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A history of the vowel systems of the Nakh languages (East Caucasian), with special reference to umlaut in Chechen and Ingush

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ABSTRACT

Chechen, Ingush and Batsbi together form the Nakh subgroup of the East Caucasian language family. Chechen and Ingush, and to a lesser degree Batsbi, underwent regressive vowel assimilation (umlaut). The sound laws that govern umlaut have already been established to some degree. The article focuses on two issues: umlaut rules for the Chechen dialects are worked out in detail on the basis of the Chechen dialectal material provided by Imnajshvili 1977, and the different umlaut effects caused by the mid vowels **e* and **o* on the one hand and the close vowels **i* and **u* on the other are highlighted, for both Chechen and Ingush. The conclusions are applied to the reconstruction of the verbal endings of the present tense, Proto-Nakh **-u, *-o, *-i* and **-e*, and the endings of the recent past tense, Proto-Nax **-i^N* and **-e^N*. Building on work by Handel 2003, the many different inflectional classes of the Chechen and Ingush verb are reconstructed as a relatively simple Proto-Nakh system, where morphological complexity resides almost exclusively in the choice of the aforementioned allomorphs. Finally, following on from Nichols 2003, an attempt is made to reconstruct the Proto-Nakh vowel system beyond Proto-Nakh, by comparing nominal ablaut in Nakh with a very similar phenomenon in Avar-Andic-Dido, which allows us to reconstruct the vowel alternation in detail for Proto-East Caucasian and, specifically, to reconstruct the Proto-Nakh alternation **i ~ *a* as

Proto-East Caucasian **i* in (reconstructed) stressed and unstressed position, respectively.

Keywords

Nakh, Chechen, Ingush, historical phonology, umlaut, ablaut

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A history of the vowel systems of the Nakh languages (East Caucasian), with special reference to umlaut in Chechen and Ingush

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1. Introduction

Chechen, Ingush and Batsbi together form the Nakh subgroup of the East Caucasian language family. Chechen and Ingush, and to a much lesser degree Batsbi, underwent extensive sound changes as a result of regressive vowel assimilation (umlaut), which affected initial syllables. Subsequent losses of vowel oppositions in non-initial syllables obscured the quality of the vowels that caused the umlaut. In Chechen, the extent to which those vowel changes affected the language differs from dialect to dialect. Imnajshvili 1977 provided extensive lexical material from Chechen dialects that illustrates this. Up to a point he also provided an analysis of the data, as well as examples and a rudimentary analysis of umlaut in Ingush and Batsbi. Based on Imnajshvili 1977, and starting from a reconstruction of the Proto-Nakh vowel system (section 2), this article provides a more detailed analysis of umlaut (section 3) and applies the results to a fine-tuning of the reconstruction of verbal endings (section 4) and verbal classes (section 5) in Chechen and Ingush. While umlaut affected the Nakh languages later than Proto-Nakh, there is a different vowel alternation which was already present in Proto-Nakh and which affected nouns: a Proto-Nakh root vowel **o, *u* or **i* in the nominative alternates with a root vowel **a* in the oblique singular and plural stem (type: Chechen *buorz*, ergative *barzuo* 'wolf'). Following on from Nichols 2003 and Alekseev 2003, this vowel alternation is traced back to Proto-East Caucasian and a reconstruction of the alternation is undertaken on the basis of a comparison with the Avar-Andi-Dido subgroup of the Daghestanian branch of East Caucasian (section 6). General conclusions are presented in section 7.

This article contains many lexical items from Chechen, Ingush and Batsbi. Chechen dialectal forms in general are those provided by Imnajshvili 1977. For standard Chechen, which is based on the Plains dialect, Nichols-Vagapov 2004 was used, and for Ingush Nichols 2004. The standard lexical source for Batsbi is Kadagidze 1984, and all forms cited by other authorities have been checked against

Kadagidze 1984. Bertlani 2012-2019, which incorporates Kadagidze 1984 but also adds material, was also used, but where he provides information that cannot be corroborated on the basis of Kadagidze 1984 this will be explicitly stated.

2. The vowel system of Proto-Nakh

2.1. Vowel systems in the Nakh languages

The reconstruction of the Proto-Nakh vowel system is not straightforward. The varieties that underlie the Chechen and Ingush literary languages have very rich vowel systems, especially by Caucasian standards, comprising between 13 (Ingush; Nichols 2011:22ff.)[1] and 20 (Chechen; Nichols 1994:6, Komen 2007) phonemes in stressed (i.e. initial) syllables. Batsbi, on the other hand, probably has only 7 vowel phonemes in this position (Imnajshvili 1977:47; but see footnote 4). The standard orthographies of Chechen and Ingush seriously underrepresent vowel distinctions: they do not distinguish vowel length or diphthongization.

Chechen (Plains dialect, based on Imnajshvili 1977:21, 28; Nichols 1994:6, Nichols 1997:945-47; Komen 2007)

i iː	ü üː	u uː
ie ieː	üö üöː	uo uoː
e eː	ʌ aː	o oː
ä äː[2]		

Ingush (based on Nichols 2011:22, Imnajshvili 1977:37)[3]

i iː	ɨ	u uː
ie ieː		uo uoː
e	ʌ	o
eaː	a	oaː

[1] Excluding the overlong variants of the long vowels *iː, uː, eaː, oaː, aː*, which are treated as phonemic by Nichols (2011) on p. 19 and 22 but not on pp. 23-31. The latter is accurate according to Johanna Nichols (personal communication): length occurs allophonically in open syllables, including open syllables before consonant + reduced shwa (ibid., 18, 34 ff.).

[2] Komen (2007) regards *ä* [æ] as an allophone of /e/ in pharyngeal contexts, and *äː* [æ] as an allophone of /eː/ in closed syllables; see Nichols 1997:946 for a discussion.

[3] In Ingush, short *ie* and *uo* are distinguished from long *ieː, uoː* by Imnajshvili 1977:37. According to Nichols (2011), short *ie* and *uo* have merged with short *e* and *o*. The difference may reflect a completed sound change that occurred between the middle and the end of the last century. In this one feature I follow Imnajshvili.

Batsbi (based on Imnajshvili 1977:47)[4]

i	iː	u
e		o
	a aː	

2.2. Origins of complexity

The richness of the vowel systems of Ingush and Chechen is generally recognized to be a chronologically secondary characteristic, which predominantly resulted from two factors:

1. **Contraction across morpheme boundaries.** Wherever a lexical stem ends in a vowel and a following morpheme begins with one, contractions may ensue. The potential for this to happen was increased by the loss of Proto-Nakh **d, *g* and **b* in intervocalic position, which affected Chechen and Ingush but not Batsbi (Imnajshvili 1977:260). For instance, in literary Chechen, which reflects the Plains dialect, *eː* was the product of contraction of long *aː* and the genitive singular morpheme **eᴺ* or **iᴺ*, e.g. *deːᴺ* < **daː-eᴺ* or *-iᴺ*, genitive singular of *daː* 'father' < **dada* or **daːda* (cf. Batsbi *dad* < **dada*). Another example of contraction across a lost voiced plosive is Chechen and Ingush *cʼieːᴺ* 'red' < **cʼiegeᴺ*, cf. Batsbi *cʼegeᴺ*. These contracted forms occur in all Chechen dialects, including the archaic Cheberloj dialect (Imnajshvili 1977:151). Similar examples are plentiful. A general point that should be made is that the historical phonology of words of the basic structure CV has not been worked out in detail and contains unresolved complexities, judging by the irregular morphophonology of its Chechen reflexes (e.g. *diᴺ* pl. *doj* 'horse'; *laj* pl. *leš* 'slave', *kov* pl. *keš* 'gate').

2. **Phonemicization of umlaut**. This is the main theme of section 3 of this article.

2.3. From Cheberloj Chechen to Proto-Chechen-Ingush

The best approach towards the Proto-Nakh vowel system is via those varieties of the Nakh languages that show fewest traces of umlaut: the Batsbi language and the Cheberloj dialect of Chechen. Imnajshvili (1977:22) chooses the Cheberloj vowel

[4] In absolute word-final position, *i, u, e, o* have shortened allophones *-ĭ, -ŭ, -ĕ, -ŏ*, which are here spelled as such. Holisky-Gagua 1994:152 also recognize *eː* and *oː*, and Kadagidze 1984 records words with *eː* and *oː*. There are some minimal pairs. Holisky-Gagua 1994:153 contrast *motː* 'bed' versus *moːtː* 'it seems to him', and *jetχ* 'six' versus *j=eːtχ* 'cry! (imperative)'. Compare also *d-epχ-d-alar* 'warm up' and *d-eːpχ-d-alar* 'get dressed' (I am indebted to Alice Harris for this information). Such examples are very rare, however, and the phonemic status of the opposition is unresolved. Bertlani 2012-2019 I 36-44 lists many more vowels but does not explain their phonemic status, nor the phonetics involved in what are called 'irrational vowels'.

system as a stand-in for Chechen as it was before umlaut affected it and presents the following reconstruction of its primary (i.e. pre-umlaut) vowel system:

Cheberloj (subdialect of Makažaj; Imnajshvili 1977:21):

i	iː			u	uː
ie	ieː			uo	uoː
		a			
			aː		

This is a good starting point, but the Cheberloj vowel system should not be equated with the Proto-Chechen vowel system because the former innovated in a number of respects:

a. Introduction of the opposition between long and short ie, uo.
As Imnajsvili 1977 himself notes, the long and short diphthongs are distributed complementarily: long *ieː*, *uoː* occur in open syllables and short *ie, uo* in closed syllables. This is also the distribution in standard Chechen, with one exception: in monosyllabic words of the structure CV, the long and short diphthongs are in opposition, e.g. (Desheriev 1960:58):

dieː 'kill!, sow!' ~ *die* 'day'
lieː 'speak!, die! ~ *lie* 'dies'
tʾieː 'surface' ~ *tʾie* 'on'

In the first two examples, the long diphthong results from contraction: in the two imperatives the roots *die-* and *lie-* were contracted with the imperative morpheme **-a*. A similar contraction may have affected *tʾieː*, as evidenced by its Ingush cognate *tʾieχie* 'id.' (Ozdoev 1980:495). It is possible that *tʾie* 'on' is a cliticized form of *tʾieː* 'surface', which may explain the short diphthong (Johanna Nichols, personal communication).

A similar argument can be made for minimal pairs involving *uo* and *uoː* (Desherijev 1960:64-65):

luoː 'snow' ~ *luo* 'gives'
luoː 'give!'
guoː 'circle, disk' ~ *guo* 'sees'
guoː 'see!'
ħuoː 'carry!' ~ *ħuo* 'carries'

The imperatives *luoː, guoː* and *ħuoː* are again contractions with the imperative morpheme **-a*. The word for 'snow', *luoː*, contains secondary *uoː* because it reflects

earlier **law* or **lawa*, cf. Batsbi *lav* 'id.' (Ingush *loa* < **lɔː* < **law(a)*; the development of **aw* to *uo* failed to affect Cheberloj, cf. Imnajshvili 1977:150). Chechen *guoː* 'circle' is an example of contraction again, cf. Batsbi *gogŏ*, Ingush *guo* (intervocalic **g* was regularly lost in Chechen and Ingush; Imnajshvili 1977:260).[5] It is true that one may argue that the short diphthongs in the present tense forms *lie, luo, guo* and *ħuo* probably reflect contraction, too, given the fact that the normal present tense endings in Chechen are *-u* and, in a number of intransitive verbs, *-a* < Proto-Nakh **-e*, but in that case the result was a short vowel. This difference in the treatment of final vowels in the imperative versus the present tense is also reflected in Ingush, where the imperative **-a* leaves a word-final reduced shwa while the present tense **-u, *-e* yield zero (see Nichols 2011:38). So in all probability the opposition between *ie, uo* and *ieː, uoː* in Chechen, including Cheberloj, is secondary, the long counterparts having arisen by contraction (Nikolayev-Starostin 1994:98).

b. Introduction of e, o

Imnajshvili points to two other vowels that occur in Cheberloj but are absent from his primary Cheberloj vowel system because they represent innovations. One source is umlaut, which is almost completely absent from Cheberloj (the following are, in fact, the only instances of umlaut in Cheberloj):

(1) *o* resulted from labial umlaut of **a* caused by **o* (not by **u*!), as in *vošo* 'brother' < **wašo* (old *-a-* in the first syllable is indicated by Plains, Itumkali and Vedenoj Chechen *vaša*) (Imnajshvili 1977:65-66; cf. also Batsbi *vašŏ*)

(2) *e* resulted from palatal umlaut of **a*, which in Cheberloj only occurs before an **e* in the second syllable *and* if a pharyngeal or glottal stop flanks the **a*, e.g. *leħe* 'snake', *bˤeʔe* 'hundred', *χeʔeᴺ* 'knew (recent past)' (in all examples original **a* is indicated by their Plains Chechen counterparts *läħa, bˤäː, χäʔa = χeʔa,* where *ä* can only result from *e-* or *i*-umlaut of original **a*; cf. also Batsbi *laħ* 'snake'; cf. Imnajshvili 1977:60, 152).[6]

It is possible that *e* and *o* resulted from contractions as well, but this is less clear. In Cheberloj, contractions definitely took place much as they did in Plains Chechen: among the dialectal vocabulary lists produced in Aliroev (1975), there are Cheberloj instances such as *ša* pl. *šeš* 'ice' (p. 36; cf. Batsbi *pša* pl. *pšejš* [thus Aliroev; Kadagidze 1984: 595 has the pl. *pšajšĭ*, which is a more archaic variant of *pšejš*]), *qie* pl. *qeš* 'bean' (p. 69; no Batsbi cognate), *saj* pl. *seš* 'deer' (p. 93, cf. Batsbi *sag*, pl. *sagar*, Kadagidze 1984:520), *buo* pl. *buoj* 'orphan' (p. 117; cf. Batsbi *badŏ*). While Aliroev

[5] The loss apparently did not affect **g* across a morpheme boundary: the allative affix *-ga* preserves its **g* (Johanna Nichols, personal communication).

[6] In the case of Cheberloj *χeʔeᴺ*, the rule may have been more subtle because there are instances where *aʔ* before *e* failed to undergo umlaut: perfect *χaʔene*, witnessed past *χaʔera* (Imnajshvili 1977:152; but he has the latter forms as *χeʔene, χeʔera* on p. 61).

often differentiates the diphthongs *ie, uo* from the monophthongs *e, o* in spelling, he does not do so systematically, so that it is unclear whether Cheberloj spellings like *šeš, qeš, seš* actually denote *e* (which would be the new vowel phoneme) or *ie* (an inherited vowel phoneme).[7]

c. Historical status of iː, uː

Most instances of the phonemes *iː* and *uː* in Chechen and of *iː* in Ingush result from umlaut of **ie* and **uo* and will be discussed in section 3. That means that *iː* and *uː* are very rare in Cheberloj, which did not undergo the umlaut that produced those phonemes in other Chechen dialects and in Ingush.

Instances of native words with *iː* and *uː* that do not reflect umlaut apparently are all verbal and all result from contraction of the vowel **ie* or **uo* + **w* < Proto-Nakh **b*. Among those, the major category are verbs with iterative aspect (stem vowel originally **ie* < **e*; **uo* < **o*) and plural subject or object (infix originally **w* < **b*), in which the sequence **iew* regularly yielded *iː* while **uow* became *uː* in both Chechen and Ingush (see 3.2.8). An example with *iː* is Chechen *ħiːs-a*^{N} 'look, watch' (Imnajshvili 1977:87 gives dialect forms) < **ħiejs-* < **ħie-w-s-* < Proto-Nakh **ħe-b-s-*, cf. Batsbi *ħeps-* 'look'. Another example of the same original sequence but this time with fossilized iterative aspect and plural subject/object is Chechen *=iːc-* 'tell, relate' (Imnajshvili 1977:72) < **=ie-w-c-* < Proto-Nakh **=e-b-c-*, cf. Batsbi *=epca*^{N} 'tell, weave'.[8]

Examples of *uː* < **uow* < **o-b-*:

Chechen	Ingush		Batsbi[9]
=uːs-	*=uːs-*	'inflate' < **=uows-* < **=obs-*	*=ops-*
=uːχ-	*=uːχ-*	'dress' < **=uowχ-* < **=obχ-*	*=opχ-*
=uːc-	*=uːc-*	'tell, weave' < *=uowc-* < **=obc-*	*=opc-*

Since all Chechen and Ingush dialects share the developments that gave rise to those instances of *iː* and *uː* < **iew, *uow*, the reconstruction of *iː* and *uː* is safe for Proto-Chechen-Ingush.

Having subtracted these probable innovations from Imnajshvili's primary vowel system of Cheberloj, we arrive at a reconstruction of the following Proto-Chechen-Ingush vowel system of initial (stressed) syllables:

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[7] Cf. Literary Chechen /cʾien/ 'red' spelled *cʾen, cʾeːn* on p. 67, and /šuo/ 'year' spelled *šo* on p. 40.

[8] Its Ingush cognate is *=uːc-*; here the form resulting from labial umlaut, which regularly arose in the present tense system (*=uːc* < **=iːcu*), was generalized as the basic verbal stem, see section 5 (cf. Nichols 2011:238 for this class of verbs, and pp. 316-17 for more examples of Ingush iterative verb stems with *-iː-* in past tense alternating with *-uː-* in present tense forms).

[9] Kadagidze 1984:494 and 495. Batsbi *=opc-* is the perfective of *=epc-*; the alternation *o~e* indicates the opposition between the perfective and imperfective stem.

i	iː			u	uː
ie					uo
		a	aː		

**e* and **o* probably had not yet developed, nor had the phonemically long phonemes **ieː, *uoː*, which arose later from contraction, umlaut and lengthening of **ie* and **uo* in open syllables. **iː* and **uː* had already developed, but deeper still in time they too had arisen from contractions.

2.4. Proto-Nakh

This Proto-Chechen-Ingush vowel system comes close to the Batsbi system, which we have seen earlier:

i	iː			u
e				o
		a	aː	

It is not clear whether the diphthongs *ie, uo* of Chechen-Ingush or the monophthongs *e, o* of Batsbi are archaisms. Nikolayev-Starostin 1994:97 opt for the latter, probably on the evidence of the other Northeast Caucasian languages, but they do not provide a reason. The rise of 'new' *e* and *o* in Chechen and Ingush as a result of umlaut and contraction and the phonological pressure to keep them distinct from 'old' **e/ie*, **o/uo* may well have played a role in phonemicizing the diphthongs. Further, in Batsbi long /iː/ is an innovation, which derives from earlier **ej*, e.g. *diːnǐ* 'alive' < **dejni* < **deni(ᴺ)*, which may be compared with Cheberloj Chechen *dieːniᴺ* 'alive' (Imnajshvili 1977:120, 121 for more examples). So the reconstructed Proto-Batsbi system is:

i				u
e				o
		a	aː	

Since in all known instances Proto-Chechen-Ingush **iː* and **uː* derive from **ieb, *uob* and since **b* is still intact in Batsbi (see 2.3.c), there are no solid grounds for reconstructing those long vowels for the Proto-Nakh vowel system. Hence it does seem to be the case that the Proto-Batsbi vowel system is identical to the Proto-Nakh vowel system.[10]

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[10] Nikolayev-Starostin (1994:98) argue that there is indirect evidence for rare **iː* and **uː* in nouns that show ablaut: CiC/CuC in the nominative and CaːCV- in the obliques stem. Examples: Cheberloj *muq*, oblique stem *māqi-* (Imnajshvili 1977:77), literary Chechen *muq*, oblique stem *mēqi-* 'barley', presumably from **mūq*, oblique **māqi-*; but the long *aː* in literary Chechen *dig*, oblique stem *dāgara-* 'axe' is not confirmed by Maciev 1961 or Nichols-Vagapov 2004 so it is probably incorrect. They state that the short *u, i* in the attested forms results from shortening in a closed syllable, but if so this must

2.5. The vowel system of non-initial syllables

In Chechen and Ingush, long vowels in non-initial syllables are the result of contractions and are therefore of secondary origin (see Imnajshvili 1977:151-52 for examples such as Cheberloj *gaːlaj* 'bag', genitive singular *gaːlieːᴺ* < **gaːlajeᴺ*, nominative plural *gaːlieːš* < **gaːlaješ*). The primary, short vowels best preserve their original quality in Batsbi and in Cheberloj Chechen, where a five-vowel system is attested:

i		u
e		o
	a	

In Batsbi in absolute word-final position, **-a* has been lost and the other vowels are overshort. They are conventionally spelled *ĭ, ĕ, ŭ, ŏ* (Imnajshvili 1977:47).[11] In other positions outside the first syllable, *i, e, a, o, u* are preserved as regular short vowels. All Nakh languages possess a series of word-final nasalized vowels, which in Batsbi and Cheberloj comprise the full set *iᴺ, eᴺ, aᴺ, oᴺ, uᴺ*. They reflect a sequence of vowel + word-final **-n*, which apparently had already lost its segmental character in Proto-Nakh.

In general, the quality of word-final vowels in Cheberloj agrees with that of its Batsbi counterparts. Here are some examples (page references, unless stated otherwise, are to Imnajshvili 1977; Batsbi forms checked in K = Kadagidze 1984 and, if lacking there, in B = Bertlani 2012-2019):

Cheberloj	Batsbi	meaning	page reference
laqeᴺ	*laqeᴺ*	'high'	59, 118
tʾaːdeᴺ	*tʾatʾeᴺ*	'moist'	61, 118
maːdeᴺ	*matʾeᴺ*	'(over)ripe'	261-62
=aːχeᴺ	*=aχːeᴺ*	'long'	61, 118
aːse	*aːsĕ*	'calf'	61, 119 (*assĕ*), K 44 *aːsĕ*
=aziᴺ	*=acʾiᴺ*	'heavy'	68, 118
marziᴺ	*macʾriᴺ*	'sweet'	68, 118
=aqʾiᴺ	*=aqʾiᴺ*	'dry'	72, 118, B I:102 *=ăqʾiᴺ* (not in K)

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reflect a much older process than the modern shortening in closed syllables (as Johanna Nichols informs me [Nichols personal communication], short vowels differ from long vowels that are shortened in closed syllables by being lax and centralized; the vowels in Ingush *dig* and *muq* are lax and centralized). The whole argument is based on the logic that a long vowel in the oblique stem should correspond to a long vowel in the nominative, but this does not necessary follow. Nikolayev-Starostin (1994:96) reconstruct distinctive vowel length in Proto-Nakh for all vowels, including *e, eː* and *o, oː* but since the long variants arose as allophones in open syllables, which were phonemicized at a later date in Chechen and Ingush as a result of contractions (see 2.3.a), I do not find that part of the reconstruction convincing either.

[11] Due to the frequent loss of word-final **-ħ*, which had protected the preceding vowel from shortening, unshortened final vowels are becoming phonemic again (Gagua 1961:76).

d=ieːni^{N}	*d=ejnĭ diːnĭ*	'alive'	47, K197
mali^{N}	*mali*^{N}	'warm'	74, 118
musti^{N}	*mustʾi*^{N}	'sour'	267
kuoːri	*kujrĭ*	'hawk'	76, 120 (probably < Georg. *kori*; Batsbi not in K or B)
tuχi	*tujχĭ*	'salt'	80, 120
vošo	*vašŏ*	'brother'	73, K253
bˁarzo^{N}	*bˁarcʾo*^{N}	'mule'	K108[12]
čʾaːʁo^{N}	*čʾ(ˁ)aʁo*^{N}	'firm, strong'	118, K777, 789
cʾagu	*cʾa/owkʾŭ*	'tail'	81, 121, 262, K756
qaqu	*qa/owqŭ*	'pidgeon'	81, 121, K828, BIII:241
laχu^{N}	*laχu*^{N}	'low'	81, 118
d=aːcu^{N}	*d=acu*^{N}	'short'	118, K55, BI:70
-a^{N}	*-a*^{N}	infinitive ending	

Correspondences are not perfect, however, as the following equations indicate:

Cheberloj	Batsbi	meaning	page reference
χeʔ-e	*χiːʔ-ĭ (> χiːʔ)*	'sits down'	47, 60, 120, K808-9, BIII:220[13]
kʾaːrgo^{N}	*kʾˁokʾru*^{N}	'deep'	69, 118
qʾaːrzo^{N}	*qʾarcʾe*^{N}	'many-coloured'	266
marzu	*macʾrŏ*	'whey'	82, 246
ʕaːrži^{N}	*ʕarčʾe*^{N}, *ʕarčʾi*^{N}	'black'	266 (*-e*^{N}), K930 (*-i*^{N})
aːrgi^{N}, *aːrge*^{N}	*arkʾe*^{N}	'unripe'	118, 266
baqʾi	*baqʾŏ*	'foal'	66, 119
mˁadu	*mujtʾĭ*	'dirt'	261
perf. past *-ne*	rec. past *-nŏ*		61, 64; e.g. Desheriev 1953:131

In most of those instances the reason behind the differences between Cheberloj and Batsbi is unclear. Sometimes is it possible to propose an explanation. Cheberloj *baqʾi* 'foal' has an obique stem *baqʾo-* (Imnajshvili 1977:66), which presents us with the possibility that Batsbi *baqʾŏ* is the result of the analogical generalization of the oblique stem to the nominative. The difference between Cheberloj *χeʔ-e* and Batsbi *χiːʔ-ĭ* 'sits down' may reflect a difference in generalization of the various present tense morphemes (Batsbi has *-ĕ, -ŭ, -ŏ* beside *-ĭ*). The fact that Imnajshvili now records *aːrgi*^{N} (p. 118) and then *aːrge*^{N} (p. 266) for 'unripe', only the latter of which agrees with Batsbi *arkʾe*^{N}, may reflect actual vacillation between *-e*^{N} and *-i*^{N} in the dialect or inaccurate recording. Similarly, Imnajshvili's *ʕarčʾe*^{N} 'black' may be incorrect, compare Kadagidze's *ʕarčʾi*^{N}, which does agree with Cheberloj.

This imperfect correspondence between final vowel quality in Cheberloj and Batsbi presents a potential difficulty to anyone who wishes to determine the umlaut effects that those vowels may have had on the vocalism of preceding syllables in

[12] Imnajshvili 1977: 266 has *bˁarcʾŏ*, which probably is a mistake.

[13] A present tense in *-u* is reported as a rare by-form by Alice Harris (personal communication).

Chechen and Ingush. As a rule of thumb, I shall follow Imnajshvili in regarding the Cheberloj evidence as more directly relevant to umlaut in the other Chechen dialects and in Ingush.

The Plains dialect, which underlies literary Chechen, is in fact a conglomerate of a number of subdialects. Following Imnajshvili's description (1977), we may observe that some of them have reduced the originally five-vowel system of final syllables to a three-vowel system: *i, a, u*, which determines normative Chechen *orthography*. In other Plains dialects, however, all five short final vowels have merged as [ʌ], a sound that is normally spelled *a*; [ʌ] is the normative *pronunciation* of literary Chechen (Desheriev 1960:54, 69, 76-77; see also Nichols 1994:16).[14]

3. Umlaut in Chechen and Ingush

Having established the Proto-Nakh and the Proto-Chechen-Ingush vowel systems of first (stressed) syllables that existed before umlaut affected Chechen and Ingush, and having established the Proto-Chechen-Ingush system of final syllables on the basis of Cheberloj Chechen, we are now in a position to discuss the rules that govern umlaut in Chechen and Ingush. In what follows, I shall use the shorthands V1 and V2 to denote a vowel in the first syllable and a vowel in the second syllable respectively. All Chechen forms quoted are those of Imnajshvili 1977:59-87.

