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Diachronic and areal aspects of Brokpa phonology

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ABSTRACT

The Tibetic language Brokpa exhibits a number of archaic properties regarding its phonology. However, one also finds some shared Tibetic innovations and features which likely arose due to contact with non-Tibetic languages. This article discusses selected features belonging to the three above-mentioned categories such as the retention of initial clusters of bilabial plosives and /r/, the reflexes of other selected initial clusters, correspondences of syllable-final Written Tibetan <b>, <d>, <g> and <s>, the lack of a voiced dental fricative /dz/ as well as the loss of voicing distinction of the syllable onsets as a starting point of tonogenesis.

KEYWORDS

Brokpa language, Tibetic languages, East Bodish, Dakpa, Tshangla, language contact, historical phonology, voiceless vowels, tonogenesis

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1 Introduction

The Brokpa language is part of the Tibetic subclade of Trans-Himalayan, whose exact position within Tibetic has not yet been determined.[1] Although Brokpa has yet to be thoroughly described, the language is generally considered to be archaic in some aspects in the Tibetic context, as many features of Old Tibetan have been retained in morphology and lexicon (cf. van Driem 2001: 867). For the purpose of comparing Brokpa to an earlier stage of the Tibetic languages, correspondences with Written Tibetan (WT) will be used in this paper, since Written Tibetan is, while not equal to Old Tibetan, generally assumed to be very similar to it (cf. Beyer 1992: 36–38; Tournadre 2014: 107). Additionally, comparisons to other related or geographically close languages will be made wherever relevant.[2] Most notably, the neighbouring languages Dakpa and Tshangla should be mentioned. There has been active contact between the Brokpa and those two language communities. While the Dakpa people (speakers of the East Bodish language of the same name) are linguistically and ethnically distinct from the Brokpa, they share many cultural and religious practices – to the extent, that many Bhutanese think these two communities are in fact one (cf. Bodt 2012: 274, 302). Similarly, the contact with the Tshangla (speakers of languages belonging to the Tshangla

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[1] For general information about the Brokpa language and the Brokpa Documentation and Description Project as well as for the list of abbreviations and the transliteration of Written Tibetan used in this issue, see Gerber/Grollmann (this issue).

[2] Unless otherwise mentioned the language data used have been cited from the following sources: Brokpa from the authors own data, Choca-ngacakha from Tournadre & Rigzin (2015), Dakpa from Hyslop & Tshering (2010), Dzongkha from Tshering & van Driem (2019), Lhasa-/Standard-Tibetan from Tournadre & Sangda Dorje (2003), Written Tibetan from Jäschke (1881), Tshangla from Andvik (2010).

subclade of Trans-Himalayan) has always been significant, since the Brokpas traditionally visit Tshangla villages during winter for the purpose of bartering (cf. Bodt 2012: 304). The resulting influences upon the Brokpa language due to the close relationship between these language communities are visible not only in a number of borrowings but seem to influence the phonological system of Brokpa as well, as will be shown in some subsequent chapters.

The present paper discusses selected innovations and archaic retentions that characterize the Brokpa phonology and phonotactics in section 2 and some peculiarities of the language in these areas in section 3.

2 Selected sound changes and retentions

For the purpose of the exact genetic classification of Brokpa, the description of its historical phonology is crucial but still a work in progress. This section addresses different sound changes and archaic retentions with regard to an earlier stage of the language: the syllable-initial clusters containing the Written Tibetan subscript ྲ <-r> in section 2.1, the correspondence of Written Tibetan final plosives and final ས <-s> with Brokpa phones in section 2.2 and the phonation of word-initial consonants in regard to the emergence of the three Brokpa tones, high level (marked by ◌́), low level (marked by ◌̀) and high falling (marked by ◌̂) in section 2.3.[3]

