

Proceedings of the International Workshop
on the Languages of Nuristan

THE NURISTANI LANGUAGES IN SYNCHRONY AND
DIACHRONY

1–2 November 2019
University of Cologne

Edited by Almuth Degener and Eugen Hill

Ethnolinguistic and genetic clues to Nûristânî origins

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Abstract: Explored here are processes of phonetic expression that display ethnicity and that have shaped the evolution of the Nûristânî languages. Looking further at ethnicity, Nûristânî ethnonyms and recent genetic studies show that the current Nûristânî peoples are descendants of ancient Kambojas and Sakas, Northern Steppe Âriâs who entered the Indian subcontinent as early as 1800 BC and established rule over the Southern Indo-Âriâs, who were already there. The implications of these findings for linguistic phylogenetics are discussed.

Keywords: Nûristânî languages, Kambojas, Sakas, Indo-Iranian languages.

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1 Introduction

It has been nearly a century since our esteemed mentor Georg Morgenstierne began his field research on the Nûristânî languages (Morgenstierne 1926). We relied on his insightful, concise presentations of his research (1929, 1934, 1949, 1952, 1954) as the most reliable sources on these languages,

until a small new generation of linguistic researchers, Georg Buddruss, Aleksandr Grjunberg, and Richard Strand, were able to gain much greater access to the remote Nûristânî linguistic communities than was allowed to Morgenstierne. The former two scholars have presented us with the completed results of their field research (Grjunberg 1980, 1999; Buddruss 2005, 2006, 2015, 2017 [the latter two with Almuth Degener], also Degener 1998); my own results are still trickling out (Strand 1973, 1985, 1997–present).¹

We of the newer generation have benefitted greatly from the insights of indigenous scholars, notably Qâzi Ghulânullâh on Kâmvîri (1966) and Samînullâh Tâzâ on Kalâşa-alâ (1995, 2000, 2018 [١٣٩٦ H.]), in addition to the insights of the anthropologists Muhammad Alam Melabâr and Ahmad Yusuf Nûristânî, and our many other Nûristânî mentors.

I want to highlight three results of post-Morgenstierne-era linguistic research:

1. the proper identification of the Nûristânî tribal communities and their dialects,
2. the linguistic consequences of ethnic expression,
3. the phylogenetic consequences of recent genetic and ethnonymic research.

¹ Citations of linguistic forms given herein include an abbreviation of the language followed optionally by a dialect abbreviation followed optionally by an abbreviation of the source's name (M = Morgenstierne, B = Buddruss, S = Strand). Transcribed languages and sources include: OIA = Old Indo-Aryan (Turner 1966); K. = Kâmk'ata-vari, K.km = Kâmvîri (Strand 1999), K.ktv = Kt'i-vîrâ·i-vari (Strand 2011b), K.e = Eastern Kâta-vari (Morgenstierne, Strand unpublished); Kal. = Kalâşa-alâ, Kal.n = Nişci-alâ (Strand 2011a), Kal.n.B (Degener 1998), Kal.v = Vâi-alâ, Kal.a = Ameş-alâ, (Strand unpublished); Â-S = Âşkuñu-Sañu-vîri, Â-S.s = Sañu-vîri (Strand 2008), Â-S.s.B (Buddruss 2006), Â-S.m = Âşkuñu-veri of Mâsegal (Morgenstierne 1929, 1934); V. = Vâsi-vari (Buddruss & Degener [hereafter, B&D] 2015, 2017), including dialects V.u = ^wuş'ut, V.üş = Üş'üt, V.üc = Üc'ü, V.su = Şup'u; Treg.g. = Tregâmî of Gambîr (Morgenstierne 1952). Reconstructed languages include PIE = Proto-Indo-European, Ar. = Aryan, NAr = North (Steppe) Aryan (note that "South Aryan" is equivalent to OIA), PIr. = Proto-Iranian, CNur. = Common Nûristânî. "Common Nûristânî" refers to the era in which the ancient Kamboja and Saka tribes that are ancestral to today's Nûristânîs were in close contact, which probably began well over a millenium before their retreat from the Ghaznavî Turks into Nûristân.

2 Ethnicity

In traditional Nûristân one's tribal affiliation determined one's language. Outsiders cannot properly account for the diversity of dialects in Nûristân without a knowledge of which tribal communities exist in the region and how they relate to each other. A list of such appears in Table 1, along with their languages and locations.² It must be noted that traditional community boundaries have become fluid around the periphery of Nûristân in the wake of the enduring conflict in Afghânistân (Strand 2009).

² In this paper I follow the transcriptional principles outlined in Strand 2007, which has the following IPA equivalents:

Vowels: *a* = [i] or [ɨ]; *â* = [a]; *û* = [y]; *o* = [o] or [ɔ]; *e* = [e] or [ɛ]; *~* = nasalized; *^* = tense; *'* = accent ['] before vowel;

Consonants: *ć* = [tʃ]; *ź* = [dʒ]; *č* = [tʃ̣]; *ǰ* = [dʒ̣]; *š* = [ʃ]; *ř* = [ɹ]; *ɽ* = [ɽ]; *ñ* = [ɲ] or [ɳ]; *ν* = [v] before front vowels, else [β] (except Kâmviri); (underposed dot) = apico-post-alveolar = [ɕ].

Table 1. Nūristānī peoples of Eastern Afghānistān.

linguistic group	local language name		local ethnic name	original place	national name	administrative district		
Northern Nūristānī	Kāt'a-vari ⁴	(Western)	Āmgal'ei (Kāt'a of Āmgal'al)	Kī'vi		Mandol		
			Kāt'a (of P'a'ruk)	Āmgal		Barg-i Matāl		
			Kul'e-vřā-i (Kāt'a of Kul'em)	Kī'vi		Doáb		
			Kī'i-vřā-i (Kāt'a of Kī'vi)	?		Central Nūristān		
	Kām-k'ata-vari ³	(Eastern)	Kāt'a (of Kāt'agal)	Kī'vi		Barg-i Matāl, Čīral		
			Mum'o	Mum		Mandagalī		
			Kšt'o	Kūst		Kūstozi		
			Bini'o	Būni		Binozi		
	Kām'iri		Ĵamč'o	Ĵamač		Ĵamjozi	Kāmdēš	
			K'om	Kāma		Kāmozi		
			Ĵaš'a	?		Ĵaši		Kāmdēš, Naray
			Ĵaš'iri	?		Pāruni		Naray
	Vās'i-vari		Vās'i	?		Central Nūristān		

³ *Kām-k'ata-vārī* is a neologism based on a reply to the question that I put to my Kāmīrī consultants, “What name do you use for this language that all of you speak?” The answer was that there is no such name, but if they had to make one up, it would be *kām-k'ata mumkšt'a virī* ‘Kom, Kāta, Mumo, and Kšto Language’, which could be shortened to just *kām-k'ata virī*. I use a more conservative form of this name, *Kām-k'ata-vārī*, with the earlier form *var'i*, as used in Kāta-vārī. The term “Kati,” invented by Morgenstierne after a Persian neologism *kata'i*, should be avoided, as should “Katē”, as they are not indigenous words, and they imply precedence of the Kāta over the Kom.

Southern (Kalaša ⁴) Nūristānī	Aṣkuṇu- Saṇu-viri	Aṣkuṇu-veri	Āṣkū (of Bāzāigal)				Doāb
			Āṣkū (of Māseḡal)				Nurgrām
			Āṣkū (of Tiṭin)				
	Grāmsaṇā-viri	Saṇu-viri	Saṇu (of Sāma [Wāmā])				Wāmā
			Grāmsaṇā (of Grāmsaṇā Grām)				Čapa Dara
			Grāmsaṇā (of Sablīgal)				
Kalaša-alā	Varjan-alā		Kalaša, sub-group <i>Varjan</i> , communities <i>Vai</i> , <i>Ameš</i> , <i>Jamāmeš</i> , <i>Zōč</i> , <i>Veli-Vā</i>				Wāigal
			Dūgalā				Čāzābād
			Kalaša, sub-groups Čimā, Nišei				Wāigal, Maṇogay
	Čima-Nišei-alā		Kalaša, sub-group <i>Vanā</i>				Maṇogay
Tregāmī			Tregāmī, communities <i>Gambir</i> , <i>Devoz</i> , <i>Kaṭār</i>				Watapūr

⁴ The Kāt'a of western Nūristān associate the name *Kāt'a* with their “infidel” past, and prefer to be called just *Nuriston'i*, or by the more specific local names of Table 1.

⁵ Not to be confused with the Indo-Āryan-speaking Kalaša of Chitral, who have apparently acquired the ethnonym from the Nūristānī Kalaša.

3 Linguistic consequences of ethnolinguistic “attitudes” in Nûristân

The cultural attitudes of a speech-community are encoded in its linguistic expression – its “accent,” in laymen’s terms. “Accent” appears in the facial gestures of the lips and jaw, as well as in the strength and timing of individual articulations within an utterance. Changes in a community’s accent may produce long-range phonological consequences that determine the position of the language in the phylogenetic tree.

The various accents of the Nûristânî tribes are clearly audible to each other. I discuss here two kinds of processes, expressive and exclamatory, that characterize Nûristânî speech. Expression is phonological; exclamation is largely morphological. It will be seen that overall there is a clear distinction between the linguistic attitudes of the speakers of the Southern vs. the Northern Nûristânî languages.

I should note that I characterize speech as a set of muscular processes that drive articulators toward targets. Most important for the present discussion are *labialization*, (lingual) *fronting*, *prognathizing*, (mandibular) *opening* and *closing*, *nasalization*, and *anterior* and *posterior voicing* (phonation). Also included are processes that control the degree of articulatory stricture, including *occlusion*, *spirantization* (or *fricativization*), *affrication*, and *approximation*. Processes that control the timing and speed of articulations include *anticipation* and *inertia*.

3.1 Expression

Expressive processes include facial posturing and vocal “delivery,” which is measured by the waveform of the Fundamental Frequency (F0) as an indicator of initiator power over syllables and utterances. Both processes show the divide between Southern and Northern Nûristânî, as exemplified below by the Nişei-alâ dialect of Kalaşa-alâ and the Kâmviri dialect of Kâmkata-vari.

3.1.1 Facial posturing

One’s facial attitude is the first line of defense in the often hostile social environment of regional tribalism. It can range from inviting to unobtrusive to belligerent. In general, Northern Nûristânî speakers show more muscular

tension in their faces during speech than do Southerners. The Nišei typically present a relaxed upper face while slightly protruding their lower jaws (“prognathizing”), while the Kom typically have a tensed upper face with a non-prognathized jaw. The amount and location of tension on the lips also varies among the communities.

3.1.1.1 Prognathizing

“Prognathizing” is a jutting out of the lower jaw during speech. It occurs in various speech-communities throughout the Indo-European world. A protruded jaw typically signals assertion or even belligerence, although we would not want to ascribe such signals to current speakers, who are merely carrying forth ancient articulatory habits.

3.1.1.1.1 Prognathized lingual fronting

If the tip of the tongue is pressed firmly against the back of the lower teeth during prognathizing, the entire tongue moves forward with the prognathized jaw. Because the jaw is protruded, the tongue’s blade is often visible during speech. Such “prognathized lingual fronting” occurs in the Southern Nûristânî languages and in other languages spoken near the Pech-Kunař confluence, including Sâfi Paxto and some Pašaî dialects, as well as in other languages across the Indo-Irânian-speaking region.

In Nišei-alâ this posture places the tongue’s blade against the back of the upper teeth to produce the dental consonants *č*, *s*, and *z*, and against the alveolar ridge to produce the alveolar consonants *č̣*, *ʃ*, and *š* (Table 2).

Extreme prognathized lingual fronting may cause a systemic forward shift in the articulatory targets of the tongue and lips, producing a restructuring of the phonemic system. The tongue is carried forward, and the blade contacts the back of the upper teeth, producing the dentalized sounds *č*, *ž*, *s* instead of the original *č̣*, *ʃ̣*, *ṣ̌*. This change has occurred in Ancient Aryan (PIE **k̑/ǵ* > Ar. **č̣/ʃ̣* > CNur., PIr. **č̣/ẓ̌*) and again in Eastern Irânian including Paxto (PIr. **č̣* > Paxto *č̣*: **č̣atvar-* > *č̣al’or* ‘four’) and in Sañu-viri (Table 3).

Furthermore, because the prognathizing of the jaw carries the entire tongue forward, in Âşkuñu-Sañu-viri the apico-post-alveolar affricate **ç* and fronted velar **k* moved forward to a lamino-alveolar position (Table 3).

Table 2. Niŋei-alá segmental phonemes.

articulatory location											
lip		tip up		tongue		tip down		nasal		pharynx glottis	
		front	back	front	back	front	back	front	back		
		apico-dental	apico-alveolar	prognathized lamino-dental	lamino-alveolar	apico-dental	dorso-velar	apico-dental	dorso-velar		
			ç	ć	č						
					ǰ						
		<i>p</i>	<i>t</i>				<i>k</i>		<i>(q)</i>		
		<i>b</i>	<i>d</i>				<i>g</i>				
		<i>(f)</i>	<i>ʃ</i>	<i>s</i>	<i>ʒ</i>	<i>ʃ</i>	<i>(x)</i>				
		<i>v</i>	<i>z</i>	<i>z</i>			<i>(ǵ)</i>				

Table 3. Prognathized tongue-advancement in Sañu-viri.

change	CNur	Kâmviri	Nişei-alâ	Sañu-viri	gloss
*č/*j/*š > č/z/s	*čatvar	št'o (< *čt'o)	čatâ	čatâ:	four
	*jita	j'at	jit	žit	body
	*šâl	p-š'ol	šâl	sâl	stable
*ç > č	*çal'a	çal'a		čila	abomasum
	*čikala	čk'ala		čikal	sour milk
	*mâçia	mâç'iâ	mâçi	mâçi	honey
*ki > či, ci	*kiâtâl	kî'ol		čîâtâ:l	stomach
	*mîka	miŋ'a	min	mičiâ	currant
	*kilâta	kil'âr	kilâ	čilâ	cheese

Some effects of prognathizing on the development of Common Nûristânî post-alveolars appear in Vâsi-vari (Table 4). In a few cases Common Nûristânî *t̪ is fronted to *t*. Voiceless apico-postalveolar occlusives (*t̪, *d̪, *ç) became lamino-alveolars in laminal environments. Unless derived from anticipatory *tr > t̪ or from sporadic deaffrication (*ç > t̪), most examples of *t̪* in Vâsi-vari are borrowings.

Prognathizing is largely responsible throughout the Indo-European-speaking world for the dentalization of laminals, whenever it happens. But today's Kâmkata-vari speakers produce apical rather than lamino-dental consonants, without prognathizing (Table 5). Apparently, after a period of prognathizing, they relaxed their tongues, releasing them from the back of their lower teeth while keeping them forward enough to contact the upper teeth.

Table 4. Processes affecting post-alveolars in Vási-vari.

process	change	lingual articulator	examples					
			CNur	Vási.u	Vási gloss	CNur	Vási.u	Vási gloss
fronting	*t > t	fronted tip	*kaṭā	it'i	knife	*pāt	vor-	Vási gloss bring benefits
	*st [sṭ] > ṣt	fronted tip	*ṣeṣṭā	ṣiṣṭ	grandmother	*aṣṭ'ic-vic'i	āṣṭ'iṣu	360 (8 score)
anticipation	*tr > t	backed tip	*trupala	ṭapal'a	wet	*zātr	z'āt	relative
laminaliza- tion (next to laminal sounds)	*tr > *t > (t)č	blade	*tre	ičī	three	*čitra	žič'i	letter
	*t > č	blade	*aṭi	ič'i	bone	*muta	müč'u	stump
	*d > ṣ	blade	*mandu	münjü	drum	*dākni	jein'i	ogress
	*t > *č > ṣ	blade	*paṭila	pš'u	hairy			
	*tr > *t > č	blade	*kâtr'a	kščir	sorcerer			
	*st > *ṣt > ṣč	blade	*st'āla	ščöli	straight			
	*ç > č	blade	*âçu	tič'ü	tear			
	*ç > *č > ṣ	blade	*çâ	ʔi	head			
deaffrica- tion	*ç > t	backed tip	*çö	ṭö	thigh	*mâçi	mâtig	honey
borrowing	*t̃ > t	backed tip	*āṭal	āt'āl	cliff	*gr̃i-	gaṭ-	tie
	*t̃ = t	backed tip	*kât	kât	strength	*pâta	vaṭ	vat
	*ç̃ = ç	backed tip	*çâ	çâ	shout			

3.1.1.1.2 Prognathized labialization

Prognathized lingual fronting also causes the labialization of dental consonants in dental plus labial consonant clusters, as seen in the changes **dv* > **db* > *b* and **tv* > **tp* > *p*. In such cases prognathizing with the tongue's apex behind the lower teeth forces its fronted blade to make contact with the upper lip during the articulation of the *v*, simultaneously with the contact with the upper teeth during the articulation of the dental stop. Although the change in voiced clusters appears in sporadic loanwords in Kalaşa Nûristânî (OIA *dv'âdaşa* > *bâš* 'twelve') and Vâsi-vari (OIA **šâd-vala-* 'grassy spot' > *šâb'al* 'Munjân'), the change in voiceless clusters is regular in Vâsi-vari, arising from original consonant clusters and later ones formed through syncope, including **vt* (Table 6).

As a result of prognathizing *v* has a distribution of allophones that is seen across the Indo-Aryan-speaking region, which is:

[v]: labio-(endo-)dental before front vowels;

[β], [ʋ], or [w]: bilabial as language-dependent default sounds elsewhere.

This distribution appears in all Nûristânî dialects except Kâmviri, which has [v] everywhere, and Kâta-vari, which appears to have [β] in all environments. The bilabialization results from the lower lip being pushed forward with the prognathized jaw, so that it no longer makes contact with the upper teeth, except that before front vowels the lower lip is spread and tightened to pull it up against the upper teeth into a labio-endodental position. Such prognathizing may also be responsible for the fact that the preponderance of free variation of a front vowel with or without a leading, palatalizing *y* [j] occurs after a labial stop (*pe* ~ *pʲe* and *pö* ~ *pʲö* [39%], *be* ~ *bʲe* and *bö* ~ *bʲö* [19%]) in the Vâsi-vari lexicon (B&D 2015, 2017: 50).

Prognathizing may have played a role in the ubiquitous labialization of Vâsi-vari. The tenseness of a prognathized lower jaw spreads to the lower lip, so that lip-rounding appears to have become a general posture during speech. Such gratuitous labialization appears non-etymologically in words like Vâsi *vašt'â* 'night' < CNur. **râtr*, *vast'i* 'woman' < **stri*, *vy'ela* 'line' < **yâl*, *vos* 'ash' < **âsa*, etc. Labialization anywhere within a word spreads through it, as seen in the normal change of Ar. **a* to Vâsi *u* in such environments (as well as in nasalized environments or accented, as occurs in neighboring languages).

3.1.1.2 Expressive labialization

Instead of prognathized labialization, Kâmviri speakers often show expressive tension in producing their labio-dental *v* in initial position, drawing the corners back and down.

But in general *v* is an “unstable sound,” as Morgenstierne remarked. Unexpressive or weak *v* gets assimilated (Ar. **vi* > CNur. **ü*; CNur. **vo* > Kal.n *o*); and because of the diminishing power-curve over syllables in Kâmviri, the occlusion of postvocalic *v* ceases altogether before a consonant or finally, becoming vocalic length ([:], phonemically *a*; see below).

Table 5. Kâmvirî segmental phonemes.

				articulatory location								
				lip	tongue				na-sal	(phar-ynx)	glottis	
					tip up		tip down					
					front	back	front	back				
stricture type				apico-dental	apico-post-alveolar	lamino-post-alveolar	dorso-velar					
con-son-ants	ob-stru-ents	oc-clu-sives	affri-cates	ć	ç	č						
				ž	ʃ	ʒ			[vcd]			
		Stops	p	t	ʈ		k		(q)	(ʔ)		
			b	d	ɖ		g			[vcd]		
		fricatives		(f)	s	ʃ	ʂ	(x)		(h)	(h)	
				v	(z)	ʒ	(ʐ)	(ɣ)		(ʕ)		
	sono-rants	flaps	(for-ward)			(r)					[vcd]	
			upward			r					{[vcd]}	
		lateral			l							
		approx-imants				ř						[vcd]
						ɹ̃						
		nasal stops		m	n	ɳ		ŋ	[nas]			
vow-els	close			u		i	a	~				
				ü		[frn]		[nas]				
	open			o		e	â					
	extra open			(â)								
juncture												

Table 6. Prognathized clusters with *v in Vâsi-vari.

change	possible historical derivation	Vâsi-vari	gloss
*tv > p	*čatvâ > *čatvu > *čapu >	čp'u	four
*tv > p	*čatvu-dać > *čatvulać > *čapulać > *čpulać > *čpulaz >	čpl'uz	fourteen
*tVv > *tv > p	*kânti-vâ > *kâtivâ > *kâtivâ > kitivâ > *kitvâ > *kipâ > *ipâ >	ip'a	Kâta; Ktivi
*vVt > *vt > p	*čvâ-tara- > *čvâ-tara > *čavâ-tara > *čâvtara > *čâpara > *ućâpara >	uć'âpar	rhubarb
*vVt > *vt > p	*dvi-t'i:ya- > *divt'i:ya > *divt'iya > *dip'iya > *dip'i- > *ip'i- >	âp'i	too

3.1.2 “Delivery” and the Power Curve

Beyond facial expression the differing styles of “delivery” of speech are clear markers of ethnicity in Nûristân. In maintaining their reputation as the “wildest” Nûristânî tribe,⁶ the Kom speak faster and more abruptly compared to other groups, who maintain their “more reserved” attitude with a more monotonic syllabic delivery. “Delivery” is, technically, the “initiator power” expended over the temporal course of an utterance (Catford 1977: 80 ff.). A speaker’s total articulatory muscular tension during an utterance is a similar but harder-to-measure expression of the speaker’s physical force expended over the temporal course of an utterance. Articulatory tension over time defines the “Power Curve” of an utterance.