A phenomenon that is incompletely understood is the different influence exerted by Proto-Nakh mid vowels (**e, *o*) and close vowels (**i, *u*) of the second syllable on first-syllable vowels in Chechen and Ingush. This is the focus of the following investigation. The general outlines of the the history of umlaut are well-known: see Imnajshvili 1977:51-125, Nichols 1997:947-48, 956-60.[15]

3.1. Palatal umlaut: V2 = **e* or **i*

Imnajshvili (1977) presents a wealth of dialectal material that illustrates that if V2 is **i*, it causes more widespread palatal umlaut than if V2 is **e*. Consider the following examples, to which I have added Ingush and Batsbi cognates from Imnajshvili 1977 and from Nichols 2004 (Ingush) as well as from Kadagidze 1994 and Bertlani 2012-19 (Batsbi).

3.1.1. V1 is **a* and V2 is **e*

In both Chechen and Ingush, short *a* represents a central mid vowel, approximately [ʌ]. Plains Chechen comes in different varieties, some of which reduced the old five-way opposition of short V2 to three (*i, a, u*), while others merged all into *a* = [ʌ]; this difference is reflected in Imnajshvili's recordings.

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[14] Instances with 'preserved' *-i* in fact represents *-ij*, e.g. *ga:li* 'bale', *deši* 'gold' (Desheriev 1960:76, Maciev 1961, Nichols-Vagapov 2004) = *ga:lij, dešij* (Imnajshvili 1977:45-46), from earlier **-aj*.

[15] Since this is a historical rather than a synchronic analysis, I follow Nichols (1997:970) in not following the synchronic analyses by Beerle 1988 and Fallon 1993.

Proto-Nakh	**maqe* 'harrow'	**macʾe* 'louse'	**nace* 'moth'	**bade*^{N} 'clay roof' [c]	**laqe*^{N} 'high'
Cheberloj Chechen	*maqe*	*maze*	*nace*	*bade*^{N}	*laqe*^{N}
Plains Chechen	*meqi, meqa*	*mezi, meza*	*neci, neca*	*bedi*^{N}, *beda*^{N}	*leqi*^{N}, *leqa*^{N}
Sharoj Chechen	*meqa*	*meza*	*naca*	*bada*^{N}	*leqa*^{N}
Vedenoj Chech.	*meqe, -a, -i*	*meze, -a, -i*	*nece, -a, -i*	*bede*^{N}, *-a*^{N}, *-i*^{N}	*leqe*^{N}, *-a*^{N}
Ingush	*maqa*	*maza* [a]	*naca* [a]	*bada* 'roof'	*laqa*
Batsbi	-	*macʾ* [b]	-	*batʾa*^{N} 'clay floor'	*laqe*^{N}

[a] Ingush also has *meza, neca*, which generalized the vocalism of the oblique stem **mezi-, *neci-* (Nichols 2011:73 fn. 42).
[b] In the Batsbi records in Kadagidze 1984, word-final reduced vowels are sometimes still present and sometimes they are not recorded, presumably because they have been lost; it is possible, therefore, that *macʾ* represents earlier **macʾĕ*.
[c] Batsbi *batʾa*^{N}, pl. *batʾni* (Kadagidze 1984:80), standard Chechen *beda*^{N}, obl. *bedn(a)-*, Ingush *bada*, obl. *bada:/badan-* shows a hitherto unexplained alternation between **-a-* (Batsbi) and **-e-* or **-i-* (all Chechen dialects) in the second syllable of the Nsg. (see 6.4); all other forms in the paradigm in Batsbi and Chechen syncopate the vowel of the second syllable. Ingush obl. *badan-, bada:-* < **badVnV-* seems to preserve it, but since obl. *-an/a:-* is productive in nasal stems, this may not reflect the earlier state of this particular lexeme.

As these comparanda show, if V2 is **e* and V1 is **a*, the latter becomes **e* in Plains Chechen, but not in Ingush. Cheberloj and Batsbi show no change, as expected. All other Chechen dialects cited by Imnajshvili except Sharoj behave like Plains Chechen concerning V1, but they differ in the way they treat V2. Proto-Nakh **maqe* 'harrow', for instance, became Xildixaroj *meqĕ,* Vedenoj *meqe, -a, -i*, Itumkali *meqa*. The evidence for Sharoj is conflicting: umlaut in *meqa*, *meza, leqa*^{N}, no umlaut in *naca, bada*^{N}. It is conceivable that the forms with umlaut were influenced by Plains (standard) Chechen and that the forms without umlaut are regular in the dialect, but this is mere speculation.

In pharyngeal contexts and immediately before a glottal stop, **a* develops differently.

Proto-Nakh	**laħe* 'serpent'	**baħe^{N}* 'shovel'	**bˁaʔe* '100'	**χaʔ-e* [a] 'knows, understands'
Cheberloj Chechen	*leħe*	*beħe^{N}*	*bˁeʃe*	*χeʔe*
Plains Chechen	*läħa*	*bäħa*	*bˁeː, bˁäː*	*χäʔa*
Sharoj Chechen	*leħa*	*beħa^{N}*	*bˁeʃa*	*χieː (< *χeʔe)*
Vedenoj Chech.	*leħe, -a*	*behe^{N}, -a^{N}*	*bˁeʃe, -a*	*χeʔe*
Ingush	*leħa*	*baħa*	*bˁea*	(*χou*) [a]
Batsbi	*laħ* G *laħe^{N}*	-	-	- [a]

[a] **χaʔ-* is the simulfactive (non-iterative-durative) stem, which occurs beside pluractional (iterative-durative) **χeʔ-* (the terminology is that of Nichols 2011:314-5, traditional terminology in brackets). The final **-e* is one of the morphemes of the present tense, which is restricted to intransitive verbs (but not all intransitive verbs take **-e*; 'know' is constructed intransitively in Nakh). Ingush *χou* < **χaʔ-u* takes the other present tense morpheme. Batsbi preserves the simulfactive stem as perfective *χaʔ-* 'understand', but Kadagidze 1984:803 and Bertlani 2012-19 III:213 do not list the present tense form (the imperfective stem *χeʔ-* with present tense *χeʔĕ* is attested by Kadagidze 1984:809).

In this particular context, even Cheberloj shows i-umlaut (Imnajshvili 1977:88). In Plains Chechen, open *ä* rather than mid *e* results. Sharoj Chechen now shows umlaut in all forms. Whether Ingush is affected is not clear: if it is, *leħa* and (contracted) *bˁea* are regular and *baħa* is not (it is conceivable that *baħa* belongs to the variety described by Nichols (2011:21, 73), in which the result of i-umlaut of *a* merged with non-umlauted *a*, but one would not expect this to happen in pharyngeal contexts as this is one of the few contexts that resists the merger). Alternatively, the absence of i-umlaut *baħa* is regular, in which case *leħa* and *bˁea* could have been borrowed from Chechen.

3.1.2. V1 is **a* and V2 is **i*

If the original vowel of the second syllable was **i*, both Plains Chechen and Ingush undergo i-umlaut of *a*. In Plains Chechen, the result, *e*, is identical to the result of i-umlaut of *a* if caused by second syllable **e*.

Proto-Nakh	**bali-š* [a] 'shoulder'	**katir* 'fur coat'	**maliᴺ* 'warm'	G **wašaiᴺ* 'brother's'	G **barcʾ-iᴺ* 'wolf's'
Cheberloj Chechen	*bališ*	*katir*	*maliᴺ*	*vašiᴺ*	*barziᴺ*
Plains Chechen	*beliš, belaš*	*ketir, ketar*	*meliᴺ, melaᴺ*	*vešijᴺ*	*berziᴺ, berzaᴺ*
Sharoj Chechen	*beliš*	*ketir*	*mʕaliᴺ* [c]	*vešiᴺ*	*berʒiᴺ*
Vedenoj Chech.	*beliš*	*ketir*	*meliᴺ*	*vešiᴺ*	*berziᴺ*
Ingush	*belaž*	*ketar*	*mela*	*vešij*	*berza*
Batsbi	*bali* 'shoulders'	*kati-b* 'upper coat'	*maliᴺ*	*vašeᴺ* < *vašaiᴺ* [e]	*bʕarcʾiᴺ* [b]

[a] **bališ* is an old double plural form (with the productive suffix *-š* added to the old plural suffix *-i*), but its contemporary meaning is singular; Batsbi preserves the original plural form and plural meaning, 'shoulders' (cf. Nikolayev-Starostin 1994:313). Standard Chechen has *belš*, with regular loss of the unstressed short vowel after *l*.
[b] The entry Batsbi *bʕorcʾ* 'wolf', oblique *bʕarcʾa-* (Chrelashvili 2007:221, 66, 68; Nikolayev-Starostin 294, Desheriev 1953:313, Bertlani 2012-2019 IV:60) is lacking from Kadagidze 1984 (but see *bʕorcʾ* on p. 83 under the entry *baqʾŏ*). The oblique *bʕarcʾa-* agrees with the oblique stem **barza-* that underlies all Chechen singular case forms except the genitive and dative (cf. Nichols-Vagapov 2004:678). The Batsbi genitive singular is provided by Gagua 1961:85.
[c] The unexpected absence of umlaut in Sharoj *mʕaliᴺ* is unexplained (pharyngealization rather favours palatal umlaut, see 3.1.1 and immediately below this note; but pharyngealization is only found in Sharoj so may not be original).
[e] On Batsbi *vašeᴺ < vašaiᴺ* see Gagua 1961:80-82; Desheriev (1951:74) lists only *vašaiᴺ*.

Imnajshvili (1977:74-75) provides material that illustrates the behaviour of **a* before **i* in pharyngeal contexts, but many examples show complications.

Proto-Nakh	**žʕalaj* 'dog'	**nʕana* 'worm'	**bʕarikʾ* 'eye'	**aħiᴺ* 'ground'	**ħaχiᴺ* 'smeared'
Cheberloj Ch.	*žʕali*	*nʕani*	*bʕarig*	*aħiᴺ*	*ħaχiᴺ*
Plains Chechen	*žʕäli*	*nʕäni*	*bʕärg*	*äħiᴺ*	*ħäχiᴺ*
Sharoj Chechen	*žʕali*	*nʕani*	*bʕarig*	*eħiᴺ*	*ħeχiᴺ*
Vedenoj Chech.	*žʕali*	*nʕani*	*bʕarg*	*eħiᴺ*	*ħeχiᴺ*
Ingush	*žʕali:*	*nʕana*	*bʕarjg*	-	-
Batsbi	-	*nʕan*	*bʕarkʾ*	(*aħinŏ*) [a]	(*ħaqinŏ* 'swept out, wiped') [a]

[a] In view of final *-ŏ*, the Batsbi formation differs from that in Chechen and Ingush, which lack the final vowel. Kadagidze 1984:915 mentions *ħaqinŏ*, to the verb *ħaqar* (*ibidem* 914); I am indebted to Alice Harris for identifying this cognate.

In the word for 'dog', Nichols-Vagapov 2004 (who provide material for Standard Chechen, which is based on the Plains dialect) give *žˁäla* (p. 427; thus also Maciev 1961:186) but also *žˁala* (p. 681). It has an oblique stem *žˁäli-*, as in G *žˁäliᴺ*, I *žˁälica*, Loc. *žˁäliaχ* (Nichols-Vagapov 2004:681, but with root *žˁal-*). In Ingush, *žˁali:* has an oblique stem *žˁalie-* (Nichols 2004:546). Consistent *i*-vocalism in the second syllable of Chechen and the long *-i:* in the Ingush nominative alternating with *-ie-* in the oblique stem strongly suggest an old sequence of V + **j* in the second syllable. The V cannot have been **i* or **e*, in which case palatal umlaut would have affected all Chechen dialects and not just Plains Chechen. Similarly, the V cannot have been **u* or **o* because in that case labial umlaut would have ensued (in Ingush if it were **o*, in all dialects if it were **u*). So V must have been **a*, hence Proto-Nakh **ǯˁalaj*. A different behaviour of the same second syllable was observed in the genitive of 'brother', **vašajᴺ*, where all Chechen dialects and Ingush show i-umlaut of the first syllable and *-i* or *-ij* in the second syllable (see above, this section). It is conceivable that the original paradigm was nominative **ǯˁala*, oblique **ǯˁalaj-* (as in the word for 'worm', see below), where the nominative did not and the oblique stem did undergo i-umlaut of the first syllable (as a result of the fact that in the latter **-aj* became **-ij* early enough to cause i-umlaut). Subsequently, most dialects, including Ingush, generalized the non-umlauted vocalism that was regular in the nominative, while Plains Chechen generalized i-umlauted vocalism, which was regular in the oblique stem. Unfortunately Batsbi evidence for this word is lacking. The Nakh item is related to and possibly borrowed from Kartvelian (unless it is the other way round): cf. Georgian *ʒaγl-i*, Mingrelian and Laz *ǯoγor-i*, Svan *žaγ, žeγ* 'dog' (Fähnrich-Sardschweladse 1995:484).

The word for 'worm' in Chechen is inflected in the same way as 'dog' (Nichols-Vagapov 2004:370). But its inflection in Ingush is different: *nˁana* O *nˁana-* (Nichols 2004:305). Ingush probably agrees with Batsbi, where *nˁan* regularly reflects **nˁana* (word-final **-a* is regularly lost in Batsbi; Imnajshvili 1977:47). Chechen *-i* therefore probably reflects a generalized old oblique stem **nˁanaj-* to an original nominative **nˁana*, which was preserved in Ingush and Batsbi.

The vocalism of the first syllable of the word 'eye' shows the same distributional pattern across the dialects as in 'dog' and 'worm', but its historical background is very different. Diminutives in **-ikʾ*, to which the word for 'eye' belongs morphologically, regularly syncopated the **-i-* in all oblique cases, before a following syllable. Chronologically, syncope in Chechen and Ingush preceded umlaut, so in the nominative, where **i* was preserved, palatal umlaut ensued (whence the umlauted vowel in Plains *bˁärg*), while in the oblique cases, where it was syncopated, no umlaut took place. Subsequently, paradigmatic reshuffling took

place, whereby (1) the umlauted or non-umlauted vowel and (2) the syncopated or unsyncopated form were generalized (see 3.1.6 for a discussion).

The last two forms are those of the recent past tense, which is discussed extensively in section 4.2. They show the phonologically regular treatment of **a* before **i* in pharyngealized contexts: **a* > *ä* in Plains Chechen and *e* in the other Chechen dialects except Cheberloj.

3.1.3. V1 is **a:* and V2 is **e*

Long **a:* is affected by second-syllable **e* in all Chechen dialects (except of course Cheberloj). By contrast, it is the only vowel that is affected by **e* in Ingush. In Plains Chechen the outcome depends on whether the first syllable is open (**a:* > *e:*) or closed (**a:* > *ä:*). Other Chechen dialects (except perhaps some varieties of Vedenoj, unless they borrowed the Plains form), and Ingush show no such sensitivity.

Proto-Nakh	**a:le* 'lord'	**a:qe* 'wild animal' [a]	**tʾa:tʾe^N* 'moist'	**mˁa:tʾe^N* 'overripe'	**da:tte^N* 'butter'	**=a:sse^N* 'empty'
Cheberloj Chechen	*a:le*	*a:qe*	*tʾa:de^N*	*ma:de^N*	*da:tte^N*	*=a:sse^N*
Plains Chechen	*e:li, e:la*	*e:qi, e:qa*	*tʾe:di^N*, *tʾe:da^N*	*me:di^N*, *me:da^N*	*dä:tti^N*, *dätta^N*	*=ä:ssi^N*, *=ässa^N*
Sharoj Chechen	*e:la*	*e:qa*	*tʾe:da^N*	*mˁe:da^N*	*de:tta^N*	*=e:ssi^N* [b]
Vedenoj Chech.	*e:le*, *e:la*	*e:qe, e:qa*	*tʾe:de^N*, *tʾe:da^N*	*me:de^N*, *me:da^N*	*de:tte^N*, *dä:tta^N*	*=e:sse^N*, *=e:ssa^N*
Ingush	*eala*	*eaqa*	*tʾeada*	*mˁeada*	*deatta*	*=eassa*
Batsbi	*a:lĕ*	*aqĕ* 'game'	*tʾatʾe^N*	*matʾe^N* 'ripe'	*datte^N*	*=ase^N*

[a] Not to be confused with the cognate adjective, Chechen *a:qa^N*, Ingush *a:qa* 'wild' < Proto-Nakh **a:qa^N*.

[b] Unexpected *-i^N* instead of *-a^N* in Sharoj suggests that the original suffix **-e^N* was replaced by **-i^N* in this particular adjective (see 3.1.4 for the reflexes of **-i(ᴺ)*).

It is striking that **a:* is the only vowel in Ingush that is subject to palatal umlaut by **e* (**a, *uo, *u* remain unchanged by **e*). In two instances known to me, Ingush has *a:* instead of expected *ea* (see Imnajshvili 1977:61-62 for the Chechen cognates):

1. Ingush *kʾa:za* 'cub', cf. Cheberloj *kʾa:ze*, Plains *kʾe:zi, kʾe:za*, Batsbi *kʾacĕ* < Proto-Nakh **kʾa:cʾe*
2. Ingush *ʕa:sa* as well as *ʕeasa* 'calf'; cf. Cheberloj *a:se*, Plains *e:si, e:sa*, Batsbi *a:s(ĕ)* < Proto-Nakh **(ʕ)a:se*

A solution for *kʾa:za* may lie in Nichols' observation that in words with palatalized velars *ea* is prone to merge with *a:*. This merger does not affect *ea* and *a:* in pharyngeal contexts, however (Nichols 2011:26, 31, 46-48). Johanna Nichols

(personal communication) suggests that the nominative *ʕa:sa* may have arisen by analogy with the type *ma:r*, genitive *meara* 'husband' (see 3.1.4).

3.1.4. V1 is **a:* and V2 is **i*

The effects of **i* on first-syllable **a:* in Chechen and Ingush are identical to the effects caused by **e*. That means that the reconstruction of **e* rather than **i* in the second syllable can be based only on Cheberloj Chechen and Batsbi, which preserve vowel oppositions in second syllables.

Proto-Nakh	**la:či* 'falcon' [b]	**ša:lik'* 'tub'	**ma:r* G **ma:riᴺ* 'husband'	**a:sti* 'adze, plane'	**la:tta* G **la:ttiᴺ* 'land'
Cheberloj Chechen	*la:či*	*ša:lig*	*ma:r* G *ma:riᴺ*	*a:sti*	*la:tta* G *la:ttiᴺ*
Plains Chechen	*le:či, le:ča*	*še:lig*	*ma:r* G *me:riᴺ, me:raᴺ*	*ä:sti, ä:sta*	*la:tta* G *lä:ttiᴺ, lä:ttaᴺ*
Sharoj Chechen	-	*še:lig*	*me:riᴺ*	*e:sti*	*le:ttiᴺ*
Vedenoj Chech.	*le:či*	*še:lig*	*ma:r* G *me:riᴺ*	*e:sti*	*le:ttiᴺ*
Ingush	*leača*	-	*ma:r* G *meara*	*east*	*leatta* [a]
Batsbi	-	-	*mar* G *mariᴺ* [c]	*ast'iᴺ* 'small adze'	(*lajt:no* 'former position, home')

[a] Ingush *leatta* generalized the form with palatal umlaut, which originated in the oblique stem, in the nominative.
[b] Cf. Avar *lačén* G *ločnól*, pl. *lúčnul* 'falcon', Lak *lačin*.
[c] See Gagua 1961:85 for the inflection in Batsbi.

The material on the Sharoj dialect of Chechen that is provided by Imnajshvili (1977:76) indicates that **a:* is not affected by i-umlaut in pharyngeal contexts: cf. the original diminutives *še:lig* 'tub' < **ša:lik'*, *be:pig* 'bread' < **ba:pik'* with *bʕa:lig* 'piece', *ʕa:čig* 'iron', and also *ʕa:ržiᴺ* 'black', Gsg. *mʕa:qiᴺ* 'barley'. Curiously, it is affected by e-umlaut in pharyngeal contexts, if we go by the Sharoj examples *=ʕe:χiᴺ* 'long' < **=ʕa:χeᴺ*, *mʕe:daᴺ* 'overripe' < **mʕa:t'eᴺ* (Imnajshvili 1977:61).

3.1.5. V1 is **o > *uo* and V2 is **e*

Palatal umlaut of **uo* caused by **e* affects Plains Chechen and the Vedenoj and Itumkali dialects of Chechen, with different results in either. It does not affect Sharoj Chechen (where rounded back vowels are never affected by **e*). See Imnajshvili

1977:89-91. No umlaut is found in Ingush (where **e* never causes umlaut except of **aː*):

Proto-Nakh	**dole* 'gum'	**tole* 'dugout, hut'	**topeᴺ* (Gsg. of **top* 'gun') [a]	**so-ce* 'with me' [b]	**ħo-ce* 'with you (sg.)'
Cheberloj Chechen	*duoːle*	*tuoːle*	*tuoːpeᴺ*	*suoː-ceᴺ* [d]	*ħuoː-ceᴺ*
Plains Chechen	*döːli, döːla*	*töːli, töːla*	*töːpiᴺ, töːpaᴺ*	*söː-ca*	*ħöː-ca*
Sharoj Chechen	*duoːla*	*tuoːla*	*tuoːpaᴺ*	*suoː-ca*	*ħuoː-ca*
Vedenoj Chech. Itumkali Chech.	*dueːle*	*tueːle*	*tueːpeᴺ*	*sueː-ceᴺ*	*ħueː-ceᴺ*
Ingush	*duol*	*tuol*	*tuoːpa*	*suoː-ca*	*ħuoː-ca*
Batsbi	-	*tol* 'corridor, passageway' [e]	Nsg. *top* 'gun; roll (of cloth)'	*so-ciᴺ* [c]	*ħo-ci*

[a] A borrowing from Turkic (cf. Turkish *top* 'ball, heap; bullet, canon'), probably via Georgian *topi* 'gun; roll of cloth'.
[b] The instrumental-comitative suffix **-ce(ᴺ)* only causes palatal umlaut in Chechen, not in Ingush, and in Chechen it only does so in combination with monosyllabic personal pronouns, not in combination with nouns. The reason for the morphological restriction probably is that umlaut can only be caused by a vowel in the second syllable that affects the first (stressed) syllable, not by a vowel in the third or further syllables (Imnajshvili 1977:15). Since most nouns have a disyllabic stem, after which **-ce* is placed, umlaut does not ensue. This pattern spread by analogy to nouns with a monosyllabic stem but did not reach the personal pronouns.
[c] Batsbi *-ciᴺ* (Gagua 1961:76; Desheriev 1953:64, 170 lists *-ci*, without final nasalization) instead of expected **-ceᴺ* is unexplained. It is common for the word-final vowels in Batsbi suffixes (as opposed to second syllable vowels of verbal and nominal stems) to not agree with the vowels in their Chechen and Ingush counterparts, as in the allative suffix, Cheberloj *-ge*, Plains Chechen *-ga* (causing e-umlaut in personal pronouns, e.g. *süöga* 'to me', *ħüöga* 'to you'), Ingush *-ga* (which does not cause e-umlaut in personal pronouns), all of which reflect **-ge*, while Batsbi has an allative suffix *-gŏ*. Similarly in the preterite suffix: Cheberloj *-ne*, Batsbi *-nŏ*.
[d] Nasalization of the suffix is attested in Cheberloj and Vedenoj Chechen as well as in Batsbi; its origin is unclear.
[e] Etymology proposed by Alice Harris, personal communication.

All examples involve **uo* in open syllable. Imnajshvili (1977:64, 91) does provide evidence for the behaviour of **uo* in closed syllables, but all examples belong to the verb, which is confronted with specific issues that will be addressed in section 4. For instance, the suffix of the recent past tense takes on two different forms in Cheberloj, either *-eᴺ* or *-iᴺ* (see 4.2). The distribution is determined lexically and may have been disturbed in other dialects, which is relevant to the present discussion

because **e* and **i* have different palatal umlaut effects. One of Imnajshvili's two examples of the recent past in Cheberloj *-e^N* is *muott-e^N* 'thought'. Its counterparts in the various Chechen dialects are Plains *müötti^N*, Sharoj *muatt-a^N*, Vedenoj *muatt-e^N* and *muett-a^N*, Itumkali *muett-a^N*. The single example provided by Imnajshvili (1977:78) of the recent past in **-i^N* of a verb with **uo* in the first closed syllable is Cheberloj *=uatt-i^N* 'poured', with its counterparts Plains *=üött-i^N*, Sharoj *=utti^N, =ujtt-i^N*, Vedenoj *=uett-i^N*, Itumkali *=uett-i^N*. As can be observed, the effect of **-e^N* on **uo* in closed syllables appears to have been identical to the effect of **-i^N* in Plains Chechen and in Itumkali. In Sharoj, **-e^N* has no effect (*ua* is the regular reflex of short **uo* in closed syllables) while **-i^N* has. The situation in Vedenoj is complicated: in the case of **-e^N muett-a^N*, with palatal umlaut as in open syllables, occurs beside *muatt-e^N* without palatal umlaut. No such parallel forms are recorded in the case of **-i^N*: Vedenoj *=uett-i^N*. Barring the potential complexities caused by shifting allomorphy in verbal endings, we may conclude on the basis of this material that **uo* in closed syllables was affected by **e* in the same way as **uo* in open syllables, with the exception of some varieties of Vedenoj Chechen, where *uo* in open syllables became *ue* by palatal umlaut while in closed syllables it became *ua*, without palatal umlaut (*ua* being the regular short counterpart of long *uo:*).

3.1.6. V1 is **o > *uo* and V2 is **i*

In all Chechen dialects except, of course, Cheberloj, **uo* is raised to *u:* and in some dialects the second-syllable **i* is drawn into the coda of the first. Plains Chechen has *ü:*, which may have resulted from contraction of **u:i*. In Ingush, **uo* becomes *ie.* If we compare those results with the effects of palatal umlaut caused by **e*, we observe that they do not merge (Imnajshvili 1977:89).