2.1 Inital clusters

Clusters of a plosive and the rhotic /r/ is considered an archaic feature of Tibetic languages (cf. Tournadre 2005: 31). As in most other Tibetic languages, historic clusters of velar and dental plosives with /r/ are realised in Brokpa as the retroflex plosives /ʈ/ and /ʈʰ/ respectively, as can be seen in example (1).[4]

(1)	'throne'	*ʈʰi*	WT ཁྲི *khri*
	'knife'	*ʈì*	WT གྲི *gri*
	'six'	*ʈuk*	WT དྲུག *druk*
	'to stir'	*ʈuk*	WT དཀྲུག *dkrug*
	'alike, similar'	*ʈau*	WT འདྲ་བ *'dra ba*

For the lexeme *ʈo* 'to go' (Written Tibetan འགྲོ *'gro*) a form *bro:* is mentioned by Bodt (2012: 325), which could not be corroborated. Since archaic clusters of bilabial plosive and /r/

[3] Note that this paper mostly uses the tone-marking conventions employed by Funk (this issue [a]), that is, level tone after aspirated onset and low level tone after voiced onset will not be marked. As opposed to Funk, where low level tone is never marked, it will be marked here after voiceless onsets to better visualize the process of tonogenesis discussed in section 2.3.

[4] To be more precise, it can be assumed that clusters with a voiced plosive and /r/ first became /ɖ/ and got devoiced at a later stage, based on the fact the devoicing of initial plosives is still in progress for some phonemes (see section 2.3 for a discussion of the tonogenesis in Brokpa).

have been retained and the Written Tibetan form does not contain such a bilabial plosive, it is possible that *broː* is a hyper-correction.

Similarly, the retroflex fricative /ʂ/ can be traced back to clusters ས <sr> or <sCr>, where C stands for any consonant. This also explains the freely alternating rhotic variant [ʂ̺] of the phoneme /ʂ/, since historically a rhotic element was present. All documented Brokpa lexemes starting with the phoneme /ʂ/ are listed in (2) with their Written Tibetan counterparts.

(2)	'to tear apart'	*ʂaː*	WT འདྲལ་ ~ རྒལ་ *'dral ~ hral*
	'to burn'	*ʂa*	WT སྲག་ *srag*
	'head hair'	*ʂà*	WT སྐྲ་ *skra*
	'thin'	*ʂamo*	WT སྲབ་པ་ *srab pa*
	'pea'	*ʂanmu*	WT སྲན་མ་ *sran ma*
	'weighing scale'	*ʂaŋ*	WT སྲང་ *srang*
	'first milk'	*ʂí*	WT སྤྲི་ *spri*
	'monkey'	*ʂju*	WT སྤྲེའུ་ *spre'u*
	'type of small bear'	*ʂoktom*	*no known correspondence*
	'ant'	*ʂokpu*	Dakpa *hrokpu*
	'to guard'	*ʂuŋ*	WT སྲུང་ *srung*

As can be seen, there is one exception: The Brokpa verb *ʂa* 'to tear apart' does not have a cluster <sr> or <sCr> in its Written Tibetan cognate. Instead, a cluster འ <'dr> or ྲ <hr> is present, since it can be assumed that Brokpa *ʂa* corresponds to Written Tibetan འདྲལ་ ~ རྒལ་ *'dral ~ hral*. Interestingly, this is also the case for *ʂokpu* 'ant', which corresponds not to Written Tibetan but to the Dakpa lexeme *hrokpu*. It is also unclear to what the first part of the Brokpa word *ʂokdom* 'type of small bear' corresponds (the second part clearly comes from Brokpa *tom* 'bear', WT དོམ་ *dom*), which does not allow for any observations regarding this lexeme.

By contrast, clusters with bilabial plosives, པ <pr>, ཕ <phr>, བ
 (henceforth called /Br/ clusters), have been retained in the language. Some examples of such /Br/ clusters are given in example (3).

