ *day {262,
516}; *kyaŋ {264}; *tan
⋈ *tay {262}.

SINK
⇒ *lip ⋈ *lup {354,
370}; *nip ⋈ *nup ⋈
*nyap {339, 342, 355,
356, 370, 499, 505, 507}.

SIP
⇒ *rup {369, 495}.

SISTER
⇒ *sriŋ {77, 307}.

SISTER (of a man)
⇒ *dzar {34, 385, 388,
391}.

SIT
⇒ *duŋ/k ⋈ *tuŋ/k
{288, 523}.

SIT ON EGGS
⇒ *ʔu {180, 199}.

SIX
⇒ *kruk {23, 71}; *ruk
{44, 140, 145, 148, 149,
357, 360, 361, 363}.

SKIN
⇒ *kok ⋈ *kwa(ː)k
{378, 514}; *pin ⋈ *pun
{418}; *pʷil ⋈ *pʷul
{280, 501}; *rəy {189};
*wul ⋈ *wun {418};
*ʔul {58}.

SKY
⇒ *ka {177, 450}; *məw
{81, 129, 183, 184}.

SLAB
⇒ *dey {206}.

SLANT
⇒ *rwəy {195}.

SLAVE
⇒ *g(y)wal ⋈
*k(y)wal {248, 261, 408,
424}.

SLEEP
⇒ *dzim {305}; *mwəy
{195, 200}; *nyiːt {36,
350}; *yip ⋈ *yup {27,
35, 56, 153, 192, 315, 354,
369, 370, 499, 500, 533}.

SLEEPY
⇒ *myel {420, 427}.

SLEET
⇒ *ser {399, 402}.

SLICE
⇒ *lep {376}; *mwan ⋈
*mwat {518}.

SLINGSHOT
⇒ *ləy {48, 50, 140,
192}.

SLIP
⇒ *ble {203}.

SLOPE
⇒ *rwəy {195}.

SMALL
⇒ *zəy {66, 191}; *ŋay
{209}.

SMELL
⇒ *bat {330}; *nam
{103, 119, 250, 251, 253};
*saŋ ⋈ *suŋ {288, 482,
513}.

SMOKE
⇒ *kəw {178, 182, 184, 199, 451, 454}.

SNAKE
⇒ *bəw {19, 130, 139, 148, 154, 178, 183, 184}; *ruːl {43, 44, 80, 81, 83, 134, 151, 235, 385, 387, 388, 414, 417, 424, 426}; *wəy {83}.

SNAP AT
⇒ *hap {58, 335, 341}.

SNORE
⇒ *hal {406, 424}; *ŋor {400}.

SNOT
⇒ *nap {37, 99, 102, 112, 336}.

SNOW
⇒ *kyam {252, 532}; *pʷal {172, 408}; *wa {46, 171, 428}; *wal {387, 404, 428}.

SNUFF UP
⇒ *rup {369, 495}.

SOAK
⇒ *t(w)i(y) {351, 434}.

SOFT
⇒ *nem ⋊⋉ *nyam {248, 290, 299, 509}; *now {38, 223, 224}; *pryo {205, 481}.

SOIL
⇒ *ha ⋊⋉ *ka {57, 127}; *ley ⋊⋉ *ləy {48, 71, 81, 191, 201, 218, 464, 509}; *sa {176}.

SOLDIER
⇒ *mak {35, 99, 318}.

SOLE
⇒ *pʷa {173, 175, 446}; *pʷak {61}.

SOLID
⇒ *gaːr ⋊⋉ *kaːr {392, 426}; *tas {127, 128, 129, 432}.

SON
⇒ *tsa ⋊⋉ *za {27, 31, 33, 34, 154, 162, 165, 169, 171, 172, 176, 188, 448, 450}.

SON-IN-LAW
⇒ *krwəy {22, 69, 82, 194, 200}; *maːk {37, 233, 325, 474}.

SOOT
⇒ *mu {112, 180}.

SOUL
⇒ *hla {162, 172}; *la {39, 164}; *sam ⋊⋉ *sem {311, 537}.

SOUND
⇒ *glaŋ ⋊⋉ *klaŋ {267}; *mriŋ {307}.

SOUR
⇒ *krəy {22, 118, 189, 193, 436, 456}; *kyuːr ⋊⋉ *kywaːr {85, 384, 398, 402, 426, 449, 475, 514}; *suːr ⋊⋉ *swaːr {85, 384, 398, 402, 426, 449, 475, 514}.

SOW (seeds)
⇒ *graːy {211}; *ka {163}.

SOW BROADCAST
⇒ *sywa-n/t ⋊⋉ *sywar {66, 84, 386, 394, 402, 427}.

SPAN
⇒ *ka {24}.

SPARROW
⇒ *tsa {168}.

SPEAK
⇒ *br(w)ak ⋊⋉ *br(w)aŋ {523}; *dam ⋊⋉ *tam {299}; *grwas {437}.

SPEAR
⇒ *duŋ {284}.

SPECKLED
⇒ *bruk {363}.

SPEECH
⇒ *daŋ {19}; *glaŋ ⋊⋉ *klaŋ {267}; *ka {174}; *rey {205}.

SPENT
⇒ *ma {334}.

SPEW
⇒ *tuːk {117, 359, 360}.

SPIDER
⇒ *kaŋ {266}; *kaŋ ⋊⋉ *waŋ {57}.

SPILL
⇒ *sywa-n/t ⋊⋉ *sywar {66, 84, 386, 394, 402, 427}.

SPIN
⇒ *ga {266}; *gyaŋ {266}; *kaŋ ⋊⋉ *waŋ {57}; *pʷaŋ {61, 266, 269, 303}; *waŋ {269}.

SPINDLE
⇒ *bʷar {61}; *mwəy {195}; *pʷaŋ {61, 266, 269, 303}; *waŋ {269}.

SPINE
⇒ *ra {173}.

SPIRIT
⇒ *hla {56}; *la {39, 164}; *sam ⋇ *sem {311, 537}.

SPIRIT (evil)
⇒ *na {38, 162, 168, 333, 335, 440, 452, 520}.

SPIT
⇒ *t(w)i(y) {195}; *til ⋇ *ts(y)il {79, 80, 119, 124, 410, 411, 424}; *tuːk {117, 359, 360}; *twa {173, 174}.

SPITTLE
⇒ *til ⋇ *ts(y)il {79, 80, 119, 124, 410, 411, 424}; *twa {173, 174}; *yen {115}.

SPLEEN
⇒ *pay {208, 221}; *pray {73}.

SPLIT
⇒ *(d)ziːt ⋇ *(t)siːt {350, 502}; *dzik ⋇ *dziŋ {31, 502}; *lap {337}.

SPOILED
⇒ *hew {231}.

SPOTTED
⇒ *bup {369}.

SPREAD
⇒ *dal {424}; *kaŋ {266}; *yaːr {393, 403, 426}.

SPREAD WIDE
⇒ *bran {260}.