Proto-Nakh	**kori* 'hawk' [a]	**bori^N* 'eggyolk'	**bot'i^N* 'raw'	**šori^N* 'wide'	**orik'* 'ball of thread'	Gsg. **orik'-e^N*
Cheberloj Chechen	*kuo:ri*	*buo:ri^N*	*buo:di^N*	*šuo:ri^N*	*uo:rig*	*uorg-e^N*
Plains Chechen	*kü:ri, kü:ra*	*bü:ri^N, bü:ra^N*	*bü:di^N, bü:da^N*	*šü:ri^N, šü:ra^N*	*ü:rig*	(*ürig-a^N*)
Sharoj Chechen	*ku:ri, ku:jri*	*bu:ri^N, bu:jri^N*	*bu:di^N, bu:jdi^N*	*šu:ri^N, šu:jri^N*	*u:rig, u:jrig*	*uorg-a^N*
Vedenoj Chech.	*kui:ri*	*bui:ri, bu:ri*	*bui:di^N, bu:di^N*	*šui:ri^N*	*ui:rig, u:rig*	*uerg-a^N*
Ingush	*kier*	*bie:li:* [b]	*bi:da* [c]	*šie:ra*	(*orjg*)	*orjga*
Batsbi	*kujrǐ*	-	*bot'i^N*	*šori^N*	(*ork'-ul*)	

[a] Possibly a borrowing from Kartvelian, but it may be the other way round (thus Nikolayev-Starostin 1994:446 on the basis of presumed Daghestanian cognates). Fähnrich & Sardshweladze 1995:380 mention Georgian and Mingrelian *kori*, Laz *kuri* 'hawk'. Batsbi *kujrǐ* < **kori*, cf. Imnajshvili 1977:120 (neither Kadagidze 1984 nor Bertlani 2012-2019 list this form).

[b] Ingush *bieːliː* (< **-ij*) and Chechen *büːriᴺ* (< **-in*) have a different final suffix but share the **-i-* in the second syllable.
[c] Ingush *biːda* is the only example in which the product of i-umlaut of **uo* merged with the product of i-umlaut of **ie*. Since it is so irregular, one may consider the possibility that it was borrowed from a western Chechen dialect, cf. Vedenoj and Itumkali *bwiːdiᴺ* 'raw'.

The final two examples, of original diminutives in **-ikʾ*, are interesting because they show paradigmatic alternation between the nominative **orikʾ* > **uoːrikʾ* on the one hand, where **uo* in open syllables is affected as in all previous examples, and the oblique stem on the other, where the **i* that causes palatal umlaut is syncopated and the first syllable becomes closed. In the latter, the effect of palatal umlaut (Vedenoj *uergaᴺ*) is identical to the effect caused by **e*. The simplest explanation for this behaviour is that it was the **-e-* of the oblique stem, not the syncopated *-i-* of the diminutive suffix, that caused umlaut: suffixal *-e-*, which originally stood in third syllable, as a result of syncope became the vowel of the second syllable and consequently was capable of causing palatal umlaut.

Diminutives in **-ikʾ* underwent a certain amount of analogical reshuffling: in some words, the unsyncopated nominative singular persisted beside the syncopated oblique stem. In the paradigms of other words, the syncopated stem was generalized (as in Ingush *orjg*, G *orjga*), while in others again it was the unsyncopated stem that was generalized (as in Plains Chechen *üːrig,* G *üːrigaᴺ*); see in general Imnajshvili 1977:54-55, 94-95.

Ingush and Chechen show that syncope chronologically preceded umlaut. As the Batsbi derivative *orkʾ-ul* 'ball of thread' illustrates, syncope in trisyllabic forms affected that language too, cf. also the original diminutive *bˤarkʾ*, genitive *bˤarkʾaᴺ*, dative *bˤarkʾen*, nominative plural *bˤarkʾi* 'eye' (Kadagidze 1984:104ff.), and see on syncope in Batsbi in general Mikeladze 1977.[16]

The regular behaviour of **o > *uo* in closed syllables before **i* is best illustrated by Chechen morphological alternations (Imnajshvili 1977:78, 89-91):

1. Oblique nominal stems in **-i-*, e.g. nominative **kuorta* 'head', oblique **kuorti-*, as in the genitive Cheberloj *kuortiᴺ,* Sharoj *kurtiᴺ, kujrtiᴺ*, Plains *küörtiᴺ*, Vedenoj *kuertiᴺ*; Ingush *kuoːrta* obl. *kerta-* (Nichols 2004:281).
2. Diminutives, e.g. **tʾuorm-ikʾ* 'bag', which yielded Cheberloj *tʾuormig*, Sharoj *tʾuormag*, Plains *tʾüörmig*, Vedenoj *tʾuermig*. Strikingly, Ingush *tʾuormig* does not show palatal umlaut, which may be due to analogy after the cognate *tʾuormij* 'duffel bag' (< **-aj*).
3. Verbal forms of the recent past tense that were discussed in the previous section, as well as Chechen perfective past forms such as **=uott-ine* 'poured' > Cheberloj *=uattine*, Sharoj *=uttina, =ujttina*, Plains *=üöttina*, Vedenoj *=uettine*, and its Ingush counterpart, the past converb *=ietta:*.

[16] I am indebted to Alice Harris for this reference.

These forms show that in closed syllables the result of palatal umlaut caused by **i* (e.g. Plains *ö*) differed from that in open syllables (e.g. Plains *ü:*).

3.1.7. V1 is **e > *ie* and V2 is **e*

Since **ie* is a front diphthong, it is not surprising to find that **e* in the second syllable did not have a palatalizing effect on it. As an example may be cited the Chechen perfective past with the short ending **-ne* (which ultimately reflects **-ine* or **-ene* with syncope of the **-i/e-*): formed from the verbal stem **=ieš-* 'to read', the Chechen dialectal forms are Cheberloj *=iešne*, Plains *=iešna*, Sharoj *=iešna*, Vedenoj *=iešna* '(has) read' (Imnajshvili 1977:80). Its Ingush counterpart is the past converb, which ends in *-a:* and did undergo vowel change, viz. raising: verbal stem *=ieš-*, past converb *=i:ša:*. The ending *-a:* is not directly comparable to Chechen **-ne*, because *-a:* reflects **-VnV*, where **V* can be any Proto-Nakh short vowel and **n* was lost regularly in intervocalic position between second and third syllable, with subsequent vowel contraction. As Nichols argues (2011:59), the original suffix that underlies *-a:* is **-ine*[17] and the vowel raising observed in forms like *=i:ša:* represents the effect of non-syncopated **-i-* in the second syllable.

3.1.8. V1 is **ie* and V2 is **i*

The effect of **i* on first-syllable **ie* is one of raising: in Ingush and in all Chechen dialects except Cheberloj, **ie* became *i:* in open syllables, which could be shortened to *i* in closed syllables, although this did not alway happen.

Proto-Nakh	**seni* 'blue'	**pšeli^N* 'cold'	**erči^N* 'ugly'	**serli^N* 'light'	**netχi^N* 'sparse'
Cheberloj Chechen	*sie:ni*	*šie:li^N*	*ierči^N*	*sierli^N*	*nielχi^N*
Plains Chechen	*si:ni, si:na*	*ši:li^N, ši:la^N*	*i:rči^N, irča^N*	*sirli^N, sirla^N*	*ni:lχi^N, nilχa^N*
Vedenoj Chech.	*si:ni*	*ši:li^N*	*ierči^N*	*sierli^N*	*nielχi^N*
Ingush	*si:na*	*ši:la*	*i:rča*	*si:rda*	*ni:lχa*
Batsbi	*sejnĭ, si:nĭ*	*pšeli^N*	-	-	*netχi^N* 'thin'

A systematic exception to raising can be found in Vedenoj Chechen, which preserved unaffected **ie* only in closed syllables (Imnajshvili 1977:91).

Batsbi preserves *e* unchanged in initial syllables, but in front of a syncopated **i* or in front of an overshort **i* (spelled *ĭ*) in the second, final syllable a glide *j* appears in the first syllable, as in *sejnĭ*, which subsequently develops into long *i:*, as

[17] In truth Nichols starts from Proto-Chechen-Ingush **-ina* rather than **-ine*, but the Cheberloj evidence favours the latter; see 4.2.

in *si:nǐ*. Both forms often exist side by side. See Mikeladze 1977:122, 125 for many more instances of syncope and Imnajshvili 1977:120 for instances of overshort *ǐ*.

3.1.9. V1 is **u* or **u:* and V2 is **e*

This is a rare sequence. Imnajsvili (1977:65) mentions only the following nominal examples, both with short **u*, which show that Plains and Vedenoj Chechen undergo palatal umlaut (to *ü* and *ui* respectively), while Sharoj Chechen and Ingush do not (this agrees with the behaviour of **uo* before **e* discussed in 3.1.5).

Proto-Nakh	**tumen* '10 rubles' (loan) [a]	**ture-*, obl. stem of **tur* 'sabre'
Cheberloj Chechen	*tume*^{N}	*ture-*
Sharoj Chechen	*tuma*^{N}	*tura-*
Plains Chechen	*tüma*^{N}	*türi-, türa-*
Vedenoj Chech.	*tuime*^{N}, *tuima*^{N}	*tuire-*
Ingush	*tuma*	*tura-*
Batsbi	(*tuma*^{N})	*ture-*

[a] The origin of the word probably lies in Turkic (Doerfer 1963-67:632-42; Dybo 2006 s.v. Proto-Turkic *tümen* [consulted 5 March 2021]), cf. Old Turkic, Turkish *tümen* '10.000'. The latter was borrowed into Persian as *tūmān*, where it came to denote a monetary value worth 10.000 dinars (*Encyclopaedia Iranica* s.v. dinar). The latter influenced the meaning of *tümen* in Turkic languages in and near the Caucasus: Karachay-Balkar, Kumyk *tümen*, Azeri *tümän* '10 rubles' (Dybo 2006, *loc. cit.*), whence the forms in Avar (*tumén*) and Nakh. Batsbi *tuma*^{N}, with second-syllable *-a-*, was probably borrowed from Georgian *tumani.*

Among the small class of Chechen verbs with a root vowel **u:* or **u*, there is some evidence for their behaviour before a suffixal Proto-Nakh **e*. One example is mentioned by Imnajshvili (1977:65): the verb *uʁa*^{N} 'to howl' presumably had a Proto-Nakh present tense **uʁ-e*, which is reflected in Vedenoj Chechen *uʁe*, Itumkali *uʁa*, Sharoj *uʁa*, all without palatal umlaut, which is surprising in the case of Vedenoj and Itumkali because the nominal examples show that *u* does undergo umlaut before **e*. Plains Chechen has *uʁ-u*, with the other present suffix, **-u*, so it is irrelevant for present purposes. Another example is provided by instances in which the perfective past ending **-ine* underwent syncope of the **i*, so that **-ne* remains. In this case Standard Chechen, which is based on the Plains dialect, shows umlaut of the root vowel *u, u:* to *ü, ü:*, as we would expect on the basis of the nominal examples: *=uqʾa*^{N} 'to plug, stop', perfective past *=üqʾna*; *=uza*^{N} 'to fill, become full', perfective past *=üzna*; *uʁa*^{N} 'to howl', perfect *üʁna* (Maciev 1961 s.v.). Verbs with

long **u:* normally have the long suffix *-ina* < **-ine* in standard Chechen, where *-i-* causes palatal umlaut, but notice that Nichols-Vagapov 2004:686 mention that the verb *=u:χa^{N}* 'to dress' has a perfective past (which is termed there anterior converb) *=üöχna* beside *=ü:χina* (*=üöχna* is probably an analogical formation based on the pattern of verbs with the original root vowel **uo*, which by palatal umlaut developed into **ü:* in open but **üö* in closed syllables; see section 5 for the details).[18]

3.1.10. V1 is **u* or **u:*, V2 is **i*.

Ingush and all Chechen dialects except Cheberloj underwent i-umlaut or i-diphthongization of long and short **u*, with different results in all dialects:

Proto-Nakh	**=uqʾi^{N}* 'thick'	**duri^{N}* 'salty'	**=utʾqʾi^{N}* 'thin'	**mustʾi^{N}* 'sour'	**=obc-* > **=u:c-ine* < 'braided' (iterative)
Cheberloj Ch.	*=uqʾi^{N}*	*duri^{N}*	*=utʾqʾi^{N}*	*musti^{N}*	*=u:cine*
Plains Chechen	*=üqʾi^{N}*, *=üqʾa^{N}*	*düri^{N}, düra^{N}*	*=ütʾqʾi^{N}*, *=utʾqʾa* [b]	*müsti^{N}*, *müsta^{N}*	*=ü:cina*
Vedenoj Chech.	*=wiqʾi^{N}*	*dwiri^{N}, duri^{N}* [a]	*=utʾqʾi^{N}*	*mwisti^{N}*, *musti^{N}*	*=wi:cine*
Sharoj Chechen	*=ujqʾi^{N}*	*dujri^{N}*	*=ujtʾqʾi^{N}*	*mujsti^{N}*	*=u:jcina*
Ingush	*=iqʾa*	*dira*	*=itʾqʾa*	*mista*	*=i:ca:*
Batsbi	*=uqʾi^{N}*	*duri^{N}*	*=utʾqʾi^{N}* [c]	*mustʾi^{N}*	-

[a] Apparently one variety of Vedenoj was immune to i-umlaut of *u*.
[b] *=ütʾqʾi^{N}*, *=ütʾqʾa^{N}* is provided by Imnajshvili 1977:80, while Nichols-Vagapov 2004:291, Maciev 1961:162 list *=utʾqʾa*, without i-umlaut; it is conceivable that the latter goes back to a formation that originally did not have **i* in the second syllable, but it is also conceivable that it is one of the two Vedenoj forms that somehow entered the standard language.
[c] Kadagidze 1984:575, as pointed out to me by Alice Harris.

In two items Ingush did not undergo palatal umlaut:

1. Ingush *tuχ* 'salt', cf. Cheberloj *tuχi*, Plains *tüχi, tüχa*, Vedenoj *twiχi* (Imnajshvili 1977:80), Batsbi *tujχĭ* (which has the usual glide insertion that regularly accompanies word-final overshort *-ĭ*). Cheberloj and Batsbi unequivocally point to Proto-Nakh **tuχi*, but the absence of umlaut in Ingush would seem to suggest **tuχe* (thus Nikolayev-Starostin 1994:371).
2. Ingush *tʾuna* 'moist', cf. Cheberloj *tʾuni^{N}*, Plains *tʾüni^{N}, tʾüna^{N}*, Vedenoj *tʾwini^{N}* (Imnajshvili 1977:80). Batsbi *tʾwi^{N}* 'dampness' < **tʾuni*. In contrast to Chechen and Batsbi, Ingush seems to point to **tʾune^{N}* (thus Nikolayev-Starostin 1994:204).

[18] Long **-u:-* in verbs always results from **-uow-* < Proto-Nakh **-o-b-*, where **-b-* is a plural class marker that denotes iterative action; see 3.2.8.

It is not clear how these forms are to be explained. In Batsbi, *tujχĭ* has an oblique stem *tuχo-* (in the Instrumental *tuχo-v*, Kadagidze 1984:296); it is possible that this non-umlauting oblique stem underlies Ingush *tuχ*. A similar explanation is not available for Ingush *t'una*, however.

3.2. Labial umlaut: V2 = **o* or **u*

3.2.1. V1 = **a*, V2 = **o*

In some Chechen dialects, first-syllable **a* regularly became *o* before second-syllable **o* (Cheberloj, Sharoj, Xildixaroj), while in others it remained unchanged (Plains, hence also standard Chechen; Vedenoj, Itumkali; Imnajshvili 1977:65-66). In Ingush **a* regularly became *o* in this environment.

Proto-Nakh	**wašo* 'brother'	**bažo* 'cattle'	**t'aro* 'thimble'	**c'asto* 'copper'	**marχo* 'cloud'
Cheberloj Chechen	*vošo*	*božo*	*t'oro*	*c'osto*	*morχo*
Plains Chechen	*vaša, voša* [a]	*baža*	*t'ara*	*c'asta*	*marχa*
Sharoj Chech.	*vošo*	*božo*	*t'oro*	*c'osto*	*morχo*
Vedenoj Chech.	*vaša*	*baža*	*t'ara*	*c'asta*	*marχa*
Ingush	*voša*	*boža*	*t'ora*	(*c'asta*) [b]	*morχ*
Batsbi	*vašŏ*	*žabŏ* (with metathesis)	*t'arŏ* 'cob of maize'	*c'ast'* obl. *c'ast'e-* [c]	(*marag* 'cloud in night sky') [d]

[a] The standard Chechen form is *vaša*; *voša* is recorded by Imnajshvili (1977:65); he also records *voša* besides expected *vaša* for the Itumkali dialect.
[b] In view of its irregular vocalism this may be a borrowing from standard Chechen.
[c] Batsbi has the same root but a different final vowel than Chechen and Ingush.
[d] Bertlani 2012-2019 II:106.

In Plains Chechen (and therefore also in standard Chechen) there is a systematic exception to the rule that **a* is unaffected by second-syllable **o*: if the **o* is nasalized, it does cause labial umlaut of first-syllable **a.* Compare the following examples, all from Imnajshvili (1977:66):

Proto-Nakh	**andoᴺ* 'strong'	**ʁarʁoᴺ* 'coarse'	**wardoᴺ* 'oxcart'	**baqʾi* Gsg. **baqʾoᴺ* 'foal'	Dsg. **baqʾona* 'foal'
Cheberloj Chechen	*ondoᴺ*	*ʁorʁoᴺ*	*vordoᴺ*	*baqʾi* Gsg. *boqʾoᴺ*	*boqʾona*
Plains Chechen	*ondu, onda*	*ʁorʁuᴺ, ʁorʁaᴺ*	*vorda*, *varda* [a]	*beqʾi, beqʾa* Gsg. *boqʾuᴺ, boqʾaᴺ*	*boqʾuna, -ana*
Sharoj Chechen	*ondoᴺ*	*ʁorʁoᴺ*	*vordoᴺ*	*beqʾi* Gsg. *boqʾaᴺ*	*boqʾana*
Vedenoj Chech.	*andaᴺ*	*ʁarʁaᴺ*	*vardaᴺ*	*beqʾi* Gsg. *baqʾaᴺ*	*baqʾana*
Ingush	*onda*	*ʁorʁa*	*vorda*	(*baqʾ* Gsg. *baqʾa*)	(*baqʾaː*)
Batsbi	-	-	-	(*baqʾŏ* Gsg. *baqʾuiᴺ*) [b]	(*baqʾujn*) [b]

[a] Imnajshvili (1977:66) mentions only *varda*, without nasalization of the final vowel. Nichols-Vagapov (2004) list only *vorda*, with umlaut (this dictionary follows modern standard pronunciation and therefore usually leaves out final nasalization of vowels in non-initial syllables).
[b] Kadagidze 1984:83; the Gsg. was recorded by Alice Harris (personal communication).

As the examples show, Plains Chechen is the only dialect in which non-nasalized **o* does not and nasalized **o* does cause labial umlaut of first-syllable **a.*[19] The examples also show that second-syllable **o* was raised to **u* in this dialect: the alternation *u/a* is typical of the regular behaviour of old **u* in non-initial syllables (*a* [ʌ] is the reflex in standard Chechen). Hence this environment falls under the heading of V1 = **a*, V2 = **u* (3.2.2). This raising of non-initial nasalized **o* affected Plains Chechen but also Sharoj Chechen, where non-initial **u* is regularly reflected as *o* or *u*, while **o* normally became *a* (see the relevant examples in all of section 3.2).

This rule of labial umlaut in Plains Chechen is important for establishing a relative chronology, leaving us with two possible scenarios, a decision between which cannot be forced at the moment:

a. Since in Plains Chechen, but not in any of the other Chechen dialects, **o* did not cause labial umlaut of **a* while **u* did and since we observe that nasalized **oᴺ* > **uᴺ*, which affects only Plains and Sharoj Chechen, does cause umlaut, we may conclude that labial umlaut caused by **u* is a phenomenon that affected Chechen when it was already split up in various dialects so is a relatively late phenomenon.
b. Following the same logic, an alternative explanation is that labial umlaut caused by **u* is an old phenomenon in Chechen but that the umlaut rule remained

[19] Imnajshvili (1977:92) states that the Xaračoj subdialect of Vedenoj has *andaᴺ* 'strong', which is the form that appears in the table, but that the Dešne-Vedenoj subdialect has *onduᴺ*, as in Plains Chechen.

productive so as to still affect instances of recently arising **u* < **o* in individual dialects.

What can be decided, however, is the answer to another question, namely whether the raising rule affected only nasalized **oᴺ* or also any instance of **o* before nasal. The dative **baqʾona* > Plains Chechen *boqʾuna, boqʾana* would seem to suggest that the latter is correct. However, as the Sharoj dative *boqʾana* rather than **boqʾona* indicates, raising to **u* apparently did not affect **o* before *n* in that dialect, which suggests the possibility that Plains Chechen *boqʾuna, boqʾana* analogically replaces **baqʾana* by paradigmatic pressure from the genitive form *boqʾuᴺ, boqʾaᴺ*. That this is indeed correct is indicated by the noun **ardonikʾ* 'pack, flock', which in Plains Chechen became *ardang* rather than **ordung, *ordang*, so raising did not occur here; cf. Cheberloj *ordong*, Sharoj *ordang* (rather than **ordong*), Vedenoj *ardang* (Imnajshvili 1977:66), Ingush *ordanjg* (Nichols 2004).

The adjective for 'big' presents irregularities. Plains Chechen *=oqquᴺ, =oqqaᴺ*, would seem to reflect **=aqqoᴺ* (= Batsbi *=aqqoᴺ*), with second syllable **o*, which is indeed the reconstruction that is required for Cheberloj Chechen *=oqqoᴺ*, but Vedenoj *=oqquᴺ* and Itumkali Chechen *=oqqaᴺ* (rather than expected **=aqqaᴺ*) rather point to a reconstruction **aqquᴺ*, unless they were borrowed from or adapted to Plains (= standard) Chechen *=oqquᴺ, =oqqaᴺ*. Ingush *=oaqqa* 'big' points to yet another reconstruction, **=aːqqoᴺ* (or *=aːqquᴺ*), possibly with expressive lengthening of the vowel.

3.2.2. V1 = **a*, V2 = **u*

Before second-syllable **u* labial umlaut of **a* affects Ingush and all Chechen dialects except Cheberloj.

Proto-Nakh	**daʁu* 'rain'	**qaqu* 'pigeon'	**laχuᴺ* 'low'	**ħaqu* 'pole'	**macʾru* 'whey'
Cheberloj Chechen	*daʁu*	*qaqu*	*laχuᴺ*	*ħaqu*	*marzu*
Plains Chechen	*doʁu, doʁa*	*qoqu, qoqa*	*loχuᴺ, loχaᴺ*	*ħoqu, ħoqa*	*morzu, morza*
Sharoj Chechen	*doʁu*	*qoqu*	*loχuᴺ*	*ħoqo*	*morʒo*
Vedenoj Chech.	*doʁu*	*qoqu*	*loχuᴺ*	*ħoqu*	*morzu*
Ingush	*doʁa*	*qoqa*	*loχa*	*ħoqa*	*morʒ*
Batsbi	-	*qawqŭ, qowqŭ*	*laχuᴺ*	-	*macʾrŏ* [a]

[a] On the basis of the Chechen forms one would have expected Batsbi **macʾrŭ*.

In Batsbi, overshort *-ŭ* regularly causes labial umlaut and *w*-epenthesis of first-syllable *a*, but *j*-epenthesis without labial umlaut occurs as well (e.g. *qʾajtʾŭ* 'shears' < **qʾatʾŭ*, Imnajshvili 1977:120-121); the conditions are unclear. Overshortness only occurs if **-u* is oral and in absolute word-final position (so not if it is nasalized, as in *laχuᴺ*). The same unclear vacillation of *w*- and (more usual) *j*-epenthesis affects *a* before syncopated **u*, e.g. *ħacʾukʾ* 'bird', ergative *ħajcʾkʾev* but *ħaqur* 'was born', interrogative *ħowqri* (Mikeladze 1977:122-123 and *passim*, who provides many examples of *j*-epenthesis and only few of *w*-epenthesis). See Imnajshvili (1977:81-82) for more Chechen dialectal examples.

3.2.3. V1 = **aː*, V2 = **o*

The outcome of this constellation is highly context-sensitive in Plains Chechen and therefore in the standard language:
a. **aː* remains unchanged before second-syllable **o*, but
b. if **o* is raised to **u* (which affects nasalized **oᴺ* and **o* before **m*, but the latter not in all varieties), labial umlaut occurs:

**aː* in open syllables becomes *oː*
**aː* in closed syllables becomes *oa*

In none of the other Chechen dialects nor in Ingush do we find a similar sensitivity.

Proto-Nakh	**aːso* 'stripe, strip'	**šaːkʾoᴺ* 'rough'	**mˁaːqoᴺ* 'dun, dark grey'	**qʾaːrcʾŏ* 'piebald'	**kʾaːkʾrŏᴺ* 'deep'
Cheberloj Chechen	*aːso*	*šaːgoᴺ*	*mˁaːqoᴺ*	*qʾaːržoᴺ*	*kʾaːrgoᴺ*
Plains Chechen	*aːsa*	*šoːguᴺ, šoːgaᴺ*	*moːquᴺ, moːqaᴺ*	*qʾoarzuᴺ, qʾoarzaᴺ*	*kʾoarguᴺ, kʾoargaᴺ*
Sharoj Chechen	*oːsa*	*šoːgoᴺ*	*mˁoːqoᴺ*	*qʾoːrzoᴺ*	*kʾoːrgoᴺ*
Vedenoj Chech.	*aːsa*	*šaːgaᴺ, šoːguᴺ*	*mˁaːqaᴺ*	*qʾaːrzaᴺ, qʾoːrzuᴺ*	*kʾaːrgaᴺ, kʾoːrguᴺ*
Ingush	*oasa*	*šoaga*	*moaqa*	*qʾoarza*	*kʾoarjga* [c]
Batsbi	*asŏ*	-	-	*qʾarcʾeᴺ* [a]	*kʾˁokʾruᴺ* [b]

[a] Batsbi *qʾarcʾeᴺ* differs in its final vowel from the Chechen-Ingush forms.
[b] The Batsbi adjective, which differs in its final vowel from the Chechen-Ingush forms, probably is a derivative of the substantive *kʾˁokʾ* 'hollow, pit'. The derivative noun *kʾˁokʾrol* 'depth' has second-syllable *-o-*, which may support the Chechen-Ingush vocalism.[20] The counterpart of Batsbi *kʾˁokʾ* is not attested in Chechen or Ingush, but its former existence can be inferred from the adjective 'deep'. Original *aː*-vocalism in Chechen-Ingush may go back to an original paradigm N **kʾˁokʾ*, Obl. **kʾˁaːkV-* (see section 6), where the oblique stem was taken as the basis of the adjective.
[c] Palatalization of the velar in Ingush *kʾoarjga* may be a reflex of the pharyngealization attested in Batsbi.

[20] I am indebted to Alice Harris for this observation.