A good indicator of the Power Curve is the Fundamental Frequency (F0) of phonation. In the Nûristânî languages phonation is made with the anterior glottis (as opposed to mixed anterior- and posterior-glottal phonation in the neighboring Indo-Aryan languages; v. Strand 2013, 2021). Higher-pitched phonation requires more muscular tension on the anterior glottis, so that higher pitch indicates greater power. Pitch that is raised above its surroundings indicates glottal accent.

⁶ As one Kom once wildly said to me, “*K'om m'âs âi Vřič o, n'âi 'â,*” ‘The Kom are crazed, Rich, right?’ using the Persian word *mast* ‘intoxicated’ to describe themselves.

A comparison of the F0 plots of samples of adult male speech in Nišei-alâ and Kâmviri shows clear differences (Figure 1 and Figure 2).⁷ Lines are added to the plots to emphasize the pitch contours.

In the Nišei-alâ sample there is a more or less constant degree of tension on the anterior glottis and larynx throughout an utterance up to the punctuation, where the tension relaxes to the end of the utterance. The pitch range is 80–140 Hz. Glottal accent slightly increases tension, with a slight rise (around 10 Hz) in pitch. Syllables are monotonic and distinct.

In the Kâmviri sample overall tension is greater. It is concentrated at the point of each glottal accent, with concomitant heightened pitch, and then relaxes quickly with falling pitch until the next accented syllable (Figure 2). The pitch range is 120–220 Hz, higher both in frequency range and absolute frequency than in the Nišei-alâ sample. Syllables are rapidly imposed on a steeply falling-pitched voice.

3.1.2.1 A lax – tense “delivery” scale

An impressionistic scale of delivery style from “lax” (slow and even) to “tense” (rapid and abruptly falling) would place Sañu-viri at the lax end, followed closely by Nišei-alâ. Vâi-alâ is slightly tenser. Vâsi-vari and Kâmviri are the most tense, although with different intonation patterns. Kti-vřâ-i-vari is a somewhat less tense type than Kâmviri, apparently because the default speech posture of that dialect includes velar raising, which slightly lengthens vowels. Ultimately, the dialects fall into two groups, “lax” and “tense,” which correspond to the otherwise perceived division between the Southern and the Northern Nûristânî languages.

3.1.2.2. Delivery and the form of syllables

Syllables consist of a vocalic peak preceded by an onset of zero or more consonants. Utterance-final (including word-final) consonants constitute a vowelless “semisyllable” of the form C or CC. A single vowel or a sequence of two vowels may form a syllable’s vocalic peak. In two-vowel peaks one

⁷ The speakers were Vakil Muhammad Kabir of Kâmdeš and Ğulâm Nabi of Nišei-Grâm. Data were analyzed using SIL International’s *Speech Analyzer* software, Version 3.1.0, © 1996–2012 by SIL International.

remains the peak while the other is reduced to a semivowel or vocalic length.⁸ In both Kâmviri and Nišei-alâ the length of a syllable is primarily dependent on the openness of the peak vowel and the number of consonants in the onset, unless either is expressively lengthened.⁹

The rapidity of delivery determines the form of syllables. In the “lax” dialects initial consonant sequences mostly have diminishing oral closure from the first to the second (*tr*, *př*, etc.) and use no more than two articulators (Tables 7 and 8; l = lips, t = tip, b = blade, and d = dorsum). The few sequences of obstruents mostly contain a spirant. In Nišei-alâ (and similarly in Sañu-viri) syllables are even-toned and some 50% longer than similar Kâmviri ones (Figure 1 and Table 16).

⁸ Grjunberg (1980: 170–172) misanalyzed the phonetically shortened occurrences of postconsonantal *i* or *u* plus vowel as “palatalization” or “labialization” of the previous consonant, setting up a spurious set of palatalized vs. plain consonants for Western Kâta-vari.

⁹ Kâmviri and English phonological feet both show isochrony, but in English the syllables shorten on the downside of the power curve, unlike the “natural lengthed” syllables of Kâmviri and Kalāṣa-alâ.

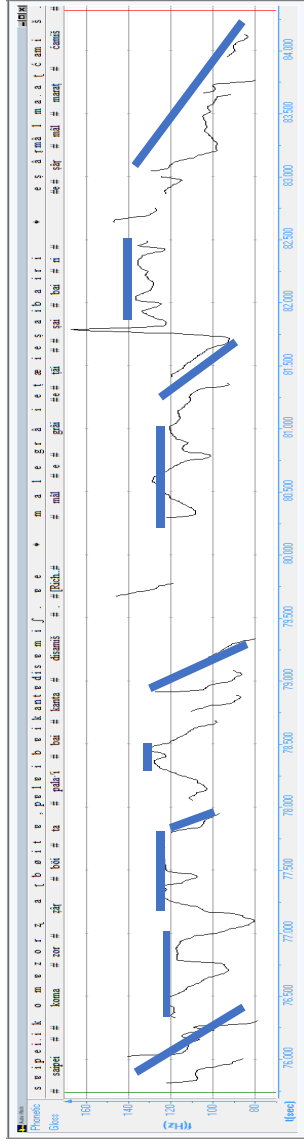


Figure 1. F0 Plot of a series of Niŋei-alá utterances.

saip'e i ri, k'oma z'or z'ar bōi ta, pala-i bai kanta disamiš. m'al e gr'ai e t'ai, e š'ai bai ri; 'e šar māl maraŋ čamiš. 'Afterward, whoever's milk became plentiful, we become a herding group and we go. We take the livestock someplace and come together and then slaughter one head of livestock.'

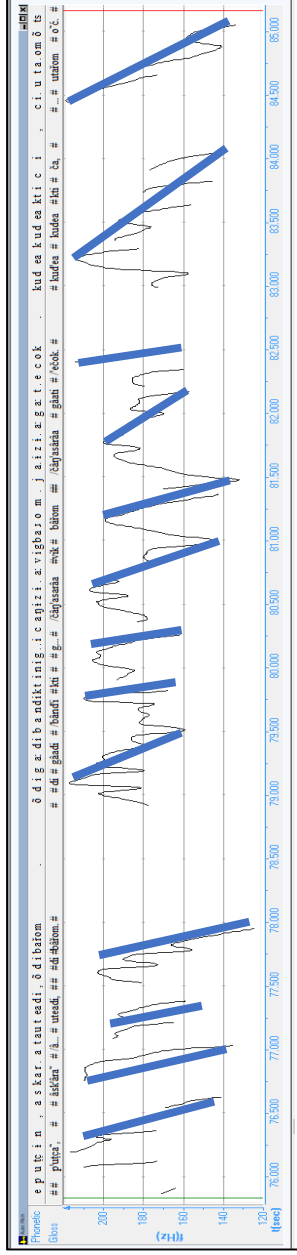


Figure 2. F0 Plot of a series of Kámvirí utterances.

e p'uṭça âsk'arâ ât'a uteadi 'ô di bâřom. 'ô d'i gâadi bânt'i kti n'i gâadi, câp'asarâa vik bâř'om, câp'asarâa gâadi e'ok, kud'ea kud'ea kti ça, e''a utařom'ôc. 'Some five or six soldiers surrounded and took me, too. I, too, was taken and jailed, taken down to Chagha Saray, taken to Chagha Saray and interrogated somewhat; and I was released back up.'

Speakers of Kâmviri, the dialect at the tense end of the scale, tend to produce a “burst” delivery of very rapid falling-pitched syllables in each accent group (Figure 2 and Table 14). To accomplish such rapid delivery, speakers drop pretonic close vowels between obstruents. Such syncope occurs morphophonemically (e.g., *p'üs* ‘lost’ vs. *ps'oa* ‘lose!’, *şupş'ana* ‘it’s drizzling’ vs. *şp'iş* ‘a drizzle’, *şâk'oş* ‘trousers-tie fold’ vs. *şâkş'ana* ‘it’s scrunching up’, etc.) and has been fossilized in words with complex consonantal syllable onsets. Similar syncope arose in Kâta-vari and Vâsi-vari, but from somewhat different rhythmic patterns. The pile-up of initial pre-tonic consonants that arises from syncope in Vâsi-vari (B&D 2015)¹⁰ and Kâmviri (Strand 1999) follows a maximal canonical form of stop + continuant + stop + continuant, with the stops and continuants being optional in various combinations and up to three different articulators being used (Tables 9 and 10).

Initial sequences of ancient sibilant + stop have been obscured by epenthesis, except in Kâmkata-vari.¹¹ Epenthetic syllable onsets are shown at the bottoms of Tables 7–9.

In Kâmviri the rapidly falling power curve causes the relaxing of phonetic post-vocalic approximants (*Vv*, *Vi* and *Vř*) to mere vocalic length in final or preconsonantal position (regular with *v* and *i*, sporadic with *ř*); e.g., *d'âva* ‘wood’ (oblique case) vs. *d'âa* [da:] (nominative case), *ć'ova* ‘branch (obl.)’ vs. *ć'oa* ‘branch (nom.)’, *p'eia* [p'eji] ‘burning coal’ (oblique) vs. *p'ea* [p'e:] (nominative), *kil'âr* ‘cheese’ vs. *kil'âa bâta* ‘cheese pieces’, also *n'oř-as* ‘his mother’ vs. *n'oša* ‘your mother’ vs. *n'ua* ‘mother’, etc. In the other dialects the phonemes *v* and *i* are maintained in those positions, in their various phonetic manifestations, consistent with their more even power curves; e.g., K.ktv, Kal.n *d'âv*, Sañu *dâu*, Vâsi *löv*, K.ktv *ć'ov*, Kal.n, Vâsi *ć'âv*, Sañu *sâu*, K.ktv *p'ei*, etc.

Furthermore, voicing drops off at the end of an utterance in Kâmviri, so that final semisyllables and unaccented *a* are voiceless unless nasalized.

¹⁰ Examples are from the *ʷus'üt* dialect. Table 9 does not include consonant sequences that end in an inertial *y* (§3.1.2.4.1.2). I am grateful to Dr. Almuth Degener for providing me a digital copy of Buddruss and Degener 2015, from which the current Vâsi-vari examples are drawn.

¹¹ Kâmkata-vari also had *i* as an epenthetic vowel, but lost it later. But it remains after the prefix *pa-* ‘to’, which fused with the following *i* to form accented *e*, as in *p'eštũ* ‘on the pillar’, *p'eštor* ‘to the quiver’, *p'eštriã* ‘chasing women’, etc., rather than “regular” **pâšt'ü*, **pâšt'or*, etc.

Contrarily, a few final voiced obstruents are retained in K.ktv and Kal.n, as in:

Kal.n *daḍ* ‘two-headed drum’, K.ktv *ḍ'oḍ*. but K.km *ḍ'oṭ*;

Kal.n *lâd* ‘right’, K.ktv *l'od* ‘peace’, but K.km *l'ot*;

Kal.n *čod* ‘sound’, but K.km *č'üt*;

Kal.n *muḵ* K.ktv *m'uḵ* ‘marrow’, but K.km *m'uč*;

Kal.n *vâḵ* K.ktv *v'oḵ* ‘harp’, but K.km *v'oč*;

K.ktv *kar'eḵ* ‘scalplock’, but K.km *kar'ěč*;

K.ktv *d'iž* ‘tongue’, but K.km *d'ič*;

K.ktv *bř'už* ‘meadow’, but K.km *bř'ũč*.

3.1.2.3 Anticipation of articulations

The process that drives the rapidity of delivery in the tensor dialects is *anticipation*. The principle is to anticipate as many articulations as possible from within a phonological span to its beginning and then produce all the articulations simultaneously. Phonological spans within a syllable include consonantal onsets (including semisyllables) and vocalic peaks, as well as the whole syllable itself. Spans within a word include sequences of syllables demarcated by an accent.

3.1.2.3.1 Anticipation within syllables

In K.km syllables the vowel articulations are anticipated to the beginning of the syllable and articulated simultaneously with any consonantal-onset articulations. Such is not so in the lax languages, in which phonemes within a syllable are articulated sequentially with little articulatory anticipation.

3.1.2.3.1.1 Anticipation within syllable onsets

Consonantal sequences may appear within a word, where they are either inherited from the ancient precursor or are the result of more recent syncope, or they may result during speech from the juxtasposition of consonants at the end of one morpheme and the beginning of the next.

In Kâmviri anticipation generally brings the phonation and articulations of a following consonant to a preceding one, providing that they have certain

articulations in common, and with the exceptions of long “inertial” articulations noted below (§3.1.2.4). Note the early anticipation of voicelessness to a prior nasal stop in K., resulting in loss of the nasal: *Vnt > *[V̥nt] > Vt. Any voiced-voiceless sequences of consonants that do occur are separated by a syllable juncture that blocks the assimilation of anticipatory or inertial articulations. Thus, in Kâmviri, an entire consonantal syllable onset is either voiceless or voiced.

There is a multiplicity of possible medial syllable onsets, such as *rkč* in *dâk'arkčûla* (kind of illness), *špt* in *i'âšpto* ‘a feast was given’, *kpř* in *t'urukpřunšala* (man’s name), *ɣvř* in *vř'âɣvřâɣ* ‘babble’, *kpš* in *z'ukpšãvoɬ* ‘salt-grinding rock’, and many more. Note that in sequences of voiceless consonants, allophones of non-nasalized sonorants (*r*, *ř*, and *l*) are also voiceless.

Table 7. Sañu-Viri initial consonant clusters.

stp/ep	cnt	Stp	cnt (r/l/m/n)	articulator		examples
				1	2	
<i>t</i>	<i>r</i>			t		<i>tra</i> ‘three’
<i>d</i>	<i>r</i>			t		<i>drâl</i> ‘spiderweb’
<i>k</i>	<i>ř</i>			d	t	<i>křam</i> ‘work’
<i>g</i>	<i>ř</i>			d	t	<i>gřâm</i> ‘community’
<i>p</i>	<i>ř</i>			l	t	<i>přost</i> ‘bed’
<i>b</i>	<i>ř</i>			l	t	<i>břâ</i> ‘younger brother’
	<i>m</i>			l	t	<i>mřák</i> ‘boy’
	<i>v</i>		<i>ř</i>	l	t	<i>vřei</i> ‘flour’
<i>ć</i>		<i>k</i>		t	d	<i>ćkârik</i> ‘a kind of lizard’
<i>p</i>		<i>t</i>		l	t	<i>ptua</i> ‘fir’
<i>p</i>	<i>s</i>	<i>t</i>		l	t	<i>pstikâ:k</i> ‘small dung’
<i>p</i>	<i>š</i>	<i>t</i>		l	t	<i>pšipã</i> ‘behind’
<i>p</i>	<i>š</i>			l	t	<i>pštî</i> ‘back’
<i>i</i>	<i>s</i>	<i>t</i>	<i>r</i>	t		<i>istã</i> ‘star’
<i>i</i>	<i>s</i>	<i>t</i>		t		<i>istramâli</i> ‘woman’

Table 8. Nišei-alâ initial consonant clusters.

stp/ep	cnt	stp	cnt (r/l)	articulator		examples
				1	2	
<i>t</i>	<i>r</i>			t		<i>tre</i> ‘three’
<i>t̥</i>	<i>r</i>			t		<i>trik</i> ‘audible fart’
<i>d</i>	<i>r</i>			t		<i>drâs</i> ‘grape’
<i>d̥</i>	<i>r</i>			t		<i>drâ ça-</i> ‘burp’
<i>p</i>	<i>r</i>			l	t	<i>prüst</i> ‘bed’
<i>p</i>	<i>ř</i>			l	t	<i>prōki</i> ‘alone; single’
<i>p</i>	<i>ñ</i>			l	t	<i>pñei</i> ‘foam’
<i>b</i>	<i>r</i>			l	t	<i>bre</i> ‘flour’
<i>b</i>	<i>ř</i>			l	t	<i>bram</i> [man’s name]
<i>b</i>	<i>ñ</i>			l	t	<i>bñe</i> ‘plank walkway’
	<i>v</i>		<i>ř</i>	l	t	<i>vřāv</i> ‘egg’
	<i>v</i>		<i>ñ</i>	l	t	<i>vñe-</i> ‘see’
	<i>m</i>		<i>r</i>	l	t	<i>mre-</i> ‘die’
	<i>m</i>		<i>ř</i>	l	t	<i>mřāka</i> ‘monkey’
<i>k</i>	<i>r</i>			d	t	<i>krēc</i> ‘discarded millet ear’
<i>k</i>	<i>ř</i>			d	t	<i>krok</i> ‘bracelet’
<i>k</i>	<i>ñ</i>			d	t	<i>kñe-a-</i> ‘was made’ (fem.)
<i>g</i>	<i>r</i>			l	t	<i>gre</i> ‘give me’
<i>g</i>	<i>ř</i>			l	t	<i>grug</i> ‘ankle bone’
<i>g</i>	<i>ñ</i>			d	t	<i>gñe</i> ‘goathair mattress’
	<i>s [s̥]</i>	<i>t</i>		t		<i>sťās</i> ‘eighteen’
	<i>š</i>	<i>p</i>		t	l	<i>spěk</i> ‘spleen’
	<i>š</i>	<i>t</i>		b	t	<i>šťek</i> ‘sneeze’
	<i>š</i>	<i>t</i>	<i>r</i>	b	t	<i>štri</i> ‘woman; wife’
<i>p</i>	<i>š</i>			l	b	<i>pšū</i> ‘grain’
<i>p</i>	<i>s</i>			l	t	<i>p(ü)süki</i> ‘tassel’
<i>ü</i>	<i>s</i>	<i>t</i>		t		<i>üstüm</i> ‘pillar’
<i>i</i>	<i>š</i>	<i>t</i>		b	t	<i>ištär</i> ‘quiver’
<i>i</i>	<i>š</i>	<i>t</i>		b	t	<i>ištrigi-šti</i> ‘female’

Table 9. Vâsi-Vari initial consonant clusters.

stp/ep	cnt	stp	cnt (r/l/m/n)	articulator			examples
				1	2	3	
<i>t</i>	<i>r</i>			t			<i>trätog-</i> ‘get upset’
<i>k</i>	<i>r</i>			d	t		<i>kr’ak</i> ‘so, such’
<i>d</i>	<i>r</i>			t			<i>dr’inj</i> ‘iron wedge’
<i>b</i>	<i>r</i>			l	t		<i>br’aç</i> ‘liar’
	<i>v</i>		<i>r</i>	l	t		<i>vr’ak</i> ‘penis’
	<i>z</i>		<i>n</i>	l	t		<i>zn-</i> ‘understand’
	<i>n</i>	<i>ř</i>		t	b		<i>nřum-</i> ‘sip’
	<i>s</i>		<i>r</i>	t			<i>sr’i</i> ‘a food’