SQUEEZE
⇒ *nip ⋇ *nup ⋇ *nyap {339, 342, 355, 356, 370, 499, 505, 507};

*nyit {349, 355}; *tsyir ⋇ *tsyuːr {397, 426, 498}.

SQUIRREL
⇒ *ley/ŋ ⋇ *rey/ŋ {77, 292, 296, 311, 512}.

SQUIRREL (flying)
⇒ *ru {180}.

STAIN
⇒ *saːy ⋇ *tsaːy {210}.

STALK
⇒ *kaŋ ⋇ *keŋ {283, 293, 311}.

STAND
⇒ *r(y)ap {35, 48, 136, 339, 342}; *rap {35, 56, 315, 339, 530}.

STAR
⇒ *graːy {212}; *grəy {23}; *kar {386, 387, 391}; *mwat {332}; *ŋʷ(y)a {24, 26, 85, 332, 335}.

STARTLED
⇒ *ti {462}.

STAY
⇒ *na {433, 442, 471, 477}.

STEAL
⇒ *hu ⋇ *kəw {57}; *kun ⋇ *kut ⋇ *kəw {127, 129, 178, 182, 184, 198, 227, 441, 442, 454, 515}; *ruːk {80}.

STEEP
⇒ *tsyuk {357}.

STEM
⇒ *kaŋ ⋇ *keŋ {283, 293, 311}; *kuːŋ {287,

310}.

STENCH
⇒ *ri(y) {145, 193}.

STEP ON
⇒ *nak ⋇ *naŋ {523}.

STICK (n.)
⇒ *da {163}.

STICK INTO
⇒ *kyap {337}; *swat {332}; *tsap {337}.

STICKY
⇒ *neːk {374}; *nyak {374}.

STIFF
⇒ *rwat {332}.

STING
⇒ *taːy {210}.

STIR
⇒ *hwel {420}; *ŋwal {408}.

STOMACH
⇒ *grwat {334}; *pʷik {47, 344, 496}; *riːl {44, 385, 387, 412, 413, 426}; *wam {46, 253}; *wik {47, 344}.

STONE
⇒ *luk ⋇ *luŋ {47, 50, 70, 127, 128, 288, 523}; *rak {318, 319}.

STOP UP
⇒ *tsu(w) ⋇ *tsəy {367, 461}.

STOUT
⇒ *bwam ⋇ *bwap {252, 341, 518}.

STRAIGHT
⇒ *dyam ⋇ *tyam {51,

65, 307}; *tan {260}.

STRAIGHT(en)
⇒ *bleŋ ⨳ *pleŋ {281,
292}.

STRAIN
⇒ *gyan ⨳ *kyan {248,
260}.

STRANGER
⇒ *gra {173}.

STRANGLE
⇒ *ʔik {344, 348}.

STREAM
⇒ *klyoŋ {294};
*lwi(y) {197}.

STRENGTH
⇒ *baŋ {140}; *ra
{170}.

STRETCH OUT
⇒ *dzyan ⨳ *tsyan
{260}; *kaŋ {266}.

STRIDE
⇒ *ga ⨳ *gaːr {392, 401,
425, 427}; *ka {484}.

STRIFE
⇒ *ran ⨳ *ray ⨳ *raːl
{44, 48, 261, 387, 388,
404, 407, 423, 425, 516}.

STRIKE
⇒ *dip ⨳ *tip {498};
*dup ⨳ *tup {498};
*duŋ {309, 363}; *tuk
{358, 363}.

STRING
⇒ *bliŋ {307}; *kriŋ
{23, 282}; *krəw {199}.

STRIP
⇒ *kuːk {359, 361}.

STRIPED
⇒ *bay ⨳ *pay {208};
*gak {120}.

STROKE
⇒ *sap {337}.

STRONG
⇒ *graŋ ⨳ *kraŋ {267,
303}; *tsan {260}; *zan
{28, 260, 442}.

STUFF (n.)
⇒ *ray {209, 212}.

STUMP
⇒ *bul ⨳ *pul {416,
424}.

STUNTED
⇒ *grum {272}.

STUPID
⇒ *ga ⨳ *ʔa {57, 165,
176}.

SUBMERGE
⇒ *nip ⨳ *nup ⨳
*nyap {339, 342, 355,
356, 370, 499, 505, 507}.

SUBORDINATOR
⇒ *ray ⨳ *way {35, 47,
209, 221, 482, 510}.

SUCK
⇒ *dz(y)oːp ⨳
*ts(y)oːp {31, 371, 382};
*dz(y)əw {382};
*dzyip ⨳ *dzyup {316,
382, 500}; *dzyow
{382}; *dzyuk {382};
*dzyut {382}; *tsyip ⨳
*tsyup {500}; *tsyuk
{30}.

SUFFER
⇒ *na {38, 162, 168, 333,
335, 440, 452, 520};
*tyak {323}; *ʔiŋ {281}.

SULLEN
⇒ *muːk ⨳ *muːŋ {81,
127, 289, 309, 310, 359,
360, 523}.

SUMMIT
⇒ *diŋ {307}.

SUN
⇒ *ka {177, 450}; *nəy
{191, 201, 464}; *riŋ
{281}.

SUNLIGHT
⇒ *məw {30}.

SUNSHINE
⇒ *riŋ {281}; *tsyar
{391}.

SUPERIOR
⇒ *ryaŋ ⨳ *zryaŋ {66,
79, 303}.

SUPPURATE
⇒ *t(w)i(y) {194}.

SURROUND
⇒ *kroy {229}.

SWAGGERING
⇒ *ʔut {364}.

SWALLOW (v.)
⇒ *mlyəw {81, 84}.

SWEAT
⇒ *grwəy {82, 195};
*hir ⨳ *hur ⨳ *hwar ⨳
*hyar {399, 429, 514};
*krul ⨳ *ŋrul {83, 102,
129, 414}; *krwəy {82}.

SWEEP
⇒ *py(w)ak {66, 85,
128, 323, 527}; *sit ⨳
*sut {315, 366, 502};
*syim {305}.

SWEET
⇒ *dz(y)im {34, 66,

271}; *hil ✕ *hul {58, 419, 501}; *klum {275}; *kyəw {182, 185}; *min {39, 277, 296, 495, 496}; *t(w)i(y) {197}.

SWELL UP
⇒ *bwam ✕ *bwap {252, 341, 518}; *pwam ✕ *pwap {315}.

SWIDDEN
⇒ *hya {56, 171}.

SWOLLEN
⇒ *bwam ✕ *bwap {252, 341, 518}; *pwam ✕ *pwap {249}.

SWORD
⇒ *duŋ {284}; *ran ✕ *ray ✕ *raːl {44, 48, 261, 387, 388, 404, 407, 423, 425, 516}; *ta {162}.

T

TAIL
⇒ *ba {123}; *may ✕ *mey ✕ *mi {81, 106, 127, 208, 216, 217, 221, 511}.