(3)	'pastureland'	*bro ~ broʔ*	WT འབྲོག་ *'brog*
	'buckwheat'	*broː*	WT བྲ་སོ་ *bra bo*
	'thunder, dragon'	*bruk*	WT འབྲུག་ *'brug*
	'uncooked rice'	*preː*	WT འབྲས་ *'bras*
	'child'	*pʰrugu*	WT ཕྲུ་གུ་ *phru gu*

In the Bhutanese context these clusters are only present in Choca-ngacakha and Brokpa, while Dzongkha did not preserve the cluster, as can be observed in the comparison of the word for 'cliff': Written Tibetan བྲག་ *brag*, Brokpa *pra*, Choca-ngacakha *bràk* versus Dzongkha *bj'â* [bdʑàː].

There is, however, one known exception in which a historical /Br/ cluster has not been retained in Brokpa: The verb *ɖi* 'to write' (compare to Written Tibetan འབྲི་ *'bri* and *zbri* in archaic Western Tibetan languages such as Purik (Zemp p.c., 2019)). While it can be observed that the lexeme has an initial prefix འ <'> in Written Tibetan, no other words with this Written Tibetan initial display the retroflexion of the initial cluster, as can be seen with *bruk* 'thunder, dragon' (Written Tibetan འབྲུག་ *'brug*) or *bro* 'pastureland' (Written Tibetan འབྲོག་ *'brog*). Thus, it cannot be concluded with confidence that the prefix འ <'> initiated a sound change which resulted in /Br/ clusters becoming retroflex plosives. It seems more plausible that borrowing from an other Tibetic language which does display this regular sound change, most likely Dzongkha, took place. Additionally, the lexeme for 'religious mural' *ɻaɖi ~ ɻabri*, which consists of the components *ɻa* 'god, deity' (WT ལྷ *lha*) and *ɖi* 'to write' (WT འབྲི་ *'bri*), shows an alternation between a retroflex cluster and an initial cluster in the component meaning 'to write'. Both forms, *ɻaɖi* and *ɻabri*, can be used interchangeably.

This suggests that the cluster is the native Brokpa form, while the retroflex initial is a loan. This is corroborated by the fact that *ɖi* shows irregular past allomorphy (cf. Mittaz, this issue [b]).

In terms of the non-Tibetic neighbouring languages Dakpa and Tshangla it can be noted that they too exhibit /Br/ clusters both in native lexemes and in Tibetic loans like Dakpa *braŋtɔŋ* (van Driem 2007: 77), Tshangla *braŋtoŋ* 'breast' (compare to Written Tibetan ཇང་ *brang*) and Dakpa *bra*, Tshangla *brak ~ braʔ* 'cliff' (Written Tibetan བྲག་ *brag*).

While the Brokpa /Br/ clusters are based on native material and not loans from other languages, it may be that the contact with other languages exhibiting this peculiarity has fostered the retention of this archaic feature in Brokpa. For Choca-ngacakha Tournadre & Rigzin (2015: 83) have noted a possible retention of archaic features due to isolation from other Tibetic languages and active contact with other languages, which is reminiscent of the situation of Brokpa.

2.2 Selected final consonants

This section presents some tentative sound changes which may have taken place in Brokpa concerning final consonants. Specifically, what is present in Written Tibetan as final ག <g>, ད <d> and ས <s> will be discussed.

The Brokpa velar plosive /k/ in the syllable coda can be traced back to Written Tibetan ག <g> which has largely been preserved in a devoiced form. However, in some cases historical /g/ is realised as a glottal stop or has been lost entirely. Some examples are given in (4).

(4)	'sheep'	*luk*	WT ཡུག་ *lug*
	'one'	*tɕik*	WT གཅིག་ *gcig*
	'pastureland'	*bro ~ broʔ*	WT འབྲོག་ *'brog*

As for dental plosives, /t/ is attested in the syllable coda and can be traced back to Written Tibetan as well. In some cases, word-final Written Tibetan ད <d> has largely been lost, such as in the pronoun for the second person singular, c^ho (Written Tibetan ཁྱོད་ *khyod*). In a few cases, however, it

has been retained as a glottal stop, such as in the egophoric present tense suffix *-co?* (from the morpheme ཀི་ *ki* and the copula ཡོད་ *yod*, see Mittaz this issue [b]).