Ethnolinguistic and genetic clues to Nûristânî origins

	s		l	t		<i>sl'ari-pân</i> 'on it'
	s	k		t	d	<i>sk'âl</i> 'much'
	š	č		b		<i>šč'il</i> 'soft'
t	š	č		t	b	<i>tščōmar'i</i> 'these three'
p	s			l	t	<i>ps'āg</i> 'how'
p	s	t		l	t	<i>pstor'e</i> [man's name]
p	s	č		l	t	<i>psč'il</i> 'large pile of field stones'
p	s		n	l	t	<i>psn'u</i> 'piece'
p	š			l	t	<i>pšar'i mǎč</i> 'athlete'
p	š	ʈ		l	t	<i>pšt-</i> 'be abundant' (fruit)
p	š		l	l	t	<i>pšl'a</i> 'sweepings'
p	š			l	b	<i>pš-</i> 'creep'
p	š	t		l	b t	<i>pšt'ig</i> 'bile'
p	š	č		l	b	<i>pščal'og</i> 'fringe on cloak'
p	š		l	l	b t	<i>pšl'u</i> 'hairy'
k	s			d	t	<i>ks'ü</i> 'wind'
k	s	t		d	t	<i>kst'ag-nân-üzü</i> [place name]
k	s	č		d	t	<i>ksč'a</i> 'butt'
k	š			d	t	<i>kš'u</i> 'left'
k	š	ʈ		d	t	<i>kšt'âl</i> 'hemp rope'
k	š	l		d	t	<i>kšl'a</i> 'gap'
k	š			d	b	<i>kš'u</i> 'mind'
k	š	t		d	b t	<i>kšt'ō</i> 'high'
k	š	č		d	b	<i>kšč'u</i> 'lame'
č		p		t	l	<i>čp'a</i> 'permission to harvest fruit'
č		k		t	d	<i>čk'ir</i> 'whey solids'
č		t		t	d	<i>čt'āg</i> 'again'
č		ʈ		t	d	<i>čt'a viṭāk</i> 'part of a loom'
č			n	t	d	<i>čn'og</i> 'cricket'
č		p		b	l	<i>čp'ar</i> 'sunny spot'
č		p	r	b	l t	<i>čpr'i</i> 'wattle wall'
č		p	l	b	l t	<i>čpl'uz</i> 'fourteen'
č		t		b	t	<i>čt'i</i> 'then'
č		t	r	b	t	<i>čtr'a</i> 'colorful'
č		k		b	d	<i>čk'ig</i> 'anything'
t		k		t	d	<i>tk'og</i> 'small-eared goat'
t		č		t	b	<i>tč'i</i> 'three'
ʈ		k		t	d	<i>ʈk-</i> 'finish'
p		č		l	t	<i>pč'il</i> 'scree pile'
p		č		l	b	<i>pč-</i> 'carry'
p		k		l	d	<i>pk'iz</i> 'egg volk'
k		k		d		<i>kk'ü</i> 'widow'
i	s	p		t	l	<i>išp'e-kānt</i> 'porcupine'
i	s	k		t	d	<i>iski</i> 'fat'
i	š	p		b	l	<i>išp'ü</i> 'flute'
i/ü	š	k		b	d	<i>üšk'öb</i> 'bridge'
i	š	t		b	t	<i>išt'ik</i> 'star'; <i>išty'ü</i> 'pillar'

<i>i</i>	<i>š</i>	<i>t</i>	<i>r</i>	<i>b</i>	<i>t</i>	<i>iš'treg-m'ünd</i> [a place]
<i>i</i>	<i>š</i>	<i>(t)</i>	<i>n</i>	<i>b</i>	<i>t</i>	<i>išn'i</i> 'thief'
<i>i/ü</i>	<i>š</i>	<i>č</i>		<i>b</i>		<i>išč'uy</i> 'buttermilk curds'; <i>üšč'ur</i> 'camel'
<i>ü</i>	<i>š</i>	<i>k</i>				<i>üškyür</i> 'crooked'

Table 10. Kâmviri initial consonant clusters.

stp	cnt	stp	cnt (r/l)	articulator			examples
				1	2	3	
<i>ʈ</i>	<i>l</i>			t			<i>ʈl'aṇaṭlaṇa</i> 'jangling'
<i>t</i>	<i>r</i>			t			<i>tr'e</i> 'three'
<i>ʈ</i>	<i>r</i>			t			<i>tr'a</i> 'loud fart'
<i>t</i>	<i>r</i>	<i>k</i>		t	d		<i>trk'i</i> 'crack'
<i>d</i>	<i>r</i>			t			<i>dr'e</i> 'late'
<i>d</i>	<i>r</i>			t			<i>drândr'a</i> 'quern'
<i>p</i>	<i>r</i>			l	t		<i>pr'ēša</i> 'dragon'
<i>b</i>	<i>r</i>			l	t		<i>brâmn'i</i> [place name]
<i>p</i>	<i>ř</i>			l	t		<i>př'e</i> 'give!'
<i>b</i>	<i>ř</i>			l	t		<i>bř'e</i> 'flour'
<i>k</i>	<i>ř</i>			d	t		<i>kř'um</i> 'roof'
<i>g</i>	<i>ř</i>			d	t		<i>gř'om</i> 'community'
	<i>v</i>		<i>ř</i>	l	t		<i>vř'ika</i> 'fox'
	<i>m</i>		<i>ř</i>	l	t		<i>mř'e</i> 'die!'
	<i>s</i>	<i>t</i>		t			<i>st'a</i> 'vinegar'
	<i>s</i>	<i>t</i>	<i>r</i>	t			<i>str'ak</i> 'now'
	<i>s</i> [s]	<i>ʈ</i>		t			<i>sʈ'a</i> 'lump'
	<i>s</i>	<i>p</i>		t	l		<i>sp'iā</i> 'quilt'
	<i>š</i>	<i>p</i>		t	l		<i>sp'ō</i> 'flute'
	<i>s</i>	<i>k</i>		t	d		<i>sk'i tāři</i> 'fat-stuffed'
	<i>š</i>	<i>k</i>		t	d		<i>šk'ura</i> 'crooked'
	<i>š</i>	<i>t</i>		b	t		<i>št'ü</i> 'pillar'
	<i>š</i>	<i>t</i>	<i>r</i>	b	t		<i>štr'i</i> 'female'
	<i>š</i>	<i>p</i>		b	l		<i>šp'ā</i> 'agree!'
<i>p</i>	<i>s</i>			l	t		<i>ps'ā</i> 'hang!'
<i>p</i>	<i>š</i>			l	t		<i>pš'a</i> 'shaman'
<i>p</i>	<i>š</i>			l	b		<i>pš'u</i> 'grind!'
<i>p</i>	<i>š</i>	<i>t</i>	<i>r</i>	l	b	t	<i>pštr'a</i> 'broken'
<i>k</i>	<i>s</i>			d	t		<i>ks'ař</i> 'kind of bird'
<i>k</i>	<i>š</i>			d	t		<i>kš'ü</i> 'soybean'
<i>k</i>	<i>š</i>	<i>t</i>		d	t		<i>kst'a</i> 'pure'
<i>k</i>	<i>š</i>			d	b		<i>kš'üla</i> 'intelligent'
<i>č</i>		<i>p</i>		t	l		<i>čp'u</i> 'suck!'
<i>č</i>		<i>k</i>		t	d		<i>čk'ara</i> 'whey solids'
<i>č</i>		<i>k</i>		t	d		<i>čk'aloa</i> 'buttermilk liquid'
<i>č</i>		<i>p</i>		b	l		<i>čp'āna</i> 'flat-nosed'

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<i>č</i>		<i>k</i>		<i>b</i>	<i>d</i>	<i>čk'i</i> 'in a while'
<i>t</i>		<i>k</i>		<i>t</i>	<i>d</i>	<i>tk'ürük</i> 'thin cloth'
<i>ʈ</i>		<i>p</i>		<i>t</i>	<i>l</i>	<i>ʈp'a</i> 'barrier'
<i>ʈ</i>		<i>k</i>		<i>t</i>	<i>d</i>	<i>ʈk'u</i> 'nail'
<i>p</i>		<i>č</i>		<i>l</i>	<i>t</i>	<i>pč'i</i> 'chopped up'
<i>p</i>		<i>t</i>		<i>l</i>	<i>t</i>	<i>pt'ul</i> 'field'
<i>p</i>		<i>t</i>	<i>r</i>	<i>l</i>	<i>t</i>	<i>ptr'ē štri</i> 'woman with toddlers'
<i>p</i>		<i>ʈ</i>		<i>l</i>	<i>t</i>	<i>pʈ'i</i> 'back'
<i>p</i>		<i>ʈ</i>	<i>r</i>	<i>l</i>	<i>t</i>	<i>ptr'i</i> 'following after'
<i>p</i>		<i>č</i>		<i>l</i>	<i>b</i>	<i>pč'ař</i> 'undried'
<i>p</i>		<i>k</i>		<i>l</i>	<i>d</i>	<i>pk'i</i> 'flea'
<i>k</i>		<i>t</i>		<i>d</i>	<i>t</i>	<i>kt'a</i> 'kidskin sack'
<i>k</i>		<i>ʈ</i>		<i>d</i>	<i>t</i>	<i>kʈ'a</i> 'lame'
<i>k</i>		<i>ʈ</i>	<i>l</i>	<i>d</i>	<i>t</i>	<i>kʈl'uk</i> 'clay pot'
<i>k</i>		<i>č</i>		<i>d</i>	<i>b</i>	<i>kč'üla</i> 'scab'

[illegible]

In syllable onsets that use only a single articulator (lip, tongue-end, or dorsum), the articulatory target and the stricture type of the final consonant are anticipated to the beginning of the onset, with the exceptions that the tongue-end may slide forward from post-alveolar to dental position, as in *tt*, *nt* [nd], and *št*, or from dental to lamino-alveolar tap, as in *tr* and *dr*, but never inward from dental to postalveolar (^x[tʰ], ^x[stʰ], ^x[ltʰ], ^x[ntʰ]). Thus in the onset *mv* of *kâmv'iri* ‘Kom language’, made with the lower lip, the dentality of the *v* is anticipated to the *m* to become the single target, producing [mʷ]. In the onset *tʰ* of *s'uttâna* ‘seven coins’, the post-alveolar target replaces the dental one of the first consonant, producing a single-targeted [tʰ]. Similarly, the sequence *kq* becomes pharyngeally-targeted [q:] in *čukq'i:sam* ‘how many kinds’, and *kx* in *bili'ukxâ-p'u* ‘very upset’ anticipates the spirancy to become [x:]. The full set of possible consonant sequences that can arise from the juxtaposition of two tongue-end (apical or laminal) consonants appears in Table 11. Finer details of Kâmviri morphophonemics are beyond our scope here.

In the languages at the lax end of the delivery scale, as exemplified by Nišei-alâ, anticipation is confined to lingual fronting or backing from a following syllable. Otherwise, anticipation of other articulations does not occur, and consonantal sequences may have mixed voicing values, as in the *šm* and *nk* in *kišmat'inkinaba* ‘[and] some belonging to Matin’s people’. Such consonants belong to adjacent syllables.

3.1.2.3.1.2 Anticipation within syllable peaks

Aside from the foreshortening of ancient *ai to *e*, found throughout the region, in K.km an accented *â* followed by *i* does not become *o*, as do other accented *â*’s, because of anticipated lip-spreading from the following *i*.

3.1.2.3.2 Anticipaiton within words

Within words phonological spans are sequences of syllables demarcated by an accent, which is a point of concentration of initiator power. In the anticipatory rapidity of the tense dialects the position of accent itself was anticipated, with the vowel of the lower-powered preceding syllable being reduced or elided.

3.1.2.3.2.1 Accentual anticipation

In Common Nûristânî the position of glottal accent was fixed on the final syllable of a word-stem, as it was in contemporary Persian. Stems consisted of one to three syllables, with two syllables being the commonest. Stem-final accentual position remains in Âşkuñu-Sañu-viri and Kalaşa-alâ.

In most nouns and adjectives of Kâmkata-vari, accent from a third syllable was anticipated to the second, so that second-syllable accent became the default position. In that language accent may also fall on the vowel of an initial syllable, but in most cases such vowels derive from sequences of two vowels in which the accent formerly fell on the second. Kâmkata-vari initial syllables containing *e*, *o*, or, in the Kâmviri dialect, a long vowel (*Va*), are regularly accented.

The accent of K.ktv verbs remains on the stem vowel in polysyllables,¹² while in K.km the accent is regularly anticipated to the second vowel; *e.g.*,

pre-K. *vi-şam'a- 'rest': K.ktv *uşm'e-*, K.km *uş'ama-*;

pre-K. *samař'a- 'set out for': K.ktv *samř'e-*, K.km *sâm'ařa-*;

pre-K. *sam-mar'a- 'mash together': K.ktv *samr'e-*, K.km *sâm'ara-*;

pre-K. *va-saņař'a- 'gather together (intransitive)': K.ktv *vâsaņař'e-*, K.km *vâs'aņařa-*;

pre-K. *nu-sar'a- 'pierce through': K.ktv *nusar'e-*, K.km *nus'ara-*;

pre-K. *(nu)-şkul'a- 'pick (teeth)': K.ktv *nuşkul'e-*, K.km *şk'ula-*;

pre-K. *supar'a- 'pack down firmly': K.ktv *spar'e-*, K.km *sp'ara-*;

pre-K. *u-tal'a- 'increase in quantity': K.ktv *utal'e-*, K.km *ut'ala-*;

pre-K. *vi-diř'a- 'be afraid': K.ktv *vadiř'e-*, K.km *vid'ařa-*;

pre-K. *vi-şañ'a- 'card (wool)': K.ktv *vaşeř'e-*, K.km *viş'aña-*;

pre-K. *u-saća- 'be skittish, stampede': K.ktv *vusać'e-*, K.km *uć'a-* (with syncope).

In the following verbs the first consonant was apparently voiced intervocalically in the Ktivi dialect, preventing the subsequent syncope found in Kâmviri:

¹² One exception noted is K.ktv *âm'i-e-* 'spoil (meat)'; in K.ktv *p'eće-* 'break' the *e* in the initial syllable regularly carries the accent, as noted above.

pre-K. *â-tâs-a- ‘carry on one’s back’: K.ktv *âdas’e-*, K.km *âc’a-*; cf. *t’os* ‘top of shoulder’;

pre-K. *u-kâṭa-a- ‘dig up; tear down (a building)’: K.ktv *vugaṭ’e-*, K.km *ukṭ’a-*; cf. *kâṭ’a* ‘cut timber’.

3.1.2.3.2.2 Anticipation of consonantal articulations

Successive consonantal syllable-onsets that share articulations tend to form a dissyllabic unit, with one or more articulations anticipated from the second onset to the first. The degree of anticipation increases with the “tenseness” of the dialect. Onset anticipation may leave the intervening vowel unaffected, or it may reduce or elide a single close vowel if the successive onsets share the same voicing value (voiceless or voiced).¹³ Anticipation appears in the following stages:

1. Dissyllabicity: articulatory anticipation in successive syllable onsets: *CVCV > ČVCV;
2. Sibilant Syllabicity: vocalic labial and lingual articulations prolonged through an adjacent sibilant, which becomes a voiceless syllabic: Kal. ČĪSV, ČĪS; K.ktv ŠĪCV > ŠCV;
3. “Burst” Syllabicity: vocalic articulations are produced simultaneously with the articulations of the preceding consonant; If the following consonant is a stop (including affricates), the vowel drops, leaving its oral articulations to occur with the syllable’s onset: K.ktv Č^lCV, ŠCV;
4. Syncope: At a later stage those vocalic articulations are dropped in some or all dialects; K.km CCV.

(I = close vowel, ^l = oral articulations of the vowel, S = spirant, Č and V̇ = phonemes with anticipated articulations).

¹³ A sporadic instance of a voiced stop fusing with a voiceless spirant is Kâmvirî *vič’o* ‘guest’, < CNur. *vi-deš-â ‘foreigner’; cf. K.ktv *vadaš’o*, Â-S.s *vidiṣâ*, Kal.n *vidiṣâ*, and Vâsi.ṣu *višč’â*.

3.1.2.3.2.2.1 Anticipatory stage 1: articulatory anticipation in successive syllable onsets

Throughout the Nûristân region contemporary words have been shaped by past anticipations of downstream articulations to the words' beginnings. Such anticipated articulations have included the strictural ones of obstruency, sonorancy, nasalization, and, in the neighboring Indo-Aryan languages, posterior whispery voicing (^h, ^ɦ),¹⁴ as well as the positional ones of lingual fronting ("palatalization"), lingual backing (to postalveolar position; "retroflexion" is inaccurate), and labialization. This type of anticipation probably stems from late Middle Indo-Aryan times, and except for the approximants, is now fossilized. Such fossilized anticipation is spread throughout the Nûristânî dialects and does not affect their position on the Delivery Scale.

3.1.2.3.2.2.1.1 Anticipation of postalveolar sonorants

Morgenstierne's observations (1947; furthermore Hamp 1968) on the anticipation of ancient *r in "Dardic" have applied to all postalveolar trills, taps, flaps, and approximants in the Nûristânî dialects at various times, and even today the approximants (^ř, ^ň) are anticipated to the preceding syllable onset in some dialects; thus K. *kař'i* 'it (fem.) was made' > K.ktv *křa'i*, K. *vāñ'anam* 'I'm seeing' = K.km [vĩ'ã:nim], Kal.n *vñe-* 'see', K. *pa-gř'om > K.km *břâk'om* 'at the community', etc. Such postalveolar sonorants were anticipated from either a following postconsonantal or postvocalic position, as shown in the following examples.

¹⁴ In the Indo-Aryan languages Kal'āṣa-mun, Bhaṭṭesa-zib, and Acharêṭâ'. In Acharêṭâ' "almost all instances of non-etymological [anticipated] whisper, both voiced and voiceless, arose to restrict the airflow of a following continuant, that is, a sibilant, *r*, or nasal stop." (Strand 2022: 470); thus OIA *vīṣat'i* 'twenty' > *bhī'š*, *dūr'a-* 'distant' > *dh'ūra* 'far,' *dāḍima-* 'pomegranate tree' > *dhêr'um* 'pomegranate', *jāmâtraka- 'daughter's husband' > *jhâmâtrô* 'son-in-law', etc.

3.1.2.3.2.1.1.1 Anticipation of *r

A postconsonantal *r was anticipated to an initial consonant: *CV(CV)CrV → CrV(CV)CV:

CNur. *bâmprek ‘tall wicker table’ > Kal.n *brâmpek*, but K.km *bâm-př’ek*,
Â S.s *bâmpřeiak*,

CNur. *benžra ‘a berry tree’ > K.km *bř’ěć*, K.ktv *bř’ez*, but V.u *‘uzr’â*;

OIA *d^hu:mr’a-* > CNur. *druma-ŋa ‘brown (livestock)’ > Â-S.s *druma-
ñaârâŋ*, K.km *drum’ař*;

OIA *mastra-* > CNur. *mrasta ‘brain’ > K. *mřašt’a*;

OIA *t’amisra:-* > CNur. *tramaša ‘twilight’ > Kal.n *tramaša*, K.km *trâmš’a*;

OIA *upa-gr^hba.ya-* > *va-grab^h-a-aya- > CNur. *vra-gâ- ‘take, get’ > K.km
vřâk’â-;

Ar. *vamri:- ‘ant’ > CNur. *vrâmik > K. *řâm’ik*, V.u *vom’ig*.

A postvocalic *r was anticipated to the initial consonantal onset:
*CVrCV → CrVCV:

OIA *dîrg^ha-* > CNur. *driga- ‘long’ > Kal.n *drigala*, K.ktv *drag’ař*, K.km
draŋ’aň, Treg.g *drigařälä*,

OIA *kaurma- > CNur. *krom ‘roof’ > Â-S.s *křom*, K *kř’um*;

OIA *d^harma-* > CNur. *dram ‘bad state’ > K.km *ć’âroã bâdrum* ‘fatherless’,
K.km *nâdr’am e-* ‘menstruate’;

OIA *marga:-* > *mârğa:- > *mrâğa:- > CNur. *mrâŋ ‘female markhor’ >
Kal.n *mrâŋ*, Â-S.s *mřaŋ*, K.km *mř’oŋ*, K.ktv *mř’uŋ*;

Ar. *marĵa-* > *mârĵa- > *mrâĵa- > *brâĵa- > CNur. *branž ‘meadow’ > Â-
S.s *břôć*, K.km *bř’ûć*, K.ktv *bř’uź*, V.u *m’unź*;

CNur. *markâra ‘monkey’ > Kal.n *mřâka*, Â-S.s *mřakâra*, but K.ktv
mâk’ař, K.km *mâk’ař*;

OIA *g^harša-* > *g^hâršiya- > CNur. *gârši ‘buck goat’ > Kal.n *grôş*, but Â-
S.s *gâuş*, K *gâş*, V.u *gôş*;

OIA *graiviya-* > CNur. *geria ‘coiled neck ornament’ > Â-S.s *gřo:r*, but
K.km *g’eř*.

Note the sporadic anticipation of the lingual backing of postvocalic,
final *r (*CVr → CřVr) in:

CNur. *pâr ‘leaf’ K.ktv *př’or*, but K.km *p’or*;

CNur. *m'âra 'lord' > K. *mř'or*, but V.üć *mu'âr*, V.şu.S *m'ârâ*.

3.1.2.3.2.2.1.2 Anticipation of postvocalic *r and *ŋ

The anticipation of retroflex taps arose after they evolved out of MIA-era intervocalic retroflex stops; *i.e.*, *ɽ, *ɖ > *r* and *ŋ > *ŋ*. Such anticipation mostly affected Kal. and K.ktv, making it a localized change that occurred after the departure of the Kom from central Nûristân; *e.g.*,

1. Anticipation of Intervocalic *r: *CVɽV → *CřVV → CřV or *CVɽV → CřV·V in K.ktv:

CNur. *guɽik 'ankle bone' > Kal.n *grug*, K.ktv *gřu·'ik*, but K.km *g'uřik*;

CNur. *kaɽâŋk 'bracelet' > Kal.n *křok*;

CNur. *koɽa 'bite of food' > Kal.n *křo*;

CNur. *kuɽa- 'chew' > Kal.n.B *křö-*, Â-S.s *křovie-*, but K.km *kuř'a-*;

CNur. *kuɽa 'child' > Kal.n *křo*, but K. *kuř'a*, V.s.M *ky'üru*, K.km *-kuř*, V.u *kür*;

CNur. *kuɽi 'dog' > K.ktv *křu·'i*, but K.km *kuř'i*, Â-S.s *kuři*, V.u *kür'og*;

CNur. *maɽa 'nest' > Kal.n *mřa*;

CNur. *maɽa- 'died' > Kal.n *mřo-*;

CNur. *muɽi 'clay' > K.ktv *mřa·'i*, but K.km *muř'i*, V.s.M *mire*;

CNur. *parenša 'dragon' > K.km *pr'ěša*, but K.ktv *pař'aša*;

CNur. *piɽi 'vagina' > K.ktv *při·'i*, K.km *př'ia*, but Â-S.s *piri*;

CNur. *piɽâv- 'press (cheese)' > Kal.n *prâ-*;

OIA *v'arta-te* > CNur. *vaɽ- 'turn' > 'is' > Kal.v *vře-*, but Kal.a *vař-*, Kal.n *or-a-*;

OIA *vârtya- > CNur. *vâři 'wheel' > Kal.n.B *vřä*, but Kal.n *vâr*, K.km *v'âr*, K.ktv *v'oř*.