The double forms which Imnajshvili records for Vedenoj, one with and the other without labial umlaut, represent different varieties of the dialect: the Dišne-Vedenoj subdialect has labial umlaut before **o^N* > **-u^N*, while the Xaračoj subdialect lacks labial umlaut and does not undergo **-o^N* > **-u^N* (Imnajshvili 1977:92, who fails to note the significance of nasalization, however). Comparable double forms are also recorded for the Plains dialect, but only if second-syllable **o* stands before **m* (in this position Vedenoj never has labial umlaut):

Proto-Nakh	**kʾˤaːkʾom, *kʾˤaːčʾom* 'tinder'	**bˤaːʁom* 'pillar'	**ħaːstom* '(metal) nail'
Cheberloj Chechen	*kʾaːžom*	*bˤaːʁom*	*ħaːstom*
Plains Chechen	*kʾoːžum, kʾaːžam*	*bˤoːʁum, bˤaːʁam*	*ħoastum, ħaːstam*
Sharoj Chechen	*kʾoːgom*	*bˤoːʁoᴺ*	*ħoːstom*
Vedenoj Chech.	*kʾaːžam*	*bˤaːʁam*	*ħaːstam*
Ingush	*kʾoažam*	*bˤoaʁa*	*ħaːstam* [b]
Batsbi	*kʾˤakʾam* [a]	-	-

[a] Batsbi second-syllable *a* does not agree with the Chechen-Ingush forms.
[b] The expected Ingush form is **ħoastam*. It is conceivable that *ħaːstam* was borrowed from a West Chechen dialect similar to Itumkali, which regularly has *ħaːstam* (cf. Imnajshvili 1977:68 on the Itumkali form).

The reconstruction of second-syllable **o* instead of **u* in these words is based on the combined evidence of Cheberloj and the absence of labial umlaut in (Xaračoj) Vedenoj. The double forms in Plains Chechen probably reflect different variants of the dialect: the variant that raised second-syllable **o* to **u* before *m* underwent labial umlaut (so this is a case of *u*-umlaut rather than *o*-umlaut). Sharoj has second-syllable *o* rather than *a*, which points to **o* > **u* in this dialect too.

There is one etymon cited by Imnajshvili (1977:68-69) whose historical phonology is complex: Cheberloj *maːstoʁo*, Plains *moastuʁu, moastaʁ*, Sharoj *maːstoʁo*, Vedenoj *maːstaχa, moːstuχu*, Ingush *moastaʁa*, Batsbi *mastχov* 'enemy'. A plausible reconstruction would be **maːstoʁu*. The variants of the Plains and Vedenoj dialects that are sensitive to raising of **o* to **u* do so in this case, presumably under the influence of the final **-u*; this is accompanied by *u*-umlaut. Batsbi *mastχov* seems to have undergone syncope of the second syllable, with voice assimilation of **ʁ* to **st*: **maːstoʁu > *maːstʁu > mastχov* (the origin of final *-ov* is unclear).

3.2.4. V1 = **aː*, V2 = **u*

Second-syllable **u* causes labial umlaut of **aː* in Ingush and in all Chechen dialects except Cheberloj. Only in Plains Chechen does the reflex in open syllables (*oː*) differ from the reflex in closed syllables (*oa*; Imnajshvili 1977:92).

Proto-Nakh	**maːšu* 'partridge'	**qʾaːlu* 'theft'	**=aːcuᴺ* 'short'	**ħaːnku* 'ramson'	**aːrcu* 'alarm'
Cheberloj Chechen	*maːšu*	*qʾaːlu*	*=aːcuᴺ*	*ħaːnku*	*aːrcu*
Plains Chechen	*moːšu, moːša*	*qʾoːlu, qʾoːla*	*=oːcuᴺ*	*ħoanku, ħoanka*	*oarcu, oarca*
Sharoj Chechen	*moːšu*	*qʾoːlu*	*=oːcuᴺ*	*ħoːnku*	*(eːrci)* [c]
Vedenoj Chech.	*moːšu*	*qʾoːlu*	*=oːcuᴺ*	*ħoːnku*	*oːrcu*
Ingush	*moaš*	*qʾoal*	*loaca* [d]	(*ħonk* [b])	*oarc*
Batsbi	-	*qʾol* [a]	*=acuᴺ*	-	*ʕarcŏ* 'foray'

[a] Batsbi *o*-vocalism does not match Chechen-Ingush. Either *qʾol* was borrowed from Chechen or, as Nikolayev-Starostin (1994:578) suggest, the original paradigm was nominative **qʾol(V)*, oblique **qʾaːlu-*, with different generalizations of the first-syllable vocalism.
[b] Ingush *ħonk* instead of expected **ħoank* does not represent the modern Ingush merger of *oa* and *o* in closed syllables: its *-o-* is Proto-Nakh **o* (Johanna Nichols, personal communication). Hence we are probably dealing with a Proto-Nakh paradigm with alternating vocalism: nominative **ħonk(V)*, oblique **ħaːnku-*, which is comparable to the type Proto-Nakh **dokʾ* oblique **dakʾV-* 'heart', on which see 6.1. While Ingush generalized the **-o-* of the nominative throughout the paradigm, Chechen generalized the **-aː* of the old oblique stem.
[c] Sharoj *eːrci* has a different final vowel, which is also present in the Cheberloj by-form *aːrci* (Imnajshvili 1977:84).
[d] Nikolayev-Starostin 1994:1021; see Nichols 2011:375-376 for other consonants than class prefixes appearing in initial position.

3.2.5. V1 = **e* > **ie*; V2 = **o*

Only in Plains Chechen do we find forms in which labial umlaut ensued, turning **ie* into *üöː*, but even in this dialect forms without umlaut co-occur. Relevant dialectal material is too scarce to allow a definite conclusion about possible conditioning factors.

Proto-Nakh	**ǯelo* sheep barn'	**setʾo* 'star'	**wetoᴺ* 'flax'	**bʕeχoᴺ* 'dirty'	**pʾʕentʾo* 'rib'
Cheberloj Chechen	*ǯieːlo*	*sieːdo*	*vieːtoᴺ*	*bieːχoᴺ*	*pʾiendo*
Plains Chechen	*ǯüöːla*	*sieːda*	*vüöːtu, vieːta*	*büöːχu, büöːχa*	*pʾienda*
Sharoj Chechen	-	*sieːtʾo, sieːtʾa*	*vieːtoᴺ*	*bʕieːχoᴺ*	*pʾienda*

Proto-Nakh	**ǯelo* sheep barn'	**setʾo* 'star'	**wetoᴺ* 'flax'	**bˁeχoᴺ* 'dirty'	**pʾˁentʾo* 'rib'
Vedenoj Chech.	*ǯie:la*	*sie:do, sie:da*	*vie:toᴺ, vie:taᴺ*	*bˁie:χoᴺ, bˁie:χaᴺ*	*pʾiendo, pʾienda*
Ingush	*žiel*	*siedqʾa, sie:da* [a]	*gieta* [b]	*bˁieχa*	*pʾienda*
Batsbi	-	-	-	-	*pʾˁentʾŏ*

[a] Ingush *siedqʾa* apparently contains a suffix; *sie:da*, which is a literary form used in poetry, was probably borrowed from Chechen (traditionally, singing was done in Chechen; Johanna Nichols, personal communication).
[b] The correspondence of Ingush *g-* with Chechen *v-* is irregular.

If it were not for Plains *ǯüö:la* < **ǯielo*, one might suggest that the condition that favoured labial umlaut was if nasalized **oᴺ* was raised to **uᴺ* (the same condition was observed to apply in 3.2.3 and 3.2.1). Perhaps that rule may be saved if *ǯüö:la* was based on the vocalism of the original genitive **ǯie:loᴺ* > **ǯie:luᴺ* > **ǯüö:luᴺ*, where raising of **o* would have occurred regularly, but given the state of the material this must remain an arbitrary suggestion.

3.2.6. V1 = **e* > **ie*; V2 = **u*

The effect of second-syllable **u* on first-syllable **ie* varies strongly from dialect to dialect. As expected Cheberloj shows no effect, but it is joined by Vedenoj Chechen and Ingush, which normally do undergo labial umlaut by **u* but in this instance are unaffected. Plains Chechen, and accordingly the standard language, round *ie* to *üö*, which is long in open and short in closed syllables. Sharoj Chechen raises **ie* to *i:*, while the Xildixaroj dialect has **ie* > *io* (with length depending on syllable structure).

Proto-Nakh	**epu* 'hamster'	**geč'u* or **geǯu* 'raw silk'	**dec'ul* or **de3ul* 'family'	**melqʾu* 'lizard'	**deχkʾu* 'girdle'
Cheberloj Chechen	*ie:pu*	*gie:žu*	*die:zul*	*mielqʾu*	*dieχku*
Plains Chechen	*üö:pu, üö:pa*	*güö:žu, güö:ža*	*düö:zul*	*müölqʾu*	*düöχku*
Sharoj Chechen	*i:pu*	*gi:žu*	*di:zul*	*miolqʾo* [a]	*di:rku*
Xildixaroj Ch.	*io:pŭ*	-	*dio:3ul*	*miolqʾŭ*	*tʾioχkŭ*
Vedenoj Chech.	*ie:pu*	*gie:žu*	*die:zul*	*mielqʾa*	*dieχku*
Ingush	*iep*	*giež*	*diezal*	*mielqʾa*	*tʾieχkar*
Batsbi	-	-	-	-	*duχkʾaᴺ* [b]

[a] Sharoj *-io-* is exceptional; it may represent a borrowing from Standard Chechen, with adaptation of **üö* to *io* in conformity with the Sharoj vowel system, which lacks *ü* and *ö*.
[b] The first syllable vocalism (*u* instead of expected *e*) and the final vowel of Batsbi *duχk'a^N* are unexpected in light of the cognates.

3.2.7. V1 = **o* > **uo*; V2 = **u*

Since **uo* is a rounded vowel, labial umlaut cannot round it further, but if the second-syllable vowel was **u*, raising of **uo* to *u:* could occur. The pattern in the various dialects is as follows:

Proto-Nakh	**qoru^N* (Gsg. of **quor* 'pear')	**hordu^N* (Gsg. of **huord* 'sea')	**=ož-uš* 'falling'	**=ott-uš* 'pouring'	contrast **-o*: **=ott-o* 'falls'
Cheberloj Chechen	*quoru^N*	*huordu^N*	*=uožuš*	*=uottuš*	*=uotto*
Plains Chechen	*qu:ru^N*, *qu:ra^N*	*hurdu^N*, *hurda^N*	*=u:žuš*, *=u:žaš*	*=uttuš*, *=uttaš*	*=uttu, =utta*
Sharoj Chechen	*qu:ru^N*	*hurdu^N*	*=u:žuš*	*=uttuš*	*=uotto*
Vedenoj Chech.	*qu:ru^N*	*huordu^N*	*=u:žuš*	*=uottuš*	*=uott*
Ingush	*quora*	*fuorda*	*=uožaž*	*=uottaž*	*=uott*
Batsbi	(*qor* Gsg. *qore^N* 'apple') [a]	-	*=ož-e-š* [b]	*=ott-o-š* [b]	-

[a] Batsbi *qore-* represents a different stem than is attested in Chechen.
[b] In Batsbi the present gerund is formed by adding *-š* to the vowel that denotes the present indicative, which can be *-o, -u, -e, -i* depending on the specific verb. Alice Harris informs me that she recorded a present *j=ož-e-sŭ* 'I (female) fall', so the gerund should be *=ož-e-š*. In the case of *=ott-* 'pour' she recorded a present in *-o*, so the gerund should be *=ott-o-š* (cf. also the future imperfect *d=ott-o-r*, Kadagidze 1984:488). In standard Chechen, a similar rule for the formation of the present gerund applies, but the present tense suffixes are limited to *-u* (in transitive and intransitive verbs) and *-a* < **-e* (in a limited number of intransitive verbs; see e.g. Jakovlev 1960:218-219 and section 4.1 below).

Raising affects **uo* in both open and closed syllables in Plains and Sharoj Chechen, but in Vedenoj Chechen only **uo* in open syllables was raised. Ingush never undergoes raising. The quantity of raised *u* depends on syllable structure.

Imnajshvili (1977:86-87) cites only two non-verbal examples of the sequence V1 **uo* - V2 *u*, and those are genitival stems. This reflects the rarity of the sequence. The present gerund forms in **-uš* are presented here alongside the present indicative in **-o* in order to illustrate that second-syllable **o* probably has no effect on first-syllable **uo*: contrast Sharoj *=uttuš* with *=uotto*. At first sight this seems to be belied by Plains Chechen *=uttuš*, *=uttu*, but the latter represents the present indicative allomorph **-u* that spread at the expense of **o* (see 4.1; a similar

explanation on the basis of analogy is not available for Sharoj *=uttuš*, *=uotto*, which therefore probably represent regular sound change). The examples discussed in 3.2.1 and 3.2.3 show that word-final **-o* yielded *-a* and never *-u* in Plains Chechen.

3.2.8. V1 = **i* or **iː*, V2 = **o* or **u*

These are rare sequences, which is why the effects of second-syllable **o* and **u* are discussed together. Imnajshvili (1977:71-72, 87) mentions a single nominal example of **iCo*, the remainder of the material being verbal.

Proto-Nakh	**litto* 'haystack'	**=ikʾ-o/-u* 'leads'	**=itʾ-u/-o/-e* 'runs'	**=itʾ-uš* 'running'
Cheberloj Chechen	*litto*	*=igo*	*=id*	*=iduš*
Plains Chechen	*litta*	*=ügu*	*=üdu*	*=üduš*
Sharoj Chechen	*litta*	*=igo*	*=idu*	*=iduš*
Vedenoj Chech.	*litta*^{N}	*=ig*	*=id*	*=iduš*
Ingush	*litta*	*=ug*	*ud*	*udaž*
Batsbi	-	*=ikʾ-* 'lead' [a]	*itʾ-e, ʕitʾ-e* [a]	*itʾ-e-š* [a]

[a] Kadagidze 1984:306 and 310 lists the imperfects *=ikʾ-e-r*, *itʾ-e-r*, which imply a present *=ikʾ-e, itʾ-e* and a present gerund *=ikʾ-e-š, itʾ-e-š* (Holisky and Gagua 1994:183).

**litto* is the only reliable example that shows the regular development of **iCo*: no labial umlaut occurred, either in any of the Chechen dialects or in Ingush. The present indicative forms are ambiguous because at least three endings co-occurred in Proto-Nakh: **-u, *-o* and, in a number of intransitive verbs, **-e* (see 4.1). Plains Chechen generalized **-u* at the expense of **-o* (while **-e* became *-a*; preserved **-o* would have regularly become *-a* as well, see the examples in 3.2.1 and 3.2.3). On the basis of the scarce material presented here, we may tentatively conclude that Plains Chechen *ü* only occurs before original second-syllable **u*, as is indicated by the present gerund *üduš* and by the present indicatives *=ügu, =üdu* (which had the allomorph **-u* judging by the reflex *-u* rather than *-a* in attested Chechen). A similar distribution is found in Ingush: **-o* has no labializing effect, while **-u* does, turning first syllable **i* into *u*.

Imnajshvili (1977:71-72, 87) also mentions instances of labial umlaut of Chechen verbs with long **iː* in the root. The Batsbi cognates indicate that Chechen **iː* reflects Proto-Nakh **eb > *iew > *iː*.

Proto-Nakh	*=ebc-o/-u* 'tells'	**ħebs-o/-u/-e* 'watches'
Cheberloj Chechen	*=iːco*	*ħiːs*
Plains Chechen	*=üːcu*	*ħüːsu, ħüːsa*
Sharoj Chechen	*=iːco*	*hiːsu*
Vedenoj Chech.	*=iːc*	*ħiːs*
Ingush	*=uːc*	-
Batsbi	*=epc-o-* [a]	*ħeps-u-* [a]

[a] See Kadagidze 1984:231, Bertlani 2012-2019 I:289 for *d=epc-* 'tell, braid, weave, knit', with present tense *-o-*; and Jakovlev 1960:206, Holisky 1985:455, Bertlani 2012-2019 IV:302 for *ħeps-* 'watch', imperfect *ħeps-u-r*, which implies a present tense in *-u-*.

In both Plains Chechen and Ingush the result of *u*-umlaut of **iː* < **eb* is the same, apart from vowel length, as the result of *u*-umlaut of short **i*. This indicates that labial umlaut affected Ingush and Chechen at a relatively recent stage, when the development of **eb* to **iː* had been completed.

In Proto-Nakh, verbs with **-eb-* represented pluractional/iterative verbs (denoted by **e*) with plural intransitive subject and transitive object (denoted by the plural class indicator **-b-*). The original system of which this formed part was as follows (cf. Jakovlev 1960:201-212):

Proto-Nakh verbs	singular subject (> Chechen)	plural subject (> Chechen)
simulfactive	**-a-* ,**-o-* or **-i-* (> *-a-, -uo-* or *-i-*)	**-a-b-, *-o-b-* or **-i-b-* (> *-ow-, -uː-* or *-iː-*) [a]
pluractional	**-e-* (> *-ie-*)	**-e-b-* (> *-iː-*)

[a] For **ob* > Chechen and Ingush *uː*, cf. Batsbi *=opc-*, Chechen Ingush *=uːc-* 'to weave, plait'.

The Batsbi counterpart of the opposition between simulfactive and pluractional/ frequentative is an opposition between perfective and imperfective, where the imperfective stem usually has *e*-vocalism, while the perfect stem usually has *a-,* and more rarely *o-* or *i*-vocalism (e.g. Holisky 1985, Holisky-Gagua 1994:161, 180-181).

3.3. Summary: umlaut in Plains Chechen and Ingush

The following table presents a survey of the results of palatal and labial umlaut in Chechen and Ingush. Plains Chechen, which underlies standard Chechen, is taken here as the single representative of the Chechen dialects, so this is a simplified chart. Since the secondary literature on Chechen and on East Caucasian historical grammar usually only provides standard Chechen forms, the chart is useful for

determining the prehistoric vocalism of such forms (the symbol % denotes 'in the neighbourhood of').

Proto-Nakh		**palatal umlaut**				**labial umlaut**			
1st ↓	**2nd syll. →**	***e**		***i**		***o**		***u**	
		Chech.	**Ing.**	**Chech.**	**Ing.**	**Chech.**	**Ing.**	**Chech.**	**Ing.**
***a**		*e* *ä* %phar.	*a* *ʔe* %phar.	*e* *ä* %phar.	*e*	*a* (*o* /_*Co*^{N})	*o*	*o*	*o*
***aː**		*eː* /_*Ce* *ä* /_*CCe*	*ea*	*eː* /_*Ci* *ä* /_*CCi*	*ea*	*aː* (*oː* /_*Co*^{N}) (*oa* /_*CCo*^{N})	*oa*	*oː* /_*Cu* *oa* /_*CCu*	*oa*
***o** /_**CC**		*üö*	*uo* > *o*	*üö*	*ie* > *e*	*uo*	*uo* > *o*	*uu*	*uo* > *o*
***o** /_**CV**		*üöː*	*uoː*	*üː*	*ieː*	*uoː*	*uoː*	*uː*	*uoː*
***e** /_**CC**		*ie*	*ie* > *e*	*i(ː)*	*i(ː)*	*ie* (*ʔüö* /_*Co*^{N})	*ie* > *e*	*üö*	*ie* > *e*
***e** /_**CV**		*ieː*	*ieː*	*iː*	*iː*	*ieː* (*ʔüöː* /_*Co*^{N})	*ieː*	*üöː*	*ieː*
***i**		*i*	*i*	*i*	*i*	*i*	*i*	*ü*	*u*
***eb* > Ch.-Ing. *iː**		*iː*	*iː*	*iː*	*iː*	*iː*	*iː*	*üː*	*uː*
***u**		*ü*	*u*	*ü*	*i*	*u*	*u*	*u*	*u*
***ob* > Ch.-Ing. *uː**		*üː*	*uː*	*üː*	*iː*	*uː*	*uː*	*uː*	*uː*

4. Vowel alternation in verbal endings

In the discussions about the regular reflexes of umlaut in Chechen and Ingush in section 3, a number of verbal categories were largely passed over, even though they form an important part of the material that Imnajshvili (1977) presents. The reason for omitting them is that a number of verbal endings display a well-known but hitherto unexplained vowel alternation between Proto-Nakh **u* and **o* and between **i* and **e*.

4.1. The present tense suffixes and their derivatives

A large number of intransitive verbs have the Proto-Nakh present tense suffix **-e*, whose original quality is preserved in Batsbi (shortened to *-ĕ*), in Xildixaroj Chechen (also shortened to *-ĕ*) and in Cheberloj Chechen. In Standard Chechen, as in Plains Chechen, its reflex is *-a* [ʌ] + e-umlaut; this is also the development in Itumkali and in Vedenoj (where *-e, -i, -a* represent variants at subdialectal level). Sharoj Chechen lacks palatal umlaut of short **a* in the first syllable (e.g. *lata, lasta*; unless a laryngeal-pharyngeal intervenes, as in **χaʔe* > **χeʔe* > **χee* > *χie*; see 3.1.1) and of **o*

> **uo* (e.g. *muatta*; see 3.1.5), while long **a:* does undergo palatal umlaut (*=e:χa*; see 3.1.3); this pattern fits in with the regular behaviour of vowels before second-syllable **-e*. In Ingush, the ending is reflected in the common endingless present that is not accompanied by umlaut, which, again, agrees with a reconstruction **-e*. See the following table for a selection of examples provided by Imnajshvili (1977), to which I have added Ingush and Batsbi counterparts.

Proto-Nakh	**-e*	**-e*	**-e*	**-e*	**-e*
	**lat-e* 'fights'	**last-e* 'swings'	**χaʔ-e* 'knows'	**=a:χ-e* 'lives'	**muott-e* 'thinks'
Imnajshvili 1977	p. 60	p. 60	p. 60	p. 62	p. 64
Cheberloj Chech.	*lat-e*	*last-e*	*χeʔ-e* 'knows'	*=a:χ-e*	*muott-e*
Plains Chechen	*let-a*	*lest-a*	*χäʔ-a*	*=e:χ-a*	*müött-u*
Sharoj Chechen	*lat-a*	*last-a*	*χie:* [b] (*χuo:*)	*=e:χ-a*	*muatt-a*
Vedenoj Chech. [e]	*let-e/a/i*	*lest-e/a/i*	*χeʔ-e*	*=e:χ-e, -a*	*muatt-e, muett-a*
Itumkali Chech.	*let-a*	*lest-a*	*χeʔ-e*	*=e:χ-a*	*muatt-a*
Xildixaroj Ch.	*let-ĕ*	*lest-ĕ*	(*χo:a*)	*=e:χ-ĕ*	-
Ingush	*lat*	*last, lost*	(*χou*)	*=a:χ*	*mott*
Batsbi	(*let-ĕ*) [a]	(*lest-ĕ*) [a]	(*χeʔ-ĕ*) [a]	*=a:χ-ĕ* [c]	*mott-ĕ* [d]

[a] In Batsbi, **lat-ĕ, *last-ĕ* and **χaʔ-ĕ*, which would be the expected counterparts of the Chechen-Ingush forms, are not provided by Kadagidze 1984 or Bertlani 2012-2019. All three have *a*-vocalism of the root and count as perfective stems, which in Batsbi means that forms like **lat-ĕ*, if they exist, are future rather than present tense forms. I cite the same verbal roots with *e*-vocalism, which constitute the corresponding imperfective stems, all three of which show the ending *-e* and have present tense meaning (Kadagidze 1984:376, 381, 809; *-e* is a common present/future ending of intransitives).
[b] Sharoj *χie:* < **χee* < **χeʔe* < **χaʔe*.
[c] Kadagidze 1984:57.
[d] Kadagidze 1984:442.
[e] Vedenoj *-e, -a, -i* represents variation at subdialectal level. So does the variation (Xaračoj) *muatt-e* ~ (Dišn-Vedenoj) *muetta* (see 3.1.5 and Imnajshvili 1977:91).

A number of forms call for comments because they replaced **-e* by its allomorph, **-u*. Plains Chechen *müöttu* 'thinks' is interesting because it shows the umlaut caused by **-e* alongside the ending *-u*, which normally causes labial umlaut. This is an example of the productivity of *-u* as a present tense ending, but the maintenance of palatal umlaut before this suffix is remarkable. *-u* may well be just graphic for what is pronounced [ʌ], the orthographical choice for *u* being dictated by the rounded front vowel in the first syllable (cf. Desheriev 1960:69). Ingush *last* < **last-e* and *lost* < **last-u* occur side by side, both showing the umlaut that is appropriate to

the suffix (see Nichols 2004:285 for the attested forms). A similar pair is attested in Sharoj *χieː* < **χeʔ-e* beside *χuoː* < **χoʔ-u.* Xildixaroj Chechen *χoːa* and Ingush *χou* both reflect **χaʔ-u*, with labial umlaut, forms that ousted the reflex of **χaʔ-e*. These parallel forms do not suggest that both endings were present in these verbs at a prehistoric stage but that one ending (or rather its reflex) replaced the other in the course of time.

In standard Chechen, verbs that form a present in **-e* > *-a* use that form in derivatives such as the imperfect in **-e-ra* > *-ara* (e.g. *=aːχ-*, present *=eːχ-a*, imperfect *=eːχ-ara* 'lived'; Jakovlev 1960:170), the present participle in **-e-*^{N} (e.g. *=eːχ-a*^{N} 'living'; Jakovlev 1960:196) and the present gerund in **-e-š* (e.g. *qʾar-* 'to shine', present *qʾer-a*, gerund *qʾer-aš* 'shining', Jakovlev 1960:219).

Only in Batsbi do we find a present (= future) tense suffix **-i*, which becomes *-ǐ* and causes a glide *-j-* and concomitant vowel change in the first syllable, e.g. **χeʔ-i* > **χejʔǐ* > *χiːʔǐ* 'sits down', **ħeb-i* > *ħiːbǐ* 'moves (intrans.)', **eg-i* > *iːgǐ* 'becomes mixed', **lacʾ-i* > *lajcʾǐ, lejcʾǐ* 'hurts' (Imnajshvili 1977:120). Here **-i* seems to have been limited to intransitive verbs as well.[21] Chechen counterparts show **-u*: *χoʔu* 'sits down', *ħou* 'moves around', *lozu* 'hurts'. The elimination of **i* as a present tense suffix outside Batsbi is probably connected with the recharacterization of *i*-vocalism in verbal endings as a marker of the (perfective) past tense (see 4.2).

Beside *-a* < **-e*, Plains Chechen and standard Chechen possess another present tense suffix, *-u*, which causes labial umlaut and in the modern spoken language develops into *-a* (the original difference between the two suffixes is maintained in the form of the different umlaut they cause). Hiding behind Plains Chechen *-u* are two suffixes, however, **-u* and **-o* (Nichols-Vagapov 2004:685). Imnajshvili (1977:67, 69, 71 and 83, 84, 86) presents dialectal material for both and makes an attempt to systematically prize them apart. Here is some of the illustrative material:

Proto-Nakh	**-o*	**-o*	**-o*	**-u*	**-u*	**-u*
root	**=aʔ-o* 'eats'	**=ieš-o* 'reads, studies'	**=iett-o* 'beats'	**mal-o* (*u*?) 'drinks'	**=atʾ-u* 'runs'	**ieš-u* 'is lacking'
Imnajshvili 1977	p. 66	p. 71	p. 71	p. 67	p. 83	p. 86
Cheberloj Chechen	*=oʔ-o*	*=ieːš-o*	*=iett-o*	*mal-o*	*=ad*	*ieːš*
Plains Chechen	*=oʔ-u*	*=üöːš-u*	*=üött-u*	*mol-u*	*=od-u, =od-a*	*üöːš-u*

[21] Kadagidze 1984 lists 18 verbs as having a present/future ending *-i*: *akʾar* 'fall', *=ebžar* 'fall', *=elar* 'laugh', *=eplar* 'creep', *tegar* 'be advantageous', *teplar* 'pass', *jeplar* 'hear', *kʾamar* 'itch', *labčʾar* 'play', *latar* 'get stuck', *lacʾar* 'hurt', *levar* 'speak', *qʾesťar* 'split', *qerłar* 'fear', *qekar* 'call', *qeʔar* 'catch, get', *ħerčʾar* 'turn, roll', *ʕamar* 'get used to'. All are intransitive. Since Kadagdze 1984 does not list present/future forms for every verb, there must be more examples in existence.