It can also be observed that, as opposed to many other Bodish languages like Dzongkha (cf. DeLancey 2003b 272; Jäschke 1883: 5–6; Tshering & van Driem 2019: 91), a historical syllable-final ད <d> has no effect on the preceding vowel, with the exception of <a>. Thus, Written Tibetan སྐུད་པ་ *skud pa* 'thread' corresponds to Brokpa *kutpa* whereas Dzongkha has a fronted vowel in *küp* 'thread'. Still, some lexemes with the phone [y] are attested, which do indeed show a vowel-fronting before historical ད <d>, such as Brokpa *ly* 'fertilizer', which corresponds to Written Tibetan ལྗོད་པ་ *lud pa* 'manure, dung'. However, this fronting is by no means universal for all Brokpa words ending in <-ud> in Written Tibetan. It is unclear if this indicates the beginning of a sound change, which will spread to other words of the language, or if it represents a loan word from another Tibetic language such as Dzongkha. As for syllable-final Written Tibetan <-ad>, on the other hand, this corresponds to Brokpa /-e/, as can be seen in Brokpa *ɟe* 'eight' (Written Tibetan བརྒྱད་ *brgyad*), *se* 'kill' (Written Tibetan བསད་ *bsad*) and *te* 'stay.PST' (Written Tibetan བསྡད་ *bsdad*).

Jäschke (1883: 6) describes a relatively old sound-change in most Tibetic languages from ས <s> to *-i*. It can be assumed that this change also took place in Brokpa, for which there are two arguments: First, the sound-change of final ས <s> to *-i* also gave rise to the diphthong [uɨ̯], which is only present in the two imperative stems *kuɨ̯* 'to steal (IMP)' and *ŋuɨ̯* 'to cry (IMP)'. While the imperative stem of 'to steal' in Written Tibetan, རྐུས་ *rkus*, does have a final <s>, which may have led to *i*, this is not the case for 'to cry' (Written Tibetan imperative stem ངུ་ *ngu*). However, DeLancey (2003a: 260) describes an often postscribed – and thus syllable-final – ས <s> for Tibetan verbs, from which the final *-i* in these two verbs may have originated. Secondly, a correspondence of final Written Tibetan <-as> with Brokpa *-e* can be observed. It is highly probable that there was an intermediate stage where <-as> became *-ai* which later changed to *-e*. Some examples for the correspondence of Written Tibetan <-as> with Brokpa e are given in example (5).

(5)	'uncooked rice'	*pre:*	WT འབྲས་ *'bras*
	'karma'	*le*	WT ལས་ *las*
	'barley'	*nè:*	WT ནས་ *nas*
	ablative marker (ABL)	*=ne*	WT ནས་ *nas*

2.3 Tonogenesis

Three contrastive tones are found in Brokpa: high level, low level and falling tone. The differentiation between these tones is however not always very clear; it is assumed that tonogenesis is still an ongoing process in Brokpa. The basis for this argument is an unstable voice onset time of voiced plosives on the one hand and words where tone seems not fully developed yet on the other hand. More explanations will follow below. There are however unambiguous examples of all three contrastive tones for which Funk (this issue [a]) also provides minimal pairs. The analysed sample is the same as used by Funk (this issue [a]). It only contains monosyllabic words with CV structure. Thus, the analyses presented here are preliminary and need to be tested in further research.