TAKE
⇒ *dz(y)u {479}; *hyal {65, 406}; *yu {35, 180, 184}.

TALENT
⇒ *(d)zaːy ✕ *(t)saːy {210, 221}.

TALK
⇒ *dam ✕ *tam {299}.

TARO
⇒ *blum {273}; *grwa {173}.

TEA
⇒ *la {48}.

TEACH
⇒ *ma {38, 113, 163, 241}.

TEAR
⇒ *dzyit ✕ *dzyut {365, 502}; *mrak {80}.

TEARS
⇒ *brəy {124}.

TEMPERAMANT
⇒ *(d)zaːy ✕ *(t)saːy {210, 221}.

TEN
⇒ *g(y)ip {198, 352, 356}; *gip {353}; *ts(y)i(y) ✕ *tsyay {30, 31, 208, 212, 219, 510}.

TEND
⇒ *way {209}.

TEND GRAZING ANIMALS
⇒ *gyoŋ {294}; *wul {384, 416}.

TENDER
⇒ *now {38, 223, 224}.

TENSE
⇒ *daŋ ✕ *taŋ {267}.

TERRIFY
⇒ *krim {271}.

TESTICLES
⇒ *lik {344, 374}; *səw {182}.

TETHER
⇒ *dar {401}.

THAT
⇒ *day {207}.

THICK
⇒ *dow ✕ *tow {181, 222, 224, 226, 228, 452, 515}; *tas {127, 128, 129, 432}; *tuːk {359, 360, 361}.

THICK (of liquids)
⇒ *naːŋ {302}.

THIEF
⇒ *kun ✕ *kut ✕ *kəw {127, 129, 178, 184, 198, 227, 441, 442, 454, 515}.

THIN
⇒ *ba {19, 24, 162, 169, 440}; *ban/t ✕ *pan/t {440}; *lep ✕ *lyap {51, 339, 377}; *peːr {386, 400, 426}.

THING
⇒ *dzas {432, 437}.

THINGS
⇒ *ray {209, 212}.

THINK
⇒ *daŋ {266}; *ga {163}; *nyam {299}.

THIRSTY
⇒ *sip {353}.

THIS
⇒ *day {207}.

THORN
⇒ *(d)z(y)u(ː)k {31, 362, 529}; *dz(y)ut {529}; *tsow {30, 222, 223, 224, 227, 454, 515, 529}.

THOUSAND
⇒ *toŋ {294}.

385, 388, 414, 416, 425}.

TWIRL

⇒ *mwəy {195}.

TWIST

⇒ *hiːl ⚔ *kiːl {57, 412, 413, 426}; *naːy {210}; *sik {344}.

TWO

⇒ *ni {135, 149, 241, 351, 352, 434, 477, 481}.

U

UNCLE

⇒ *bʷaŋ ⚔ *pʷaŋ {269, 303}; *ryaŋ ⚔ *zryaŋ {66, 79, 303}.

UNDER

⇒ *ʔok {377}.

UNTIE

⇒ *prəy {73}; *pyin ⚔ *pyit {520}.

UPPER PART

⇒ *tyaŋ {304}.

UPRIGHT

⇒ *tan {260}.

URINE

⇒ *ts(y)i ⚔ *zəy {27, 31, 187, 189, 194, 441, 454}.

USE

⇒ *zum ⚔ *zuŋ {28, 34, 66, 276, 531}.

V

VAGINA

⇒ *b(y)et {375}; *dzyuk {66}; *tu {247}.

VALLEY

⇒ *k(l)uk ⚔ *klu(ː)ŋ {287, 524}; *klyoŋ {294}; *kor ⚔ *kwar {395, 401}; *laŋ {266}.

VANISH

⇒ *myak {322}.

VAULTED

⇒ *ku(ː)m {276}.

VEGETABLE

⇒ *t(s)aːy {221}.

VEGETABLE (green)

⇒ *raŋ {265}.

VEGETABLE DISH

⇒ *h(y)an {65}.

VEIN

⇒ *sa {127, 128, 129, 162, 166}.

VERMIN

⇒ *bəw {19, 130, 139, 148, 154, 178, 183, 184}.

VERY

⇒ *t(y)ak ⚔ *t(y)ik {65, 324, 507, 508}.

VESSEL

⇒ *not ⚔ *nut {381}.

VICINITY

⇒ *ba {163}.

VILLAGE

⇒ *dyal ⚔ *tyal {65, 406}; *kak {319}; *wa {127, 134}.

VIRILITY

⇒ *səw {182}.

VISCOUS

⇒ *naːŋ {302}.

VOICE

⇒ *sam ⚔ *sem {252, 532}.

VOMIT

⇒ *pat {315, 330, 335, 442}; *ʔaw {227}; *ʔon {292}.

VULTURE

⇒ *glaŋ {23, 75}; *lak ⚔ *laŋ {263, 393, 521}.

VULVA

⇒ *b(y)et {375}; *dzyuk {66}; *tu {247}.

W

WAIL

⇒ *kuːk {363}.

WAIST

⇒ *dzyuk ⚔ *gyuk {72, 357, 358}; *taːy {210, 220}.

WAIT

⇒ *dzoŋ {31, 294}; *laŋ {112, 266}; *lyaŋ {266}.

WANT

⇒ *ga {163}.

WAR

⇒ *mak {99, 318}; *ran ⚔ *ray ⚔ *raːl {44, 48, 261, 387, 388, 404, 407, 423, 425, 516}.

WARM

⇒ *lim ⚔ *lum {272,

Index of Chinese Characters

This character index, designed by Richard S. Cook, is alphabetized according to the *pinyin* orthography of the Mandarin pronunciation, disregarding tone. Each character is followed by two sets of numbers. The first, in curly brackets, refers to the page(s) in the text where the character is cited. The second, a "left zero-padded" 4-digit number in square brackets, is the character's number in Karlgren 1957 (*GSR*), *e.g.*:

ge	歌	{174, 391, 399}	[0001q]
sui	髓	{231}	[0011g]
kou	口	{199}	[0110a]
jiang	江	{286}	[1172v]

A number in square brackets preceded by P means that the exact character does not appear in *GSR*, but the phonetic (or a graphic variant of the phonetic) is the same as the series cited, thus:

fu	蝠	{324}	[P0933a]

A number in square brackets preceded by V means that the cited character is a graphic variant of the one that appears with that number in *GSR*, *e.g.*:

fu	腑	{199}	[V0136n]

In the very rare cases when a character is followed by empty square brackets, that means that neither the character, nor its phonetic, nor any graphic variant of it appears in *GSR*.

beng   嚜 {520} []

For the sake of completeness, if the character has more than one Mandarin reading it is listed under all of them, even if the alternate reading(s) is/are rare:

	Usual reading	*Rare reading*
無	**mo**	**wu**
閒	**jian**	**gan**
單	**dan**	**chan**
數	**shu**	**shuo**

chi

麎 {221} [0003t]; 尺 {300} [0794a];
瀶 {327} [0954i]; 赤 {328} [0793a];
蹠 {373} [0866q].