2. Anticipation of final *r: *CVɽ → CřVɽ or → CřV· in Kal.:

OIA *j^hagad- > *j^ha:ɖ- > *j^hâɽ- > CNur. *Ĵâr 'commotion' > K.km *Ĵ'oř*;

K.km *bâ-Ĵ'oř e-*, K.ktv *ba-ž'oř e-*, Kal.n *a-žâɽ di-* 'be distracted';

CNur. *kâɽ 'ear (of grain)' > Kal.n *křa*, but Â-S.s *kâr*, K.km *k'oř*.

3. Anticipation of intervocalic *ŋ: *CVŋV → *CňVV → CňV (→ CřV), or *CVŋV → *CňV·V → CřV·V in K.ktv, or *CVCVŋV → C^r/_rVVCřV·V:

- CNur. *maṇik ‘bead’ > Kal.n *mreṇ*, K. *mř’ik*;
 CNur. *maṇāk ‘boy’ > Â-S.s *mřâ:k*;
 CNur. *kaṇiṣṭa ‘youngest’ > K.ktv *křašt’a*, K.km *kâñ’ašt’a*, [kĩ̃ã:ʃt̪i];
 CNur. *peṇa ‘foam’ > Â-S.s *přiaṇa*, K.km *př’ě*, but K.ktv *pař’a*;
 CNur. *-vaṇi ‘rafter’ > Kal.n *virič-vñe*, Treg.g *lu:vřä*;
 CNur. *vâṇi ‘overseer, owner’ > Kal.n *-vñe*, K.ktv *-vřâ·i*, but K.km *-vâñi*;
 OIA *vaniṇy’a- > CNur. *vñeč ‘for sale’ > K.km *vř’ěč*;
 CNur. *jaṇa- ‘kill’ > Kal.n *zã-*, but K.km *jâñ’a-*, V.u *zon-*;
 CNur. *ś’aṇa ‘breath’ > Kal.n *ṣõ*, but K.ktv *ś’u*, K.km *ś’ũ*, V.u *šo*;
 OIA *dumb^ha-* > CNur. *duma-ṇi ‘tail; rump meat (of cattle)’ > K.ktv *dramř’i*, but K.km *dam’aři*;
 OIA *kâṇkunika-* > CNur. *kâkuṇi ‘widowed’ > Kal.n *křâkũi*, K.ktv *kâkr’u·i*, but K.km *kâk’uñi*, V.üč *kk’ün*, V.u *kk’ü*.

3.1.2.3.2.2.1.2 Anticipation of obstruency

When successive onsets were produced with the tongue’s end and the second onset was an affricate (ć, č, ċ), the affricate’s occlusion was anticipated to a preceding sibilant or affricate, which became an affricate or a stop, respectively. In K.ktv sibilancy was anticipated to a preceding occlusive (affricate or stop). Resulting onsets may have coalesced through later syncope (§3.1.2.3.2.2.1.4). Anticipation occurred in the following situations.

1. Initial sibilants anticipate following occlusion to become affricates:
 *SVṬSV → ṬSVṬSV:

- Ar. *sva-č’ura- ‘spouse’s father’ > CNur. *ća-ćur > V.u *čij’ü*, K.km *ć’üř*, but K.ktv *saći’uř*; note the Southern Nûristânî forms from OIA: Ar. *sva-č’ura- > OIA *śva-s’ura-* > *špa-šur > A-S. *šipas’u*, Kal.v *pašür*, Kal.n *püşür*;
 Ar. *sv’a-čru:- ‘spouse’s mother’ > CNur. *ć’aćru > *ć’adr > Kal.v *ćodr*, Kal.a, Kal.n *ćor*, but V.u *s’ut*; also CNur. *ć’aćru > *ć’açu > *ć’aç > K. ċ’uç;
 OIA *sã-styâṇaka- > *sasčanaka > *sasč’anka ‘coagulated’ > Â-S.m. *čuçoṇ* ‘buttermilk solids’, Â-S.s. *čoçoṇ*, but K.km. *sâč’üṇ*, K.ktv. *saći’uṇ*, V.u *üšč’uṇ*;
 Ar. *su:ki:- ‘needle’ > CNur. *suč > CNur. *čuč > K. *čamč’ač*, Â-S.s *ârcus*, *dôćus* ‘packing needle’, but V.u *saz’a*; cf. Skt. *sũč’i-*.

2. Initial affricates anticipate following occlusion and lose spirancy to become *t* in Early K.: *TSV^hTSV → ^hTVTSV:

Ar. *čikya- ‘strap’ > *čiča- > CNur. *ćíca ‘goatskin sack’ > K.km *tić’a*, K.ktv *sać’a*, but Â-S.s *ćíca*, V.u *ća*, V.üş *ʷüz* ‘large butter sack’; cf. Skt. *šikyà*- ‘carrying-sling’; the origin of Kal.n *tirića* ‘kidskin sack’ is unclear;

CNur. *čurćan ‘thin’ > K.km *turć’ă*, K.ktv *sać’uř*, but V.u *čačinyog*.

3. Later in K.ktv in any word of the form *T(S)VT^hSV, the initial occlusion is replaced by anticipated spirancy (note that there is no form *saćV in K.km.): *T(S)VT^hSV → ^hSVT^hSV:

Ar. *sva-č’ura- > NAr. *sać’ura- > CNur. *čaćur ‘spouse’s father’ > K.ktv *saći’uř* [ʃtsj’u], but K.km *ć’üř*;

Ar. *čikya- ‘strap’ > *čiča- > CNur. *ćíca ‘goatskin sack’ > K.ktv *sać’a* [ʃts’i], but Â-S.s *ćíca*, V.u *ća*, V.üş *ʷüz* ‘large butter sack’, K.km *tić’a*, Kal.n *tirića* ‘kidskin sack’; cf. Skt. *šikyà*- ‘carrying-sling’;

CNur. *čurćan ‘thin’ > K.ktv *sać’uř* [ʃts’u], but K.km *turć’ă*, V.u *čačinyog*;

Ar. *tačša- ‘hew’ > CNur. *taća- > K.ktv *sać’e-* [ʃts’ɛ-], but Â-S. *tôćie-*, K.km *tâć’a-*, V.u *-ščav-*;

Ar. *črthil’a- ‘slack’ > NAr. *črčil’a- > CNur. *čičila ‘soft’ > K.ktv *šač’ala* [ʃʃ’ili], but Kal.n *čičila*, A. *ćićila*, V.u *čač’al*, *ščil*, K.km *čal’a* (with syncope); cf. OIA *šrthil’a-*;

CNur. *čićan ‘pine-nut tree’ > K.ktv *šač’a kana* [ʃʃ’i], but V.u *žiž’u*, V.s.M *žüžyũ*, K.km *č’ě_kâno*, V.s.M *čö*, V.u *čö üštüb* ‘tree with small red berries’;

Ar. *čakš- ‘taste’ > CNur. *čaça- ‘gnaw’ > K.ktv *šač’e-* [ʃts’ɛ-], but K.km *čâç’a-*, Â-S.s *čakarie-*, Kal.n.B *čaça-*; cf. OIA *čakš-a-ti.

4. Initial voiced affricates lose spirancy before a following continuant + stop (*st*, *sṭ* = [st], *št*, *nd*, *ṇḍ*) to become *d*: *DZVST > dVST; such changes appear in sporadic loanwords from the last millenium, irregular because of the mixed voicing of the successive onsets:

Ar. *j^hasta- > NAr. *ž^hasta- > *zasta- ‘hand’ > CNur. *dasta > A., Kal. *dost*, K.ktv *d’ušt*, K.km *d’üšt*, V. *l’ust*; cf. Skt. *hásta-*; this may also be a borrowing of Fârsi *dast*;

Skt. *jyeṣṭá- ‘eldest’ > A.s. *diṣṭo*, Kal. *düṣṭö*, but K. *j’eṣṭa*, V.u *asṭ’ag*, *ast’ag*;

CNur. *juš âu ‘meat broth’ > V.u *dušâv*, but K. *j’uš ov*; cf. Skt. *yu:ṣa-*;
OIA *yantrâ-* ‘device’ > MIA *jandra > *jaṇḍra > K.km. *ḍrâṇr’a* [ḍraṇḍr’i]
‘quern’, but Â-S.s *ḍaḍar*, V.u *ḍuḍ’u*.

3.1.2.3.2.2.1.3 Anticipation of voicing

Voicing assimilation occurs on the locative prefix *pa-* in K., which becomes *ba-* before voiced consonants; e.g., K.km. *pâkṭ’ol* ‘in the stomach’ but *bâg’otr* ‘on the upper arm’.

3.1.2.3.2.2.1.4 Anticipation of nasalization

One example of anticipatory nasalization of a homorganic stop is

Ar. *band^h’a- ‘rope’ > CNur. *manda > V.u *man’a*, K.ktv *man’a*, K.km
mân’e, V.u *-mo(n)d-/md-* ‘bind’.

3.1.2.3.2.2.2 Anticipatory stage 2: sibilant syllabicity in Kal. and K.ktv

This stage has two sub-stages.

In Kal. a following sibilant encroaches on a preceding post-occlusive close vowel, which becomes very short and voiceless between voiceless consonants: ČĪSV, ČĪS:

CNur. *piš’ân-š/k ‘cat’: Kal.n *pišâ* [pĩʃã], K. *pš’âš*, and V.u *pš’ig*, but Saṇu
pisâs;

CNur. *p’us(-’âv-) ‘lost/lose’: Kal.n *pūs* [pỹs], *pūsâ-* [pỹs’a:-], K. *p’ūs*
[p’yys], *ps’oa-*;

CNur. *kaš ‘what’ > Kal.n *kīš* [kĩʃ];

CNur. *ti- ‘end up’ > Kal.n *tisam* [t̪i.s’em] ‘I end up’.

Note also, with mixed voicing, the shortened vowel in Kal.n *disam*
[ḍis’em] ‘I go’.

In K.ktv sequences of *SaCV*, where C is a voiceless obstruent, the sibilant absorbs the devoiced *a* and becomes a voiceless syllabic, as in:

Ar. *čakṣ- ‘taste’ > CNur. *čaça- ‘gnaw’ > K.ktv *šaç’e-* [s̪s̪’ɛ-], but K.km
čac̪’a-, Â-S.s *čakar̪ie-*, Kal.n.B *čaça-*; cf. OIA *čakṣ-a-ti;

- Ar. *čr̥thil'a- 'slack' > NAr. *čr̥čil'a- > CNur. *čičila 'soft' > K.ktv *šač'ala* [ʃt̪ʰili], but Kal.n *čičila*, Â-S.s *čičila*, V.u *čač'al*, *ščil*, K.km *čal'a* (with syncope); cf. OIA *šr̥thil'a-*;
- CNur. *čičan 'pine-nut tree' > K.ktv *šač'a kana* [ʃt̪ʰi], but V.u *žiž'u*, V.s.M *žüžyũ*, K.km *č'ẽ_kâno*, V.s.M *čõ*, V.u *čõ üštüb* 'tree with small red berries';
- Ar. *čikya- 'strap' > *čiča- > CNur. *číca 'goatskin sack' > K.ktv *sač'a* [ʃts'i], but Â-S.s *číca*, V.u *ča*, V.üş *üz* 'large butter sack', K.km *tič'a*, Kal.n *tiriča* 'kidskin sack'; cf. Skt. *šikya-* 'carrying-sling';
- CNur. *čurcan 'thin' > K.ktv *sač'uř* [ʃts'ui], but K.km *turč'ã*, V.u *čačinyog*;
- Ar. *tačša- 'hew' > CNur. *tača- > K.ktv *sač'e-* [ʃts'ɛ-], but Â-S. *tôcie-*, K.km *táč'a-*, V.u *-ščav-*;
- Ar. *sva-č'ura- > NAr. *sač'ura- > CNur. *čacur 'spouse's father' > K.ktv *sači'uř* [ʃtsj'ui], but K.km *č'üř*;
- OIA *sã-styânaka- > *sasčanaka > *sasč'anka 'coagulated' > K.ktv. *sači'uy* [ʃtsj'ui], but K.km. *sáč'ũy*, V.u *üşč'uy*, Â-S.m. *čučo:ŋ* 'buttermilk solids', Â-S.s. *çocoŋ*; etc.

3.1.2.3.2.2.3 Anticipatory stage 3: labialization in K.ktv

In K.ktv pretonic *u* reduces to labialization of the preceding consonant: *CuC'V > C^wC'V:

- CNur. *kuṭa-'âv- 'limp' > K.ktv *kuṭ'ov-*, [k^wt̪ʰɔβ-], but K.kmv *kt'oa-*;
- CNur. *kuč'a- 'dig' > K.ktv *kuč'e-* [k^wt̪ʰɛ-], but K.kmv *kč'a-*, Kal.n *kuča-*;
- CNur. *kus'a- 'strike' > K.ktv *kus'e-*, [k^ws'ɛ-] 'buck up', but K.kmv *ks'a-* 'rapidly become';
- CNur. *kušul'a 'smart' > K.ktv *kuš'ula* [k^wʃuli], but K.km *kš'ũla*, Â-S.s *kusula*, Kal.n *küşũla*.

3.1.2.3.2.2.4 Anticipatory stage 4: syncope in K.

Syncope of close pretonic vowels between voiceless obstruents is general in K., but with conditions. The phonetic realizations of K.ktv pretonic *u* and pretonic *a* with a sibilant have been discussed. Otherwise, pretonic *a* and *i* drop in K.ktv, and all pretonic close vowels (*a*, *i*, *u*, and *ü*) drop in K.km. However, syncope of *a* was blocked in initial syllables in Kâmviri, because

a previous round of expressive mandibular accent (vridhhi) had changed close *a* to open *â* in that dialect, precluding syncope. Examples of *CVC'V > CC'V are:

CNur. *kač'a- 'search' > K.ktv *kč'e-*, but K.km *kâč'a-*, Â-S.s *kasie-*, Kal.n *kâč'a-*;

CNur. *kaš'a- 'rob' > K.ktv *kš'e-*, but K.km *kâš'a-*;

CNur. *task'a 'the third winter month' > K.ktv *čk'a*, but K.km *tâsk'a*;

CNur. *pač'a- 'broil' > Kal.n *pač'a-*, K.ktv *pč'e-*, but K.km *pâč'a-*;

CNur. *pak'a- 'ripen' > Kal.n *paka-*, K.ktv *pk'e-*, but K.km *pâk'a-*;

CNur. *sak'a- 'dry up' > K.ktv *sk'e-*, but K.km *sâk'a-*;

CNur. *tak'a- 'be stuck' > K.ktv *tk'e-*, but K.km *tâk'a-*, Â-S.s *takua-*;

CNur. *tap'a- 'become hot' > K.ktv *tp'e-*, but K.km *tâp'a-*, Â-S.s *tapie-*, Kal.n *tapa-*;

CNur. *čap'a- 'emit a sound' > K.ktv *čp'e-*, but K.km *čâp'a-*;

CNur. *piš'ân-š/k 'cat' > K. *pš'âš*, V.u *pš'ig*, but Sañu *pisâš*, Kal.n *piš'â* [pʲʃ'â];

CNur. *kit'âl 'stomach' > K.ktv *kṭi'ol*, K.km *kṭ'ol*, V.u *kṣṭ'âl*, but Â-S.s *čṭâ:l*;

CNur. *kuč'a- 'dig' > K.km *kč'a-*, K.ktv *kuč'e-* [kʷtʃ'ɛ-], but Kal.n *kuč'a-*;

CNur. *kus'a- 'strike' > K.km *ks'a-*; 'rapidly become', K.ktv *kus'e-*, [kʷs'ɛ-] 'buck up';

CNur. *kuṭa-âv- 'limp' > K.ktv K.km *kṭ'oa-*, *kuṭ'ov-*, [kʷt'ɔβ-].

The effects of vridhhi in Kâmviri did not affect inner pretonic *a*, where syncope was regular:

CNur. *âmaĵ'en 'bracelet' > K.km *âmč'ě* [amdʒ'ě], K.ktv *âmĵ'a*, but Â-S.s *âmožâ*;

CNur. *ḍaḍak'a- 'shiver' > K.km *ḍaṭk'a-*, K.ktv *ḍaṭki'e-*, but Â-S.s *ḍaḍakie-*, Kal.n *ḍaḍaka-*;

CNur. *garaš-v'âr 'daytime' > K.ktv *garĵ'or*, K.km *gâĵ'âr*, but Â-S.s *garasâr*;

CNur. *kalaš'a 'Kalaša' > K.ktv *kaļš'a*, K.km *kâlš'a*, V.u *kulč'u*, V.šu.S *kulč'u*, but Â-S.s *kâlâšâ*, Kal.n *kalaša*;

CNur. *puruĵ'e- 'comprehend' > K.km *purĵ'a-*, K.ktv *parĵ'e-*, but Â-S.s *puruži'e-*, Kal.n *prĵĵâ-* 'advise';

CNur. *saraŋ'i 'fiddle' > K.km *sârŋ'i*, K.ktv *sarŋ'a*, but Â-S.s *saraŋi*, Kal.n *saraŋi*;

CNur. *u/â-lam'a- 'dangle' > K.km *ulm'a-*, K.ktv *âlm'e-*, but Kal.n *uluma-*.

If the tonic syllable onset cannot be anticipated to the pretonic syllable onset because of voicing or target incompatibilities, the accent may be anticipated, and the resulting pretonic-tonic onset pair may fuse, as in:

CNur. *paŋil'a 'foliated, hairy, shaggy, man's name' > K.km *pâŋl'a*, K.ktv *pŋ'ila*, but Kal.n *paŋila*;

CNur. *kučul'a 'scab' > K.km *kč'ûla*, K.ktv *kč'ul*, but Saŋu *kučul'a*, Kal.n *küčûla*;

CNur. *kušul'a 'smart' > K.km *kš'ûla*, K.ktv *kuš'ula* [kʷʃuli], but Saŋu *kusul'a*, Kal.n *küşûla*;

CNur. *čičil'a 'soft' > K.kmv *čal'a*, K.ktv *šač'ala* [ʃʃili], but Kal.n *čičila*.

The initial consonant sequences of Table 9 and Table 10 and are mostly the results of pre-tonic anticipatory syncope.

3.1.2.3.2.3 Vocalic anticipation

Nûristânîs show two types of vocalic anticipation across successive syllables: umlaut and intervocalic consonant reduction.

3.1.2.3.2.3.1 Vocalic anticipation: umlaut

Anticipation of vocalic articulations to a preceding vowel occurs in Kal., V., and to a very minor extent in K. Note that Kal. speakers anticipate vowels, but K. speakers anticipate consonants. In both cases it is the peak of the power curve within syllables (onset in K. but vowel in Kal.) that gets the anticipation.

3.1.2.3.2.3.1.1 Anticipation of lingual fronting in Kalaša-alâ

In Kal. anticipation of lingual fronting (*aCi* > *äCi*; *uCi* > *üCi*) is grammaticalized through the feminine suffix *-i*; thus the adjectives *čaŋa* 'stupid', f. *čäŋi*, *čaŋaka* 'sharp', f. *čäŋäki*, *čükürala* 'rotten', f. *čüküräli*, *čükürala* 'sour',

f. *čükräli*, *čaṇala* ‘sharp tasting (cheese)’, f. *čaṇäli*, *pukâla* ‘rotten, crumbling’, f. *pukäli*, *drigala* ‘tall, long’, f. *drigäli*, *šüvala* ‘potter and leather-worker caste’, f. *šüväli*, *trüpala* ‘wet’, f. *trüpäli*, *iara* ‘having the same age’, f. *iäri*, *šākura* ‘two-year-old calf’, f. *šāküri*, etc., as well as in the ubiquitous Conceptual Participle ending *-a/âla*, f. *-äli*.