Sharoj Chechen	*=oʔ-o*	*=ieːš-o*	*=iett-o*	*mol-o*	*=od-u*	*iːš-u*
root	**=aʔ-o* 'eats'	**=ieš-o* 'reads, studies'	**=iett-o* 'beats'	**mal-o* (*u*?) 'drinks'	**=atʾ-u* 'runs'	**ieš-u* 'is lacking'
Vedenoj Chech.	*=aʔ*	*=ieːš*	*=iett*	*mal*	*=ad*	*ieːš*
Itumkali Chech.	*=aʔ-a*	*=ieːš-a*	*=iett-a*	*mal-a*	*=ad-a*	*ieːš-a*
Xildixaroj Ch.	*=oʔ-ŏ*	*=ioːš-ŏ*	*=iott-ŏ*	*mol-ŏ*	*=od-ŭ*	*ioːš-ŭ*
Ingush	*=uʔ*	*=eš*	*=ett*	*mol*	*=od*	*eš*
Batsbi	*=aqʾ-ŏ* [b]	*deš-ŏ* 'obeys' [a]	*=ett-ŏ* [d]	*maɬ-ŏ* [e]	*=atʾ-* (no pres.) [f]	*eš-*: *iš-ŭ* [c]

[a] Kadagidze 1984:199; the *d=* is a petrified class indicator.
[b] Kadagidze 1984:52.
[c] Kadagidze 1984:234; *iš-ŭ* < **ijš-ŭ* < **ejš-ŭ* < **eš-u* (cf. Imnajshvili 1977:121).
[d] Kadagidze 1984:224 has 1sg. *=ett-o-s.*
[e] Imnajshvili 1977:119.
[f] The absence of a present form of *=atʾ-* 'run away' (which is the perfective stem) is confirmed by Alice Harris (personal communication).

For the particular problem of deciding whether a verb originally had **-o* or **-u*, Cheberloj Chechen is of less help than usual because it only has *-o*, which historically can only reflect **-o* (**-u* is retained as *-u*, as many of the examples given by Imnajshvili 1977:81-85 and also provided in chapter 3 show). But indirectly Cheberloj may well preserve the difference: while Proto-Nakh **aCo* regularly became *oCo*, with labial umlaut (3.2.1), **aCu* retains its *a* and does not undergo labial umlaut (3.2.2). This difference is apparently preserved in *=oʔ-o* 'eats' < **=aʔ-o* versus *mal-o* 'drinks' < **mal-u*. There is an alternative explanation, however, viz. that the very rare labial umlaut of Cheberloj Chechen is in the process of being eliminated from verbal paradigms by analogy. That explanation is more probable in light of the evidence from Batsbi and Sharoj Chechen, both of which point to original **-o* in **mal-*.

Sharoj Chechen is more instructive: compare the near minimal pair **=ieš-o* 'reads' with **ieš-u* 'is lacking'. The former yields *=ieːš-o* while the latter becomes *iːš-u*. The difference in the final vowel is preserved, and while **-u* causes raising of **ieː* to *iː*, the ending **-o* does not. The Batsbi cognates *dešŏ* and *išŭ* preserve the same Proto-Nakh difference of the final vowel. It is well-known that Batsbi has many instances of the present suffixes *-ŏ* and *-ŭ*. While transitive verbs almost always use *-ŏ* (Holisky-Gagua 1994: 180; but some intransitive verbs use *-ŏ* too), *-ŭ* is almost always found with intransitive verbs (other intransitives use *-ĕ, -ĭ*, as stated earlier, and rarely *-ŏ*).[22]

[22] Kadagidze 1984 lists 30 Batsbi verbs with a present/future in *-u*: *=avar* 'be lost', *=atːar* 'be poured out', *(=)akʾar* 'burn', *=apχar* 'be covered', *aχkʾar* 'be bound, stuck', *=aχːar* 'drown', *guar* 'see', *ešar* 'suffice', *tagar* 'fit', *tebar* 'tell' (the only transitive verb in this list), *tišar* 'precipitate, settle', *toqʾar*

Other dialects preserve either only **u* or only **o*. In Plains Chechen, and consequently in the standard language, **-u* was generalized. We know this because word-final **-u* regularly yielded *-u* while word-final **-o* became *-a*, as can be observed in the examples in section 3.2. We also know it because word-final **-o* did not cause labial umlaut of short **a* while **u* did (3.2.1, 3.2.2). The only exception to the generalization of **-u* in Plains Chechen is found in monosyllabic presents: Chechen *luo* 'gives', *=uo* 'does', Ingush *lu, =u* < **-o* (cf. Batsbi *=o* 'gives', Kadagidze 1984:41) versus Chechen *=u* 'is', Ingush *=ɨ* < **-u* (but Batsbi has *=a* 'is').

By contrast, Vedenoj and Itumkali Chechen generalized **-o* at the expense of **u*. Word-final **-o* regularly became *-a* and did not cause labial umlaut, as is shown by the dialect forms cited in the diagram above (contrast the Itumkali and Vedenoj forms cited in the diagrams in 3.2.2, 3.2.4 and 3.2.6, which show that a word-final **-u* was regularly reflected as *-u* and did cause labial umlaut).

We may conclude that there is plentiful evidence that the contrast between the endings **-o* and **-u* that is attested in Batsbi, was also originally present in Chechen-Ingush and may therefore be reconstructed for Proto-Nakh. The distinction became blurred by morphological restructuring.

It is unclear what the original, Proto-Nakh distribution between **-o* and **-u* was. In Batsbi, as we saw, the former is normally used with transitive verbs and the latter almost exclusively with intransitive verbs (see footnote 22, and note that Kadagidze 1984:302 mentions an opposition between intransitive 'be planted/sown' in *=ivŭ* and transitive 'plant, sow' in *=ivŏ*).

What we also know is that in Chechen (but not in Batsbi) the suffix **-u* rather than **-o* appears in derived forms of the present, e.g. the present participle in **-u^N* and the present gerund in **-uš*, which appear as *-u^N* and *-uš* in all dialects, irrespective of whether the verb in question had a present in **-o* or **-u* (Imnajshvili 1977:67, 69, 70, 71, 83, 84-85, 86, 87). An exception is the suffix of the imperfect, which appears as **-ura* > *-ura* in Cheberloj, Plains, Sharoj (and *-ur* in Xildixaroj), but as **-ora* > *-ara* in Vedenoj and Itumkali, precisely the two dialects that generalized **-o* > *-a* at the expense of **-u* as the normal present tense suffix (Imnajshvili 83, 85, 86). Moreover, Jakovlev (1960:166) provides a list of verbs that have an imperfect in *-ura* beside one in *-ara*, without perceptible difference in use, e.g. *o:l-ura* beside *a:l-ara* 'told', but it is not clear whether these represent dialectal variants that are acceptable from the point of view of the standard language or whether they are the remnants of a Plains Chechen system in which *-ura* and *-ara* were distributed along lexical or grammatical lines, as **-u* and **-o* were in Proto-Nakh. The Cheberloj dialect

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'suffice', *=ivar* 'be planted, sown', *=išar* 'lie down', *ot:ar* 'stand up', *=ołar* 'be contained, fit', *=otʾar* 'go', *=ucʾar* 'become full', *χat:ʾar* 'be connected, bound', *χaʔar* 'sit down, settle', *χeʔar* 'sit down, settle', *χebžar* 'sit down', *χilar* 'become', *χoʔar* 'fit', *qal:ar* 'be covered', *qastʾar* 'be surrounded', *qačar* 'reach, befall', *qacʾar* 'hang', *ħečʾar* 'look', *=ˁiʔar* 'be left'; cf. further Desheriev 1953:132, Imnajshvili 1977:119, 121. Since Kadagdze 1984 does not list present/future forms for every verb, there must be more examples in existence.

similarly shows *-ura* (Imnajshvili 1977 *locc. citt.*, who only provides examples of *-ura*) beside *-oro* (Arsaxanov 1969:53-54 mentions *a:l-oro* 'told', *a:r-oro* 'threshed', *tuoχ-oro* 'beat', *uoll-oro* 'hung up', *d=u:χ-oro* 'dressed' but gives no example of *-ura*). It is probable that *-ura* reflects **-u-ra* and *-oro* reflects **-o-ra*. The Batsbi counterpart of the suffix *-ra* is *-r*, which in Batsbi too is added to present tense forms in order to form the imperfect. Since word-final **-a* is the only vowel that is regularly lost in Batsbi (Imnajshvili 1977:47), the Proto-Nakh reconstruction is **-ra*. The *-a* surfaces in the first and second person absolutive (nominative) forms (e.g. 1 singular *-ra-sŏ*) and in other suffixed forms, such as the unwitnessed imperfect, which ends in *-ra-lŏ* (e.g. Chrelashvili 2007:96, Holisky-Gagua 1994:180). The *-a* is confirmed by Sharoj *-ra* (Sharoj preserves word-final **-o* as *-o*, see the examples in 3.2.1. 3.2.3). Hence *-ro* in Cheberloj *-oro* is an innovation, which probably resulted from progressive vowel assimilation.

A final remark on the forms in the table above: in Cheberloj and Vedenoj Chechen, some verbs have a zero ending. It may be that these are apocopated forms, but their status is unclear. Arsaxanov (1969:52) states that in Cheberloj the ending *-e* is pronounced very weakly and that a zero ending occurs as well. He also reports on the zero ending in Vedenoj (1969:151).[23]

We may conclude that Proto-Nakh possessed four different present-tense suffixes: **-e* and **-i*, both of which seem to have been limited to intransitive verbs, and **-o* and **-u*. In present-day Chechen and Ingush, the distribution of the mid and high vowel endings across verbs is lexically determined. The situation in Batsbi requires further study. The ending **-i*, which is attested in Batsbi, was eliminated in Chechen and Ingush at a prehistoric stage.

4.2. The suffix of the recent past and its derivatives

Based exclusively on the evidence of the Plains dialect and standard Chechen, one might think that there is only one suffix of the recent past tense, viz. **-i^N*. In fact, there are two, **-e^N* and **-i^N*. A selection of relevant material can be found in the following diagram (Chechen forms are taken from Imnajshvili 1977, to which I have added Batsbi counterparts; Ingush does not preserve this verbal category).

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[23] Nichols (1997:959-60) discusses the fact that forms with zero endings cause umlaut in Chechen dialects as well as in Ingush and hence may be thought to represent apocopated forms, but she prefers to regard the endingless forms as original and the umlaut as introduced by analogy to allomorphs with endings. The reason for this is that Ingush does not normally apocopate final vowels. According to her detailed analysis of word-final vowel reduction in Ingush, all short final vowels develop into shwa, which is normally so greatly reduced that it is only perceived as the release of the preceding consonant and by the fact that it opens the preceding syllable (Nichols 2011:63-64). However, some cases do suggest that apocope (so complete shwa loss) is involved. Lexical correspondences beween Chechen and Ingush nouns that ended in **-u* indicate that Ingush frequently lost that vowel completely, e.g. (Plains Chechen/Ingush) *üö:lu/el* 'heap' < **ielu*; *üö:pu/ep* 'gopher' < **iepu*; *güö:žu/gež* 'raw silk' < **giežu*; *voartu/foart* 'neck' < **va:rtu*; *ħoanku/ħonk* 'ramson' < **ħa:nku/*ħonk*; *kʾoru/kʾor* 'coal' < **kʾaru* (Chechen examples from Imnajshvili 1977:81-85, Ingush counterparts from Nichols 2004).

Proto-Nakh	*-e^N	*-e^N	*-e^N	*-i^N	*-i^N	*-i^N
root	*muott-e^N 'thought'	*=uož-e^N 'fell'	*χaʔ-e^N 'sat down'	*=uott-i^N 'poured'	=ieš-i^N 'obeyed, read'	*aːɬ-i^N 'told'
Imnajshvili 1977	p. 64	p. 64	p. 61	p. 78	p. 80	p. 76
Cheberloj Chechen	muott-e^N	=uoːž-e^N	χeʔ-e^N	=uatt-i^N	=ieːš-i^N	aːl-i^N
Plains Chechen	müött-i^N	=üːž-i^N	χiʔ-i^N	=üött-i^N	=iːš-i^N	eːl-i^N
Sharoj Chechen	muatt-a^N	=uoːž-a^N	χai^N	=u(j)tt-i^N	=iːš-i^N	eːl-i^N
Vedenoj Chech.	muett-i^N, muatt-e^N	=ueːž-e^N, =ueːž-a^N	χeʔ-e^N, -i^N, -a^N	=uett-i^N	=iːš-i^N	eːl-i^N
Itumkali Chech.	muett-a^N	=ueːž-i^N	χeː^N	=uett-i^N	=iːš-i^N	eːl-i^N
Xildixaroj Ch.	-	=wieːž-e^N	χeː^N	=uitt-i^N	=iːš-i^N	eːl-i^N
Ingush	-	-	-	-	-	-
Batsbi	mott- (past?)	=ož-e^N [b]	χaʔe^N [a]	=ott-i^N [c]	=eš-i^N 'promised' [d]	aɬ-i^N [e]

[a] Kadagidze 1984:803
[b] Kadagidze 1984:491
[c] Kadagidze 1984:488
[d] Kadagidze 1984:234
[e] Kadagidze 1984:36

The idea that there existed a distinction between *-i^N and *-e^N in Proto-Nakh rests on the following observations:

1. Cheberloj Chechen distinguishes -e^N from -i^N (Imnajshvili 1977 *passim*).[24] So does Batsbi (Kadagidze 1984 *passim*). What is more, verbs that take -e^N in Cheberloj generally do so in Batsbi too, as the examples illustrate. The same correspondence exists in the case of -i^N. Additional examples are Cheb. *tuoːχi^N* 'beat' (Imnajshvili 1977:78), Batsbi *toχi^N* (Kadagidze 1984:293-94); Cheb. *=aːsti^N* 'loosened' (Imnajshvili 1977:76), Batsbi *=asti^N* (Kadagidze 1984:45). But the correspondence does not always hold, as Cheb. *mali^N* 'drank' (Imnajshvili 1977:74) and Batsbi *małe^N* (Kadagidze 1984:401) show.[25]

[24] Arsaxanov (1969:53-54) only provides examples of -i^N.
[25] In the verb *=uož-* 'fall', all Chechen dialects show a reflex of *-e^N, with the exception of Itumkali, which has *=uož- + *-i^N > =ueːž-i^N (Imnajshvili 1977:64). In view of Batsbi *=ož-e^N* 'fell' (Kadagidze 1984:491) the Itumkali form is an innovation rather than an archaism.

2. Sharoj Chechen has *-aᴺ* < **-eᴺ* beside *-iᴺ*; the latter causes vowel raising and epenthesis if the root vowel is **uo* (*=uttiᴺ, =ujttiᴺ*) but the former does not (*=uoːžaᴺ*).
3. Itumkali Chechen has *-aᴺ* < **-eᴺ* beside *-iᴺ*, with the concomitant regular differences in umlaut.
4. Xildixaroj Chechen has *-eᴺ* beside *-iᴺ*, with the concomitant regular differences in umlaut.

In Vedenoj Chechen numerous parallel forms occur, which blur the original distribution; the allomorph *-iᴺ* appears to be spreading at the expense of *-eᴺ* > *-aᴺ*. Plains Chechen is the only dialect recorded by Imnajshvili that does not preserve the distinction between **-iᴺ* and **-eᴺ*, having only *-iᴺ* (cf. *=üːžiᴺ* 'fell', with palatal umlaut and raising of **uoː* > **üöː* > *üː*, which can only be caused by **-i*, not **e*). The reason behind this may be analogy (generalization of one of the two allomorphs), or it could be phonological merger: recall that word-final **-oᴺ* regularly became *-uᴺ* (see 3.2.1), so it is conceivable that **-eᴺ* regularly became *-iᴺ*.

On the form of the recent past tense a number of derived forms are based. The first of those is what is variously termed the perfective past tense (Jakovlev 1960:195-99) or the anterior converb (Nichols-Vagapov 2004:685), which in Chechen functions as a finite narrative past and as a past participle (Jakovlev 1960:221-25). In standard Chechen this has a number of allomorphs: *-ina* is the suffix used if the verb root ends in a double consonant (e.g. *muottina* 'thought'), but also in a number of verbs with a root ending in a single consonant (e.g. *tigina* 'calmed down'); other verbs with a root ending in a single consonant take the syncopated form *-na*, which often co-occurs with the long ending (e.g. *teqna, teqina* 'dragged'); if the verbal stem ends in a single *-t, -d, -tˀ, -l*, the short ending *-na* is used and subsequently progressive assimilation ensues (e.g. *aːlaᴺ* 'to speak', *äːlla*; *qietaᴺ* 'to beat', *qietta*; *=atˀaᴺ* 'to tear', *=ätˀtˀa*); see Jakovlev 1960:158-66. Nichols 1994:18 and 1997:949-51 provides a simpler analysis of synchronic standard Chechen: if the root ends in a single consonant that is not *r* or *n*, the short ending *-na* is used; assimilation of *n* occurs after *t, tˀ, l*; while all other verbs use the long ending *-ina*, with very few exceptions. Similar rules apparently affected all Chechen dialects. In standard Chechen, as in the Plains dialect, all attested forms of this past tense go back to unsyncopated **-ine* and syncopated **-ne* (which may reflect both **-ine* and **-ene*). Jakovlev (1960:155) notes that in two irregular verbs, *=aχaᴺ* 'go' and *=aːᴺ* 'come' a suffix *-ana* is attested, which no doubt reflects **-ene* (Nichols-Vagapov 2004:687 record *=eʔana* 'came' but also instead of expected **eχana* < **aχene* a form *=aχna* 'went', which unexpectedly lacks palatal umlaut of the stem vowel). As the following diagram shows, other dialects provide clear evidence for three allomorphs: **-ene, *-ine*, distributed much like **-eᴺ* and **-iᴺ*, and syncopated **-ne*, which may reflect both **-ene* and **-ine*:

Proto-Nakh	**-ene*	**-ene*	**-ene*	**-ine*	**-(i)ne*	**-(i)ne*
root	**muott-ene* 'thought'	**=uož-ene* 'fell'	**χaʔ-ene* 'sat down'	**=uott-ine* 'poured'	*=ieš-(i)ne* 'obeyed, read'	**aːɬ-(i)ne* 'told'
Imnajshvili 1977	p. 64	p. 64	p. 61	p. 78	p. 80	p. 76
Cheberloj Chechen	*muott-ene*	*=uoːž-ene*	*χeʔ-ene*	*=uatt-ine*	*=ieš-ne*	*aːlle*
Plains Chechen	*müött-ina*	*=üöž-na*	*χiʔ-ina*	*=üött-ina*	*=ieš-na*	*älla*
Sharoj Chechen	*muatt-ana*	*=uoːž-ana*	*χaina*	*=u(j)tt-ina*	*=ieš-na*	*aːlla* [a]
Vedenoj Chech.	*muett-ina muatt-ene*	*=ueːž-ene, =ueːž-ana*	*χeʔ-ene, -ina*	*=uett-ine*	*=ieš-ne*	*eːlle*
Itumkali Chech.	*muett-ana*	*=ueːž-na*	*χeːna*	*=uett-ina*	*=ieš-na*	*eːlla*
Xildixaroj Ch.	-	*=wieːž-en*	*χeːn*	*=uitt-in*	*=ieš-ne*	*eːlle*
Ingush	*mett-aː*	*=iež-aː*	*χeina*	*=ettaː*	*=iːš-aː*	*eanna*

[a] The absence of *e*-umlaut in Sharoj *aːlla* < **aːl-ne* is unexpected.

In Ingush, *-aː* is the productive ending of the anterior converb. It reflects a contraction of **-aa* < **-ie* < **-ine*, with regular loss of intervocalic **-n-* between the vowels of the second and third syllables (Nichols 2011:57). Since *-aː* is always accompanied by palatal umlaut of the stem vowel of the verb and since only **i* and not **e* has that effect, *-aː* must go back to **-ine* rather than **-ene*. In verbal stems of the structure CV-, the **-i-* of **-ine* contracts with the stem vowel (Nichols 2011:59). Since **-n-* is now no longer between the second and third syllable, it is preserved from loss, the result being forms of the type *χeina* 'sat down' < **χaʔ-ine*. A reconstruction **-ine* rather than **-ene* is required in order to account for the umlaut of the stem vowel (recall that in Ingush **e* does not cause palatal umlaut except of **aː*). So on the basis of CV-verbs like *χeina* and on the basis of the fact that *-aː* is accompanied by palatal umlaut we may conclude that in Ingush **-ine* spread at the expense of **-ene*. A final allomorph of the anterior converb in Ingush is *-Ca*, where *-C-* copies the final consonant of the verbal stem. This occurs if the final consonant is *-n, -d,* and sometimes if it is *-t*, e.g. *=ädda* of the verbal stem **=ad-* 'run'. After stem-final *-l-* regressive assimilation takes place, e.g. *eanna* of the verbal stem **aːl-* 'tell' (Nichols 2011:60-62, 244). The allomorph *-Ca* no doubt represents syncopated **-ne* < **-ine* and/or **-ene*. But there is an irregularity here: the verbal stem always undergoes palatal umlaut, which one does not expect if *-Ca* reflects **-ne* because **-e* only causes palatal umlaut of **aː* in Ingush, not of any of the other vowels. Nichols (2011:59) suggests that palatal umlaut in these forms was caused by the **-i-* of the original suffix **-ine* before syncope eliminated it, in other words, that palatal umlaut chronologically preceded syncope. But that cannot be correct in

view of the argument presented earlier in section 3.1.6, where it was argued that the absence of palatal umlaut in syncopated forms of the diminutive in **-ikʾ* in both Ingush and Chechen indicates that syncope chronologically *preceded* palatal umlaut. A more likely solution is that palatal umlaut, which was caused regularly by the two allomorphs of the anterior converb, *-a:* and *-(i)na*, spread by analogy to the allomorph *-Ca*, by which development palatal umlaut was established as a general morphonological feature of the perfective past system in Ingush.

A final issue confronting this morpheme concerns the original quality of the final vowel of the suffix **-(i/e)ne*. Chechen bears out that it was **-e*:

1. Cheberloj has consistent *-ne*; one of the Vedenoj subdialects also preserves *-e*.
2. In Chechen dialects, syncopated **-(i/e)ne* > *-na* causes *e*-umlaut

But the Chechen evidence seems to conflict with Batsbi, where the unwitnessed past is formed by joining the past in *-e^{N}, -i^{N}* to a following *-ŏ* < **-o* rather than **-e* (*-inŏ, -enŏ*). It is not clear how this issue is to be resolved.[26] The same problematic correspondence is found in the locative suffix, Chechen and Ingush *-ga*, Cheberloj *-ge* < **-ge*, to which corresponds the Batsbi locative suffix *-gŏ*.

Another form that is derived from the form of the recent past is the witnessed past tense, which has a simpler allophonic pattern than **-e/ine* because it does not undergo syncope of **-e/i-*. The suffix is **-era* or **-ira*, which reflect either **-e^{N}-ra, *-i^{N}-ra*, with loss of the nasalization before consonant, or **-e-ra, *-i-ra*, which would imply that the nasalization of the recent past is in origin a separate morpheme. The suffix **-ra* is the same as the suffix used to derive the imperfect from the present (**-e/o/u-ra*, see 4.1). Here are some examples from Imnajshvili (1977):

Proto-Nakh	**-era*	**-era*	**-era*	**-ira*
root	**muott-era*	**=uož-era* 'fell'	**χaʔ-era* 'sat down'	**mal-ira* 'drank'
Imnajshvili 1977	p. 64	p. 64	p. 61	p. 74
Cheberloj Chechen	*muott-era*	*=uoːž-ere*	*χeʔ-era*	*mal-ira*
Plains Chechen	*müött-ira*	*=üž-ira*	*χiʔ-ira*	*mel-ira*
Sharoj Chechen	*muatt-ara*	*=uoːž-ara*	*χaira*	*mel-ira*
Vedenoj Chech.	*muett-ira, muatt-era*	*=ueːž-era, =ueːž-ara*	*χeʔ-era, χeʔ-ira*	*mel-ira*
Itumkali Chech.	*muett-ara*	*=ueːž-ira*	*χeːra*	*mel-ira*

[26] Nichols 1997:957 fn. 1 on Proto-Nakh, Nichols-Vagapov 2004:685 on Chechen, Nichols 2011:59 on Ingush and Proto-Chechen-Ingush reconstruct **-ina*, with final **-a*, which agrees with neither the Chechen dialectal evidence nor with Batsbi.

root	**muott-era*	**=uož-era* 'fell'	**χaʔ-era* 'sat down'	**mal-ira* 'drank'
Xildixaroj Ch.	-	*=wieːž-er*	*χeːr*	*melir*
Ingush	*mett-ar*	*=ież-ar*	*χeira*	*melar*

Once again Plains Chechen shows only a single morpheme **-ira* > *-ira* while the other Chechen dialects preserve both **-ira* and **-era*. Vedenoj *muett-ira* and Itumkali *=ueːž-ira* show that in those dialects *-ira* is productive, possibly under the influence of standard Chechen.

In conclusion, the past tense system of Nakh is based on two suffixes, **-e*^{N} and **-i*^{N}.

5. The reconstruction of verbal classes in Chechen and Ingush

Umlaut is responsible for a great deal of the morphological complexity of the Chechen verb. Nichols in Nichols-Vagapov (2004:686) distinguishes 34 different morphological classes of regular verbs.[27] Six of them show complexities that are connected to vowel contraction of the CV-root and the vowel of the ending, which fall outside the scope of the present article. The remaining 28 classes are presented below, together with a reconstruction of the root and of the endings of the present, witnessed past and the perfective past = anterior converb. By applying the rules for umlaut that are characteristic of the Plains dialect (see the survey in 3.3), the attested forms can be generated almost without exception.