It seems that phonemic tone emerges in Brokpa due to the loss of the voicing contrast in onset obstruents. Formerly voiced obstruent onsets become voiceless and develop low tone on the following vowel. Formerly voiceless obstruent onsets develop high tone. See (6) for examples of words bearing high and low tone and their WT correspondences. This is not a finished, but rather a still ongoing process. As a result, we find still voiced as well as already voiceless obstruent onsets in words which bear low tone. But even the instances of still voiced onsets are not perfectly stable anymore. Sometimes they are realised as voiceless obstruents. Interestingly, Brokpa words containing a still voiced obstruent onset correspond to a Written Tibetan form with a prescript. Examples include the following words: Brokpa *bu* 'insect' ~ WT འབུ *'bu*, Brokpa *da* 'arrow' ~ WT མདའ *mda* and Brokpa *ga* 'saddle' ~ WT སྒ *sga*. Maybe these prescripts protected the voiced obstruents from a devoicing longer compared to a "naked" onset. The sample does however only provide very few examples of still voiced obstruent onsets so this can only be seen as a tentative idea. Also, the Brokpa word *kò* 'head' represents an exception to this rule, with the Written Tibetan form མགོ *mgo*. Why *kò* 'head' should be voiceless and with low level tone and *go* 'saddle' ~ WT སྒོ *sgo* voiced and low level could not be explained within this line of argumentation.

(6)	'body hair'	*pú*	WT སྤུ *spu*	'cow'	*pà*	WT བ *ba*
	'horse'	*tá*	WT རྟ *rta*	'knife'	*ʈì*	WT གྲི *gri*
	'vagina'	*tú*	WT སྟུ *stu*	'four'	*ɕì*	WT བཞི *bzhi*
	'cooked rice'	*tó*	WT ལྟོ *lto*	'rat'	*tɕè:*	WT བྱི་བ *byi ba*
	'soil'	*sá*	WT ས *sa*	'insect'	*bu*	WT འབུ *'bu*
	'who'	*sú*	WT སུ *su*	'goiter'	*ba:*	WT ལྦ་བ *lba ba*
	'tooth'	*só*	WT སོ *so*	'arrow'	*da*	WT མདའ *mda*
	'dice'	*ɕó*	WT ཤོ *sho*	'stone'	*do*	WT རྡོ *rdo*
	'top'	*tsé*	WT རྩེ *rtse*	'saddle'	*ga*	WT སྒ *sga*
	'what'	*tɕí*	WT ཅི *ci*	'nine'	*gu*	WT དགུ *dgu*
	'tongue'	*tɕé*	WT ལྕེ *lce*	'door'	*go*	WT སྒོ *sgo*

The sample shows an average of 150 Hz for high tone and 120 Hz for low tone (Funk, this issue [a]). However, there are words where assigning tone seems rather difficult, since they fall somewhere in between high and low tone (somewhere between 130 and 140 Hz), for example *kʰa* 'mouth' or *tʰo:* 'hammer'. One possible explanation might be the lack of need for precise differentiation; there might be no corresponding form with the other tonal value, or the context makes up for the underspecified tonal value. An ongoing development of tone might allow for such ambiguities. How register tone is assigned to words with liquid onsets or aspirated obstruents and affricates, which did or do not undergo any devoicing, is an open question at the moment.

Falling tone probably originates from a lost coda consonant. As can be seen in (7), Brokpa words with falling tone show a Written Tibetan etymology with a coda consonant. As also mentioned by Funk (this issue [a]), falling tone occurs with a lengthened vowel, which is likely to be a second

result of the lost coda. The lengthened vowel is not as long as a long vowel, it falls quite precisely between the lengths of a short and a long vowel.

(7)	'tiger'	*tâ*	WT སྟག་ *stag*
	'language'	*kî* [5]	WT སྐད་ *skad*
	'blood'	*ʈʰâ*	WT ཁྲག་ *khrag*
	'date'	*tsʰê*	WT ཚེས་ *tshes*
	'iron'	*tɕâ*	WT ལྕགས་ *lcags*
	'side'	*tɕʰô*	WT ཕྱོགས་ *phyogs*
	'two'	*jnî*	WT གཉིས་ *gnyis*
	'light'	*lô*	WT གློག་ *glog*
	'yak'	*jâ*	WT གྱག་ *gyag*

It could be argued that it would be likely for Brokpa to have a high falling as well as a low falling tone, parallel to the two register tones which split due to the loss of voice opposition. But up until now, no evidence for a low falling tone has been found.