The origin of the phoneme *ä* lies in the anticipation of a lingual fronting to an *a* or *â* in earlier forms, as in CNur. **ami* > *ämi* ‘we’, CNur. **aṅgâr-ik* > *ägârik* ‘charcoal’, CNur. **au-i* > *äv* ‘large flatbread’, CNur. **dâri* > *dä* ‘beard’, CNur. **iama-râi* > *iamarä* ‘Yama-Râi’, CNur. **kaṇišta* > *kăst* ‘husband’s younger brother’, CNur. **jay* > *jäi* ‘good; pleasure’, CNur. **paṇik* > *nitipäṇiṇ* ‘naked’, CNur. *râtr-ik* > *vâtr’igi* ‘tomorrow’, CNur. **šâli* > *šäl* ‘kind of grassy plant’, CNur. **vâi* > *vä* ‘Vây’.

A few instances of *ä* are the result of laminal inertia (see below), as in CNur. **čiâk* > *čä-äg* ‘wicker basket’, CNur. **iâmaṇa* > *iämüṇa* ‘twin’, CNur. **ištâr* > *ištâr* ‘quiver’, CNur. **vi-diš-â* > *vidišä* ‘guest’.

The origin of the phoneme *ö* lies in the anticipation of lingual fronting to a preceding **o*, (CNur. **çori* > *çö* ‘sickle’, CNur. **droš* > *dröš* ‘crack in rock’, etc.), including *o* from accented **a* (CNur. **š’ana* > *šö* ‘breath’), from earlier **au* (CNur. **sauli* > *söli* ‘blood-brother’, CNur. **vautri* > *vötri* ‘fairy’), and perhaps from opening of a **u* next to an *r* or *ṇ*. (CNur. **čuṇi* > *čö* ‘empty’, CNur. **kuṛa-* > *kṛö-* ‘chew’). The lingual fronting may arise from an earlier **r*, as seen in CNur. **é’arva* > **é’orva* > **é’oiva* > **éöva* > *éöv* ‘male markhor’, CNur. **garṣ* > **gorṣ* > **grorṣ* > **groiṣ* > *gröṣ* ‘billy goat’, etc.

3.1.2.3.2.3.1.2 Umlaut in Vâsi-vari

The anticipation of both lingual fronting and labialization (§3.1.1.1.2) is ubiquitous in the development of Vâsi-vari, as exemplified here from the dialect of *^wUṣ’ut* (v. B&D 2017: 51 ff.). Anticipation can be from downstream vowels or labial or laminal consonants. Such anticipation has occurred over a long-enough time span to include numerous loanwords from Kâmkata-vari as well as some earlier ones from Middle Indo-Aryan.

3.1.2.3.2.3.1.2.1 Anticipation of lingual fronting in Vâsi-vari

Certain instances of the Vâsi-vari front vowels *ü*, *ö*, and *e* are the result of anticipatory lingual fronting.

Both lingual fronting and labialization of a **ü* were anticipated to a preceding vowel; e.g.,

- CNur. **bažíu* > K. *bâz'ü* → *büz'ü* ‘outer robe’;
 CNur. **pâpus* > K. *pâp'üs* → *püp'üs* ‘lungs’;
 CNur. **aru* > **ar'ü* > *ür'ü* ‘silver’;
 CNur. **tâji-aṇa* > **tâj'üṇa* > K. *tâj'üñ* → *üj'ü* ‘sorghum’;
 CNur. **âcu* > **âc'ü* > *üč'ü* ‘tear’;
 CNur. **ang'ur* > K. *ag'ur* > **ag'ü* > *üg'ü* ‘finger; toe’;
 CNur. **as'an* > **as'un* > **as'ü* > *üs'ü* ‘blood’;
 CNur. **čac'r'u* > **čac'u* > **čaj'ü* > *čüj'ü* ‘wife’s father’;
 CNur. **ču* > **ič'u* > **ič'ü* > *üč'ü* ‘horn’;
 CNur. **dum* > **l'um* > **ul'üm* > *ül'üm* ‘smoke’;
 CNur. **sač'aṇ* > **sač'uṇ* > **išč'uṇ* > *üščuṇ* ‘buttermilk curds’;
 CNur. **st'amba* > **ist'uba* > **ištüb* > *üštüb* ‘tree’;
 K. *šk'ura* > **išk'ura* > **iškyür* > *üşkyür* ‘crooked’.

The Vâsi-vari phoneme *ö* mostly arose from an *o* with lingual fronting from an adjacent phoneme, with a few resulting from anticipation of downstream lingual fronting; e.g.,

1. Anticipation of immediately following lingual fronting (including laminality from an earlier **r*):

- CNur. **çai* > **çoi* > *çoi*, *čö* ‘bribe’;
 CNur. **dârv* > **lârv* > **lâiv* > **loyv* > *löv*, *lö* ‘wood’;
 CNur. **gârş* > **gâiş* > **goiş* > *göş* ‘billy-goat’;
 CNur. **paur-na* > **porna* > **poina* > **voina* > *vyön* (*kur'i*) ‘last year’s (calf)’.

2. Anticipation of downstream lingual fronting:

- CNur. **puači* > **poči* > **voči* > *vyöč* ‘pine’;
 CNur. **sauli* > **solı* > *söl'i* ‘blood-brother’;
 CNur. **kâna-ik* > **konik* > **vonik* > *vyön'ig* ‘time of ploughing’.

Some instances of the Vâsi-vari phoneme *e* arose from an *â with lingual fronting from a following or downstream *i; e.g., CNur. *tra-’ic* > V.u *čez’a* ‘thirteen’; CNur. *čap’âi > V.u *isp’e-kânṭ* ‘porcupine’; CNur. *křum’âi > V.u *kim’e* ‘Křumâi’; CNur. *pâi-tâva > V.u *petâv’a* ‘gaiters’; CNur. *kârya > V.u *čer* ‘form’; CNur. *var’i > V.u *ver’i* ‘word’; CNur. *prâni > V.u *piě* ‘son’; etc.

3.1.2.3.2.3.1.2.2 Anticipation of labialization in Vâsi-vari

Labialization of a CNur. *u, or of a later *u* or *o* that arose from an accented or nasalized *a or *â that had become labialized, was anticipated to a preceding vowel.

Examples of anticipation of labialization of *u from accented *a* include:

CNur. *âdar-ak > *âdar’uk > *ʷudr’uk* ‘box’;

CNur. *âkra > *âkr’u > *uk’u* ‘deltoid’;

CNur. *âras > *âr’us > *ʷur’us* ‘sweet’;

CNur. *kač-âk > *kač’ok > *kuṣl’og* ‘armpit’;

CNur. *kačâ > *kač’u > *ʷuz’ul* ‘foxtail millet’;

CNur. *kalaša > *kalaš’u > *kulč’u* ‘Kalašüm’;

K. *a-k’ařa > ag’ařa → *ak’uřa > *ug’ur* ‘week’;

CNur. *karaṭ > K. *kar’uṭ > *ʷur’uṭ* ‘small pestle’;

CNur. *nada > *nal’u > *nul’u* ‘reed’;

CNur. *žada > *žal’u > *zul’u* ‘vulva’;

and verbal prefixes:

bi-kür- > *bü-kür-* ‘touch below’; *li-küz-* > *lü-küz-* ‘run up’; etc.

It is unclear whether the labialization of the first vowel in each of the following examples is from anticipation of the labialization of a following vowel or labial consonant, from a nasalized *a, or from labial inertia from a preceding labial consonant (§3.1.2.4).

CNur. *daṇḍa > *daṇḍ’u > *-ḍuṇḍ’u* ‘stick’;

CNur. *ḍandra > *ḍandr’u > *lünj’u* ‘catapult’;

CNur. *ḍandra > K. *ḍandr’u → *ḍuḍ’u* ‘hand mill’;

CNur. *drangâ > *drang’o > *ḍug’o* ‘stick; stalk’;

CNur. *kanda > *kand’u > *kund, kun* ‘body; oneself’;

CNur. *samaṭ- > *sam’aṭ- > *sumoṭ-* ‘care for’;

- CNur. *ârbâ > *urbâ 'a kind of lute';
 CNur. *dama > *lam'u > lum'u 'neck and throat';
 CNur. *dama > K. dam'u > dum'u 'wind';
 CNur. *mara-na > *mar'ũ > mur'u 'death';
 CNur. *mas-ak > *mas'uk > mus'ug 'muscle';
 CNur. *pada-ak > *pal'ok > *ul'og 'footprint';
 K. baṭa-k → *baṭ'ok > buṭ'og 'share';
 CNur. *iškamba > *išky'amba > *išky'omba > *išky'oba > *išky'öba > *išky'öb > *üşky'öb > üşky'öb 'bridge';
 CNur. *ištamba > *išty'aba > *išty'oba > *išty'ub > üšty'ub 'tree';
 CNur. *ištun > *išty'ũ > üšty'ũ 'pillar';
 CNur. *ištuk > *išty'uk > *išty'ug > üšty'ug 'weasel';
 CNur. *tića > *tić'u > *tizu > *iz'u > üz'u 'large butter churn'.

3.1.2.3.2.3.1.3 Anticipation of lingual fronting in Kâmviri

In K.km umlaut is minimal. It is most seen in “causative” verb stems with the remote agent suffix *-ov-* > *-oa*, which before the retrospective aspect suffix *-i* becomes *-ev-i* > *-ea*; also with the past of *i'e-* ‘go’: *gava > g'u ‘gone’, f. *gavi > g'ei. Umlaut occurs in a few adjectives: *utr'a* ‘sonless’ f. *ütri*, *ḍuḍ'ama* ‘deep’, f. *ḍuḍimi*, *nin'ala* ‘verdant’, f. *nin'ili*, *tuñuka* [tũũḡu] ‘thin’, f. *tuñika* [tũũḡi], *s'oa* ‘Sâw’, *s'eio* ‘man from Sâw’. Other sparse examples include CNur. *var'i ‘word’ > K.km *vir'i*, but K.ktv *var'i* and CNur. *v'autri ‘fairy’ > *v'otri > *v'etri > K.km *v'etr*, but K.ktv *v'utr*.

3.1.2.3.2.3.2 Intervocalic anticipation in Kâmviri

The voiceless tongue-end fricatives (*s*, *š*, and *ʃ*), the back stops (*t* and *k*), and, in the dialect of Kombřom, the labial stop *p* all become lax between vowels or an approximant and vowel, allowing them to become voiced, and additionally allowing the back stops to become flapped. Thus, intervocalic *t* is a backed flap [ɾ], *k* is a dorsal-velar flap [ḡ], the intervocalic tongue-end fricatives are voiced ([z], [ʒ], [ʒ]), and intervocalic *p* becomes [b] in the dialect of Kombřom. Examples abound:

with *s*: *âs'a* ‘ash’, *kâs'a-* ‘cough’, *mus'a* ‘mouse’, *nâs'urš* ‘nose’, *sâs'i* ‘work-group member’, *vâs'a* ‘nanny goat’;

- with *š*: *âš'a* ‘mouth’, *kâš'ara* ‘white’, *miš'ak* ‘game’, *šaš'a* ‘scree’, *viš'a* ‘neighbor’, etc.;
- with *ṣ*: *âṣ'e* ‘bull’, *guṣ'i* ‘wooden bowl’, *kâṣ'ē* ‘comb’, *mâṣ'a* ‘anger’, *niṣ'o* ‘cultivated area’, *pâṣ'ü* ‘flank’, *uṣ'o* ‘sap’, etc.;
- with *ṭ*: *ât'a* ‘one-half’, *b'uṭi* ‘bread’, *duṭ'a* ‘dull’, *'eṭa* ‘some’, *giṭ'a-* ‘tie’, *kâṭ'o* ‘knife’, *nâṭ'ü* ‘defeated’, *p'eṭa-* ‘break’, *sâṭ'a-* ‘bury’, etc.;
- with *k*: *ḍâk'ara* ‘bad’, *j'ukuř* ‘woman’, *kâk'ař* ‘hard’, *l'uka* ‘light (weight)’, *muk'a-* ‘flee’, *pâk'a-* ‘ripen’, *sâk'â-* ‘sweep’, *vř'ika* ‘fox’, *zik'a-* ‘trot’, etc.;
- with *p*: *čâp'a-* ‘emit a sound’, *d'âpil* ‘shallow wooden bowl’, *ḍip'a-* ‘collide’, *pâp'üs* ‘lung’, *sâp'âa* ‘porcupine’, *tâp'a-* ‘become hot’, *up'ajak* ‘life’, etc.

Kâmkata-vari *v* dropped between close vowels in Kâmviri. Its labialization usually was anticipated to the preceding vowel, although in some cases an *i* remained. With labial anticipation are:

- CNur. *jiv'a- ‘be alive’ > K.km *j'üa-*, but K.ktv *jav'e-*; note that accented *'iv* remains in *bâj'ive* ‘while-alive’;
- CNur. *šiv'a- ‘sew’ > K.km *š'üa-*, but K.ktv *šav'e-*;
- CNur. *di-vaš'a ‘two-year old male goat’ > K.km *d'üaša*, but K.ktv *davaš'a*;
- CNur. *rava- ‘reap’ > K.km *ř'üa-*, but K.ktv *řav'e-*;
- CNur. *truva- ‘turn to yoghurt [milk]’ > K.km *tr'üa-*, but K.ktv *turi'e-* [tʷrj'ɛ-];
- CNur. *štav'ak ‘weasel’ > K.km *št'ük* but K.ktv *štav'ak*;
- CNur. *ḍavar'a ‘flat’ > K.km *ḍ'uara*, but K.ktv *ḍavar'a*; etc.

With *ia* are:

- CNur. *piv'a- ‘drink’ > *pi'a- > K.km *p'ia-*, but K.ktv *pa·'e-*;
- CNur. *vićuv'a- ‘sneeze’ > *vućiv'a- > K.km *uć'ia-*, but K.ktv *vaćav'a-*.

3.1.2.4 Inertial prolongation of articulations

Complementing articulatory anticipation, articulatory *inertia* allows articulations to persist through following phonemes. Inertia affects the lips and the fronted tongue in Kâmkata-vari and Vâsi-vari, but not in the Southern Nûristânî languages. Inertial effects of nasalization are found throughout

Nûristân. Examples here are from Kâmviri (Strand 1999) and Vâsi-vari (B&D 2015, 2017: 51 ff.).

3.1.2.4.1 Inertial lingual fronting

The lingual fronting of a vowel or a laminal consonant persists into the articulations of certain following phonemes.

3.1.2.4.1.1 Inertial lingual fronting from a front vowel in Kâmviri

The lingual fronting of *i* and *e* carries through a following dorso-velar consonant (*k* or *ŋ*) and through the articulation of a following vowel. The *k* or *ŋ* is palatalized ([kʲ], [ŋʲ]) as in *lil'ik* ‘fresh’, *ç'ik* ‘ladder’, *kuml'ik* ‘mulberry’, *pş'uik* ‘sleep’, *jarik* ‘shame’, *kâv'ek* ‘pigeon’, *şâl'ek* ‘locust’, *č'aŋ* ‘vagina’, *p'iŋ* ‘sound of farting’, *mâr'aŋiŋ* ‘back of neck’, *ş'iŋ* ‘horn’, *-deŋ* ‘boy (in men’s names)’, *şt'eŋ* ‘tree with cherry-like fruit’, etc. Furthermore, in forms ending in open vowels (*â* and *e*; *oi does not occur traditionally) plus *-ik*, the *i* and *k* are articulated simultaneously, producing [âkʲ] or [ekʲ], as in *v'âik* ‘lamb’ and *-ov-stem* absolutes like **kud'ov-ik* ‘having inquired’ > *kud'eik* > *kud'ek* [kuðekʲ], etc.

If an open vowel follows *i/ek/ŋ*, the fronting persists as a short laminal approximant ([j] or [ɨ]) before the vowel, as in K.km *vik'â* [viğʲʌ] ‘rest!’, *mâl'ik_o* [mal'igʲo] ‘hey, Mâlik’, *s'unik_â* [s'uniğʲa] ‘hey, Sunik’. If an *a* follows *i/ek/ŋ*, the fronting persists through the entire *a*, automatically making it an [i]. Such persistence is seen with the oblique case suffix *-a* after nouns ending in *i/ek/ŋ*, as seen in the oblique forms of the preceding examples: *lil'ikâ* [lil'igʲi] ‘fresh ones’, *bâj'arikâ* ‘through shame’, *kâv'eka* [kav'eğʲi] ‘pigeon’, *şâl'ekâ* [ʃal'eğʲi] ‘locusts’, *ş'iŋa* [s'iŋʲi] ‘horn’, *şt'eŋa* [ʃt'eŋʲi] ‘tree with cherry-like fruit’, etc. Word-internal examples are *dik'ari* [diğʲi'iri] ‘shirt; dress’, *vř'ika* [vr'iğʲi] ‘fox’, *vik'aa* [viğʲi'i:] ‘untwist!’, *zik'a-* [ziğʲi'i-] ‘trot’, etc.

In K.ktv inertial lingual fronting persisted through a following consonant (*t*, *ʈ*, *k*, *ç*, *ş*, *s*, *l*, and *r* have been recorded) to become a phonemic *i* after the loss of the conditioning *i* in that dialect; thus:

- CNur. *ḍa-ḍik'a- > K.ktv *ḍatki'e-*, but K.km *ḍatḱ'a-* 'shiver';
 CNur. *gil'a- > K.ktv *gali'e-*, but K.km *gil'a-* 'curse';
 CNur. *gīt'a- > K.ktv *gaṭi'e-*, but K.km *giṭ'a-* 'tie';
 CNur. *miš'a- > K.ktv *maši'e-*, but K.km *miš'a-* 'play';
 CNur. *piš'a- > K.ktv *pši'e-*, but K.km *pš'ia-* 'drip almost dry';
 CNur. *pati-lort'a- > K.ktv *palṭi'e-*, but K.km *pilṭ'a-* 'fall down';
 CNur. *sač'a- > K.ktv *saçi'e-*, but K.km *š'a-* 'be contracted';
 CNur. *sa-lik'a- > K.ktv *saki'e-*, but K.km *salk'a-* 'slip';
 CNur. *trik'a- > K.ktv *trki'e-*, but K.km *trk'a-* 'crack';
 CNur. *truv'a- > K.ktv *turi'e-*, but K.km *tr'üa-* 'turn to yoghurt'; etc.

3.1.2.4.1.2 Inertial lingual fronting from a front vowel in Vâsi-vari

Lingual fronting of a vowel persists through a following consonant to produce the following outcomes:

1. A (subphonemic?) *y* ([j]) before a following open vowel (*i/üCâ/o > *i/üCyâ/o*), as in:

- CNur. *kilâ- > *kily'â* 'cheese';
 CNur. *čurćan-âk > *čačinyog* 'delicate';
 CNur. *tunuk-âk > *tinkyog* 'thin';
 CNur. *čun-âk > *žüny'og* 'yellowish';
 CNur. *maj-âk > *müny'og* 'half; part';
 CNur. *â-pinga > *ob'ünjâ* 'tomorrow'.

2. A change of a following *a* to *i*, as seen with verbal prefixes that contain a front vowel in V.u:

- çam-* > *ti-çim-* 'consider';
 -*éap-* > *vi-čipi-^wu-éup-* 'tear apart';
 -*pćan-* > *bi-pćin-* 'shake down';
 -*dam-* > *bi-dim-* 'stride; put down a foot';
 -*naš-* > *vi-niš-* 'destroy'; etc.

3. A change of a following *o* to *ö*: *io* > *ö*, as in:

- CNur. *di-ak > *lyak > *lyok > *l'ög* 'both';
 CNur. *vi-asa- > *vyasa- > *vyosa- > *vyösa- > *vös-* 'be extinguished';
 CNur. *iaš 'demon' + *kaš 'rob' > *ioškoš > *yöškoš* 'wild animal';
 CNur. *vi-kanda- > *vyanda- > *vyonda- > *vyoda- > *vyödi-* 'laugh';
 CNur. *čićan > *čićyan > *čićyon > *tčyö* > *čö* (*üštüb*) 'tree with small red berries';

CNur. *iškamba > *išky'amba > *išky'omba > *išky'oba > *išky'öba > *išky'öb > *üşky'öb > *üşky'öb* 'bridge';

CNur. *kušunta > *kušüt'a > *kušüty'a > *kušüty'o > *kšt'ö* 'high';

CNur. *viš-kumba > *viškyub > *üşkyub > *üşkyob > *üşky'öb* 'lizard';

CNur. *ušuka > *üşükya > *üşkyo > *üşky'ö* 'dry'.

3. A change of a following *a or *â to an e: *i(C)a/â > e:

CNur. *vi-kanda- > *vedi-* 'laugh';

CNur. *čitra > *č(i)tre* 'patterned';

CNur. *piyâ > *yeyi* 'father';

CNur. *žimnara > *iznerâ* 'winter'; etc.

3.1.2.4.1.3 Inertial lingual fronting from a laminal consonant in Kâmviri

If an *a* follows a *č*, *ȝ*, or *š*, the consonantal laminalization persists through the entire *a*, automatically making it an [i]. Thus, in K. there are no phonemic sequences of laminal consonant plus *i*, only *ča* [tʃi], *ȝa* [dʒi], and *ša* [ʃi]. The phonetic sequences [tʃi], [dʒi], and [ʃi] cannot occur in K.