chong

蟲 {310} [1009c].

chu

出 {200, 464} [0496a]; 楚 {227}
[0088a].

chuan

川 {435, 437, 451} [0462a]; 膞 {259,
301} [0231k].

chun

唇 {539} [V0455u]; 純 {452}
[0427n]; 脣 {423} [0455u]; 膞 {259,
301} [0231k]; 鶉 {403} [0464j].

cong

匆 {526} [1199b]; 蔥 {311} [1199g].

cu

促 {526} [1219d]; 卒 {368} [0490a].

cui

脆 {334} [0296d].

cuo

䑺 {174} [0005m].

da

大 {220, 484} [0317a]; 答 {342}
[0676a]; 搭 {526}[].

dai

大 {220, 484} [0317a]; 帶 {220}
[0315a].

dan

丹 {177, 262, 452, 485, 516} [0150a];
單 {262, 403, 516} [0147a]; 彈 {301}
[0147n]; 擔 {298} [0619k]; 壇 {78,
425} [0148p].

deng

登 {304} [0883e].

di

弟 {221} [0591a]; 滴 {327} [P0877k];
翟 {328, 347} [1124a]; 踶 {373}
[0866q]; 蹢 {373} [0877o].

dian

屍 {422, 504} [0429a]; 殿 {422, 453,
504} [0429d].

diao

鴌 {228} [P0409a]; 鳥 {226, 227}
[1116a].

die

咥 {464} [0413m]; 喋 {377} [0633g];
疊 {341} [1255a]; 蝶 {377} [0633h].

ding

定 {123, 307} [0833z]; 頂 {307}
[0833e].

du

毒 {363} [1016a].

duan

剬 {259, 301} [0168e]; 斷 {259, 301}
[0170a].

dui

敦 {228, 452} [0464p].

dun

敦 {228, 452} [0464p]; 沌 {422, 504}
[0427h]; 鈍 {422, 453, 504} [0427i];
頓 {422, 504} [0427j].

duo

多 {485} [0003a].

e

阿 {105} [0001m]; 鵝 {177, 259, 449}
[V0002p].

er

二 {352, 434, 437} [0564a]; 爾 {464}
[0359a]; 耳 {176} [0981a]; 邇 {220}
[0359c].

huan

宦 {424} [0188a]; 環 {424} [0256n]; 緩 {423} [0255*l*]; 繯 {424} [0256q]; 還 {424} [0256k].

hui

叀 {222} [0533b]; 惠 {222} [0533a]; 煇 {402} [0458k]; 輝 {402} [0458*l*].

hun

圂 {424} [0425a]; 昏 {309} [0457k]; 殙 {309} [P0457k]; 煇 {402} [0458k].

huo

攫 {525} [0616g]; 火 {305, 402} [0353a]; 話 {437} [0302o].

ji

極 {328} [0910e]; 汲 {341} [0681h]; 疾 {177, 464} [0494a]; 輯 {342} [0688d]; 集 {342} [0691a]; 革 {328, 379} [0931a]; 饑 {437} [0547k]; 騎 {188, 200} [0001u].

jia

梜 {341} [0630f]; 甲 {342} [0629a].

jian

檻 {299} [0609g]; 荐 {449} [0432b]; 見 {291, 311} [0241a]; 間 {71, 422} [0191b].

jiang

江 {287} [1172v]; 薑 {302} [0710d].

jiao

攪 {363} [1038i]; 焦 {348} [1148a]; 燋 {348} [1148b]; 覺 {363} [1038f]; 角 {480} [1225a].

jie

傑 {335} [0284b]; 接 {341} [0635e]; 楑 {342} [0635f]; 節 {347, 527} [0399e]; 結 {347, 528} [0393p].

jin

今 {309} [0651a]; 唫 {305, 306} [0652g]; 噤 {299} [0655m]; 斳 {305} [0661a]; 盡 {306} [0381a]; 禁 {305} [0655k]; 縉 {177, 452, 485} [0378g].

jing

脛 {283, 311} [0831k]; 莖 {283, 311} [0831u]; 頸 {281, 307} [0831n].

jiu

九 {199} [0992a]; 糾 {199} [1064b]; 舊 {199} [1067c]; 酒 {199} [1096k]; 鳩 {199} [0992n].

ju

局 {363} [1214a]; 懼 {379} [0096i]; 豦 {328} [0803a]; 跼 {363} [1214b].

juan

圈 {424} [0226k].

jue

掘 {381, 463} [0496s]; 燋 {348} [1148b]; 絕 {334} [0296a]; 臄 {327, 528} [0803h]; 覺 {363} [1038f]; 角 {480} [1225a].

jun

麇 {199, 449} [0468s].

kai

開 {484} [0541a].

kan

墈 {298} [V0672e]; 戡 {308} [0658q]; 弒 {308} [0651v]; 檻 {299} [0609g].

ke

恪 {327, 379} [0766g]; 殼 {379} [V1226a].

kong

孔 {310} [1174a]; 空 {310} [1172h].

kou

口 {198} [0110a]; 寇 {198} [0111a].

mi

米 {221, 486} [0598a]; 靡 {489} [0017h].

mian

面 {422} [0223a].

miao

苗 {348} [1159a].

mie

滅 {352, 520} [0294b].

min

民 {201, 449} [0457a]; 閩 {424} [0441i].

ming

名 {281, 306, 307, 529} [0826a]; 命 {306, 529} [0762a]; 鳴 {307} [0827a].

mo

墨 {326, 522} [0904c]; 無 {489} [0103a].

mu

母 {227, 363} [0947a]; 目 {327, 347} [1036a].

na

納 {505} [0695h].

nan

赧 {177, 451} [0216b]; 難 {333, 335, 440, 452, 520} [0152d].

nang

孃 {174} [P0730a].

nei

內 {505} [0695e].

nen

恁 {299} [0667q].

ni

泥 {201, 464} [0563d]; 逆 {525} [0788c].

nian

年 {103, 284, 475, 524, 528} [0364a]; 念 {299} [0670a]; 拈 {526} [0618o]; 捻 {342, 526} [P0670a].

niang

娘 {174} [P0735a]; 孃 {174} [P0730a].

niao

鳥 {226, 227} [1116a].

nie

涅 {464} [0404j]; 躡 {356} [0638b]; 鑷 {342, 526} [P0638a].

ning

擰 {526} [P0837a].

niu

牛 {176} [0998a].

nong

濃 {303} [1005i]; 穠 {303} [1005k].

nu

弩 {172} [0094z].

nuan

暖 {423} [0255j].

nuo

搦 {526} [P1123a].

nü

女 {173} [0094a].

ou

嘔 {227, 402} [0122i].

peng

芃 {532} [0625g].

pi

披 {423} [0025j]; 疋 {200} [0090a, 0408d]; 脾 {73, 221} [0874h].

pian

翩 {402} [0246k].

pin

牝 {201, 448} [0566i]; 貧 {423, 503} [0471v].