3 Selected phonological peculiarities

Some phonological features of Brokpa are peculiar in the Tibetic or Bhutanese context and deserve a short mention. In the following section, two of these peculiarities will be discussed: The lack of evidence for a voiced dental affricate /dz/ in section 3.1 and the occurrence of voiceless vowels in section 3.2.

3.1 Missing voiced dental affricate

Looking at the Brokpa phoneme inventory as presented in Funk (this issue [a]) a gap can be noticed in the set of affricates where a voiced dental affricate [dz] or a voiceless dental affricate followed by a low tone vowel – that is, a de-voiced dental affricate [d̥z̥] – might be expected due to symmetry of the consonant inventory and correlation with Written Tibetan. Of course, the possibility that such a de-voiced affricate exists in Brokpa but (a) has not been found in the existing data, or (b) has erroneously been analysed as a historically voiceless affricate [ts] cannot be completely discarded. However, looking at related Bodish languages which do contain /dz/ in their consonant inventory, such as Standard Tibetan, Dzongkha, Choca-ngacakha, Themchen Tibetan (Haller 2004: 19) and Kyirong Tibetan (Huber 2005: 13), a different picture presents itself: Instead of /ts/, the Brokpa

[5] As described in section 2.2, the WT final <d> influenced the quality of a preceding *a*, changing WT <ad> to Brokpa *e*. Therefore, the expected form of Brokpa 'language' would be **kê* rather than *kî*. In the case of *kî* 'language', it is possible that high tone influenced the vowel quality, resulting in a vowel with increased tongue height. However, this point could so far not be investigated.

cognates of lexemes beginning in /dz/ in related languages, have the initial /s/.[6] Examples of this can be seen in the lexemes for a type of yak hybrid, Brokpa *sò*, Written Tibetan མཛོ་ *mdzo* and Themchen Tibetan *dzo* (Haller 2004: 270), and 'lash', Brokpa *sima*, Written Tibetan རྩི་མ་ *rdzi ma*, Dzongkha *dzim*.

Considering the neighbouring languages Dakpa and Tshangla, it can be noted that no native phoneme /dz/ has been described. For Tshangla, both Andvik (2010: 8), Bodt (2012: 190–191) and Grollmann (in press) note that /dz/ is only attested in Bodish loanwords. Additionally, [dz] is an allophone of /z/ in Dungsam-Khoidung-Tshangla, but it still isn't classified as a phoneme (cf. Bodt 2012: 221–222). Similarly, Dakpa does not possess the phoneme /dz/ in its phoneme inventory, although Bodt (2012: 279) classifies it as a marginal phoneme which only exists in Bodish loanwords in Thongrong-Dakpa. The comparison with other East Bodish languages shows that while Kurtöp does not exhibit the phoneme /dz/ as well, Bumthang does, but only very marginally (see the word list in van Driem 2015). Sadly, no other East Bodish language has been sufficiently described to allow for a meaningful comparison.[7] In the wider eastern Bhutanese context it can be noted, that both Gongduk and Black Mountain Mönpa lack a phoneme /dz/ as well (cf. Gerber 2020).

Still, it may be possible that the contact of languages without a morpheme /dz/ motivated a sound change from /dz/ to /z/ which later became /s/ due to the devoicing of initial fricatives and plosives. The wider implications of this seemingly areal phenomenon are discussed in Gerber & Grollmann (this issue).

3.2 Voiceless vowels

Brokpa has five vowel phonemes (Funk this issue [a]), three of which have been attested in a voiceless as well as voiced form: *ḁ*, *i̥*, and *u̥*, of which *ḁ* is by far the most common. Example (8) lists all known instances of voiceless vowels.