3.1.2.4.1.4 Inertial lingual fronting from a laminal consonant in Vâsi-vari

Lingual fronting of a sibilant, including fronting arising from an epenthetic vowel, persists through a following stop to produce a subphonemic *y* ([j]) before a following vowel; *š/ȝC > š/ȝCy [s/ʃCj]:

CNur. *ištamb > V.u *üşty'ub* 'tree';

CNur. *ištuk > V.u *üşty'ug* 'weasel';

CNur. *ištun > V.u *üşty'û* 'column; post';

CNur. *št'âna- > V.u *-štyon* 'moan';

CNur. *sušt'a > V.u *išty'e li-* 'dry (tr.)';

CNur. *u-suška > V.u *üşky'ö* 'dry';

CNur. *iškamba > *üşky'öb > *üşky'öb* 'bridge';

CNur. *viškumba > *üşky'öb > *üşky'öb* 'lizard';

CNur. *škura > V.u *üşky'ür* 'crooked';

CNur. *kušt-ak > V.u *kšty'og* 'small heap';

CNur. *kuštu > V.u *küşty'u* 'mound; heap';

CNur. *kuštuv > V.u *kšty'up* 'hammer'.

Such y's are automatic and subphonemic.

Also note the inertia of immediately preceding laminalality in:

CNur. *sṭ'âla > *sṭ'ola > *šč'ola > ščöl'i 'straight; true'.

3.1.2.4.2 Inertial labialization

The labial articulation of a vowel or a labial consonant persists into the articulations of certain following phonemes.

3.1.2.4.2.1 Inertial labialization in Kâmviri

Similarly to lingual fronting, labialization persists through a dorso-velar consonant and following *a*, as seen in *âd'uka* [aḏ'uḡu] 'healthy', *l'uka* [l'uḡu] 'light (weight)', *muk'a-* [mũḡ'u-] 'flee', *tuñ'uka* [tũĩ'uḡu] 'thin', etc., as well as in the oblique case forms of nouns ending in *uk*: *č'ukã* [tʃ'uḡũ] 'how many', *j'uka* [dʒ'uḡu] 'girl', *muṭ'uka* [mũṭ'uḡu] 'log', *purd'ukã* [purd'uḡũ] 'old men', *z'uka* [z'uḡu] 'salt', etc.

3.1.2.4.2.2 Inertial labialization in Vâsi-vari

In Vâsi-vari labialization persists through a following syllable if it arises from a vowel or through a following vowel if it arises from a labial consonant; e.g.,

1. From a labialized vowel:

OIA *kunḏ'a-* > CNur. *kunḏi > V.u *kunḏü* 'small clay pot';

Ar. *kus'a- > CNur. *kusa- > V.u *-ksü-* 'sprinkle';

Ar. *svâpa- > CNur. *suva > V.u *s'üu*, *s'ü* 'sleep';

Ar. *usma > CNur. *uma > V.u *üm'u* 'ear';

OIA *yantr'a- > CNur. *dandra > *dundra > V.u *lünj'u* 'catapult';

including from verbal prefixes that contain a labialized vowel:

-čap- > (*vi-čipi-*)*u-čup-* 'tear apart';

-čam- > (*ti-čami-*)*u-čum'i* 'having thought it over, consulted';

-dam- > *u-dum-* 'give away';

-tap- > *u-tup-* 'sting me'.

2. From a labial consonant:

CNur. *mâč-čala > V.u *müçal'a* 'mediator';

Khowâr *pinga* > CNur. *â-pinga > V.u *ob'ünyâ* 'next day';
 Ar. *pi:v'an- > CNur. *pivan > V.u *p'iyu, p'üyu* 'thick; strong';
 Ar. *viš'a- > CNur. *viš > V.u *v'iš, vüš* 'poison';
 OIA *viṣa-kumb'a-* > CNur. *viš-kamba > V.u *üşkyöb* 'lizard';
 OIA *mu:liya > CNur. *muli > V.u *mül'ü* 'price; worth'; etc.

3.1.2.4.3 Inertial nasalization

In the Northern Nûristânî languages the nasalization of a nasal stop persisted across the following vowel to form a homorganic nasal stop before a following stop consonant (NVT > NVNT); *e.g.*,

Ar. *manusia- 'person; man' > CNur. *manuša > North-Nur. *mannuš'a > K.ktv *mânš'a* [maṇʃ' i], K.km *mânš'a* [maṇʃ' i]; but CNur. *manuša > Kal.n *muša, meši* 'woman', V.s *muš*;
 OIA *mahâ-dev'a-* 'Mahâ Deva' > CNur. *mâde > North-Nur. *mânde > V.u *m'ândi*, K.km *m'one*, K.ktv *m'une*, but Kal.n *mâde*;
 CNur. *muṭana 'young bull' > K.km *munṭ'ana* [muṇṭ' iṇi], but Â-S.s *moṭanâ(vân)*;
 Ar. *mr:dha- 'high point; head; chief' > CNur. *mund > V.u *münd* 'chief', K.ktv *m'in* 'forehead', K.km *m'ün*;
 OIA *nagara- 'town' > CNur. *nangara > K.km *nâṇ'ar* 'Nagar';
 Ar. *nad'i:- 'wide river' > CNur. *nandi > K.ktv *naṇ'i*, K.km *nân'i*, but Kal.n *nadi*;
 Ar. *nâna- 'mother' > CNur. *nâna > North-Nur. *nânna, *nânni* > V.u *n'ân*, K.ktv *nân'i* 'parent's sister'.

3.1.2.4.4 Inertial nasal-stop voicing

In K.km and V. a nasal stop imparts its voicing to an immediately following voiceless consonant. This process is automatic in K.km, but not in V. Note that in K. and V. consonant sequences of nasal stop plus obstruent are secondary developments, resulting from morpheme juxtaposition, syncope, inertial nasalization, or borrowing. Ancient nasal stops alone or in sequences with homorganic stops had the modern outcomes shown in Table 12.

Table 12. Modern outcomes of ancient nasal stops.

Ar.	*n-	*-n- > *-ŋ-	*-n	*-nt-	*-nd-	OIA -nd-
V.	<i>n</i>	<i>n</i>	~, Ø	<i>t</i>	<i>d</i>	<i>nd</i>
K.ktv	<i>n</i>	ɸ [ɪ]	Ø	<i>t</i>	<i>n</i>	<i>ŋ</i>
K.km	<i>n</i>	ñ [ɪ]	~	<i>t</i>	<i>n</i>	<i>ŋ</i>
Ā-S.	<i>n</i>	ñ [ɪ]	~	ɸ̃	<i>n</i>	<i>ŋ</i>
Kal.	<i>n</i>	ñ [ɪ], <i>n</i>	~	ɸ̃	<i>n</i>	<i>ŋ</i>

3.1.2.4.4.1 Inertial nasal-stop voicing in Kâmviri

In Kâmviri, but not Kâta-viri, the voicing of a nasal stop persists through a following obstruent. Thus $m/n/\eta/\eta + p/t/\dot{t}/k/\dot{c}/\dot{c}/s/\dot{s}/\dot{s} \rightarrow m/n/\eta/\eta + [b/d/\dot{d}/g/\dot{g}/\dot{d}z/\dot{d}z/\dot{z}/z/\dot{z}]$. Such inertia precludes the phonemic sequences $^xm/n/\eta/\eta + b/d/\dot{d}/g/\dot{z}/\dot{f}/j/z/\dot{z}$, which would redundantly indicate voicing of the obstruent. Reordred examples include those in Table 13.

Table 13. Inertial nasal-stop voicing in Kâmviri

	<i>p</i>	<i>ć</i>	<i>č</i>	<i>t</i>	<i>ṭ</i>	<i>k</i>	<i>s</i>	<i>š</i>	<i>ṣ</i>
<i>m</i>	<i>mp</i> = [mb] <i>bump'uk</i> 'drum'		<i>mč</i> = [mḍʒ] <i>âmč'ē</i> 'brace- let'	<i>mt</i> = [mḍ] <i>dāmt'ol</i> 'industri- ous'	<i>mṭ</i> = [mḍ] <i>šāmt'aŋa</i> 'tax'	<i>mk</i> = [mg] <i>āmki</i> 'those'	<i>ms</i> = [mz] <i>nāms'oṭ</i> 'name- sake'	<i>mš</i> = [mʒ] <i>trāms'a</i> 'twilight'	<i>mṣ</i> = [mz̥] <i>žumš'añ</i> <i>bu-</i> 'be comatose'
<i>n</i>	<i>np</i> = [nb] <i>sunp'is</i> 'a con- fection'			<i>nt</i> = [ṇḍ] <i>čānt'o</i> 'pocket'	<i>nṭ</i> = [ṇḍ] <i>munṭ'ana</i> 'young bull' ([ṇḍ] can-		<i>ns</i> = [ṇḍz] <i>vins'uā</i> 'ax'	<i>nš</i> = [ṇḍʒ] <i>mānš'a</i> 'person'	
<i>ŋ</i>				<i>nt</i> = [ṇḍ] <i>šānt'ō</i> 'ceme- tery'	not occur in K.)	<i>nk</i> = [ṇg] <i>bāṇk'ū</i> 'woman's name'	<i>ns</i> = [ṇz] <i>čāns'ō</i> 'Sour Pas- ture'	<i>nš</i> = [ṇḍz] <i>ānš'uk</i> 'raspberry'	
<i>ŋ</i>		<i>ŋć</i> = [ṇḍʒ] <i>mřāŋć'</i> <i>a</i> 'bird'		<i>ŋt</i> = [ṇḍ] <i>āŋt'ō</i> 'fire- place'		<i>ŋk</i> = [ṇg] <i>jāŋk'i</i> 'woman's name'		<i>ŋš</i> = [ṇʒ] <i>lāŋš'ūl</i> 'rheuma- tism'	<i>ŋṣ</i> = [ṇz̥] <i>tāŋṣ'a</i> <i>tia-</i> 'be inflated'

3.1.2.4.4.2 Inertial nasal-stop voicing in Vâsi-vari

In a few words the voicing of a nasal stop persists through a following obstruent in V., but it is not clear whether such inertia is systemic in the way that it is in Kâmviri; e.g.,

CNur. *gana-tar > V.u *g'andar* 'big';

CNur. *nonit'a-k > V.u *nund'ug* 'butter';

CNur. *ham-t'â > V.u *und'o* 'those [conceptual]';

CNur. *nisa- > V.u *nos-* 'emerge; appear', causative *nž-* 'make appear; look'.

3.1.2.4.5. Inertial occlusion

In K. and V., the lingual contact of a sonorant is maintained as an interposed oral stop before a sibilant or *r*.

3.1.2.4.5.1 Inertial occlusion before sibilants

In K. and V. an inertial interposed stop appears before a sibilant.

3.1.2.4.5.1.1 Inertial occlusion before sibilants in Kâmviri

In Kâmviri the occlusion as well as the voicing of an *n* persists into a following sibilant. Such inertial occlusion automatically forms a voiced stop between the *n* and the continuant, as in K.km, *ns* [ɳɖz] in *vins'uã* 'ax', *nš* [ɳɖʒ] in *mânš'a* 'person', *nš* [ɳɖz] in *ânš'uk* 'raspberry', etc. Note that in morphophonemic transcription the pairs *ns* and *nž*, *nš* and *nĵ*, and *nš* and *nĴ* each have a single phonemic and phonetic representation (*ns* [ɳɖz], *nš* [ɳɖʒ], and *nš* [ɳɖz]).

Non-automatically the occlusion of an *l* also persists into a following *s* in Conceptual Feminine verb forms: thus *buli_âsam 'I (fem.) should be' > *bulsam > *bultsam = *bulcam* [b'ult̪sim] or *butcam* [b'ut̪sim].

3.1.2.4.5.1.2 Inertial occlusion before sibilants in Vâsi-vari

Similarly to Kâmkata-vari, but not as systemically, in Vâsi-vari the lingual contact of the sonorants *n*, *l*, and *r* persists into a following sibilant, forming a stop between the sonorant and the sibilant.

With **ns* > *ńc*, *nź* are CNur. **nisa*- > V.u *nos*- ‘emerge; appear’, causative *nź*- ‘make appear; look’, CNur. *nu-sara*- > *-ńcúr*- ‘go through a hole’, and perhaps a few others.

With **ls* > *ĺc* (*ls* does not occur in the lexicon) are *-los*-. causative *-ĺc*- ‘escape’ and forms of CNur. **dać* ‘ten’ > V. *laz* in compounds: V.u *nâlĺc* ‘nineteen’, V.s.M *čpulĺc* ‘fourteen’, but V.u *čpluz*.

With **rs* > *řc* are CNur. **pârisa* ‘dust’ > *parć’a* and CNur. **pârsi* ‘Persian’ > *pârć’i* (B&D 2017: 49).

An epenthetic stop appears between two sibilants, producing a sequence of sibilant plus affricate, as in V.u *şis*-, causative *şç*- ‘itch’. The sibilant-affricate sequence became generalized for medial sibilants, in the following ways:

1. **š* > *šč*: CNur. **âša*- > *išč*- ‘shoot’, CNur. **vi-ša* > *išč’u* ‘funnel’, CNur. **vi-ši*- > *višč’in’ig* ‘toy arrowhead’;
2. **ş* > *šč*: CNur. **kuşa* > *kšč’u* ‘lame’;
3. **ş* > *şç*: V.u *şis*-, causative *şç*- ‘itch’;
4. **š* > *şç*: CNur. **vaša*- > *vaşç*- ‘be glad’.

Also, grammatical suffixes in the form **-š* became affricated, to *šč* in CNur. **-asa-š* > *-ašč* ‘thou art’ (as a compounded auxiliary verb; B&D 2017: 49) and to *-č* after consonants as the oblique singular case suffix (B&D 2017: 46, 66).

The sibilant-affricate sequence also became generalized for medial affricates, with the sibilant portion of the affricate being anticipated to the affricate’s onset; thus:

1. *č > sč: CNur. *krača > *ksča* ‘butt’, CNur. *prača- > *psčul* ‘worn out’, CNur. *ut-sa > **usč’u* ‘year’;
2. *č > šč: CNur. *pa-čuv- > *pšč-* ‘carry’, CNur. *kuča- > *kušč-* ‘dig’, CNur. *vi-diš-â > *vič’â* > *višč’â* ‘guest’;
3. *č > *č > šč: CNur. *kâç- > *kšč’i* ‘almond’, CNur. *kâtr’a > **kâçir* > *kščir* ‘enchantment’.

3.1.2.4.5.2 Inertial occlusion before *r* in Kâmviri

In K.km the lingual contact of a nasal stop is automatically maintained as a voiced oral stop before an *r*, as in *nr* [ndr] in *ânr’a* ‘dark’, *nr* [ndr] in *kânr’a* ‘hole’, etc. Note the recent loanword with added occlusion: *ĵânr’âl* [dʒʌndr’a] ‘general (officer)’.

3.1.2.5 Junctural blocking of anticipation and inertia

The overlapping of anticipated or inertial articulations with articulations of adjacent phonemes are blocked by a phonemic juncture. The following examples are from Kâmviri; juncture in the other Nûristânî dialects has not been well-studied.

Juncture blocks the reduction of one vowel in a two-vowel sequence (§3.1.2.2), making both vowels syllabic; thus *bi·’o* [bij’o] ‘spade’, *i·’a* [ij’i] ‘that [distal]’, *i·’âar* [ij’a:r] ‘that way’, *’e·uŋe* [’eʷuŋje] ‘some time ago’, *pârv·a·i* [parv’ij̩i] ‘great-grandmother’, *kâ·’i* [kaj’i] ‘what? (response to a call)’, *kâ·’uk* [kaʷ’uk] ‘twig’, *â·’ü* [aj’y] ‘rennet starter for milk fermentation’, *ku·’ia* [kuj’i:] ‘when’, etc.

Juncture blocks voicing of intervocalic sibilants and stops (§3.1.2.3.2.3.2); compare *bâ·s’ano* ‘clothes’ vs. *âs’aŋo* ‘deaf’, *ko·š’uk* ‘spoon’ vs. *âš’ura-* ‘sip’, *â·k’i* ‘there’ vs. *ġâk’i* ‘it got stuck’, *mu·t’âr* ‘motor vehicle’ vs. *muṭ’uk* ‘log’, *u·p’a* ‘scorpion’ vs. *up’aĵak* ‘experience of life’, etc.

Juncture blocks inertial lingual-fronting (§3.1.2.4.1.1); compare *mâl’ik o* [mal’iĝio] ‘hey, Mâlik’, with no juncture, versus *mâl’ik oaso* [mal’iĝo:zo] ‘Mâlik came’, with juncture that blocks the inertial fronting.

Juncture blocks inertial nasal-stop voicing (§3.1.2.4.4.1); compare *zâm·p’o* ‘lower leg (“knee and foot”)’ vs. *dump’u-* ‘be unirrigated’, *sâm·t’apka* ‘fusillade’ vs. *dâmt’ô* ‘handle’, *bân·t’ul* ‘cultivated field in the forest’ vs. *čânt’o* ‘pocket’, *bân·k’akok* ‘wildfowl’ vs. *kânk’ani tia-*

‘chuckle’, *nân·s’us* ‘mother’s sister’s daughter’ vs. *řâns’a-*‘shake; move’, *pân·š’ar* ‘Panjšir’ vs. *mânš’a* ‘person’, *gân·k’ut* ‘wooden wall’ vs. *bânk’ü* ‘woman’s name’, etc.

3.1.2.6 Vowels

Regional vowel systems may be characterized by the presence of mandibular openness, lingual fronting, and labialization as phonemic articulations distinct from the “default” position of the tongue and lips, which in Nûristân is typically close, central, and unrounded. Nasalization of vowels is systemic in most dialects except Vâsi-vari and Western Kâta-vari, where it has mostly disappeared. Most vexing has been the notation of vocalic length by previous reseachers.

3.1.2.6.1 Long vowels: phonemic or not?

From my own field of experience, I can attest that it is a challenge to distinguish phonemic length from expressive length, which often occurs on accented syllables. Many vowels marked as long that appear in the works of Morgenstierne and Buddruss and Degener are indeed not phonemically long.

Phonetically, long vowels are of three types: sub-phonemic, phonemic, and sequential. Data on vocalic length (Tables 14 and 15) come from my field recordings of Kâmviri and Nišei-alâ conversations.¹⁵ These data contribute to the following conclusions.

3.1.2.6.1.1 Sub-phonemic length

Sub-phonemic length results from:

1. Openness: Kâmviri open vowels are overall 14% longer than close vowels; in Kalaša-alâ open vowels are 34% longer than close vowels;

¹⁵ See Note 7.

2. Nasalization: among Kâmviri short vowels, nasalized ones are 18% longer than oral ones; in the Southern Nûristânî languages nasalization may expressively lengthen a vowel;
3. Velar raising: in Kt'i-vřâ-i-vari, and perhaps other Kâta-vari dialects, generalized velar raising may slightly lengthen vowels;
4. Accent: throughout Nûristân speakers may expressively lengthen accented vowels.¹⁶

A comparison shows that overall, Nişei-alâ vowels are 49% longer than the corresponding Kâmviri vowels (Table 16).

Table 14. Average lengths of Kâmviri vowels.

	phoneme	average length (milliseconds)				% more length			
		[V] = V	[V:] = Va	[Ṽ] = Ṽ	[Ṽ:] = Ṽa	[V:] vs [V]	[Ṽ:] vs. [Ṽ]	[Ṽ] vs [V]	[Ṽ:] vs. [V:]
close vowels	a [i]	77	145	89	102	88	15	15	-30
	i [i]	75	97	112		28		49	
	u [u]	72	132	54	106	83	95	-25	-20
	ü [y]	76	160			109			
average close		75	133	85	104	77	22	13	-22
open vowels	â [a]	80	122	88	102	54	16	11	-17
	e [e]	96	106	119		9		23	
	o [o]	95	137	126	140	45	11	33	2
average open		90	122	111	121	35	9	23	-1
open % longer		20	-9	30	16	56	15	18	-11
overall % longer					14	59	34	18	-16

¹⁶ It should be mentioned that in some neighboring languages phonemic *tenseness* has been interpreted as *length* by most researchers, following tradition. But in languages that I have examined, including Âcharêtâ', Degano Paşai, Gawar-bâti, Paxto, and Fârsî-i Darî, tenseness, with its determined, non-phonemic length, is the physiological reality and is often visible in the lips and fronted tongue; but with the corresponding lax vowels such tenseness does not show. In Khovar posterior voicing has been interpreted by some as length, which is systemically wrong (Strand 2012, 2022).