ping

平 {293} [0825a].

po

婆 {174} [0025q]; 市 {368, 476, 505} [0501a]; 皤 {402} [0195r].

qi

七 {103, 352} [0400a]; 晜 {356, 494} [0688a]; 泣 {342} [0694h]; 漆 {201, 464} [0401b]; 耆 {437} [0552*l*]; 豈 {489} [0548a]; 騎 {188, 200} [0001u].

qian

乾 {177, 450} [0140c]; 千 {103} [0365a]; 拑 {526} [0606h]; 淺 {272} [0155k]; 綪 {177, 452, 485} [0812t'].

qiao

樵 {348} [1148i]; 殼 {379} [V1226a]; 燋 {348} [1148b].

qin

侵 {305} [0661c]; 寢 {305} [0661f]; 嶔 {298} [0652k]; 擒 {305} [0651n]; 禽 {305} [0651j]; 親 {176, 450, 529} [0382o].

qing

情 {347} [0812*l*']; 綪 {177, 452, 485} [0812t'].

qiu

寻 {305} [0661a].

qu

曲 {362} [1213a]; 臄 {327, 528} [0803h]; 踘 {363} [1214b]; 軀 {198} [0122g].

quan

圈 {424} [0226k]; 犬 {201, 423, 448} [0479a].

rang

孃 {174} [P0730a]; 穰 {302} [0730h].

ren

妊 {308} [0667i]; 荏 {299} [0667s].

reng

仍 {302} [0945e].

ri

日 {201, 464} [0404a].

rou

肉 {481} [1033a].

ru

乳 {198} [0135a]; 入 {356, 505} [0695a]; 汝 {177} [0094j].

rui

巍 {199, 449} [0468s].

sa

撒 {402, 525, 526} [P0156a].

san

三 {275, 308} [0648a]; 散 {402, 525, 526} [0156a]; 霰 {399, 402} [0156d].

sao

臊 {227} [1134e].

se

色 {78, 326} [0927a].

sha

殺 {335, 492} [0319d]; 沙 {176, 487} [0016a].

shai

色 {78, 326} [0927a].

shan

善 {301} [0205a]; 單 {262, 403, 516} [0147a]; 彡 {299} [1008c]; 繕 {301} [0205f]; 纔 {489} [V0943a]; 邅 {78, 425} [0148p].

shang

尚 {79, 303} [0725a].

she

射 {487} [0807a]; 折 {334} [0287a]; 攝 {342} [0638e]; 舌 {299, 300, 327, 528} [0288a, 0302f]; 蛇 {81} [0004*l*]; 麝 {176} [P0807b].

shen

參 {308} [0647a]; 椹 {198, 308} [0658f]; 矧 {423} [0560i]; 腎 {73, 198, 309} [0368h]; 身 {177, 278, 306, 448, 475} [0386a].

sheng

乘 {304} [0895a]; 狌 {77, 293, 311, 512} [0812t]; 生 {78, 307} [0812a]; 甥 {308} [0812g]; 繩 {81, 307} [0892b]; 鼪 {77, 293, 311, 512} [0812u].

shi

事 {437} [0971a]; 似 {199} [0976h]; 使 {199} [0975n]; 十 {198, 356} [0686a]; 屎 {201} [0561d]; 矢 {422} [0560a]; 蝕 {78, 347, 402, 527} [0506a]; 踶 {373} [0866q]; 食 {81, 177, 480} [0921a].

shou

手 {199} [1101a]; 獸 {177, 448} [1100a].

shu

屬 {480} [1224s]; 數 {79, 200} [0123r, 1207a]; 几 {201} [V0130a]; 疋 {200} [0090a, 0408d]; 薯 {78, 173} [P0045r]; 鼠 {228} [0092a].

shui

水 {435, 437, 451} [0576a].

shuo

數 {79, 200} [0123r, 1207a]; 爍 {328} [1119f].

si

似 {199} [0976h]; 四 {147, 200} [0518a]; 死 {201, 475} [0558a]; 食 {81, 177, 480} [0921a]; 飤 {177} [0921e].

sou

嗽 {199} [1222s]; 騪 {311} [0821c].

su

俗 {363} [1220a]; 宿 {77, 328} [1029a].

suan

酸 {402, 475} [0468e'].

sui

隨 {229} [0011g]; 髓 {230} [0011h].

sun

孫 {199, 449} [0434a].

suo

所 {78, 173, 468} [0091a].

tai

太 {220, 485} [0317d]; 泰 {220, 485} [0316a].

tan

彈 {301} [0147n]; 灘 {301} [0152m]; 炭 {422} [0151a]; 談 {299} [0617*l*]; 譚 {299} [0646c].

ti

弟 {221} [0591a]; 梯 {217, 220, 511} [0591*l*]; 洟 {201, 435, 437} [0551f]; 涕 {201} [0591m]; 踢 {373} [P0850a]; 踶 {373} [0866q]; 蹄 {373} [0877h].

tian

天 {177, 450} [0361a]; 甜 {299}[]; 舔 {299} [P1247c].

tie

攧 {525} [V0616g].

tou

偷 {198} [0125u]; 頭 {198} [0118e].

tu

吐 {173} [0062d].

tui

蛻 {335} [0324e].

tun

屯 {452} [0427a]; 臀 {422, 453, 504} [0429c].

tuo

唾 {174} [0031m]; 脫 {334} [0324m]; 蟺 {78, 425} [0148p].

wan

完 {423} [0257m]; 挽 {301} [0260m]; 掔 {301, 423} [0273b]; 腕 {301, 423} [0260n].

wang

望 {303} [0742m]; 網 {304} [0742a']; 罔 {304} [0742*l*].

wei

喴 {305, 306} [0652g]; 唯 {222} [0575i]; 尾 {221} [0583a]; 微 {201} [0584d]; 惟 {222} [0575n]; 為 {200, 230} [V0027a]; 豪 {200} [V0027a]; 維 {222} [0575o]; 胃 {334} [0523a].

wen

吻 {402} [0503o].

wo

我 {174, 489} [0002a].

wu

五 {167, 173} [0058a]; 吾 {167, 173, 489} [0058f]; 無 {489} [0103a].

xi

唫 {464} [0413m]; 夕 {329} [0796a]; 息 {326} [0925a]; 悉 {465} [1257e]; 洗 {425} [0478j]; 犀 {220} [0596a]; 習 {342} [0690a]; 虩 {327, 379} [0787d]; 覤 {327, 379} [0789a].

xia

呷 {341} [V0313k]; 嚇 {327} [0779b]; 狹 {342} [0630e]; 遐 {175} [0033j].

xian

晛 {464} [1250e]; 洗 {425} [0478j]; 現 {311} [0241e]; 袄 {450} [V1141d]; 見 {291, 311} [0241a]; 銛 {299} [0621a]; 霰 {399, 402} [0156d]; 鮮 {402} [0209a]; 鹹 {299} [0671f].