Class	*root pre-umlaut	present	*present	witnessed past	*witn. past	anterior converb	*ant. converb	
I	**laːc-*	*loːcu*	**-u*	*leːcira*	**-ira*	*läːcna*	**-ne*	catch
II	**ʕaːm-*	*ʕeːma*	**-e*	*ʕeːmira*	**-ira*	*ʕeːmina*	**-ine*	learn
III	**=aːqq-*	*=oaqqu*	**-u*	*=äːqqira*	**-ira*	*=äːqqina*	**-ine*	take
IV	**laːtt-*	*läːtta*	**-e*	*läːttira*	**-ira*	*läːttina*	**-ine*	stand
V	**mal-*	*molu*	**-u*	*melira*	**-ira*	*mella*	**-ne*	drink
VI	**χaʔ-*	*χuʔu*	**-u*	*χiʔira*	**-ira*	*χiʔna*	**-ine*	sit
VII	**lat-*	*leta*	**-e*	*letira*	**-ira*	*letta*	**-ne*	adhere
VIII	**χaʔ-*	*χäʔa*	**-e*	*χiʔira*	**-ira*	*χiʔna*	**-ine*	know
IX	**=aħ-*	*=äħa*	**-e*	*=äħira*	**-ira*	*=äħna*	**-ne*	dare
X	**ħaž-*	*ħožu*	**-u*	*ħäžira*	**-ira*	*ħäžna*	**-ne*	look at
XI	**qajq-*	*qojqu*	**-u*	*qajqira*	**-ira*	*qajqina*	**-ine*	call
XII	**lawz-*	*lowzu*	**-u*	*lewzira*	**-ira*	*lewzina*	**-ine*	play
XIII	**=awz-*	*=owzu*	**-u*	*=ewzira*	**-ira*	*=ewzina*	**-ine*	know
XIV	**ħawz-*	*ħowzu*	**-u*	*ħäwzira*	**-ira*	*ħäwzina*	**-ine*	spin
XV	**tˁaws-*	*tˁäwsa*	**-e*	*tˁäwsira*	**-ira*	*tˁäwsina*	**-ine*	sleep

[27] The classification and the unraveling of the effects of umlaut owes much to the groundwork laid by Handel 2003, who concentrates on Ingush but has much to say about Chechen as well.

Class	*root pre-umlaut	present	*present	witnessed past	*witn. past	anterior converb	*ant. converb	
XVI	**tuoχ-*	*tu:χu*	**-u*	*tü:χira*	**-ira*	*tüöχna*	**-ne*	strike
XVII	**tuol-*	*tüö:lu*	**-e*!	*tü:lira*	**-ira*	*tüölla*	**-ne*	surpass
XVIII	**huott-*	*huttu*	**-u*	*hüöttira*	**-ira*	*hüöttina*	**-ine*	stand
XIX	**muott-*	*müöttu*	**-e*!	*müöttira*	**-ira*	*müöttina*	**-ine*	think
XX	**=ieš-*	*=üö:šu*	**-u*	*=i:šira*	**-ira*	*=iešna*	**-ne*	read
XXI	**tieš-*	*tie:ša*	**-e*	*ti:šira*	**-ira*	*tiešna*	**-ne*	believe
XXII	**=iell-*	*=üöllu*	**-u*	*=illira*	**-ira*	*=illina*	**-ine*	open
XXIII	**=iett-*	*=ietta*	**-e*	*=ittira*	**-ira*	*=ittina*	**-ine*	beat
XXIV	**=u:χ- < *=obχ-*	*=u:χu*	**-u*	*=ü:χira*	**-ira*	*=ü:χina* *=üöχna*	**-ine* (anal.)	dress
XXV	**=ust-*	*=ustu*	**-u*	*=üstira*	**-ira*	*=üstina*	**-ine*	measure
XXVI	**=i:c- < *=ebc-*	*=ü:cu*	**-u*	*=i:cira*	**-ira*	*=i:cina*	**-ine*	narrate
XXVII	**till-*	*tüllu*	**-u*	*tillira*	**-ira*	*tillina*	**-ine*	put on
XXVIII	**c'i:z- < *c'ebz-*	*c'i:za*	**-e*	*c'i:zira*	**-ira*	*c'i:zina* *c'i:zna*	**-ine* **-ne*	shriek

There are only a few forms that require comments.

(a) Class VI and VIII contain a single verb each that shows special regressive vowel assimilations across glottal stop

(b) Class XI *qajqira, qajqina* instead of expected **qejqira, *qejqina* is due to the regular merger of **aj* and **ej* into *aj* (Handel 2003:160)

(c) Class XVII and XIX presents *tüö:lu, müöttu* display palatal umlaut caused by original **-e* but replaced the suffix by *-u*, possibly because vowel harmony intervened. Alternatively the *-u* is merely graphic (see Desheriev 1960:69 on vowel quality of unstressed *a* = shwa after a stressed rounded vowel)

(d) Class XXIV has two forms of the anterior converb, *=ü:χina* and *=üöχna*. The former is regular, but instead of the latter one would expect **=üχna*, with shortening of **u: > *ü: > *ü* in closed syllables. Attested *=üöχna* is analogical after the pattern of class XVI-XIX, where umlauted *ü:* in open syllables regularly corresponds to *üö* in closed syllables.

The Ingush verbal system is simpler (Nichols 2004:555, 2011:238, again based on Handel 2003):

Class	*root pre-umlaut	pres-ent	*present	pres. con-verb	*pr. cv.	witn. past	*witn. past	anterior converb	*ant. cv	
I	*=ieš*	*=ieš*	**-e/-o/-u*	*=ie:šaž*	**-uš*	*=i:šar*	**-ira*	*=i:ša:*	*< *-ine*	read
II	*=iett*	*=iett*	**-e/-o/-u*	*=iettaž*	**-uš*	*=i:ttar*	**-ira*	*=i:tta:*	*< *-ine*	beat
III	**la:tt-*	*la:tt*	**-e*	*la:ttaž*	**-eš*	*leattar*	**-ira*	*leatta:*	*< *-ine*	stand
IV	**tuoχ-*	*tuoχ*	**-e/-o/-u*	*tuo:χaž*	**-uš*	*tie:χar*	**-ira*	*tie:χa:*	*< *-ine*	strike
V	**uott-*	*uott*	**-e/-o/-u*	*uottaž*	**-uš*	*iettar*	**-ira*	*ietta:*	*< *-ine*	place
VI	**=i:c- < *=iebc-*	*=u:c*	**-u*	*=u:caž*	**-uš*	*=i:car*	**-ira*	*=i:ca:*	*< *-ine*	tell
VII	**=i: < *=ieb-*	*=u:*	**-u*	*=u:ž*	**-uš*	*=i:ra*	**-ira*	*=i:na*	*< *-ine*	sow
VIII	**a:l-*	*oal*	**-o/-u*	*oalaž*	**-uš*	*ealar*	**-ira*	*eanna*	*< *-ne*	say
IX	**mal-*	*mol*	**-o/-u*	*molaž*	**-uš*	*melar*	**-ira*	*menna*	*< *-ne*!	drink
X	**lat-*	*lat*	**-e*	*lataž*	**-eš*	*letar*	**-ira*	*leta:*	*< *-ine*	fight
XI	**lawz-*	*low3*	**-e/-o/-u*	*lowzaž*	**-uš*	*leizar*	**-ira*	*leiza:*	*< *-ine*	play
XII	**law-*	*low*	**-e/-o/-u*	*lowž*	**-uš*	*leira*	**-ira*	*leina*	*< *-ine*	want
XIII	**qajk-*	*qejk*	**-e/-o/-u*	*qejkaž*	**-uš*	*qejkar*	**-ira*	*qejka:*	*< *-ine*	call
XIV	**ill-*	*ull*	**-u*	*ullaž*	**-uš*	*illar*	**-ira*	*illaa*	*< *-ine*	lie
XV	**=uz-*	*=u3*	**-e/-o/-u*	*=uzaž*	**-uš*	*=izar, =ɨzar*[28]	**-ira*	*=iza:, =ɨza:*	*< *-ine*	fill
XVI	**qieħ-*	*quħ*		*quħaž*		*qeħar qiħar*	**-ira*	*qeħa: qiħa:*		carry

Many of the classes that in Chechen are distinguished by the different umlaut expressions of the present in **-e* or **-u* are not distinct in Ingush: only if the root vowel was **a* or **a:* or **i* or **i:* is it possible to distinguish whether the present ending originally was **-e* or **-o/-u*. That is because the other root vowels, **ie, *uo, *u, *u:*, were not subject to umlaut by any of the three present tense morphemes.

Class X present *lat* can only reflect **lat-e* because both **lat-o* and **lat-u* would have become **lot*; this reconstruction agrees with Chechen *leta* (class VII) < **lat-e*. Its counterpart is the class IX present *mol*, which reflects either **mal-o* or **mal-u*. Classes XI-XIII also had a root vowel **a*, but the following glide influenced the vowel to such a degree that it obscured any influence which the present ending may have had: **aw* > **ow* irrespective of labial umlaut (cf. infinitive *lowza* < **lawz-a^{N}*; the infinitive of class XII, *la:*, is the reason to distinguish classes XII and XI); and **aj* > *ej* irrespective of palatal umlaut (cf. infinitive *qejka* < **qajk-a^{N}*).

A true phonological irregularity is found in class III: **la:tt-e* should have become **leatt* (see 3.1.3 and cf. the Chechen *e*-present *lä:tta* < **la:tte*) rather than attested *la:tt*. The latter is no doubt analogical: **a:* is the only vowel in Ingush that is affected by umlaut by **e*, and if the present **leatt* were retained, class III would be the only verb class in which the present system vocalism was identical to the past system vocalism, thus undermining the prevalent feature of the Ingush verbal

[28] On Ingush *ɨ* and its obscure origin (perhaps regularly from i-umlaut of short **u*?), see Nichols 2011:26-27.

system, viz. that palatal umlaut characterizes the past tense system. A simple proportional analogy would remedy the situation:

infinitive *lata*	:	pres. *lat*	:	witnessed past *letar =*
infinitive *tuoːχa*	:	pres. *tuoχ*	:	witnessed past *tieːχar =*
infinitive *=ietta*	:	pres. *iett*	:	witnessed past *iːttar =*
infinitive *laːtta*	:	pres. **leatt*	:	witnessed past *leattar*
replaced by *laːtta*		***laːtt***		*leattar*

The effects of *u*-umlaut in the present and *i*-umlaut in the past system almost completely obliterated the difference between verbs with the root vowel **i, *iː* on the one hand and **u, *uː* on the other, the only form that preserved the original vocalism being the infinitive, which originally ended in **-a^N* so was not subject to umlaut. In those cases, Ingush always generalized *u*-vocalism in the infinitive, so that the classes merged completely (only classes VI and XV remain, with long *uː* and short *u* respectively; class XIV has an irregular infinitive with *a*-vocalism of the root, *all-a^N*). Thus, the example verb of class VIII has an analogical infinitive *=uːca* in Ingush, while its Chechen counterpart *=iːca^N* 'to tell' preserves the original vocalism.

Class VII has a root structure CV that is liable to complications caused by vowel contraction, but it is no doubt a special type of class VI (Handel 2003:131). Class XVI only contains the highly irregular verb *qaħ-a* 'carry' (its Chechen counterpart *qieħa^N* is a regular class XX verb).

6. Nominal ablaut in Nakh

On the basis of the analysis of palatal and labial umlaut in Chechen and Ingush that was undertaken in sections 3 and 4, it is possible to reconstruct Proto-Nakh vocalism with a high degree of precision. This prepares the ground for the next step in unraveling the history of Nakh vocalism, which is the subject of section 6.

In the inflection of a number of nouns in all Nakh languages, a vowel alternation occurs that cannot be explained on the basis of the rules of umlaut (e.g. Jakovlev 1960:5-6, 9, Desheriev 1960:117-20; Imnajshvili 1977:126-29). In those nouns, the root vowel in the nominative singular is **o, *u* or **i* (never **e*) while the root vowel in other case forms and in the plural is **a* or **aː*. In Chechen and Ingush, **a, *aː* in the oblique stem is often subject to umlaut, but Batsbi preserves the original vowel quality (though not always its quantity). This vowel alternation is sometimes called ablaut (e.g. Imnajshvili 1977; i.e. a form of morphologically conditioned vowel change). Here are a few examples (abbreviations: D dative, E ergative, G genitive, L a local case, O oblique stem, pl. plural).

Proto-Nakh	Batsbi[29]	Chechen	Ingush	meaning
**borc* O **barci-*	*borc* G *barci^{N}* E *barcav*	*buorc* G *berca^{N}* E *bercuo*	*buorc* E *bercuo*	'millet'
**motʾtʾ* G **matʾtʾiᴺ* O **matʾtʾa-*	*motʾtʾ* G *matʾtʾiᴺ* E *matʾtʾav*	*muott* G *metta^{N}* E *mattuo*	*muott* E *mettuo* [a]	'tongue'
**jiš* O **aːširV-, *aːšarV-* [b]	*iš* E *aširv*	*jiš* G *eːšara^{N}* E *eːšaruo*	*jiš* E *aːšaruo*	'voice'
**niq* O **naqorV-*	-	*niq* G *naqara^{N}* E *naqaruo*	*niq* E *noqaruo*	'beehive'
**buc* G **baːciᴺ* O **baːca-*	*buc* G *baci^{N}* L *bac-ma-k*	*buc* G *beːca^{N}* E *baːcuo*	*buc* E *beacuo*[a]	'grass'
**butt* G **batti^{N}* O **batta-*	*butt* G *batti^{N}* E *battav*	*butt* G *betta^{N}* E *battuo*	*butt* E *bettuo*[a]	'moon'

[a] Palatal umlaut in the Ingush ergative is probably due to the generalization of the stem-final vocalism of the genitive.
[b] In the oblique stem, **aːširV-* (Batsbi *-i-*, Chechen palatal umlaut) must have existed beside **aːšarV-* (Ingush *aːšaruo*, without umlaut), with different generalization in the different languages; see below, 6.3 and 6.4.

Why in some words short **a* appears and in others long **aː* is not clear. Nikolayev-Starostin 1984:98 suggest a phonological reason when they state that oblique vocalism **aː* presupposes originally long **iː* or **uː* in the nominative, which subsequently was shortened already before Proto-Nakh, while short **a* presupposes short **i* or **u* in the nominative. This may or may not be correct, but at best it only shifts the problem because the origin of Nakh vowel quantity oppositions is unclear (Nikolayev-Starostin project them back to Proto-East-Caucasian).

In a more general sense, too, the historical background of the vowel alternation between **o, *u, *i* in the nominative and **a, *aː* in the oblique stem is unclear. Nichols (2003:233-37) studied the alternation between Nakh **u* and **a* and made the observation that 'the vowel quality is predicted not by syllable structure but by the morphology: there is an opposition of nominative to oblique, or minimal to extended or disyllabic stems, and [u] quality is found most often in the nominative or minimal form while [a] quality occurs in the oblique or extended forms.' She suggested that the alternation may have deep roots within East Caucasian, comparing such forms as Lak *barʁ* O *burʁ-* 'sun', Tsaxur *waz* O *wuz-* 'moon', Dargi *unc* pl. *anc-* 'bull', where vowel alternation seems to be govered by morphological rules as well. In his study of the historical morphology of Avar-Andic-Dido, Alekseev (1988:176-177) compares the vowel alternation in Dido[30] with a similar phenomenon in the Lezgian languages and proposes a common

[29] As stated in section 1, Batsbi forms are taken from Kadagidze 1984, Bertlani 2012-2019; if other sources were used, this is explicitly noted: in this case Gagua 1961:85, Holisky-Gagua 1994:161, 167.
[30] I use the term Dido to refer to the language family which other authors refer to as Tsezic, in order to avoid possible confusion with the individual language Tsez.

Daghestanian inheritance, referring to Klimov's opinion (1986:86) that the vowel alternation is a feature common to Daghestanian and Nakh. Alekseev 2003:97-100, 223 provides a more extensive exploration of vowel alternation throughout Daghestanian, with references to the secondary literature.

An issue that may stand in the way of accepting this degree of antiquity of the vowel alternation in Nakh is that a systematic reconstruction of East Caucasian vowel systems has not yet been undertaken. So who is to say whether a Proto-Nakh **u* corresponds regularly to an attested *u* in, say, Dargi or Tsaxur, or whether some shallow sound law generated new instances of *u* and *a* in those branches of East Caucasian?

What I intend to do is to make a first step towards a systematic reconstruction of East Caucasian vocalism by submitting the lexemes that show this vowel alternation in the Nakh languages to an etymological study, comparing those lexemes to their cognates in Avar-Andic-Dido (henceforth AAD), where those exist. There is a specific reason to compare the Nakh vowel alternation to the data of AAD because the history of the vowel system in Dido and Andic was recently clarified, revealing that an alternation very similar to the Nakh alternation was in existence (Schrijver 2018). In AAD, many nouns that have a rounded vowel in the absolutive case (which is the morphologically minimal form and the equivalent of the Nakh nominative), i.e. **u, *o* or **ɔ*, instead show **i̵* in the extended stem of the oblique cases. Here are a few examples.[31]

Tsez (Dido)	Hunzib (Dido)	Andi (Andic)	Avar	reconstruction	meaning
1 *buci* O *bece-*	*boco* O *bi̵cə-*	*borcːʾi*	*mocːʾ* G *mocːʾról*	**borcːʾə* O **bi̵rcːʾwi-*	'moon'
2 *moƛu* O *moƛu-*	*mɔƛu* O *mi̵ƛa-*	*moƛʾi*	*máƛːʾu* G *maƛːʾíl*	**mɔƛːʾu* O **mi̵ƛːʾwa-*	'dream'
3 *mow* O *moje-*	*mɔqʾu* O *mi̵qʾa-*	*moGo*	*máʕu* G *maʕíl*	**mɔqʾu* O *mi̵qʾwa-*	'tear(s)'
4 *maˁw* O *maˁwe-*	*muqʾe* O *muqʾe-*	*muGa*	*buʕá* G *buʕól*	**muqʾe* O *mi̵qʾwe-*	'barley, grain'
5 *moχo* O *moχo-* 'thread'	*mi̵χu* O *mi̵χuli-* 'series, row'	*miχi* 'autumn wool'	*nuχí* G *nuχídul* 'fleece'	**mɔχːɔ* O **mi̵χːwɔ-*	'thread, wool'

In a number of lexemes, Dido languages preserve the alternation between rounded vowel in the absolutive and **i̵* in the oblique stem:[32] in example 1 both Tsez and Hunzib do so, but in 2 and 3 only Hunzib, while Tsez generalized the rounded vowel

[31] Dido, Avar and Andic forms were taken from Nikolayev-Starostin 1994, all checked against Kibrik-Kodzasov 1990 and the numerous lexica of the languages that have appeared since the 1990s. Reconstructions are based on Schrijver 2018.

[32] Cf. Alekseev 1988:136

of the absolutive. In examples 4 and 5, none of the individual languages preserve the alternation but its original existence can be reconstructed on the basis of the different generalizations of the vowel of either the absolutive or the oblique stem. In 4, Tsez generalized **-i̵-* while Hunzib generalized **-u-* throughout the paradigm. Andic languages and Avar never preserve the alternation but always generalize the vocalism of the absolutive or the oblique stem. Present-day Dido languages show a tendency to eliminate the alternation from their paradigms, too.

The question that will be addressed in what follows is whether the Nakh vowel alternation of **o, *u, *i ~ *a, *a:* aligns with the AAD alternation **ɔ, *o, *u ~ *i̵*. Do the same etyma show these alternations, and if so, what does this tell us about vowel correspondences between Nakh and AAD?

Before studying the relevant material the reader may find it useful to be informed of the regular vowel correspondences and reconstructions of vowels in the Dido languages (based on Schrijver 2018).

	West Dido				**East Dido**	
Proto-Dido	**Tsez**	**Hinuq**	**Xwarshi**	**Inxoqwar**	**Hunzib**	**Bezhta**
**i*	*e*	*e*	*i*	*i*	*i*	*i*
**e*	*i*	*i*	*e*	*e*	*e*	*e*
**i̵*	*e*	*e*	*e*	*i̵*	*i̵*	*i*
**ə*	*i*	*e*	*a*	*o*	*ə*	*o*
**a*	*a*	*a*	*a*	*a*	*a*	*a*
**u*	*u*	*u*	*u*	*u*	*u*	*u*
**o*	*u*	*u*	*u*	*u*	*o*	*o*
**ɔ*	*o*	*o*	*o*	*u*	*ɔ*	*a*

Dido languages underwent a number of context-sensitive vowel changes, of which the most important ones are the following:

1. Proto-Dido **i̵* > West Dido **ə* before nasals except intervocalic **m*,[33] e.g.
    1. Tsez *ɬi*, Hinuq *ɬe*, Xwarshi *ɬa*^{N}, Inxoqwar *ɬo*^{N} 'water' < West Dido **ɬən* versus Bezhta *ɬi*, Hunzib *ɬi*^{N} (beside *ɬə*^{N}) < East Dido **ɬi̵n*
    2. Tsez *zin*, Hinuq *zenu*, Inxoqwar *zon* 'barberry'< West Dido **zən(V)* versus Bezhta *sino*, Hunzib *si̵nu* < East Dido **zi̵nu*

[33] Schrijver 2018:209-210; etyma from Nikolayev-Starostin 1994:971, 1061, 667 and 254, with corrections and additions from recent dictionaries and other lexical sources of the Dido languages: Xalilov 1999 (Tsez), Xalilov-Isakov 2005 (Hinuq), Xalilova 2009 (Inxoqwar), Xalilov 1995 (Bezhta), Van den Berg 1995 (Hunzib), Isakov-Xalilov 2001 (Hunzib). See Schrijver 2018:210-213 for the complex behaviour of **i̵* before the (reconstructed) palatal nasal **ɲ*.

3. Tsez *=iq(i)-*, Xwarshi *=aq-*, Inxoqwar *=oq-* 'to take, get' < West Dido **=ənq(ə)-* versus Bezhta *=iᴺq(o)-*, Hunzib *=ɨᴺq(ə)-* 'to find, get' < East Dido **=ɨnq(ə)-* (the West Dido nasal is reconstructed on the basis of East Dido)
4. Tsez *=ic(i)-*, Hinuq *=ec(e)-*, Xwarshi *=aᴺc(a)-*, Inxoqwar *=oᴺc-* 'to bind' < West Dido **=ənc(ə)-* versus Bezhta *=iᴺc(o)-*, Hunzib *=ɨᴺc(ə)-* < East Dido **=ɨnc(ə)-*.[34]

2. Pre-Proto-Dido **ɨ* > Proto-Dido **e* after alveopalatals, and **ɨ* > **i* before alveopalatals (i.e. **č, *čː, *čʾ, čːʾ, š, ž*). This change is discussed in Schrijver 2018:207-209, where it is argued that the expected **ɨ* that regularly arose through unrounding of rounded vowels appears as **i* before and **e* after alveopalatals. Two examples:

1. Tsez *moči*, oblique *meče/o-* (Bokarev 1959:185; now replaced by *moči-*, e.g. Xalilov 1999 s.v.), Bezhta *mäče*, oblique *mičä-*, Hunzib *mɔče* oblique *mičo-* 'plot of land' < Proto-Dido **mɔče*, oblique **mičɔ-* < **mɨčɔ-*
2. Tsez *žubi*, Hinuq *žubo*, Inxoqwar *žubu* 'liver' < **žubV* or **žob-* versus Bezhta *šebo*, Hunzib *šebu* < **žebV* probably reflect a skewed paradigm **žubu*, oblique **žebə-* < **žɨbə-*, with different generalizations in different languages.

Other vowel changes will be discussed when they are relevant.

The Proto-Dido vowel system is identical to the Proto-AAD vowel system. The Andic languages and Avar have a simpler vowel system in which mergers occurred. The details remain to be worked out, especially with respect to Avar, but the following simplified survey may be useful:

Proto-Dido	Andic languages (simplified)	Avar (strongly simplified)
**ɨ*	*e* or *i*	*e* or *i*
**u*	*u*	*u* or *o*
**o*	*o* or *u*	*o*
**ɔ*	Andi *o*, other languages *a*	*a*

6.1. Proto-Nakh **o ~ *a* and its counterparts in Avar-Andic-Dido

In three etyma the Nakh alternation **o ~ *a* aligns with a Proto-AAD alternation **ɔ ~ *ɨ*. (Sources for the etymologies are abbreviated: NS = Nikolayev-Starostin 1994, Gig. = Giginejshvili 1977, Nich. = Nichols 2003).

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[34] The counterexample Tsez *ƛen*, Xwarshi *ƛen*, Inxoqwar *ƛɨn* 'shelf' < **ƛɨn* (Nikolayev-Starostin 1994:781), to which an anonymous referee drew my attention, is problematic because none of the lexical sources listed in footnote 33, nor Kibrik-Kodzasov 1990 and Klimov-Xalilov 2003, confirm the existence of any of the forms cited. Another problematic etymon is the Inxoqwar particle *ƛɨn*, which indicates reported information (Xalilova 2009:221, 472 and *passim*, alternatively spelled *ƛin, ƛun*). This is probably related to the quotative particle, Inxoqwar *ƛo* (Xalilova 2009:221, 237) < **ƛə*, whose vocalism agrees with that of the quotative particles, Tsez *ƛin*, Hinuq *ƛen*, Bezhta *ƛo, ƛö* < Proto-Dido **ƛə(-)*, with or without final **n*; the Hunzib quotative particle *ƛe(n)* (Van den Berg 1995:134) agrees with neither *ƛɨn* nor **ƛə(n).*

	Proto-Nakh	Batsbi	Chechen	Ingush	Dido	Andic, Avar
1	**mott* O **matt-* 'bed, place' (NS 803)	*mott* Adessive *matteħ* pl. *mattiš*	*muott* G *metta*^{N} E *mattuo*	*muott* E *mettuo*	**mɔčːʾe* O **mɨčːʾɔ-* > **mičːʾɔ-* in Ts. *moči* O *mečo-*, *moči-*, Hu. *mɔče* O *mičo-* 'place, plot'	no reliable cognates
2	**motʾtʾ* O **matʾtʾ-* 'tongue' (NS 802-3, Gig. 70, 84, Nich. 261)	*motʾtʾ* G *matʾtʾiᴺ* E *matʾtʾav* (Gagua 1961:85)	*muott* G *metta*^{N} E *mattuo*	*muott* E *mettuo*	**mɨcːʾ-* in Ts. *mec*, Hu. *mɨc*	**mɔcːʾ* in Av. *macːʾ*; **mɨcːʾ-* in e.g. And. *micːʾi*
3	**notʾqʾ* O **natʾqʾar-* 'pus' (NS 848, Gig. 86)	*notʾqʾ* Iness. *natʾqʾarχ*	*nuotʾqʾa* G *natʾqʾara*^{N}	*nuod* E *nadqʾaruo*	**mɔqʾu* O *mɨqʾa-* in Hu. *mɔqʾu* O *mɨqʾa-*, Be. *maqʾo* O *miqʾa-* 'tear'	**mɔqʾu* in Av. *máʕu*, And. *moGo* etc. 'tear'

In all three etyma, Nakh **o* corresponds to Proto-AAD **ɔ*, while Nakh **a* corresponds to Proto-AAD **ɨ*. In a longer series of etyma, the Nakh alternation **o* ~ **a* is found where AAD counterparts have only **ɔ*.