Voiceless vowels alternate freely with their voiced counterparts or ∅, so that the word *laŋpʰa* 'vapour' is realised as [laŋɸa ~ laŋɸḁ ~ laŋɸ][8]. Although there is free alternation between voiced and voiceless vowels in certain words, not all instances of voiced /a, i, u/ can be realised without voicing. At this stage it is still unclear if the vowels [ḁ, i̥, u̥] are phonemically distinct from /a, i, u/ or if they are simply allophones. So far, voiceless vowels have only been found at the end of open syllables. With the exception of *jomat̥ʰaŋa* 'mattress' all voiceless vowels are also word-final, and never in the first syllable of a word.

(8)	'man'	*cespḁ*	WT སྐྱེས་པ་ *skyes pa* 'man, male person'
	'morning'	*ɕopʰḁ*	WT ཞོགས་པ་ *zhogs pa* 'morning'
	'plate'	*dermḁ*	WT སྡེར་མ་ *sder ma* 'plate'

[6] To be precise, it can rather be assumed that initial /dz/ in related languages first corresponded to Brokpa /z/ which has then been devoiced. This analysis is based on the fact that, so far, all words of the structure CV (that is, all words for which tone has been adequately noted and described by Funk (this issue [a])), for which this sound change would be relevant, bear a low tone, indicating a past devoicing.

[7] Both van Driem (2007: 80) and Hyslop (2013) note the Dzala word *dzi* 'what?'. However, this word alternates with the form *di* according to Hyslop (2013), which is why there is no certainity if the affricate [dz] is phoneme of Dzala.

[8] Note that the phoneme /pʰ/ has a free alternation [pʰ ~ ɸ].

'discussion'	*dyɲɕḁ*	Bjokapakha (Tshangla) *düncha* 'discussion, consultation' (Grollmann in press: 435)
'evening'	*go:mḁ*	possibly WT དགོངས་ *dgongs* 'evening'
'musk deer'	*kʰaɕḁ*	Dakpa *kha sha* (Wangchu 2002: 72)
'kidney'	*kʰa:mḁ*	WT མཁལ་མ་ *mkhal ma* 'kidney'
'vapour'	*l̥aŋpʰḁ*	WT རླངས་པ་ *rlangs pa* 'vapour'
'frost'	*l̥a:pʰḁ*	WT ལྷག་པ་ *lhag pa* 'cold wind'
'skin'	*papʰḁ*	WT པགས་པ་ *pags pa* 'skin, hide'
'religious texts'	*petɕḁ*	WT དཔེ་ཆ་ *dpe cha* 'book'
'belly'	*sipʰḁ*	*no known correspondence*
'rib'	*tsímḁ*	WT རྩིབ(ས་)མ་ *rtsib(s) ma* 'rib'
'joint'	*tsʰikpʰḁ*	WT ཚིགས་(པ་) *tshigs (pa)* 'joint'
'slipper'	*ʈepʈemḁ*	Dzongkha *ʈepʈema*
'mattress'	*jomḁtʰaŋa*	Brokpa *joma* 'blanket' (no known WT correspondence) + Dakpa *thaŋa* 'blanket'
'glue'	*latɕi̥*	second syllable possibly related to WT སྤྱིན་ *spyin* 'glue'
'millet'	*koŋpʰḁ*	Dirang-Tshangla *kong-pu* 'millet' (Das Gupta 1968: 71)
'garlic'	*laɕu̥*	Indoarian, compare Nepali £'w *lasun* and Hindi £"'w *lahasun* 'garlic'
'night'	*numu̥*	WT ནུབ་མོ་ *nub mo* 'evening' or ནམ་ *nam* 'night'

Comparing Brokpa with Dzongkha shows, that second-syllable suffixes བ་ *pa*, བོ་ *bo*, འུ་ *'u*, པ་ *pa*, པོ་ *po*, མ་ *ma* and མོ་ *mo* have been lost in Dzongkha (Mazaudon & Michailovsky 1988: 122; 130–136). Since the voiceless vowels of Brokpa for the most part seem to be present in syllables consisting of such syllables, it may well be possible that they represent an intermediate stage before the complete loss of these syllables.