xiang

皀 {513} [0714a]; 薌 {513} [0714m]; 象 {302} [0728a]; 香 {513} [0717a].

xiao

梟 {199} [1070m].

xie

挾 {526} [0630*l*]; 蟹 {220} [0861d]; 血 {201, 230, 464} [0410a].

xin

尋 {298} [0662a]; 心 {311, 532} [0663a]; 新 {402} [0382k]; 薪 {284, 347, 475, 524, 528} [0382n]; 辛 {306, 475} [0382a]; 騂 {311} [0821c].

xing

姓 {77, 307} [0812q]; 狌 {77, 293, 311, 512} [0812t]; 猩 {307} [0812z]; 騂 {311} [0821c]; 鼪 {77, 293, 311, 512} [0812u].

xiong

兄 {303} [0765a]; 熊 {274, 299, 531} [0674a].

xiu

宿 {77, 328} [1029a]; 鵂 {199} [1070i].

xu

婿 {200} [P0090e]; 婿 {77, 198, 475} [0133e].

xuan

煇 {402} [0458k].

xue

血 {201, 230, 464} [0410a].

xun

尋 {298} [0662a]; 煇 {402} [0458k];
熏 {199, 451} [0461a]; 訓 {423}
[0422d].

ya

啞 {176} [0805f]; 擨 {525} [V0616g];
牙 {175} [0037a].

yan

延 {403} [0203a]; 擊 {525} [0616g];
擨 {525} [V0616g]; 演 {403}
[0450k]; 筵 {403} [0203b]; 讞 {525}
[0252i]; 雁 {177, 259, 449} [0186b];
鳽 {401} [0146g]; �native {401} [0146i];
鹽 {308} [0609n].

yang

揚 {303} [0720j]; 楊 {304} [0720q];
羊 {304, 523} [0732a].

yao

曜 {328} [1124i]; 燿 {328} [1124j];
爓 {328} [1119f]; 祅 {450} [V1141d];
耀 {328} [1124k].

ye

夜 {329} [0800j]; 擊 {525} [0616g];
擨 {525} [V0616g]; 液 {327}
[0800n]; 腋 {326} [0800m]; 葉 {342}
[0633d].

yi

一 {352} [0394a]; 尾 {221} [0583a];
弋 {487} [0918a]; 揖 {342} [0688g];
易 {222, 327, 521} [0850a]; 瀷 {327}
[0954i]; 縊 {348} [0849g]; 翼 {327}
[0954d]; 趨 {329} [V0954g]; 胰
{422} [P0551a]; 臄 {327, 528}
[0803h]; 蛇 {81} [0004*l*].

yin

唫 {305, 306} [0652g]; 龺 {73}
[0450h]; 引 {403} [0371a]; 蚓 {78,
425} [0371c]; 螾 {78, 425} [0450j];
銀 {424} [0416k]; 陰 {308} [0651y];
飲 {298, 533} [0654a].

ying

盈 {281, 307} [0815a]; 蠅 {302}
[0892a]; 迎 {525} [0699d]; 鷹 {263,
521} [0890c].

yong

用 {276} [1185a].

you

佑 {327} [0995k]; 友 {327} [0995e];
右 {176, 327} [0995i]; 庮 {227}
[1096h]; 酉 {327} [1096a].

yu

于 {173} [0097a]; 挹 {301} [0260m];
歟 {489} [0089e]; 禹 {227} [0099a];
萮 {363} [0125k]; 羽 {172} [0098a];
聿 {504} [0502a]; 與 {173, 489}
[0089b]; 芋 {173} [0097o]; 谷 {524}
[1202a]; 雨 {173} [0100a]; 魚 {167,
172, 475} [0079a].

yuan

員 {424} [0227a]; 圓 {424} [0227c];
援 {423} [0255e]; 苑 {525} [0260d];
遠 {195, 452} [0256f]; 院 {424}
[0257u]; 鳶 {259, 301} [0230a].

yue

悅 {334} [0324o]; 曰 {525} [0304a];
月 {26, 85, 335} [0306a]; 爓 {328}
[1119f]; 越 {335} [0303e].

yun

云 {525} [0460a]; 煇 {402} [0458k].

zha

眨 {526} [P0641a].

TB Languages, Dialects, and Subgroupings

TB language names are a complicated business, with many overlapping and competing terms for individual languages and language groupings.[1] No attempt is made in this Index to include all variant names, or to distinguish among the various nomenclatural subtypes (autonyms, exonyms, loconyms, peleonyms, neonyms, *etc*.). All the names of the languages and dialects are presented in a single alphabetical list.

The heuristic system of decimal numerals used to encode linguistic groupings in the STEDT database are presented in the following chart:

SCHEMATIC CODING FOR TIBETO-BURMAN LANGUAGE GROUPS

Sino-Tibetan	0.0.0
Tibeto-Burman	0.1.0
Kamarupan	1.0.0
North Assam	1.1.0
Tani	1.1.1
Deng	1.1.2
Monpa	1.1.3
Kuki-Chin-Naga	1.2.0
Kuki	1.2.1
Chin	1.2.2
Naga	1.2.3.0

---

1. For detailed lists and discussion of the issues involved, see JAM 1986a and 1996a.

Burmish	6.2.0
Yipho	6.3.0
Northern Loloish	6.3.1
Central Loloish	6.3.2
Southern Loloish	6.3.3
Jinuo	6.4.0
Karenic	7.0.0
Bai	8.0.0
Sinitic	9.0.0
Old Chinese	9.0.1
Middle Chinese	9.0.2
Modern Chinese	9.0.3

Each language name on the left side of a column is associated with a designation on the right. These are of several types:

•Terms in curly brackets are higher-order groupings to which the language is deemed to belong, *e.g.*:

Atsi	{Burmish}
Lui	{Jingpho-Nung-Luish}
Lushai	{Chin}

•Terms in capital letters preceded by an arrow are cross-references. These are of two subtypes:

(A) Alternate names for the same language, *e.g.*:

Mizo	=> LUSHAI
Atsi	=> ZAIWA
Langsu	=> MARU

(B) The language to which a dialect belongs:

Hkauri => JINGPHO

Jianchuan => BAI

Risiangku => TAMANG

Balti => TIBETAN

Sometimes the cross-reference is itself referred to a more general term:

Bakeo => YELLOW LAHU => LAHU

i.e., Bakeo is a subdialect of Yellow Lahu, which in turn is a dialect of Lahu.

Higher-order terms to which a schematic coding is assigned are so designated, preceded by the letter G:

Himalayish   G#2.0.0

Burmish   G#6.2.0

Tujia[a]   G#5.0.0

---

a.   The Tujia language has so far not been assigned to any higher-order group, so it is encoded as a separate entity in its own right.

Several of these higher-order names (*e.g.* Kamarupan, Mahakiranti, Yipho) do not appear in this Index, since they are too general or controversial to be useful.