	Proto-Nakh	Batsbi	Chechen	Ingush	Dido	Andic, Avar
4	**borcʾ* O **barcʾ-* 'wolf' (NS 294, Gig. 101)	*bˤorcʾ* G *bˤarci*^{N} E *bˤarcʾav* (Gagua 1961:85)	*buorz* G *berza*^{N} E *barzuo*	*buorʒ* E *berzuo*	**bɔcʾə* O **bɔcʾi-* in Ts. *bocʾi* O *bocʾe-*, Hu. *bɔcʾə* O *bɔcʾi-*	**bɔcʾ* in Av. *bacʾ* G *bácʾil*, And. *bocʾo*
5	**cʾocʾ* O **cʾacʾ(ar)-* 'locust' (NS361)	-	*cʾuoz* G *cʾeza*^{N} E *cʾezuo* pl. *cʾazarčij*	*cʾoʒ* 'swarm'	**cʾɔcʾ-* in Be. *cʾacʾaka* 'glow-worm'	**cʾorcʾ-* in And. *cʾorcʾa* 'butterfly'
6	**dokʾ* O **dakʾ-* 'heart' (NS 678, Gig. 82, Nich. 258)	*dokʾ* G *dakʾiᴺ*, E *dakʾav* (Gagua 1961:86)	*duog* G *dega*^{N} E *daguo*	*duog* E *deguo*	**rɔkʾʷə* O **rɔkʾʷi-* in Ts. *rokʾu* O *rokʾe*, Hu. *rɔkʾu* O *rɔkʾi-*	**rɔkʾʷə* in Av. *rakʾ*, And. *rokʾʷo*
7	**doš* O **daš-* 'word' (NS 948)	*doš* G *daši*^{N} E *dašav* (Gagua 1961:85)	*duoš* G *deša*^{N} E *dašuo*, pl. *dešnaš*	*duoš* E *dešuo*	**rɔše* O **rɔši-* in Ts. *roži* O *rože-*, Hu. *rɔᴺže* O *rɔᴺži-*	**rɔšə* in And. *rošo*, Botlix *raša* etc.
8	**doχkʾ* O **daχkʾ-* 'fog, cloud' (NS 947)	*doχkʾ* G *daχkʾiᴺ* E *daχkʾav* (Gagua 1961:85)	*duoχk* G *daχkara*^{N} E *daχkaruo*	*duoχk* pl. *duoχkaž*	-	**nɔkːʾ* in Av. *nakːʾ* 'cloud'
9	**jobqʾ* O **(ʕ)abqʾar-* 'ashes' (NS 681, Gig. 136, Nich. 260)	*jopʾqʾ* G *apʾqʾriᴺ* E *apʾqʾarv*	*juqʾ* (< **jowqʾ*) G *owqara*^{N} (< **awqʾar-*)	*joqʾ* E *ʕouqʾaruo* (< **ʕawqʾar-*)	**jɔnƛːʾu* O **jɔnƛːʾa-* in Ts. *noˤƛu* O *noˤƛu-*, Hu. *jɔᴺƛu* O *jɔᴺƛa-*	And. *ƛːʾe* etc. lost the first syllable

In other etyma, the Nakh alternation **o* ~ **a* is found where AAD counterparts have only **i̶*.

	Proto-Nakh	Batsbi	Chechen	Ingush	Dido	Andic, Avar
10	**borš* O **barš-* 'bullock' (NS 1043, 1048)	*borš* pl. *baršluj, boršuj*	*buorš* G *barša*^{N} E *baršuo* pl. *beršaloj*	*buorša* 'male animal'	**biš:(w)e*, **miš:(w)e* (with **i* < **i̶* /_*š*) in Ts. *meši*, Hu. *biše* 'calf'[35]	**milč-* in And. *milča* 'calf'; **bi̶š(w)-* in Av. *basí*, Axwax *buša*, Tindi *boha* 'bullock'
11	**b*^{ʕ}*ok'*, **b*^{ʕ}*oč'* O **b*^{ʕ}*ač'-* pl. **b*^{ʕ}*ač'-il-* 'billy' (NS 293)	*b*^{ʕ}*ok'*	*buož* G *buoža*^{N} pl. *bežaloj*	*buož* E *bežuo*	**bi̶ƛ'(w)* O **bi̶ƛ'(w)i̶-* 'sheep' (pl.) in Ts. *be*^{ʕ}*ƛ'* O *be*^{ʕ}*ƛ'e-*, Inx. *bi̶ƛ'* O *bi̶ƛ'i̶-*	**bi̶ƛ'(w)-Vr* in And. *belir* 'deer', Av. *burut'* 'kid'
12	**dos* O **das-* 'firewood' (NS 946)	*dos* G *dasi*^{N} E *dasav* (Gagua 1961:85)	*dos-buχ* 'place for chopping wood'	*duos* E *desuo*	**riš(w)a* (with **i* < **i̶* /_*š*) in Be. Hu. *riža* 'roof timber'	**ri̶šw-* in Av. *rixí* 'roof timber', And. *reša* Axwax *ruša* 'tree'
13	**lo(r)ƛ* O **la(r)ƛar-* 'leather loop holding sword' (NS 278-79)	*lor*^{ɬ} 'knot (like bow tie)'	*luol* G *lalara*^{N} E *lalaruo* pl. *lalarš*	*luol* pl. *lalaraž*	**ri̶ƛ(w)ə* 'sheath, scabbard' in Ts. *re*^{ɬ}*i*, Hu. *ri̶ɬə*	**r=i̶ƛ(w)ə-* in And. *reɬoba*, Axwax *iƛa*; Av. *ɬel* 'sheath'

On the basis of these 13 etyma it is possible to propose the hypothesis that
(1) Nakh. **o* regularly corresponds to Proto-AAD **ɔ*; Nakh **a* regularly corresponds to Proto-AAD **i̶*;
(2) the Nakh vowel alternation **o* ~ **a* corresponds regularly to the AAD vowel alternation **ɔ* ~ **i̶*, in other words, both alternations reflect an inherited alternation that goes back to the common protolanguage, i.e. Proto-East-Caucasian.

In a small number of etyma, however, Nakh **o* corresponds to a different vowel in AAD. No doubt context-sensitive sound changes intervened, which remain to be clarified.

[35] Possibly two different etyma (thus Nikolayev-Starostin 1994) in view of the irregular correspondence of Nakh **š*, Avar *s*, Axwax *š*, Tindi *s* < **š* on the one hand and Proto-Dido **š:*, Andi *č* < **č* on the other.

	Proto-Nakh	Batsbi	Chechen	Ingush	Dido	Andic, Avar
14	**botʾ* O **batʾ-* 'dough' (NS 534)	*botʾ* pl. *batʾaš* (pl. in NS 534)	*buod* G *bediᴺ* E *beduo* pl. *bedaš*	*buod* E *beduo* pl. *bedaːž*	**ħatʾu* 'flour' in Ts. *atʾ*, Be. *hätʾtʾö*, Hu. *hatʾu*	**ħatʾ-* in Av. *ʕatʾ* 'flour' And. *hatʾi* 'dough'
	It is possible that the initial pharyngeal turned Proto-AAD **ɔ* into **a*, but this needs to be corroborated.					
15	**dol* O **dal-ar-* 'cubit (from fingertip to elbow)' (NS 947)	*dol*	*duol* G *dalaraᴺ* E *dalaruo* pl. *dalarš*	*duol* E *duoluo* pl. *duolaːž*, *duoliː*	**roƛʾ* O **roƛʾi-* in Ts. *ruƛʾ*, O *ruƛʾe-*, Be. *roƛʾ*	**rɨƛʾu-* in And. *relu*, *reƛʾu*, Axwax *reƛʾu* etc.
	Dido has **roƛʾ* instead of **rɔƛʾ*; Avar *natʾ* 'id.' probably does reflect **rɔƛʾ* but its *n-* is unclear; Proto-AAD **roƛʾ* (or **rɔƛʾ*) O **rɨƛʾ(w)-* can be reconstructed on the basis of the attested forms.					
16	**mocʾ* O **macʾ-* 'honey' (NS 824-25, Gig. 72, 106)	*mocʾ* G *macʾiᴺ* E *macʾav* (Gagua 1961:85)	*muoz* G *mezaᴺ* E *mazuo*	*muoʒ* E *mezuo*	**nucːʾə* O **nucːʾɔ-* in Hi. *nuce* O *nuco-*, Be. *nuco* O *nuca-*	**huncːʾ-* in Av. *hocːʾó*, And. *huncːʾi*, Axwax *uᴺcːʾi*
	Dido has **nucːʾ-* instead of **nɔcːʾ-*. Possibly originally a disyllabic stem **hVnVcːʾ-* with unclear vocalism. Andic **micːʾa-* 'sweet' in e.g. Andi *micːʾa,* Tindi *micːa=* etc. is probably cognate, apparently with **-i-*.					

6.2. Proto-Nakh **u ~ *a* and its counterparts in Avar-Andic-Dido

In two etyma, the Nakh alternation **u ~ *a* correspond to a reconstructable alternation **u ~ *ɨ*.

	Proto-Nakh	Batsbi	Chechen	Ingush	Dido	Andic, Avar
17	**duqʾ* pl. **daqʾw-* 'yoke; mountain crest' (NS 220, 954, Gig. 109, Nich. 260)	*duqʾ* 'yoke' (Bertlani 2012-2019 I:272)	*duqʾ* G *duqʾaᴺ* E *duqʾuo* pl. *daqʾqʾaš*	*duqʾ* E *duqʾuo* pl. *douqʾaž*	**ruƛʾu* > Be. *ruƛʾo*; **rɨƛʾ(w)e-* in Ts. *raˤƛʾu*, Hu. *rɨƛʾu*; **rɨƛʾwe-* in Hi. *roƛʾi* 'yoke'	**ruƛːʾV* in Av. *ruƛːʾ*, And. *ruƛʾo* etc.
	Ing. *douqʾ* < **dawqʾ-* < **daqʾw-*; Chech. *daqʾqʾ* < **daqʾw-* shows the normal progressive assimilation $C_1C_2 > C_1C_1$. Thus Nakh provides evidence for **w*. AAD **u ~ *ɨ* points to a Proto-AAD alternating paradigm. It too has direct evidence for **w* (Hinuq *roƛʾi* < **reƛʾwi* < **rɨƛʾwe*. Dido **ƛʾ* ~ Avar-Andic **ƛːʾ* is unusual and probably betrays the special development of **ƛːʾw* (> Dido **ƛʾw* rather than **ƛw*), as suggested by NS.					
18	**čʾuk'* O *čʾak'(w)ar-* 'hook' (NS 390)	*čʾuk'* pl. *čʾuk'i, čʾak'bi* 'drinking horn'	*čʾug* G *čʾagaraᴺ* E *čʾagaruo* pl. *čʾagarš* 'ring, gem'	*čʾug* pl. *čʾ(o)ugaž* 'ring, hook'	**čʾuk'* in Inx. *čʾuk'* 'door hook', **čʾɨk'(w)-* > **čʾek'(w)-* in Ts. *čʾigwasi,* Hu. *čʾekʾdu* 'crooked'	**čʾɨk'(w)-* in And. *čʾilokʾur* 'bent' (< **čʾikʾolur*)
	According to NS 390 Inxoqwar *čʾuk'* 'door hook' is a loan from Nakh, but given the existence of the alternation **u ~ *ɨ* in AAD this is not necessary. Ing. oblique *čʾoug-* may reflect **čakʾw-*.					

One etymon, which probably is an old Indo-European loanword (Tuite and Schulze 1998, Nichols 2011:73), shows Nakh **u ~ *a* corresponding to Proto-AAD **u* only.

	Proto-Nakh	Batsbi	Chechen	Ingush	Dido	Andic, Avar
19	**nus* O **nas-* 'daughter-in-law' (NS 856)	*nus* G *nasiᴺ*, pl. *naser, nasajrĭ*	*nus* G *nesaᴺ* E *nesuo* pl. *nesari:*	*nus* E *nesuo* pl. *nesari:*	-	**nus-* in Av. *nus*, And. *nusa*, Axw. *nuša*
	See Kadagidze 1984:458, 482 on the Batsbi forms; umlaut in the O singular in Chech. and Ing. was caused by **i* (cf. Batsbi G *nasiᴺ*); in the pl. Chech. *nesar-* is from **naser-* (cf. Batsbi *naser*), but **e* does not cause umlaut of **a* in Ing., so its pl. *nesari:* must have its umlaut analogically spread from the singular.					

Other etyma show Nakh **u ~ *a* corresponding to AAD **ɨ*.

	Proto-Nakh	Batsbi	Chechen	Ingush	Dido	Andic, Avar
20	**buc* O **beːc-* 'grass' (NS 1053)	*buc*, G *baciᴺ* (Holisky-Gagua 1994:161), L *bac-ma-k* (Kadagidze 1984:100)	*buc* G *beːcaᴺ* E *baːcuo* (*becuo*)	*buc* E *beacuo*	-	**bɨc-* in Godoberi *besí* 'grass', Chamalal *besi-ƛː* 'green'
	This is one of a small number of alternating nouns that show long **aː* in the O stem; Chechen *baːcuo* is the form given by Maciev and *becuo*, no doubt an innovation by analogy, by Nichols-Vagapov.					
21	**buqʾ* pl. **baqʾ(w)-* 'back, waist' (NS 310, Gig. 109, Nich. 260)	*buqʾ* O in *buqʾ-ma-k-daħ* 'from on the back', pl. *baqʾ-bi* 'girth'	*buqʾ* G *buqʾaᴺ* E *buqʾuo* pl. *baqʾqʾaš*	*buqʾ* E *buqʾuo* pl. *bouqʾamaž*	**mɨqʾ(w)ɔr-* in Hi. *moqʾoli*, Hu. *mɨqʾər* O *mɨqʾara-* 'back'	**=ɨqːʾ-* in Chamalal *beqʾuƛ*, Axwax *raqwːʾáƛːi* 'back'
	Ing. *bouqʾ-* < **bawqʾ-* < **baqʾw-*; Chech. *baqʾqʾ-* < **baqʾw-* shows the normal progressive assimilation $C_1C_2 > C_1C_1$. Thus Nakh provides direct evidence for **w*. NS compares Av. *moqːʾ* 'spine' as a cognate, but this does not seem to exist; the Andic cognates are more plausible, as Nichols 2003:260 suggests; Axw. *r-* suggests that the *b-, m-* in the other forms is a petrified class prefix, as do Chech. Ing. *juqʾ* 'middle, waist' (Nichols 2003 ibid.).					
22	**muq* O **maːq-* 'barley' (NS 835, Gig. 103, Nich. 256-57)	-	*muq* G *meːqaᴺ* E *meːquo*	*muq* E *meaquo*	**mɨqwe* > **miqwe* in Ts. *maħu*, Hi. *mihi*, Xw. Inx. *mihe* 'roasted grain'	-
	A difficult etymology because there are many similar forms which show irregular correspondences, yet this seems to be the best equation. Nakh **q* < Proto-East Caucasian **q* regularly corresponds to Dido **q* > postvocalic Tsez *χ* (but pharyngealized *ħ*), Hinuq Xwarshi Inxoqwar *h* (as in our case); reliable East Dido or Avar-Andic cognates are lacking, however (Bezhta *miʔeᴺ* 'acorn' may not exist, Hunzib *moᴺh* 'acorn' cannot reflect **q*; perhaps **oᴺq* in Hunzib *oh* 'barley', if not borrowed from Chadakolob Avar *oq* 'barley', and Avar *niχ* 'oats', NS 503). Proto-AAD **muqʾˤV, *mɨqʾˤwV-* 'barley' in e.g. Tsez *maˤw*, Hunzib *muqʾe*, Avar *buʕá*, Andi *muGa* 'grain'					

	have **qʾ*, which does not normally correspond to Nakh **q* (cf. NS 1058 on this item). According to NS 835, Dido **maqa* 'barley' in Tsez Hinuq Inxoqwar *maqa* may be a borrowing from Kartvelian (Georgian *maxa*, Laz *moxa* 'kind of cereal', see Fähnrich-Sardschweladze 1995:233), but it is also very similar to the oblique stem in Nakh, so that the possibility of a borrowing from Nakh may be entertained as well.

On the basis of etymologies 17-21 it is reasonable to hypothesize that the Nakh alternation **u ~ *a* regularly corresponds to Proto-AAD **u ~ *i̷*. In a number of remaining etyma, Nakh **u ~ *a* corresponds to a different rounded vowel than **u*, however. In 23 and 24, Nakh **u ~ *a* corresponds to Proto-AAD **o ~ i̷*, suggesting that Proto-AAD **o* regularly corresponds to Nakh **u*, in other words, that earlier **o* and **u* merged in Nakh **u* (but contrast 15, where Dido **o* corresponds to Nakh **o*). Examples 25-27 show Nakh **u* corresponding to Proto-AAD **ɔ*, which raises the question how these examples relate to the examples in 6.1, where Nakh **o* corresponds to Proto-AAD **ɔ*. The contextual conditions that govern those correspondences remain to be worked out.

	Proto-Nakh	Batsbi	Chechen	Ingush	Dido	Andic, Avar
23	**butt* O **batt-* 'moon, month' (NS 1044, Gig. 75, 84, Nich. 261)	*butt* G *batti^{N}* E *battav*, pl. *battiš* (Gagua 1961:85; Kadagidze 1984:97)	*butt* G *betta^{N}* E *battuo* pl. *bettanaš*	*butt* E *bettuo* pl. *betta:ž*	**boc:ʾə* O **bi̷c:ʾ(w)i̷-* in Ts. *buci* O *bece*-Hu. *boco* O *bi̷cə*	**bo(r)c:ʾə* in Av. *moc:ʾ* G *moc:ʾról*, And. *borc:ʾi*, Karataj *borc:ʾo*
	Rather than **u ~ *i̷*, Dido shows **o ~ *i̷*; it preserves the alternation in the paradigm.					
24	**ust* or **stu*, O **pstar-* 'bull' (Gig. 72, 89, Nich. 239, 257)	*pstʾu* G *pstʾari^{N}* E *pstʾarav* (Gagua 1961:86)	*stu* G *stera^{N}* E *staruo* pl. *sterči:*	*ust* E *istaruo* pl. *šerč, serč*	**onc* O **i̷ncwi̷-* in Ts. *is* pl. *is(w)abi*, Ts. (Sahada) *os*, Hu. *o^{N}s* O *o^{N}si-* 'ox'	**onc-* in Av. *oc*, And. *unso*, Axwax *u^{N}čá* etc. 'ox, bull'
	A highly irregular noun and therefore interesting to the historical linguist. In view of Proto-AAD **onc* O **i̷ncwi̷-* it is possible that the Nakh forms reflect an original paradigm of the approximate shape **u(n)st* O **i̷(n)stwi̷-r-*.[36] This is one of the etyma in which Nakh **st* corresponds to Daghestanian **c* (Nichols 2003:220). Nikolayev-Starostin (1994:680) apparently reject the etymology and connect the AAD forms with Chechen *jett* 'cow'. In Dido, Proto-AAD **i̷* regularly became **ə* /#_NC, and in West Dido **ə* before nasal regularly developed into **e*, whence the attested forms (cf. also Hinuq *üš* < West Dido **ensw-*, Xwarshi *i^{N}s*, Inxoqwar **e^{N}s*). Another example is Proto-Dido **ɔnc:ə* O **i̷nc:ə-* 'willow', where West Dido generalized the O stem **i̷nc:ə- > *enc:ə-* (Tsez *ici*, Hinuq *iče*, Xwarshi *i^{N}ca*, Inxoqwar *e^{N}co*) while East Dido generalized the absolute stem (Bezhta *a^{N}co*, Hunzib *ɔ^{N}c*, *ə^{N}c*).					

[36] Nichols 2003:230-32 argues that *p-* in initial consonant clusters represents an old class prefix **b-*. On the basis of AAD cognates, I tentatively suggest that **pst-* in 'bull' rather reflects **stw-*, cf. also no. 27 **pħ-* with AAD **ħw-, *hw-*.

	Proto-Nakh	Batsbi	Chechen	Ingush	Dido	Andic, Avar
25	**muqʾ* O **maqʾar-* 'handle' (NS 830)	*muqʾ* L *muqʾeħ* (Bertlani 2012-2019 II:174)	*muqʾ* G *maqʾaraᴺ* E *maqʾaruo* pl. *maqʾarš*	*muqʾ* E *muqʾuo* pl. *maqʾaraž*	**mɔqːʾˤu*, only in Ts. *moqˤu*	-
	Weakly attested outside Nakh; Dido shows **ɔ* rather than **u*.					
26	**tˤum* O **tˤamor-* 'cob of corn' (NS 991)	-	*tħum* G *tħamaraᴺ* E *tħamaruo*	*tum* E *tomaruo*	-	**tɔm-* in And. *tom-šːil* 'tubular bone', Tindi *tama* 'maize stalk'
	NS 991 also connect Hinux *tama* 'horn', which is semantically somewhat remote; its vocalism does not match Andic (**toma* would be expected)					
27	**pħu* O **pħar-* 'dog' (NS1074, Gig. 121)	*pħu* G *pħariᴺ* E *pħaraw* (Gagua 1961:86)	*pħu* G *pħäraᴺ* E *pħäruo*	*pħu* G *pħara* E *pħaruo* pl. *pħaːrč*	East Dido **hwə* in Hu. *wə*, Be. *wo*; West Dido **ʁˤwɨ* or **ʁˤwi* in Ts. *ʁˤwa*	**χwɔj* or **χwəj* in Av. *hoj, hwe*, And. *χwoj, χwej*, Axw. *χwe*
	The O stem in Chechen underwent umlaut so reflects **pħari-* (as in the Batsbi G), while the lack of umlaut in Ingush suggests **pħara-*, as in the other oblique cases in Batsbi. The reconstruction of the vocalism in AAD is unclear, but at any rate it does not seem to have been **u* or **ɨ*. Ts. *baħri* 'hunting dog' (Xalilov 1999 s.v.) < **baħre-* was probably borrowed from Nakh.					

6.3. Discussion

The etymological equations that were presented in the preceding two sections support the hypothesis that the Nakh alternations **o ~ *a* and **u ~ a* correspond to the Proto-AAD alternations **ɔ ~ ɨ* and **u/o ~ *ɨ*, respectively. This strongly suggests that the alternations go back all the way to Proto-East Caucasian, since the deepest genealogical split in East Caucasian runs between Nakh and Daghestanian, to which AAD belongs.

Schrijver 2018 argued that the AAD alternation **ɔ/o/u ~ *ɨ* ultimately has a phonological origin: when due to stress shift in a paradigm **ɔ/o/u* lose the stress to a following syllable, they are unrounded to **ɨ* and the labialization of the vowel is transferred to the onset of the stressed syllable in the form of a **w* (this **w* usually betrays its presence indirectly, because it rounds a neighbouring vowel in Tsez or Hinuq). Accordingly, Proto-AAD **bo(r)cːʾə* O **bɨ(r)cːʾ(w)ɨ-* 'moon' (example 23) reflects **'bo(r)cːʾə* O **bɨ(r)'cːʾwɨ-* and, ultimately, **'bo(r)cːʾə* O **bo(r)'cːʾɨ-*. The reconstruction **'bo(r)cːʾə* O **bɨ(r)'cːʾwɨ-* may now be assumed to be the Proto-East Caucasian reconstruction (apart form **b-*, since e.g. Lezgian *warz*, Xinalugh *wacʾ* etc. point to Proto-East Caucasian **w-*, but this does not concern us here). This has consequences for the history of Nakh.

First of all, since vowel alternation goes back to Proto-East Caucasian, the mobile stress system that originally governed the alternation must go back to Proto-East Caucasian too. Stress position in Proto-East Caucasian was not only mobile but

probably also phonological, like in modern Avar. Dido languages simplified the system. Tsez, for instance, assignes stress mechanically to the last vowel of the word that is followed by a consonant. So while Avar opposes e.g. mobile *mocːʾ* G *mocːʾról* 'moon' and barytone *bacʾ* G *bácʾil* 'wolf', Tsez has the same mobile stress pattern in the cognates *búci* G *becés* 'moon' and *bócʾi* G *bocʾés* 'wolf'. Among the Nakh languages, Chechen and Ingush almost invariably have stress on the first syllable, which accordingly is an innovation. Batsbi has mobile and phonological stress but unfortunately it is not well described and not represented in lexical resources. Imnajshvili (1977:19-20) mentions oppositions like Batsbi genitive sigular *žágno*^{N} 'book', *čúχo*^{N} 'lamb' versus genitive plural *žagnó*^{N}, *čuχó*^{N}. Chrelashvili (2007:112) notes an accentual difference between forms in which the personal marker on the verb refers to the agent (e.g. *χerc-ó-s* 'I change (something)') and forms in which the personal marker refers to the patient (*χérc-o-sŏ* '(someone) changes me').[37] Due to the paucity of data it is at present impossible to work out the historical relationship of Batsbi stress and stress in Avar.

A second consequence of the reconstruction of Nakh vowel alternation concerns the reconstruction of the Nakh vowel system. One must ask oneself whether the large vowel system reconstructed for Proto-AAD and attested in the Dido language Hunzib (**i, *e, *ɨ, *ə, *a, *u, *o, *ɔ*) is more archaic than the small vowel system reconstructed for Nakh (**i, *e, *a, *aː, *u, *o*). This is indeed what I assume because in studying the vowel system in AAD languages I have been unable to derive the Hunzib vowel system from the smaller systems that are attested in other Dido languages, in Andic and in Avar. Conversely, it is easy to derive the smaller vowel systems of those languages from the vowel system of Hunzib by assuming that a number of vowel mergers have taken place. Consequently, I assume that the **a* in the Nakh alternation **u/o/i* ~ **a*, which we now know shows a regular correspondence (in terms of the Comparative Method) to Proto-AAD **ɨ*, reflects an original Proto-East Caucasian vowel **ɨ* as attested in Hunzib (and Inxoqwar). It may be relevant that what is reconstructed as Nakh **a* is the central lower mid vowel [ʌ] in Chechen and Ingush, which is phonetically closer to **ɨ* than [a] would be.[38]

So the hypothesis is that Proto-East Caucasian **ɨ* became Proto-Nakh **a*. To be more exact, however, it was Proto-East Caucasian pretonic or unstressed **ɨ* that became Proto-Nakh **a*, pretonic being defined according to the rules of Proto-East Caucasian mobile phonemic stress, which probably persisted in Proto-Nakh judging by Batsbi, rather than according to Chechen and Ingush initial non-phonemic stress. This restriction of **ɨ* > **a* to pretonic or unstressed position is relevant because there is evidence of a different regular correspondence involving **ɨ*, where Proto-

[37] I am indebted to Alice Harris for this reference.

[38] This does not necessarily account for the instances in which the Nakh vowel alternation involves **aː*, which in some Chechen dialects is an open central [aː] and in others a mid central [ʌː] (Johanna Nichols, personal communication).