It is interesting to note that the two voiceless vowels [i̥, u̥] have also been described for the East Bodish language Dakpa (Hyslop & Tshering 2010). The four examples listed by Hyslop & Tshering (2010: 12) are *akpu̥* 'crow', *cipketʰi̥ ~ cipketʰ* 'eighteen', *thoŋgju̥* 'will drink.1st' and *phuipu̥* 'male'. This suggests that the distribution of /i̥, u̥/ is limited to open syllables at the end of polysyllabic words. Bodt (2012: 283) notes that Thongrong-Dakpa deletes word-final high vowels in certain environments: /u/ disappears after /k/ and /i/ after /ɕ/. He gives the example of /léɕi/ 'garlic', which is pronounced as [léɕ]. Interestingly, the Brokpa word for 'garlic', *laɕu̥*, contains a voiceless vowel as well. For Brokpa it seems that the lexeme was borrowed from Indoarian (compare to Nepali

ཟླ་བ*lasun* and Hindi ཟླ་བ་ཐ*lahasun*). It seems plausible that the same was the case for Dakpa or that either Brokpa borrowed the loanword from Dakpa or vice versa. Thus, it might be hypothesized that Bodt's conditioned deletion of word-final vowels and the voiceless vowels described by Hyslop & Tshering are simply different analyses of the same phenomenon. However, not all Dakpa examples given by Hyslop & Tshering meet the conditions given by Bodt, such as the word *phuipu̥* 'male'. That is, not all Dakpa voiceless vowels can be explained with the deletion of word-final /u/ after /k/ and final /i/ after /ɕ/.

The presence of voiceless vowels in Brokpa cannot be explained by simple borrowing from Dakpa. The most common voiceless vowel in Brokpa, *ḁ*, does not exist in Dakpa at all. Additionally, many of the lexemes containing a voiceless vowel in Brokpa are not of Dakpa origin. Nevertheless, the areal proximity of the speaking areas of Brokpa and Dakpa and the relative scarcity of voiceless vowels in the Trans-Himalayan context suggest that the contact of these two language communities may at least facilitate the continued existence of voiceless vowels, which may well disappear completely given time, as was the case for Dzongkha.

4 Conclusion

This paper has shown a number of features concerning Brokpa phonology and phonotactics, taking into account both historical and areal data. A number of Brokpa sound changes concerning initial clusters with /r/ have been discussed: While historical ད <dr>, ཏ <tr>, ཐ <thr> and ག <gr>, ཀ <kr>, ཁ <khr> became retroflex plosives as in other Tibetic languages (cf. Tournadre 2005: 31), /Br/ clusters with an initial bilabial plosive were preserved in Brokpa. Additional sound changes have been noted, such as syllable-final <as> to /e/ and <sr> and <sCr> to /ʂ/. Furthermore, the lack of a voiced dental affricate /dz/ or any hint of a devoicing of such a sound has been discussed in the areal context. The close contact to language communities like the Tshangla and the Dakpa, whose languages lack the phoneme /dz/ as well may have motivated a sound change from historical <dz> to /s/ in Brokpa, possibly via an intermediate stage /z/ which has later been devoiced. Finally, a short mention of voiceless vowels has been made, which may represent an intermediate stage before the complete loss of final vowels of certain syllables and may additionally have arisen due to contact in at least the lexeme for 'garlic' (Brokpa *laɛu̥* compared to Dakpa /'leshi/ ['leɛ]). As for the emergence of tone, the loss of the voicing contrasts on initial obstruents is the source of high and low register tone. The falling tone may have developed from a lost coda.

Thus, it was shown that Brokpa preserved some archaic Tibetic features. Still, some innovative sound changes also observed in other Tibetic languages, among them the emergence of tone, have been illustrated. Additionally, some features which seem unusual in the Tibetic context have been discussed and it has been found that they may well be attributable to close contact with other, non-Tibetic, language communities.

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