Abor . . . . => PADAM

Abor-Miri . . . .=> PADAM-MISING

Achang . . . . {Burmish}

Ahi . . . .{C. Loloish}

Ahraing . . . . {Chin}

Aimol . . . . {Kuki}

Akha . . . . {S. Loloish}

Alike . . . . {Tibetan}

Amdo . . . . => TIBETAN

Anal . . . . {Kuki}

Ancient Chinese . . . .=> MIDDLE CHINESE

Andro . . . .{Jingpho-Nung-Luish}

Angami . . . . {Naga}

Anong . . . . => DULONG

Ao . . . . {Naga}

Apatani . . . .{Tani}

Arakanese . . . . {Burmish}

Archaic Chinese . . . . => OLD CHINESE

Ashö . . . . {Chin}

Assam . . . . {Jingpho}

Athpare . . . .{Mahakiranti}

Atong . . . . {Bodo-Garo}

Ats'ang . . . .=> ACHANG

Atsi . . . . {Burmish}

Awa . . . . {Chin}

Axi . . . .=> AHI

Badian . . . . {Naxi}

Bahing . . . . {W. Kiranti}

Bai . . . . .G#8.0.0

Baima . . . .{Tibetic}

Baka . . . .{Jinuo}

Bakeo . . . .=> YELLOW LAHU

Balti . . . . => TIBETAN

Banai . . . . {Jinuo}

Banlan . . . .=> YELLOW LAHU

Bantawa . . . . {E. Kiranti}

Barish . . . . => BODO-GARO

Bassein . . . . {Karenic}

Batang . . . . => TIBETAN

Bawm . . . . {Chin}

Bawtala . . . .{Jingpho-Nung-Luish}

Baya . . . . {Jinuo}

Belhare . . . .{Kiranti}

Bengni . . . .{Tani}

Bhamo . . . . => JINGPHO

Bhote . . . . {Tibetan}

Bhramu . . . . {W. Himalayish}

Bijiang-Bai . . . . {Bai}

Bijiang-Nusu . . . .{N. Loloish}

Bisu . . . . {S. Loloish}

Biyue . . . . => HANI

Bla-brang . . . . => TIBETAN

Black Lahu . . . .=> LAHU

Blimaw . . . . => KAREN

Bodic . . . .=> TIBETIC

Bodish . . . . G#2.1.3.3

Bodo . . . . {Bodo-Garo}

Bodo-Garo .G#1.6.0

Boga'er . . . . => BOKAR

Boga'er Luoba . . . . => BOKAR

Bokar . . . .{Tani}

Bokar Adi . . . . => BOKAR

Bola . . . . {Burmish}

Bor-Abor . . . . => PADAM

Bori . . . .{Tani}

Boro . . . .=> BODO

Empeo . . . . => ZEME	Horpa . . . . => DAOFU
Enkun. . . . . => JINGPHO	Hpun. . . . . {Burmish}
Ergong . . . . {Qiangic}	Hruso . . . . => AKA
Ersu . . . . {Qiangic}	Hsi-Hsia . . . . => TANGUT
Fugong. . . . .=> NUNG	Hu Than . . . . {S. Loloish}
Gabing . . . . => KOKBOROK	Hwalngau. . . . . {Chin}
Gahri . . . . => BUNAN	Idu . . . . {Deng}
Gallong . . . . {Tani}	Intha . . . . {Burmish}
Ganan. . . . .{Jingpho-Nung-Luish}	Jianchuan . . . . => BAI
Ganluo . . . . => ERSU	Jiarong . . . .=> rGYALRONG
Ganyu. . . . . => CHINESE	Jili. . . . . {Jingpho}
Garo . . . . {Bodo-Garo}	Jinghpaw . . . . => JINGPHO
Gasu. . . . . {N. Loloish}	Jinghua . . . . => PUMI
Gazhuo. {N. Loloish}	Jingpho. .G#4.1.0
Geba. . . . . {Karenic}	Jingpho-Nung-Luish . . . . .G#4.0.0
Gelanghe . . . . {S. Loloish}	Jingpo. => JINGPHO
Geman . . . . {Deng}	Jinuo. . . . . .G#6.4.0
Ghachok. . . . .=> GURUNG	Jirel. . . . .=> TIBETAN
Guiqiong . . . . {Qiangic}	Jiulong . . . . {Qiangic}
Gurung. . . . . {Tamangic}	K'umi . . . .=> KHUMI
Gyarong . . . . => RGYALRONG	Kabui . . . . => RONGMEI
Gyaru . . . . => MANANG	Kachari. . . . .=> BODO
Haka. . . . . => LAI	Kachin . . . . => JINGPHO
Hakha. . . . . => LAI	Kadu. . . . .{Jingpho-Nung-Luish}
Hani . . . . {S. Loloish}	Kaduo. => HANI
Haoni . . . . => HANI	Kaike . . . .{Tibetic}
Hawa-jap . . . .=> NOCTE	Kaman . . . . {Deng}
Hayu. {W. Kiranti}	Kamarupan. . . . . .G#1.0.0
Helambu. . . . . => TIBETAN	Kanauri. . . . . {W. Himalayish}
Himalayish. . . . . .G#2.0.0	Kanawari . . . . => KANAURI
Hinthada. . . . . {Karenic}	Kanburi Lawa. . . . . => UGONG
Hiranpi. . . . . {Chin}	Kantu . . . .{Jingpho-Nung-Luish}
Hkauri . . . . => JINGPHO	Kao Hua-Nien . . . . {S. Loloish}

Lisaw . . . . => LISU	Mahakiranti . . . . .G#2.2.0
Lishan . . . .{N. Loloish}	Maiserang. => CHEPANG
Liso . . . . => LISU	Mama . . . . => CUONA
Lisu . . . . {C. Loloish}	Manang . . . . {Tamangic}
Lohorong . . . . {E. Kiranti}	Manchad. . . . . => PATTANI
Lolo . . . .{C. Loloish}	Manchati . . . . => PATTANI
Lolo-Burmese . . . . .G#6.0.0	Mandarin . . . . {Sinitic}
Loloish. . . . . => YIPHO	Manipuri. . . . . => MEITHEI
Lolopho . . . . {Yipho}	Manyak . . . . {Qiangic}
Longchuan . . . .=> ACHANG	Mao . . . . {Naga}
Longchuan Achang . . . . {Burmish}	Maram . . . . {Chin}
Longquan. . . . . {Naxi}	Maran. . . . . {Jingpho}
Longshan . . . . => TUJIA	Maring . . . . {Chin}
Lotha . . . . {Naga}	Marpha. . . . . => THAKALI
Lotha Naga. . . . .=> LOTHA	Maru. . . . . {Burmish}
Lu-ch'üan . . . . => LUQUAN	Matupi . . . . {Chin}
Lui . . . .{Jingpho-Nung-Luish}	Mawo . . . . {Qiangic}
Luish . . . . .G#4.3.0	mBisu. . . . .=> BISU
Lungmi. . . . .=> NUNG	Meche. . . . . {Bodo-Garo}
Luoba. . . . .=> LHOBA	Megyaw . . . .=> HPUN
Luoba (Boga'er) . . . . => BOKAR	Meitei. . . . . => MEITHEI
Luoba (Sulong) . . . . => SULONG	Meithei. . . . . .G#1.3.0
Luoba (Yidu) . . . . => IDU	Meluri. . . . . {Chin}
Luotongba . . . .=> BAIMA	Menba . . . . => CUONA, MOTUO
Luquan. . . . .{N. Loloish}	Menba (Motuo) . . . .=> CANGLUO
Lushai . . . . {Chin}	Mera. . . . . {Chin}
Lusu. . . . . {Yipho}	Metjo . . . . {Burmish}
Luxi . . . .=> ACHANG	Metu. . . . .=> NUNG
Lüchun. . . . . => HANI	Middle Chinese . . . . .G#9.0.2
Ma'erkang . . => ZHUOKEJI OF RGYALRONG	Miji. . . . .{North Assam}
Maerkang. . . . . {rGyalrong}	Miju Mishmi . . . .=> KAMAN
Magar. . . . . => MAGARI	Mikir . . . . .G#1.4.0
Magari . . . . . {Kham-Magar-Chepang-Sunwari}	Milang . . . .{Tani}