Table 15. Average lengths of Niŋei-alâ vowels.

	phoneme	average length (ms.)		phoneme	average length (ms.)	% more length
close vowels	<i>a</i> [ɐ]	103	open vowels	<i>â</i> [a]	136	32
	<i>i</i> [i]	102		<i>e</i> [e]	137	34
	<i>u</i> [u]	108		<i>o</i> [o]	155	44
	<i>ü</i> [y]	113				
average close		106	average open		143	37
			sparse data	<i>ä</i> [æ]	79	
				<i>ö</i> [ø]	100	

Table 16. Comparison of Niŋei-alâ and Kâmviri vowel lengths.

labial	Niŋei	Kom	% longer	front	Niŋei	Kom	% longer	default	Niŋei	Kom	% longer
<i>u</i> [u]	108	72	50	<i>i</i> [i]	102	75	36	<i>a</i> [i]	–	77	34
<i>ü</i> [y]	113	76	49								
<i>o</i> [o]	155	95	63	<i>e</i> [e]	137	96	43	<i>a</i> [ɐ]	103	–	
<i>ö</i> [ø]	100	–	–								
				<i>ä</i> [æ]	79	–	–	<i>â</i> [a]	136	80	70

3.1.2.6.1.2 Vocalic systems with phonemic vowel-length

The sound systems of Sañu-viri, Kâmviri, Varĵan-alâ, and Vâsi-vari all have contrasts of vowel length, which are phonemically analyzed in differing ways. They may be simply short vs. long, or they may be a sequence of short vowel plus another vowel that has length [ː] as a postvocalic allophone.

3.1.2.6.1.2.1 Vocalic systems with long vowels: Sañu-viri

Length contrasts in Sañu-viri, with antecedents, include those in Table 17.

Table 17. Vocalic length contrasts in Sañu-viri.

phoneme	simple vowel	antecedent	lengthened vowel	antecedent
<i>a</i> [i]	<i>âça-ga</i> ‘cold’		<i>âcî-ga</i> : ‘evil eye’	
[a]	<i>bâs</i> ‘vapor’	<i>b^hâs’a-</i>	<i>bâ:s</i> ‘twelve’	<i>dv’âdaša</i>
	<i>vâs</i> ‘adze’	<i>v’âšî-</i>	<i>vâ:s</i> ‘day’	<i>vâs’a-</i>
	<i>kân</i> ‘arrow’	<i>k’ânḍa-</i>	<i>laukâ:ṇ</i> ‘blood vessel’	<i>k’ânḍa-</i>
<i>i</i> [i]	<i>pić</i> ‘cream’	<i>pićčhâ-</i>	<i>pi:ć</i> ‘pine’	<i>paućî-</i>
	<i>bi</i> ‘seed’	<i>b’îja-</i>	<i>bi:</i> ‘spade’	* <i>bi:âv</i>
<i>o</i> [o]	<i>ko</i> ‘whom’	<i>k’a-</i>	<i>ko:</i> ‘hump’	<i>kakub^ha-</i>
	<i>gom</i> ‘I went’	<i>gaṭ’a-</i>	<i>go:m</i> ‘wheat’	<i>god^hûma-</i>
	<i>šo</i> ‘six’	* <i>šuvaṭ</i>	<i>šo:</i> ‘information’	<i>šr’avas-</i>
	<i>no</i> ‘nine’	<i>n’ava</i>	<i>no:</i> ‘water trough’	<i>nâvy â-</i>
<i>u</i> [u]	<i>daru</i> ‘copper’	* <i>dâru</i>	<i>dâ:ru:</i> ‘gunpowder’	<i>dârû</i>
	<i>âskû</i> ‘wire doorway’	<i>’âskau-</i>	<i>ku:</i> ‘where’	<i>k’a-</i>
<i>e</i> [e]	<i>vṛei</i> ‘flour’	<i>vlepita-</i>	<i>ve:l</i> ‘year’	<i>v’ela:-</i>

Such contrasts in Sañu-viri appear to have arisen from various processes at different times. Intervocalic loss of consonants seems apparent in forms like *bâ:s* ‘twelve’ and *go:m* ‘wheat’. An elided post-vocalic **v* (< **v*, **u*, or **b*) appears to impart length in *pi:ć* ‘pine’, *bi:* ‘spade’, *ko:* ‘hump’, *šo:* ‘information’, and *no:* ‘water trough’, but not in *šo* ‘six’, *no* ‘nine’, or *âskû*. But several contrasts are not clearly explainable: *vâs* ‘adze’ vs. *vâ:s* ‘day’, *kân* ‘arrow’ vs. *laukâ:ṇ* ‘blood vessel’, etc. Some of these unexplainables may arise from their having been borrowed into the lexicon at different phonological stages; others may be the result of misapprehension. More data are needed to properly resolve the status of length in Sañu-viri.

In Sañu-viri *a* ([i]) occurs after vowels (e.g., *mia* [m’i:î] ‘fog’, *ptua* [pt’ui] ‘fir’) and therefore cannot be a candidate for indicating vocalic length in that language, unlike in the Kâmviri length system.

3.1.2.6.1.2.2 Vocalic systems with long vowels as sequences of vowel plus *a*: Kâmviri

In Kâmviri vocalic length is an allophone of the phoneme *a*. The default pronunciation of this phoneme is [i]. But [i] cannot occur after a vowel in Kâmviri, and length [:] only occurs after vowels; therefore, [i] and [:] are in

complementary distribution after vowels and are both allophones of the single phoneme *a*. Examples of Kâmviri length contrasts appear in Table 18.

Table 18. Kâmviri length contrasts.

	simple vowel	lengthened vowel
<i>i</i>	<i>d'i</i> 'sky'	<i>d'ia</i> 'milk!'
<i>e</i>	<i>ĵ'eti</i> 'having sat'	<i>ĵ'eati</i> 'having seated'
<i>ũ</i>	<i>ċ'ũ</i> 'sand'	<i>ċ'üa</i> 'drill!'
<i>u</i>	<i>p'u</i> 'step'	<i>p'ua</i> 'last year'
<i>o</i>	<i>ċ'o</i> 'greens'	<i>ċ'oa</i> 'branch'
<i>â</i>	<i>d'â</i> 'take!'	<i>d'âa</i> 'wood'
<i>a</i>	<i>bâṭ'a</i> 'meat'	<i>bâṭ'aasa</i> 'it's meat'

Phonemic length in Kâmviri results from the intervocalic loss of ancient consonants (e.g., *p'iba- > *p'ia*- 'drink'; but in K.ktv. *p'iba- > *pib'e- > *pii'e- > *pai'e*-) and loss of postvocalic *v* and *i* (see above), as well as from sequences of vowel + *a*.

3.1.2.6.1.2.3 Vocalic systems with long vowels as sequences of geminate short vowels

If long vowels only arise from sequences of short vowels across morpheme boundaries, but are otherwise not systemic or pervasive, the occasional contrastive long vowel should be analyzed as a sequence of two identical vowels; e.g., Varĵan-alâ *i* [i] 'this' vs. *ii* [i:] 'this [obl.]'; Vâsi-vari *l'â*- [la] 'have' vs. *l'ââ*- [la:] 'had'; cf. Khovar *hay`a* 'this' vs *hay`aa* 'here'.

3.1.2.6.2 Evolution of the Nûristânî vowel systems

The Aryan vowel system is probably best characterized as tense–lax, having evolved from a late Proto-Indo-European system that had both tense-lax (*â–*a, from accentual mandibular opening) and long-short (*a:–*a, lengthened-grade) contrasts (Table 19). Tense vowels were incidentally long, indistinguishable from the true long vowels that resulted in Ar. from a PIE vowel plus lost laryngeal. Thus, length and tension merged, and either could

be marked as phonemic. The linguists' tradition has been to mark them as long.

Table 19. The PIE and Aryan vowel systems.

Late Proto-Indo-European				
	labialized	fronted	default	
<i>long</i>	*u:	*i:	*r:, *l:	<i>close</i>
<i>short</i>	*u	*i	*r, *l	
	*o	*e	*a	<i>open</i>
<i>tense/long</i>	*o:	*e:	*â = *a:	
<i>short</i>	*eu, *ou, *au	*ei, *oi, *ai	*er, *or, *ar	<i>diphthongs</i>
<i>long</i>	*e:u, *o:u, *a:u	*e:i, *o:i, *a:i	*e:r, *o:r, *a:r	

Âryan				
	labialized	fronted	default	
<i>tense</i>	*û	*î	*ĥ	<i>close</i>
<i>lax</i>	*u	*i	*r	
			*a	<i>open</i>
<i>tense</i>			*â	
<i>lax</i>	*au	*ai	*ar	<i>diphthongs</i>
<i>tense</i>	*âu	*âi	*âr	

3.1.2.6.2.1 Regional vocalic systems with phonemic tenseness

Only if long and short vowels do not differ in quality should length be marked as phonemic. If there are qualitative differences between long and short vowels, the long ones should be marked as tense. Such vowel systems surround Nûristân and include those of Afghân Fârsî (Dari), Nangarhârî Paxt'o, Pašai, Gawar-bati, and Acharêtâ' (Tables 20 and 21). In Dari, De-ganô, and Gawar-Bâti the lax–tense contrast distinguishes mid vowels, while open and close vowels are automatically tensed. In Nangarhârî Paxto and Acharêtâ' laxness vs. tenseness distinguishes close vowels, and furthermore open vowels in Acharêtâ'.

Table 20. Tense–lax vowel systems around Nûristân.

Afghân Fârî (Darî)					
<i>-etic</i>	<i>-emic</i>	labialized	fronted	default	<i>-emic</i>
close	<i>close</i>	û [u]	î [i]		<i>tense</i>
close-mid	<i>mid</i>	ô [ʊ:]	ê [e:]		
open-mid		u [ʊ]	i [i] ~ [ɛ]	a [ɐ]	<i>lax</i>
open	<i>open</i>			â [ɒ]	[tense]

Deganô Pašâi					
<i>-etic</i>	<i>-emic</i>	labialized	fronted	default	<i>-emic</i>
close	<i>close</i>	û [u]	î [i]		<i>tense</i>
close-mid	<i>mid</i>	ô [ʊ]	ê [e]		
open-mid		o [o] ~ [ʊ]	e [ɛ] ~ [i]	a [ɐ]	<i>lax</i>
open	<i>open</i>			â [a]	[tense]

Nangarhârî Paxto					
<i>-etic</i>	<i>-emic</i>	labialized	fronted	default	<i>-emic</i>
close	<i>close</i>	û [u]	î [i]		<i>tense</i>
close-mid		u [ʊ]	î [i]	ĩ [ɤ]	<i>lax</i>
open-mid	<i>open</i>	o [o]	e [e]	a [ɐ]	
open				â [a]	<i>tense</i>

Gawar-Batî					
<i>-etic</i>	<i>-emic</i>	labialized	fronted	default	<i>-emic</i>
close	<i>close</i>	û [u]	î [i]		<i>tense</i>
close-mid	<i>mid</i>	ô [o]	ê [e]		
open-mid		u [ʊ]	i [i]	a [ɐ]	<i>lax</i>
open	<i>open</i>			â [a]	[Tense]

Ačharêta' (also called Palôlâ') appears to have a systemic contrast of length, but the morphophonemics of the vowel system reveals that it is tension, in the form of laryngeal accent, that has produced vocalic length (Strand 2000).

Table 21. The vowel system of Acharêta'.

Acharêta'				
<i>-emic</i>	labialized	fronted	default	<i>-emic</i>
<i>close</i>	û [u:]	î [i:]		<i>tense</i>
	u [u]	i [i]		<i>lax</i>
<i>mid</i>	o [o]	e [e]	a [ə]	
	ô [o:]	ê [e:]		<i>tense</i>
<i>open</i>			â [a:]	

3.1.2.6.2.2 Processes of Nûristânî vocalic evolution

The evolution of the Nûristânî vowel systems from ancient Aryan is characterized by loss of tenseness, dorsal raising with concomitant lingual fronting and mandibular closing, (anterior) glottal accent augmented by lingual fronting or labialization, and dorsal raising in nasalized environments.

3.1.2.6.2.2.1 Nûristânî vocalic evolution: length and tenseness

The developmental stages of ancient length and tenseness were:

1. PIE: length arose with lengthened-grade vowels;
2. Aryan: length replaced postvocalic laryngeal consonants;
3. Aryan: tenseness (from *vṛddhi* of *a) and length merged into (lengthened) tenseness;
4. CNur: tense and lax close vowels (*u and *û, *i and *î) merged;
5. K.km, Â-S: secondary length arose from postvocalic consonant loss.

The ancient tense and lax vowels coalesced in Common Nûristânî, removing tenseness as a phonemic feature. The tenseness of the ancient vowels shows only a vestige in the openness of the modern phoneme *â* in all Nûristânî languages. The ancient diphthongs coalesced into the modern mid vowels *e* and *o*, a common change throughout the Âryan region. This early Common Nûristânî stage (Table 22) was the precursor to the Kalaşa-alâ vowel system (§3.1.2.6.2.3.2.1).

Table 22. Development of the early Nûristânî vowel system.

Âryan				
<i>-emic</i>	labialized	fronted	default	<i>-emic</i>
<i>tense</i>	*û	*î	*î	<i>close</i>
<i>lax</i>	*u	*i	*i	
			*a	<i>open</i>
<i>tense</i>			*â	
<i>lax</i>	*au	*ai	*ar	<i>diphthongs</i>
<i>tense</i>	*âu	*âi	*âr	

Early Common Nûristânî				
<i>-etic</i>	labialized	fronted	default	<i>-emic</i>
	*u	*î		<i>close</i>
	*o	*e	*a	<i>mid</i>
<i>tense</i>			*â	<i>open</i>
	*âu	*âi		<i>diphthongs</i>

Later Common Nûristânî			
labialized	fronted	default	<i>-emic</i>
*u	*î	*a	<i>close</i>
*e	*o	*â	<i>open</i>
*âu	*âi		<i>diphthongs</i>

3.1.2.6.2.2 Nûristânî vocalic evolution: closing with lingual fronting

Characteristic of the Nûristânî languages other than Kalaşa-alâ was a general dorsal raising with concomitant lingual fronting. This expressive speech posture resulted in *a being closed to [i] in Â-S, K, and V., and labialized vowels being fronted (*u* = [u]) and closed (*o* = [o]) in Â-S. Vocalic development at this later Common Nûristânî stage is shown in Table 22.

3.1.2.6.2.3 Nûristânî vocalic evolution: augmented glottal accent

Subsequently, glottal accent was augmented, with the anterior glottal tension of accent spreading upward into the tongue-root and lower lip. The consequential further raising of the dorsum pushed the labial vowels up (**o* > '*u*') and forward (**u* > '*ü*') in Kal, K., and V., while the augmenting labialization affected the central vowels, labializing **a* to become *o* in Â-S. and Kal. and '*u*' in K. and V., and labializing **â* [a] to '*o*' in K. Among the many examples are:

1. CNur. **o* > '*u*':

CNur. **dos* > Kal.n *dus*, K. *d'us*, V.u *ʷul'us* ('previous'), but Â-S.s, Treg.g *dos* 'yesterday';

CNur. **gok* > K. *g'u*, but Â-S.s *go:k*, Kal.n *gok* 'worm';

CNur. **poč* > K. *p'uč*, Vâsi.u *züzü puč'uk*, but Â-S.s, Kal.n *poč* 'cotton cloth';

CNur. **prost* > K.ktv *př'ušt*, V.u *p'ušt*, V.z *p'ust*, and with secondary fronting Kal.n *prüst*, K.km *př'üšt*, but Â-S.s *prost* 'bed'; etc.

2. CNur. **u* > '*ü*':

CNur. **âçu* > Kal.n *üşük*, K.ktv *âçi'u*, K.km *âç'ü*, V.u *üč'ü*, but Â-S.s *istru:* 'tear';

CNur. **du* > Kal.n *dü*, K.km *d'ü*, K.ktv *di'u*, V.u *l'ü*, but Â-S.s, Treg.g *du* 'two';

CNur. **bud* > K.km. *b'üt*, but Â-S.s *bu:t* 'giant';

CNur. **bum* > Kal.n *büm*, K.km. *b'üm*, K.ktv *b'im*, V.u *büm*, *bim*, but Â-S.s *bum* 'earth'; etc.

3. CNur. **a* > '*o*', '*u*':

CNur. **dast* > Â-S.s, Kal.n *dost*, K.ktv *d'ušt*, K.km *d'üšt*, Vâsi.s *lust* 'hand (with forearm)';

CNur. **gal* > Â-S.s, Kal.n *gol*, K., V. *g'ul* 'valley';

CNur. **sat* > Â-S.s *so:t*, Kal.n *sot*, K. *s'ut*, but V. *s'at* 'seven';

CNur. **iaş* > Â-S.s, Kal.n *ioş*, K. *i'uş*, V.u *y'uş* 'demon'; etc.

4. CNur. **â* > '*o*':

CNur. **aiâ* > K *âi'o*, but Â-S.s *âiâ:*, Kal.n *aiâ* 'cumin';

CNur. *bâr > K. *b'or*, but Â-S.s. *bâr*, Kal.n. *bâ* ‘load’;
 CNur. *čâr > K. *č'or*, but Â-S.s. *čâr*, Kal.n. Vâsi.u. *čâr* ‘custom, way’;
 CNur. *câv > K.km. *č'oa*, K.ktv. *č'ov*, but Â-S.s. *sâu*, Kal.n. *čâv*, V. *čâv'a* ‘branch’;
 CNur. *gâ > K. *g'o*, but Â-S.s. *gâ*, Kal.n. Treg.g. *gâ* ‘cow’;
 CNur. *lâd > K.km. *l'ot*, K.ktv. *l'od*, but Â-S.s. *lât*, Kal.n. V.s.M. V.z.B. *lâd* ‘right; mediated settlement’;
 CNur. *râtr > K. *ř'otr*, but Â-S.s. *zâtr*, Kal.n. *vâtr*, Treg.g. *Ĵ'âtr*, V.u. *ařt'â* ‘night’; etc.

3.1.2.6.2.2.4 Nûristânî vocalic evolution: augmented nasalization

In Kal. and K.ktv nasalization of **o* was augmented with a raised dorsum to become **u* (*[õ] > [ũ]).

CNur. **a* became **o* and coalesced with **o* from Ar. **ava*, **au*. The resulting *o* remained in Â-S. and Kal., unless in Kal. it was nasalized and raised to *u*:

CNur. **dant* > Kal.n. Treg.g. *dût*, but Â-S.s. *dôt* ‘tooth’;
 CNur. **vasant* > Kal.n. *osût*, but Â-S.s. *vosôt* ‘spring’;
 CNur. **dron* > Kal.n. *drũ-paṭa*, but Â-S.s. *drô* ‘bow’;
 CNur. **gand* > Kal.n.B. *gun*, but Â-S.s. *gon* ‘smell’;
 CNur. **sonn* > Kal.n. *sun*, but Â-S.s. *son* ‘gold’;
 CNur. **gom* > Kal.n. *gum*, but Â-S.s. *gom* ‘wheat’;
 CNur. **maĵ* > Kal.n. *muĵ*, but Â-S.s. *âmožâ* ‘marrow’;
 CNur. **mas* > Kal.n. *mus*, but Â-S.s. *mos* ‘flesh; muscle’;
 CNur. **nat* > Kal.a. *nut*, but Â-S.s. *not* ‘granddaughter’;
 CNur. **no* > Kal.n. *nu*, but Â-S.s. *no* ‘nine’; etc.

CNur. **â* became K. **o*, but was further raised in K.ktv to **u* if nasalized (with subsequent loss of phonemic nasalization):

CNur. **ânza* > K.ktv. *'uze*, but K.km. *'ôc* ‘I’;
 CNur. **bân* > K.ktv. *b'u*, but K.km. *b'ô* ‘chair; stool’;
 CNur. **sân* > K.ktv. *s'u*, but K.km. *s'ô* ‘mountain pasture’;
 CNur. **čâm* > K.ktv. *č'um*, but K.km. *č'om* ‘skin; hide’;
 CNur. **grâm* > K.ktv. *gr'um*, but K.km. *gr'om* ‘community’;
 CNur. **prâma* > K.ktv. *pr'uma*, but K.km. *pr'âma* ‘kid’;
 CNur. **šâm* > K.ktv. *š'um*, but K.km. *š'om* ‘tribute’;

CNur. *pând > K.ktv *p'un*, but K.km *p'on* ‘leek’;
 CNur. *kând > K.ktv *k'un*, but K.km *k'on* ‘arrow’; etc.

3.1.2.6.2.3 Contemporary Nûristânî vocalic systems

All the Nûristânî languages have three phonetic degrees of vocalic opening, but only Kalaşa-alâ and Fârsîfied Kâmvîri have three phonemic (contrasting) degrees of openness. The remaining Nûristânî languages have only two phonemic degrees of openness.

3.1.2.6.2.3.1 Vocalic systems with two contrasting degrees of openness

Vâsi-vari, Kâmkata-vari, and Sañu-vîri all have a contrast between mandibular closeness (the default) and openness (Tables 23 and 24).

Table 23. Vowel systems of Vâsi-vari and Sañu-vîri.

Vâsi-vari				
-etic	labialized	fronted	default	-emic
close	<i>u</i> [u]	<i>i</i> [i]	<i>a</i> [i]	close
	<i>ü</i> [y]			
[mid]	<i>o</i> [o]	<i>e</i> [e]		open
	<i>ö</i> [ø]			
open			<i>â</i> [a]	

Sañu-vîri				
-etic	labialized	fronted	default	-emic
close	<i>u</i> [u]	<i>i</i> [i]	<i>a</i> [i]	close
[mid]	<i>o</i> [o]	<i>e</i> [e]		open
[mid]			<i>â</i> [a]	

Table 24. Vowel systems of the major Kâmkata-vari dialects.