AAD **i̷* corresponds to Proto-Nakh **i*. This is attested in the Proto-East Caucasian word for 'water':

	Proto-Nakh	Batsbi	Chechen	Ingush	Dido	Andic, Avar
28	**χi* O **χi-* or **χin-* 'water' (NS 1060-61, Gig. 128, Nich. 263)	*χi* O *χi-*	*χi* G *χi^{N}* E *χinuo* or *χie*	*χi:* E *χivuo*	**ɬ:i̷n* in Ts. *ɬi*, Hu. *ɬi^{N}*	**ɬ:i̷n* in Av. *ɬ:in, ɬ:im*, And. *ɬ:en*, Axwax *ɬ:eni* etc.
	West Dido **ɬ:i̷n* regularly became **ɬ:ən*, whence Tsez *ɬi*, Hinuq *ɬe*, Inxoqwar *ɬo^{N}*. East Dido preserved **ɬ:i̷n* in Bezhta *ɬi*, Hunzib *ɬi^{N}* (beside *ɬə^{N}*). The etymon is widespread in other Daghestanian languages too, e.g. Lak *š:in*, Dargi (Akushi) *šin*, Tsaxur *x'an*, Archi *ɬ:an*, Xinalugh *xu*. Given the prevalence of word-final **n* in Daghestanian, the Chechen oblique stem *χin-* may well be a precious archaism. If the vowel alternation in Tsaxur *x'an* O *xine-*, Rutul *xäd* O *xiji-*, Kryz *xäd* O *xidi-*, Xinalugh *xu* O *xi̷n-* is cognate with the vowel alternation in Nakh and AAD, the original Proto-East Caucasian paradigm may well have been **ɬ:ɔn* O **ɬ:i̷n(w)V-*, but until regular vowel correspondences in those languages have been worked out this must remain uncertain.					

Since the Nakh nominative of 'water' is monosyllabic, its **i̷* must have been stressed. The evidence provided by this incontrovertible etymology is important and strongly suggests that Proto-East Caucasian **i̷* became Proto-Nakh **i* in stressed position and **a* in pretonic (or more generally unstressed) position, stress being determined according to the reconstructed mobile stress system.

We are now in a position to address the final category of vowel alternation in Nakh, viz. **i ~ *a*.

6.4. Proto-Nakh **i ~ *a* and its counterparts in Avar-Andic-Dido

On the basis of what was established in section 6.3, nouns in which **i* in the nominative alternates with **a* in the oblique stem reflect nouns with an original alternation between stressed **i̷* in the nominative (> Nakh **i*) and pretonic/unstressed **i̷* in the oblique stem (> Nakh **a*). Morphologically, nouns that show this alternation may have two different sources:

- either they reflect nouns that had primary Proto-East Caucasian **i̷* throughout its paradigm, as may have been the case with the word for 'water' (no. 28; but note the forms with alternation in southern Daghestanian languages discussed there, which may indicate original **ɔ ~ *i̷* with subsequent generalization of **i̷* in Nakh and AAD)
- or they reflect nouns that originally had an alternation **u/o/ɔ ~ *i̷*, which at some prehistoric stage, when the Proto-East Caucasian stress system was still in place, generalized the **i̷* throughout the paradigm, thus creating a paradigm in which stressed **i̷* appeared in the nominative, which became Nakh **i*; this is a development well attested in Dido, e.g. in 6.1 no. 2, where the original paradigm was **'mɔcː'* O **mi̷'cː'(w)V* and Dido and Andic generalized **i̷*-vocalism throughout the paradigm.

Before turning to Nakh-AAD etymologies, let us consider the relevant Nakh material. Here are two examples of the alternation in nouns that lack etymological counterparts in AAD:

	Proto-Nakh	Batsbi	Chechen	Ingush	Pre-Proto-Nakh
29	**niq* O **naqor-* 'beehive' (NS 868)	-	*niq* G *naqara^{N}* E *naqaruo*	*niq* E *noqaruo*	**'nɨq* O **nɨ'qor-*
	NS connect Av. *púqːna* 'drone', which is formally not convincing (Dargi [Akusha] *mirqi* 'bee' is a better candidate)				
30	**dikʾ* O **dakʾor-* 'axe' (NS 944, Gig. 82, Nich. 258)	*dikʾ* pl. *dakʾvrǐ* beside *dikʾujr* (Desheriev 1953:68)	*dig* G *dagara^{N}* E *dagaruo*	*dig* E *dogaruo*	**'dɨkʾ* O **dɨ'kʾor-*
	Batsbi *dakʾvrǐ* < **dakʾor-i* and *dikʾujr* < **dikʾor-i* (the latter with generalized *i*-vocalism). Daghestanian cognates outside AAD include Lak *rikʾw*, Aghul *jakʾw*.				

In two etyma, the alternation **i ~ *a* is not confined to the first syllable but also occurs in the second syllable. This suggests a more complex accentual pattern, according to which the second syllable was stressed in some forms and unstressed in others:

	Proto-Nakh	Batsbi	Chechen	Ingush	Pre-Proto-Nakh
31	**jis* O **aːsir-, *aːsar-* 'hoarfrost'	-	*jis* G *eːsara^{N}* E *eːsaruo*	*jis* E *aːsaruo*	**'ɨs* O **ɨ'sɨrV-, *ɨsɨ'rV-*
	Palatal umlaut in Chechen and lack of it in Ingush can only mean that in the second syllable original *i*- or *e*-vocalism in Chechen alternated with *a*-vocalism in Ingush. In accordance with the stress-dependent behaviour of Proto-East Caucasian **ɨ* in Nakh, the deeper reconstruction of **jis,* O **aːsir-, *aːsar-* was probably **'ɨs* O **ɨ'sɨrV-*, **ɨsɨ'rV-*, respectively.				
32	**jiš* O **aːširV-, *aːšarV-* 'voice'	*iš* E *aširv*	*jiš* G *eːšara^{N}* E *eːšaruo*	*jiš* E *aːšaruo*	**'ɨš* O **ɨ'šɨrV-, *ɨšɨ'rV-*
	The situation is similar to that of 'hoarfrost' except that *i*-vocalism of the second syllable is directly attested in Batsbi.				

On the basis of these forms it is impossible to establish how the oblique stem forms with stress on the second and third syllables were distributed across the paradigm. This is something we can determine, however, if the vowel alternation of the second syllable in a small class of Chechen nouns has the same origin (Nichols-Vagapov 2004:678): *borz* 'wolf', G *berza^{N}*, D *berzana*, E *barzuo*, Loc. *barzaχ* shows an oblique stem **barcʾi-* in the G and D but **barcʾa-* in all other case forms. *stag* 'person', G *stega^{N}*, D *stagana*, Loc. *stagaχ* has **stakʾi-* only in the G and **stakʾa-* in all other cases. Ingush presents this type in *maːr* 'husband', G *meara*, D *maːraː*, Lative *maːraʁa* etc. (Nichols 2011:130). In Batsbi, the type is common, e.g. *mar* 'husband', G *mari^{N}*, D

maran, Lat. *maragŏ*. It is well represented in words that show vowel alternation in the first syllable as well:

> *bos* 'colour', G *basi*^{N}, D *basan*
> *mocʾ* 'honey', G *macʾi*^{N}, D *macʾan*
> *doš* 'word', G *daši*^{N}, D *dašan*
> *butt* 'moon, month', G *batti*^{N}, D *battan* (Gagua 1961:85)

At a deeper chronological level, this alternation may reflect **barcʾi < *bɨr'cʾɨ-* in the G and possibly D versus **barcʾa- < *bɨrcʾɨ-'CV* in some or all of the other case forms (for as we saw earlier, pretonic **ɨ* became **a* while stressed **ɨ* became **i* in Proto-Nakh).

Examples of the alternation **i ~ *a* in root syllables in Nakh are much rarer than examples of the other vowel alternations. To complicate matters further, there are only very few etymologies that connect Nakh **i ~ *a* with AAD counterparts, and all are complex or problematic to some degree:

	Proto-Nakh	Batsbi	Chechen	Ingush	Dido	Andic, Avar
31	**jis* O **aːsir-, *aːsar-* 'hoarfrost' (NS 675)	-	*jis* G *eːsara*^{N} E *eːsaruo*	*jis* E *aːsaruo*	**ansV* in Ts. *az-qʾa* (with unclear *-qʾa*), Hu. *a*^{N}*za*	**ʕans-* or **ʕɨns-* in Av. *ʕansí* 'snowdrift'; **asɔr-* in And. *asor*, Axw. *ašа*[39]
	AAD points to a paradigm absolutive **'(ʕ)asɔr* (> Proto-AAD **'(ʕ)asɔn > *'(ʕ)ansɔ* > Proto-Dido **anzɔ*), oblique **(ʕ)a'sɔr-* (which was generalized in Andic). Since in Dido word-initial **ɔNC* regularly became **aNC*, it is possible that the original form was **(ʕ)ɔsɔr*, but Andi *asor* (not **osor*) militates against that assumption. Nakh and AAD may conceivably be united under a Proto-East Caucasian reconstruction **ɔs* O **ɨ's(w)ɔr-, *ɨs(w)ɨ'r(w)V-*, where Nakh generalized the vocalism of the latter form in the first and second syllables.					
33	**žin ~ *žim* O ?*žamar-* 'kidney' (NS 1106)	*ži*^{N} Gpl. *žinaːᴺ*	*žim* G *žima*^{N} E *žimuo* pl. *žannaš* (Maciev); *žin* G *žina*^{N} pl. *žannaš* (Nichols-Vagapov)	*žim* E *žamaruo* pl. *žamaraž*	**žuw* or **žow* O **žɨbə-* (> **žebə-*) in Ts. *žubi*, Xw. *žiba*, Hu. *šebu* 'liver'	**žow* or **žuw* > Av. *-žo* in *baʕár-žo* 'kidney' (*baʕar-* 'red'), *urhisːa-žo* 'id.' (*urhisːa* 'inside')
	Since the Nakh languages disagree with one another, it is not possible to reconstruct the Proto-Nakh paradigm with confidence. In AAD, **w* in syllable coda is in complementary distibution with **b* in syllable onset, whence the alternation **w/b* in the paradigm. A Proto-East Caucasian reconstruction approximating **žo*, **žu* versus oblique **žɨ'nwVr-* might account for all forms if we assume various generalizations of the vocalism (in Nakh **ɨ*) and if **nw* > Nakh *m*, but this is uncertain.					

[39] Separated from the group of Andi *anži* (with unclear *ž* instead of *z*), Axwax *a*^{N}*ži*, Tindi *anzi*, etc. because these have Proto-AAD **z* rather than **s* (thus Nikolayev-Starostin 1994: 674, 675).

	Proto-Nakh	Batsbi	Chechen	Ingush	Dido	Andic, Avar
34	**ʕi* O **ʕanar-, *ʕanir-* 'steam' (NS 485)	*ʕa*, Lative *ʕanar-ʁ*	*ʕa* (Nichols-Vagapov), *ʕä* (Maciev), G *ʕänaraᴺ*	*ʕi* E *ʕanaruo*[40]	**hɨ̄l- > *hel-* in Be. Hu. *hel-* 'to boil'	**hal-* or **hɔl-* in Av. *hal-, hwal-* 'boil', And. *hal* 'steam'
	The Nakh O **ʕanar-* is required for Batsbi, while **ʕanir-* is presupposed by Chech. The absence of umlaut in Ing. *ʕanar-* suggests that it generalized the stem **ʕanar-*. Ing. is the only language to preserve the root vowel *i* in the nominative. The connection with AAD is weak because every segmental correspondence is ambiguous.					

While we may conclude that the alternation between Proto-Nax **i* and **a* in these etyma probably reflects an earlier alternation between stressed and unstressed (or more specifically pretonic) **ɨ̄*, the relatively poor quality of the etymological connections with AAD does not (or not yet) allow us to confidently connect the Nakh etyma with those showing the East Caucasian alternation of stressed **u/o/ɔ* and pretonic **ɨ̄*.

7. General conclusions and outlook

The vowel changes discussed in this article belong to two chronologically very different layers in the history of East Caucasian.

a. Palatal and labial umlaut was discussed in sections 3-5 and summarized for the standard varieties of Chechen and Ingush in section 3.3. This is a regressive assimilation that affected Ingush and all dialects of Chechen, with the almost complete exception of the Cheberloj dialect. Batsbi has its own kind of umlaut, which was not studied in detail here and whose operation is limited to **i* and **u* causing raising of **a, *e* and **o* in a preceding syllable and the introduction of a *j-* or *w*-glide (the subject was briefly discussed in 3.1.6, 3.1.8 and 3.2.2, e.g. **seni* 'blue' > *sejnĭ > siːnĭ*; see in general Imnajshvili 1977:117-125, Mikeladze 1977). Hence, given those differences, umlaut is a post-Proto-Nakh phenomenon.

What is also significant is that the Chechen dialects that were affected obeyed slightly different umlaut rules (see the tables and discussions in section 3.1 on palatal umlaut and in section 3.2 on labial umlaut). In this sense umlaut in Nakh is reminiscent of umlaut in Germanic, where it affected all languages except Gothic but to varying degrees and according to sound laws that differ from language to language. This presupposes a staggered spread across a dialect continuum.

Another similarity to Germanic is that Chechen and Ingush, which generalized stress on the initial syllable, retracted vowel features from the unstressed into the stressed syllable and reduced vowel oppositions in unstressed (non-initial) syllables. The only Chechen dialect that preserves vowel oppositions in unstressed syllables, Cheberloj, was hardly affected by umlaut. Batsbi usually has

[40] Johanna Nichols elicited a genitive singular /ʕen/, cf. also Ozdoev *et al.* 1962 (Johanna Nichols, personal communication).

stress on the first syllable as well but it has a certain degree of mobility (Holisky-Gagua 1994:155). Whatever the difference in stress systems, in Batsbi too umlaut is linked to unstressed vowel reduction: only *i* and *u* that were shortened in word-final position or were affected by syncope in medial syllables caused umlaut. So it seems that umlaut and unstressed vowel reduction (shortening, loss of oppositions, and total loss) are connected.

It is unstressed vowel reduction that forms the bridge to the second vowel change, which is of a much greater age.

b. Proto-East Caucasian vowel alternation. A number of nominal paradigms in Nakh show a vowel alternation according to which the first syllable contains an *o, u* or *i* in the nominative but an *a* in the oblique stem. This is the type Batsbi *butt*, genitive *batt-i-*^{N}, ergative *batt-a-v* 'moon'. The vowel alternation is also found in Chechen and Ingush, where it becomes visible after the effects of umlaut have been peeled off (e.g. Chechen *butt,* genitive *betta*^{N} < **batt-i-*^{N}, ergative *battuo* < **batt-a-v* 'moon'). This is the subject of section 6, where it is argued that etyma that show the vowel alternation in Nakh also show vowel alternation in Dido. According to Schrijver 2018, the vowel alternation in Dido goes back at least to Proto-Avar-Andic-Dido and should be analyzed as an unrounding of pretonic **u, *o* and **ɔ* to **ɨ* in paradigms with mobile stress. On the basis of etymological correspondences between Nakh and Avar-Andic-Dido it is possible to establish the following regular vowel correspondences (see 6.2):

Proto-Nakh		Proto-Avar-Andic-Dido
**o*	~	**ɔ*
**u*	~	**o, *u*
**i, *a*	~	**ɨ*

It is also possible to establish the original distribution of the two Nakh counterparts of Proto-Avar-Andic-Dido **ɨ*: Proto-Nakh **i* arose in stressed and **a* in unstressed (perhaps specifically pretonic) position (6.3, 6.4). The assumption underlying this distribution and the hypothesis of pretonic unrounding of **u/o/ɔ* to **ɨ* in general is that the stress system at the time was of the Avar type (mobile) and that Nakh, or rather Chechen-Ingush, innovated by fixing stress on the first syllable. We can be precise about the relative date of the pretonic unrounding of **u/o/ɔ* and the mobile stress system: since the split between Nakh on the one hand and Daghestanian, to which Avar-Andic-Dido belongs, on the other, is the deepest and earliest split in East Caucasian, and since pretonic unrounding is shared by Nakh and Daghestanian, pretonic unrounding and the stress system that underlies it must be dated to Proto-East Caucasian.

Given this early date, the question arises whether Nakh reflects another feature that is linked to pretonic unrounding and that is present in Dido. In the

latter, unrounding of pretonic rounded vowels not only resulted in **u/o/ɔ* becoming **ɨ* but also in the phenomenon that the original rounding of the pretonic vowel attached itself in the form of a **w* to the consonant following **ɨ*. An example is the paradigm Proto-Dido **buˤɬːʾə*, oblique **bɨˤɬːʾwi-* 'pig'. This became Tsez *baˤɬo* oblique *baˤɬe-*, Hinuq *boɬi* oblique *boɬe-*, Bezhta *buɬo* oblique *buɬi-*, Hunzib *buɬu* oblique *buɬi-* 'boar'. The vowel alternation **u/ɨ* in the first syllable was given up in every Dido language: West Dido (> Tsez, Hinuq) generalized the oblique stem **bɨˤɬːʾw-* while East Dido (Bezhta, Hunzib) generalized the absolutive **buˤɬːʾ-*. What is relevant here is that the **-w-* of the oblique stem must be reconstructed in order to account for Hinuq, where **-ɨ- > *-e-* was regularly rounded to **-o-* by **-w-* (Schrijver 2018:217-219). Does Nakh show evidence of this **w* as well? This issue requires a separate investigation, which may look into the idea that the *p-* in Batsbi *pstʾu*, oblique *pstʾar-* 'bull' is a reflex of **w* (see footnote 36). Similarly, it remains to be explored whether the Ingush oblique stems in examples 17 *douqʼ-*, 18 *čouqʾ-* and 21 *bouqʾ-* may reflect **Caqʾw-*.

If it will indeed be found that pretonic unrounding went hand in hand the intrusion of **w* in the stressed syllable, as is proposed here, it is possible to identify a structural similarity between umlaut in Nakh and pretonic unrounding in Proto-East Caucasian: in both cases, vowels in unstressed syllables lost features to stressed syllables.

A final remark concerns the formation of the imperfective versus the perfective stem of verbs in Batsbi (= the frequentative versus the simulfactive stem in Chechen-Ingush; see 2.3 c and 3.2.8, and Holisky-Gagua 1994:161): **e*-vocalism usually characterizes the imperfective stem, while the perfective stem is usually characterized by **a-, *o-* or **i*-vocalism:

Batsbi	perfective	imperfective	meaning
	χatt-	*χett-*	'read'
	=ott-	*=ett-*	'pour out'
	titʾ-	*tetʾ-*	'cut'

(Holisky-Gagua 1994:161)

On the basis of the results of section 6 it is possible in theory to reconstruct all three vowels that characterize the perfective (simulfactive) stem as (Pre-)Proto-East Caucasian **ɔ*, as follows:

Proto-Nax	Proto-East Caucasian
**o*	< stressed **ɔ*
**a*	< pretonic **ɨ* < **ɔ* which remained pretonic in the direct ancestor of Nakh
**i*	< pretonic **ɨ* < **ɔ* which secondarily became stressed in the direct ancestor of Nakh

It remains to be explored whether this is a useful reconstruction. Meanwhile it would be interesting to look out for potential Daghestanian counterparts of this morphological distinction in Nakh.

References

Alekseev, M. E. 1988. *Sravnitel'no-istoricheskaja morfologija avaro-andijskix jazykov*. Moscow: Nauka.

Alekseev, M. E. 2003. *Sravnitel'no-istoricheskaja morfologija nakhsko-dagestanskix jazykov: Kategorii imeni*. Moscow: Institut jazykoznanija RAN.

Aliroev, I. Ju. 1975. *Sravnitel'no-sopostavitel'nyj slovar'otraslevoj leksiki čečenskogo i ingušskogo jazykov i dialektov*. Maxačkala: Čečeno-Ingušskoe Knižnoe Izdatel'stvo.

Arsaxanov, I.A. 1969. *Čečenskaja dialektologija*. Groznyj: Čečeno-Ingušskoe Knižnoe Izdatel'stvo.

Beerle, Werner. 1988. A Contribution to the Morphology of the Simple Verb in Chechen. In Fridrik Thordarson, ed., *Studia Caucasologia I*, 1-37. Oslo: Institute for Comparative Research in Human Culture, Norwegian University Press.

Bertlani, A., ed. 2012-2019. *Covatušur-kartul-rusul-anglisuri leksik'oni*, *t'omi* I-IV ('A Batsbi-Georgian-Russian-English Lexicon, vols. I-IV'). Tbilisi: Universali.

Bokarev, E.A. 1959. *Cezskie (didojskie) jazyki Dagestana*. Moscow: Izdatel'stvo Akademii Nauk SSSR.

Chrelashvili, K.T. 2007. *Cova-tušinskij (Batsbijskij) jazyk*. Moscow: Nauka.

Desheriev, Ju. D. 1953. *Batsbijskij jazyk*. Moscow: Izdatel'stvo Akademii Nauk SSSR.

Desheriev, Ju. D. 1960. *Sovremennyj čečenskij literaturnyj jazyk, čast' I, Fonetika*. Groznyj: Čečeno-Ingušskoe Knižnoe Izdatel'stvo.

Doerfer, Gerhard. 1963-67. *Türkische und mongolische Elemente im Neupersischen*. Wiesbaden: Franz Steiner Verlag.

Dybo, Anna. 2006. 'Turkic etymology', in Sergey Starostin, Altaic etymology, *Tower of Babel* (online at starling.rinet.ru)

Encyclopaedia Iranica (online at iranicaonline.org)

Fähnrich, Heinz, and Surab Sardshweladse. 1995. *Etymologisches Wörterbuch der Kartwel-Sprachen*. Leiden - New York - Köln: Brill.

Fallon, Paul D. 1993. Verbal Ablaut in Chechen, Paper presented at the Eighth Biennial Conference on Non-Slavic Languages, University of Chicago, April (*non audivi*).

Gagua, R.R. 1961. Sklonenie suščestvitel'nyx v Batsbijskom jazyke. In E.A. Bokarev, ed., *Voprosy izučenija iberijsko-kavkazskix jazykov*, 72-88. Moscow: Izdatel'stvo Akademii Nauk.

Giginejshvili, B.K. 1977. *Sravnitel'naja fonetika dagestanskix jazykov*. Tbilisi: Izdatel'stvo Tbilisskogo Universiteta.

Handel, Zev. 2003. Ingush inflectional verb morphology. A synchronic classification and historical analysis with comparison to Chechen. In Dee Ann Holisky and Kevin Tuite, eds., *Current Trends in Caucasian, East European and Inner Asian Linguistics. Papers in Honor of Howard I. Aronson*, 123-175. Amsterdam - Philadelphia: John Benjamins.

Holisky, Dee Ann. 1985. A stone's throw from aspect to number in Tsova-Tush. *International Journal of American Linguistics* 51/4, 453-455.

Holisky, Dee Ann, and Rusudan Gagua. 1994. Tsova-Tush (Batsbi). In R. Smeets, ed., *The Indigenous Languages of the Caucasus, Vol. 4: The North East Caucasian Languages, Part 2*, 147-212. Delmar, New York: Caravan Books.

Imnajshvili, D.S. 1977. *Istoriko-sravnitel'nyj analiz fonetiki nakhskix jazykax*. Tbilisi: Mecniereba.

Isakov, I.A., and M.Sh Xalilov. 2001. *Gunzibsko-russkij slovar'*. Moscow: Nauka.

Jakovlev, N.F. 1960. *Morfologija čečenskogo jazyka*. Groznyj: Čečeno-Ingušskoe Knižnoe Izdatel'stvo.

Kadagidze = N. Kadagidze and D. Kadagidze 1984. *C'ova-tušur-kartul-rusuli lek'sikoni* ('A Batsbi-Georgian-Russian Lexicon'). Tbilisi: Mecniereba.

Kibrik, A.E., and S.V. Kodzasov. 1990. *Sopostavitel'noe izučenie dagestanskix jazykov. Imja. Fonetika*. Moscow: Izdatel'stvo Moskovskogo Universiteta.

Klimov, G.A. 1986. *Vvedenie v kavkazskoe jazykoznanie*. Moscow: Nauka.

Klimov, G.A., and M.Sh. Xalilov. 2003. *Slovar' kavkazskix jazykov*. *Sopostavlenie osnovnoj leksiki*. Moscow: Vostočnaja Literatura.

Komen, Erwin. 2007. The Chechen vowel inventory. *Leiden Papers in Linguistics* 4.2, 33-60.

Maciev, A.G. 1961. *Čečensko-russkij slovar'*. Moscow: Gosudarstvennoe izdatel'stvo inostrannyx i nacional'nyx slovarej.

Mikeladze, M. 1977. Xmovanta redukcia bacbur enaši ('Vowel reduction in Batsbi'). *Macne, enisa da lit'erat'uris seria* 1977/3, 118-128.

Nichols, Johanna. 1994. Chechen. In R. Smeets, ed., *The Indigenous Languages of the Caucasus, Vol. 4: The North East Caucasian Languages, Part 2*, 1-77. Delmar, New York: Caravan Books.

Nichols, Johanna. 1997. Chechen phonology. In A. S. Kaye, ed., *Phonologies of Asia and Africa (including the Caucasus),* 941-71. Winona Lake, IN: Eisenbrauns.

Nichols, Johanna. 2003. The Nakh-Daghestanian consonant correspondences. In Dee Ann Holisky and Kevin Tuite, eds., *Current Trends in Caucasian, East European and Inner Asian Linguistics. Papers in Honor of Howard I. Aronson*, 207-264. Amsterdam - Philadelphia: John Benjamins.

Nichols, Johanna. 2004. *Ingush-English and English-Ingush Dictionary*. London - New York: Routledge.

Nichols, Johanna. 2011. *Ingush Grammar*. Berkeley - Los Angeles - London: University of California Press.

Nichols, Johanna, and Arbi Vagapov. 2004. *Chechen-English and English-Chechen Dictionary*. London - New York: Routledge.

Nikolayev, S.L., and S.A. Starostin. 1994. *A North Caucasian Etymological Dictionary*. Moscow: Asterisk Publishers.

Ozdoev, I.A., A.G. Maciev, Z.D. Džamalxanov. 1962. *Ingušsko-čečensko-russkij slovar'*. Groznyj: Čečeno-Ingušskoe Knižnoe Izdatel'stvo.

Ozdoev, I.A. 1980. *Russko-ingušskij slovar'*. Moscow: Russkij Jazyk.

Schrijver, Peter. 2018. The origin of vowel alternation in Avar-Andi-Dido (North-East Caucasian). With special reference to the Dido languages. In Andreas Hölzl and Peter-Arnold Mumm, eds., *Klasse Person. Festschrift für Wolfgang Schulze* (*International Journal of Diachronic Linguistics and Linguistic Reconstruction* 15), 199-223.

Tuite, Kevin, and Wolfgang Schulze. 1998. A case of taboo-motivated lexical replacement in the indigenous languages of the Caucasus. *Anthropological Linguistics* 40, 363-383.

Van den Berg, Helma. 1995. *A Grammar of Hunzib*. München - Newcastle: Lincom.

Xalilov, M.Sh. 1995. *Bežtinsko-russkij slovar'*. Makhachala: Institut Jazyka, Literatury i Iskusstva im. G. Cadasy.

Xalilov, M.Sh. 1999. *Cezsko-russkij slovar'*. Makhachkala: Institut Jazyka, Literatury i Iskusstva im. G. Cadasy.

Xalilov, M.Sh., and I.A. Isakov. 2005. *Ginuxsko-russkij slovar'*. Makhachkala: Institut Jazyka, Literatury i Iskusstva im. G. Cadasy.

Xalilova, Zaira. 2009. *A Grammar of Khwarshi*. Utrecht: LOT.