Old Chinese	G#9.0.1	Rangkhol	{Kuki}
Ombule	{Mahakiranti}	Rangloi	{W. Himalayish}
Pa-O	{Karenic}	Rangoon	=> BURMESE
Paangkhua	{Chin}	Rawang	=> NUNG
Padam-Mising	{Tani}	Rengma	{Naga}
Paku	{Karenic}	rGBenzhen	{Tani}
Palaychi	{Karenic}	rGyalrong	G#3.3.0
Pattani	{W. Himalayish}	rGyarong	=> rGYALRONG
Pfetsero	=> KHEZHA	Riang	{Bodo-Garo}
Pho	{Karenic}	Risiangku	=> TAMANG
Phom	{N. Naga}	Rodong	=> CHAMLING
Phou Noy	=> PHUNOI	Rokhung	{E. Kiranti}
Phun	=> HPUN	Rongmei	{Kuki}
Phunoi	{S. Loloish}	Rumdali	{Mahakiranti}
Phuthao	{C. Loloish}	Rungchangbung	{E. Kiranti}
Phön	=> HPUN	Sabra	=> SUNWARI
Pijo	=> HANI (BIYUE)	Sadiya	=> MISING
Plains Kachari	=> BODO	Sadon	=> ZAIWA
Praka	=> PRAKAA	Sahu	{Tamangic}
Prakaa	=> MANANG	Sahugaon	=> TAMANG
Primi	=> PUMI	Sak	{Jingpho-Nung-Luish}
Puhgut	=> SULONG	Sakka Trokpa	{Tibetan}
Puiron	{Kuki}	Samong	{Burmish}
Pumi	{Qiangic}	Sampang	{E. Kiranti}
Purik	{Tibetan}	Sangkong	{S. Loloish}
Putao	{C. Loloish}	Sangtam	{Naga}
Putonghua	=> MANDARIN	Sani	{C. Loloish}
Pyu	{Burmish}	Sani (Nyi)	=> NYI
Qiang	{Qiangic}	Sema	{Naga}
Qiangic	G#3.2.0	Sengmai	{Luish}
Queyu	{Qiangic}	Sgaw	{Karenic}
Rabi	=> BANTAWA	Shangge	{N. Naga}
Rai	=> E. KIRANTI	Sharchop-kha	=> CANGLUO

Tircul . . . . => PYU

Tiwa . . . . => LALUNG

Tosu . . . . {Tangut}

Toto . . . . {Himalayish}

Tripuri . . . . => KOKBOROK

Trung . . . . {Nungic}

Tsaiwa . . . . => ZAIWA

Tsangla . . . . {Tibetic}

Tsangla Monpa . . . . => MONPA

Tshangla . . . .=> CANGLUO

Tshona . . . . {Tibetic}

Tsuta . . . . {rGyalrong}

Tujia . . . . G#5.0.0

Tukche . . . .=> THAKALI

Ugong . . . . {S. Loloish}

Ukhrul . . . . => TANGKHUL

Vayu . . . . => HAYU

Wakching . . . .{N. Naga}

Waling . . . . {E. Kiranti}

Wanang . . . . {Bodo-Garo}

Wancho . . . .{N. Naga}

Weishan . . . .{N. Loloish}

Weixi . . . .{Lolo-Burmese}

Weizang . . . . => LHASA TIBETAN

Wenlang . . . . => CUONA

W. Himalayish . . . . .G#2.1.1

W. Kiranti . . . . G#2.2.3.1

Womatu . . . . {Chin}

Woni . . . . {S. Loloish}

Wuding . . . .{N. Loloish}

Wuyu . . . . => CHINESE

Xi . . . .=> LAHU

Xiahe . . . .=> BLA-BRANG

Xiandao . . . . {Burmish}

Xiangyu . . . .=> CHINESE

Xide . . . .{N. Loloish}

Xinlong Queyu . . . . {Qiangic}

Xixia . . . . => TANGUT

Xongsai . . . . {Kuki}

Yacham-Tengsa . . . .{N. Naga}

Yadu . . . . {Qiangic}

Yajiang Queyu . . . . {Qiangic}

Yakha . . . . {E. Kiranti}

Yakkhaba . . . . => YAKHA

Yamphe . . . . {E. Kiranti}

Yanchok . . . . => MAGARI

Yangphe . . . . {E. Kiranti}

Yano . . . .{Tani}

Yawdwin . . . . {Kuki}

Yellow Lahu . . . .=> LAHU

Yi . . . .=> LOLOISH (N./C.)

Yi (Lolophu) . . . . => LOLOPHO

Yi (Nanhua) . . . .=> NANHUA

Yi (Sani) . . . .=> SANI

Yi (Weishan) . . . . => WEISHAN

Yi (Wuding) . . . . => WUDING

Yi (Xide) . . . .=> XIDE

Yidu . . . .{Tani}

Yimchungrü . . . . {Naga}

Yipho . . . . .G#6.3.0

Yogli . . . . => TANGSA

Yongning . . . . => NAXI

Yongsheng . . . .{C. Loloish}

Youle . . . .=> JINUO

Yue . . . . {Karenic}

Yueyu . . . . => CANTONESE

Index of Proper Names

This *Index* includes the names of individuals and languages or language groups mentioned in the body of the text. Omitted from this *Index* are those languages, groups and individuals who are mentioned so often that they are designated only by their initials, *e.g.* JAM, RSC, KVB, SB, *etc.* These abbreviations, as well as those referring to scholarly works (*e.g. STC*, *GSR*, *etc.*), are listed in the *Symbols and Abbreviation*s, above.

References

For abbreviations, see *Symbols and Abbreviations*, above page xxxi. A few items in these *References* are not directly mentioned in the text, but are included for their bibliographical interest.

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