Traditional Kâmviri				
<i>-etic</i>	labialized	fronted	default	<i>-emic</i>
close	<i>u</i> [u]	<i>i</i> [i]	<i>a</i> [i]	close
	<i>ü</i> [y]			
[mid]	<i>o</i> [ɔ]	<i>e</i> [e]		open

Kâta-vari (Ktivi)				
<i>-etic</i>	labialized	fronted	default	<i>-emic</i>
close	<i>u</i> [u]	<i>i</i> [i]	<i>a</i> [i]	close
	<i>iu</i> [ju]			
[mid]	<i>o</i> [ɔ]	<i>e</i> [ɛ]		open
open			<i>â</i> [a]	

Also notable is Diaspora Kâmviri, spoken by those Kom who have grown up outside of Kâmaston in areas dominated by Pashto or Fârsî. They typically speak with varying degrees of ambient-language accent, as evidenced by their pronunciation of the phonemes *a*, *o*, and sometimes *ü* (Table 25).

Table 25. Vowels of Diaspora Kâmviri.

Diaspora Kâmviri				
<i>-etic</i>	labialized	fronted	default	<i>-emic</i>
close	<i>u</i> [u]	<i>i</i> [i]	<i>a</i> [ə], [ɐ], or [ɐ]	close
	<i>ü</i> [y], [ju]			
[mid]	<i>o</i> [ɔ]	<i>e</i> [e]		open
open			<i>â</i> [a]	

3.1.2.6.2.3.2 Vocalic Systems with three contrasting degrees of openness

Kalaşa-alâ and Fârsified Kâmviri have three degrees of openness.

3.1.2.6.2.3.2.1 Inherited contrast: Kalaşa-alâ

The three-way contrast of openness in Kalaşa-alâ (Table 26) is ancient (§3.1.2.6.2.2.1) and is bolstered by the development of *ä* (§3.1.2.3.2.3.1.1), which is open and prognathized.

Table 26. Vowel systems of the major Kalaşa-alâ dialects.

Nişei-alâ				
<i>-etic</i>	labialized	fronted	default	<i>-emic</i>
close	<i>u</i> [u]	<i>i</i> [i]		close
	<i>ü</i> [y]			
mid	<i>o</i> [o]	<i>e</i> [e]	<i>a</i> [ɐ]	mid
	<i>ö</i> [ø]			
open		<i>ä</i> [æ]	<i>â</i> [a]	open

Varjan-alâ				
<i>-etic</i>	labialized	fronted	default	<i>-emic</i>
close	<i>u</i> [u]	<i>i</i> [i]	<i>i</i> (“ə”) [i]	close
	<i>ü</i> [y]			
mid	<i>o</i> [o]	<i>e</i> [e]	<i>a</i> [ɐ]	mid
	<i>ö</i> [ø]			
open		<i>ä</i> [æ]	<i>â</i> [a]	open

The phonemic status of [ɐ] vs. [i] in Varjan-alâ is unclear. Is there a phonemic contrast, or are they positional-accentual allophones: unaccented [ɐ] vs. word-final, accented [i]? Further research is needed.

3.1.2.6.2.3.2.2 Contrast from borrowing: Fârsîfied Kâmviri

For educated speakers Kâmviri has become a phonemically close—mid—open system through the borrowing of Fârsî *â* [ɐ], which introduced a three-way ontrast of openness among labialized vowels (Table 27). Such Fârsîfied Kâmviri is displacing the more conservative two-degree system of openness.

Table 27. Vowels of Fârsîfied Kâmvîri.

Fârsîfied Kâmv'îri				
-etic	labialized	fronted	default	-emic
close	<i>u</i> [u]	<i>i</i> [i]	<i>a</i> [i]~[i]~[.i]	close
	<i>ü</i> [y]			
mid	<i>o</i> [ɔ]	<i>e</i> [e]		mid
open	<i>â</i> [ɒ]		<i>â</i> [a]	open

3.1.3 The phonemics and evolution of postalveolar consonants

Determining the phonemic status of postalveolar flaps and approximants has proved problematical in Nûristânî linguistic studies. The phonic makeup of the modern postalveolar phonemes is outlined here for selected dialects.

3.1.3.1 Vâsi-vari: (no phonemic approximants)

r = [r]: all positions, but initially in loanwords only;

t̤ = [ɽ]: dialectally, in *p̤t̤* < *pVt̤V (B&D 2017: 45).

3.1.3.2 Kâmvîri: (approximants are phonemic)

r = [r]: all positions, but initially in loanwords only;

ř = [ɹ]: all positions except after tongue-end stops;

ñ = [ɲ]: in V_V and finally; C₁*âñ*aC₂ is usually pronounced C₁[ĩã:]C₂, if C₁ is not tongue-end;

ŋ = [ŋ]: all positions, but initially only onomatopoeically;

t̤ = [ɽ]: in V_V (not in Kâta-vari), else [t̤].

3.1.3.3 Nišei-alâ: (approximants are sub-phonemic):

r = [r]: medially, but initially in loanwords only;

[r]: (slight trill) finally;

r̥ = [ɹ]: in C_V_{fin} and v_;

[̣]: in C_V_{fin} (i.e., CṾ, a rhoticized vowel);

[ɽ]: in V_V and V_#; does not occur initially;

ñ = [ɲ]: in C_V_{fin}, v_, V_V, and V_#; does not occur initially;

[̣̃]: in C_V_{fin} (i.e., C̃Ṿ̃, a rhoticized, nasalized vowel);

$\eta = [\tilde{r}]$: in V_V;
 $[\underline{n}]$: elsewhere; does not occur initially.

3.1.3.4 Sañu-viri: (approximants are sub-phonemic)

Sañu-viri has alternant phonemic solutions, depending on whether $[r]$ occurs after labial and velar consonants in loanwords or not. If so, then, *e.g.*, *pr* and *př* would contrast; otherwise, there is no phoneme *ř*, and $[\underline{r}]$ is an allophone of *r*:

$r = [r]$: all positions, but initially in loanwords only;
 $r = [\underline{r}]$: after labial and velar consonants; *e.g.*, *prost* ‘bed’, *brâ* ‘brother’, *mṛakâṛa* ‘monkey’, *vṛei* ‘flour’, *kṛom* ‘roof’, *grâm* ‘community’;
 $[\underline{r}]$: elsewhere, but does not occur initially; *e.g.*, *dâṛi* ‘beard’, *âṇur* ‘finger’;
 $\tilde{n} = [\tilde{r}]$: in V_V and finally; does not occur initially; *e.g.*, *sañu* ‘Sakan’, *voñ* ‘diversion channel’
 $\eta = [\underline{n}]$: finally; does not occur initially or intervocally; *e.g.*, *kân* ‘arrow’.

Alternatively, if $[r]$ does not occur after labial and velar consonants in loanwords, then:

$r = [\underline{r}]$: after labial and velar consonants; *e.g.*, *prost* ‘bed’, *brâ* ‘brother’, *mṛakâṛa* ‘monkey’, *vṛei* ‘flour’, *krom* ‘roof’, *grâm* ‘community’;
 $[r]$: elsewhere, but initially in loanwords only; *e.g.*, *tra* ‘three’, *drist* ‘handspan’, *âru* ‘peach’, *ârcus* ‘needle’, *çâr* ‘ice’, *çâtr* ‘spindle’;
 $r = [\underline{r}]$: (does not occur initially);

and, if final $[\tilde{r}]$ does not occur in **voñ* ‘diversion channel’, then:

$\eta = [\tilde{r}]$: in V_V; *e.g.*, *sañu* ‘Sakan’;
 $[\underline{n}]$: finally; does not occur initially or intervocally; *e.g.*, *voñ* ‘diversion channel’.

3.1.3.5 The evolution of postalveolars

The modern postalveolar phonemes evolved out of the Aryan vowel $*\text{r}$ (< $*\text{r}$, $*\text{l}$), the flap or trill $*\text{r}$ (< $*\text{r}$, $*\text{l}$), and intervocalic $*\text{n}$. To these were later added the retroflex consonants of Old Indo-Aryan, which included the stops t , d , and n . The evolution of Ar. $*\text{r}$ has been detailed by Hamp (1968).

In initial position no Nûristânî language retains a flapped $[\text{r}]$ or trilled $[\text{r}]$ as the realization of the initial Aryan phoneme $*\text{r}$. In Kâmkata-vari $*\text{r}$ - was weakened to the approximant ř ($[\text{ɹ}]$). Along the Peč Valley initial $*\text{r}$ was strengthened to fricative z in Sañu-viri and Vâsi-vari, while in Kalâşa-alâ it was labiodentally strengthened to vr $[\text{vɹ}]$. Aryan $*\text{r}$ changed to a contemporary vowel (i , u , or a) or to $*\text{rV} > z\text{V}$ in Sañu-viri.

Lingual backing persisted into a following dental stop to produce a retroflex flap after $*\text{r}$ ($*\text{rT} > *_{\text{r}}\text{T} > \text{VR}$) and a retroflex stop after $*\text{r}$ ($*\text{rT} > *_{\text{r}}\text{T} > \text{T}$).

In non-initial position $*\text{r}$ was retained as an upward flap $[\text{r}]$ but was weakened to an approximant $[\text{ɹ}]$ after labial and velar consonants in K. and Â-S.s and laminalized (next to an i $[\text{j}]$) in K. Early CNur. intervocalic $*\text{n}$ $[\text{n}]$ and $*\text{n}$ $[\text{n}]$ weakened to a nasalized retroflex flap $\text{ñ}/\text{ŋ}$ $[\text{ɳ}]$ in Sañu and to an approximant ñ $[\text{ɳ}]$ in K. Later Ar. intervocalic retroflex stops weakened to postalveolar flaps or approximants: $*\text{t}$, $*\text{d} > \text{r}$ $[\text{ɹ}]$ in Kal. and Â-S.s and $> \text{ř}$ $[\text{ɹ}]$ in Kâmkata, and further to i when laminalized in K.ktv (*kař'a* vs. fem. *ka'i* $[\text{kj'i}]$ 'done').

As reflexes of Aryan $*\text{r}$, across Nûristân one finds:

1. Sibilant $[\text{z}]$ in Â-S., V., and Vâi-alâ; sporadic in K.,
2. Lateral $[\text{l}]$ in Âşkuñu-veri,
3. Upward Flap $[\text{r}]$ in all languages,
4. Trill (slight) $[\text{r}]$ in Nişci-alâ (finally),
5. Approximant $[\text{ɹ}]$ in all except Vâsi-vari.

Reflexes of ancient retroflex stops ($*\text{t}$, $*\text{d}$) are a forward flap r $[\text{ɹ}]$ in Â-S. and Kal., and an approximant ř $[\text{ɹ}]$ in K. Kâmviri has $[\text{ɹ}]$ as an allophone of modern intervocalic t (< Ar. $*\text{rt}$).

Reflexes of earlier $*\text{n}$ and $*\text{n}$ include a nasalized forward flap $[\text{ɳ}]$ and a nasalized approximant $[\text{ɳ}]$ intervocalically, as well as $[\text{n}]$ and $[\text{n}]$ elsewhere.

3.1.4 Expressive phonology: summary

I have attempted to show here not only the clear expressive distinction between Northern and Southern Nûristânî languages, but also the physiological processes that underly it. The articulatory anticipation and inertia found in the Northern languages reduce the number of articulations in an utterance, allowing a faster delivery of syllables through simultaneous articulations and syncope, and thereby producing a more assertive attitude.

There is a legacy of mediocre phonetic observation and poor phonemic analysis in early Nûristânî research, due primarily to the difficult, limited access to speakers. Research in the 1960–70 era has resolved some phonological problems, a few of which I have summarized here. I have concentrated on phonology, so that other researchers may not perpetuate the mistakes of the past.

3.2 Exclamation

Exclamatory morphemes demand an addressee's attention or response. Such morphemes include vocative enclitics that follow nouns and several types of particles that occur at the end of an utterance (typically after a finite verb) to indicate emphasis, hearsay, or the conversational status between speaker and addressee.

3.2.1 Vocatives

Many languages in the Nûristân region have enclitic vocative particles, which follow an addressee's appellation to get his or her attention. The antecedent of today's vocatives was Ar. *-â, seen today in Kal. *-a*, V. *-â*, and K. *-o*, as well as Paxto *-a*. Feminine vocatives from *-â-i are Kal.v *-e* and K *-â*.

3.2.2 Request and assertion

Kâmvirî has a small set of enclitics that combine with intonational morphemes to show the assertive or supplicative status of the speaker toward the addressee. The intonations occur at the end of a partial or full utterance and indicate either:

1. *Request*, which implies a mild supplication toward the addressee. Two types of request may be indicated: *confirmational* ('yes' or 'no') by raised pitch (/ ? / [↑]), and *explanatory* ('why?') by partially dropped pitch (/ ? ! / [↓]); or
2. *Declaration* (the default mode), which implies a mildly assertive status of the speaker toward the addressee, as indicated by the fully dropped pitch of the intonation (/ . / [↓]).

The status enclitic augments or diminishes the status relationship that is indicated by the intonation.

3.2.2.1 Request

The two types of requests in Kâmviri are indicated by *-â* for confirmation and *-e* for explanation. Confirmational enclitics occur throughout Nûristân and include Â-S. *-u*, Kal. *-a*, K.ktv *-e*, and V.u *-â* (B&D 2017: 369 ff., 378 ff.). The confirmational enclitic is ubiquitous in at least K. and V., functioning largely to confirm that the addressee understands what the speaker is talking about (in English, 'Y'know?', 'Right?', 'OK?', etc.).

3.2.2.2 Assertion

Dominant or strong assertion is indicated by the enclitics *-o* to a male addressee and *-e* to a female addressee, added to a finite verb form. Their usage is sensitive to the social context; improper usage is considered rude. These enclitics are apparently further manifestations of the early vocatives **-â* and **-â-i*.

Supplicative assertion is indicated by the aforementioned enclitics lengthened and combined with the raised intonation of request (?), which rises over the lengthened vowel; thus *-oa?* to a male addressee and *-ea?* to a female addressee. There is also a supplicative confirmational request *-âa?*.

Table 28 illustrates the possible combinations of intonations and status enclitics in Kâmviri.

Table 28. Status enclitics in Kâmviri.

mode	intonation	enclitic	examples
declaration	.	[none]	'âć. 'Come.' <i>g'oš</i> . 'You went.'
		<i>o</i>	'âć <i>o</i> . 'Come!' [assertive, to male]
		<i>e</i>	'âć <i>e</i> . 'Come!' [assertive, to female]
request	?	<i>â</i>	<i>g'oš â?</i> 'Did you go?'
		<i>âa</i>	'âć <i>âa?</i> 'Please come, OK?' <i>g'oš âa?</i> 'Did you go?' [supplicative]
		<i>oa</i>	'âć <i>oa?</i> 'Come!' [supplicative, to male]
		<i>ea</i>	'âć <i>ea?</i> 'Come!' [supplicative, to female]
	?!	<i>e</i>	<i>g'oš e?! 'How come you went?'</i>

The K. exclamatory particles *-o* and *-e* are suffixed to finite verbal stems (before any subject endings) to indicate Vivid Mode. As Vivid-Mode suffixes on the K. verb *âsa-* 'is' (*âso-*, fem. *âse-* in K.ktv, *âsi-* in K.km), they form so-called "miratives," which are simply realizations about past events that are exclamatory toward oneself (e.g., K.km *âs'om* 'I realize that I was').

In Vâsi-vari the exclamatory particle *-o* appears optionally after finite verb forms except 3rd singulars, where it is obligatory unless other particles follow (B&D 2017: 114). This form is either borrowed from K. *-o* or shares a common origin (*-â) with it. The "citational" suffix *-a* ([i]) after nouns (B&D 2017: 87) likely also originated from the earlier exclamatory *-â.

It is not clear that the Southern Nûristânî languages have assertive particles comparable to those in Kâmviri. If they do not, it is more evidence of the strong attitudinal difference between the assertive Kom and the more unassuming Southerners.

4 Phylogenetic consequences of genetic and ethnonymic studies

Recent genetic studies have shown that Eastern-Steppe horse-riding nomads invaded north India ca. 1800 – 1500 BC and mixed with the indigenes to form the Ancestral North Indian population (Narasimhan et al. 2019). Such studies corroborate the ancient Vedic accounts of an invading Aryan horde that overran and conquered north India.

However, contrary to this “classical” hypothesis, these invaders were not the bringers of Indo-European or Indo-Aryan speech into India. That happened some 2,000 years earlier, when early *Âria* farmers spread out from the Zagros Mountains north toward the Steppe Zone and east toward the Indus Valley, where they mixed with North-Indian Hunter-Gatherers to form the North Indian (Genetic) Cline (Narasimhan et al. 2019, Heggarty et al. [forthcoming]). The implication of this early spread of Aryan speech into India is that the invaders from the steppes brought another dialect of Aryan, *North Aryan*, from the steppes into the *South-Aryan*, Vedic-speaking population of North India. North Aryan speakers prognathized Aryan $*č/*j/*ǵ^{h}$ (< PIE $*k'/*g'/*g^{h}$) to $*č/*z/*z^{h}$, while South Aryan speakers maintained the voiced affricates j and j^{h} but relaxed the voiceless affricate to a sibilant $š$.

4.1 Ethnic origins of the Nûristânîs

Among the North-*Âria* invaders were the Kambojas, the Bhâratas, with their sub-tribe, the Kauravas, and the Parcuas. Today *Kamôzî* or (formerly) *Kamôjî*, the modern word for ‘Kamboja’ in Pashto and Persian, is used throughout the region as the name of the Kom. They, however, call themselves *Kom* after the name of their putative progenitor. More probably, the name *Kom* derives from *Kâma*, the place from which they last came, rather than from $*Kamb'u$, the probable true name of the Kambojas’ progenitor.

Having been identified as Kambojas, today’s Kom, and by implication their language and the other Kâmkata-vari dialects, most probably descend from the early intrusion of North-*Âria* Kambojas and their language into today’s Afghânistân.

An examination of the ethnonyms of the remaining Nûristânî peoples (along with that of the neighboring Indo-Aryan-speaking *Pašai* peoples) indicates that they are descendants of the ancient *Sakas*. The Sakas, also known as Eastern Scythians, go back at least 2,800 years to the Eastern Steppe (Gnecchi-Ruscone et al. 2021), whence, as successors to the Kambojas a millenium later, they too invaded and ruled Afghânistân and North India.

Table 29 shows the possible derivations of the modern ethnonyms, which come from the genitive plural or nominative singular forms of the ancient name of the Sakas (from the PIE root $*k'ek$ ‘power, ability’). In the ancient Irânian names an $*a$ in parentheses was elided, while the sequence

*rs regularly became *rš and then š. An ancient *k between vowels was regularly elided in the Nûristânî languages. Forms listed as “via Pašai” are so marked because of the loss of the intervocalic *s, a key characteristic of that language. The ancient Irânian names are proposed reconstructed words, with the prefix *para- meaning ‘beyond’ or ‘further’. *Aršaka-* (‘Arsaces’) was the name of the founder of the Parthian Empire, himself the leader of the Saka Parni tribe. His name persists in Middle Persian *aškân* ‘Arsacid’ (Durkin-Meisterernst 2004: 56), which seems clearly cognate with *Âškunu*. Whether a name *kâla-aršaka- ‘Black [?] Arsacid’ ever existed is more speculative, because of the distant Dravidian source of OIA *kāla*.

Although the recorded languages of the Sakas are clearly Irânian, the Saka tribes date from at least six to eight hundred years before the records, at a stage before the evolution of North Aryan into Irânian. In this respect the Sakas and Kambojas shared the characteristic North-Aryan prognathized change of Aryan laminal-alveolar consonants to dentals, despite their being separated by 1,000 years. But the putative Saka predecessors of the Saṇu and Âṣkuṇu also adopted later Irânian traits, such as the deaffrication of North-Aryan *č to *s* and the Northeast-Irânian prognathizing of *č to *ć*. Further evidence of Sakas in the Hindu Kush region is detailed elsewhere (Strand [to appear]).

Table 29. Cognate ethnonyms possibly referring to Sakas.

Language					
Aryan	South (Indo-)Aryan	North Aryan	Old or Middle Irânian	Common Nûristânî	other
*čak-ânâm 'of the Sakas'	*šakânâm	*čakânâm	<i>sakânâm</i>	*čânu	Â-S.s <i>sañu</i> ; Kal. <i>šō</i> < IA
			*p(a)ra-sakâna	*prâsun (via Pašai)	K.km <i>přâs'ũ</i> ; autonym <i>vâs'i</i>
			*p(a)ra-sakân-î	(via Pašai)	Â-S.s <i>prâu</i> Kal. <i>p'âi</i>
*čaka-(ka-) 'Saka'	*šaka-	*čaka-	*par(a)-šaka-î	*pâšai	autonym <i>paša'i</i>
			*vâ-saka-î or *prâ-saka-î	*vâsi (via Pašai)	V. <i>vâs'i</i> (autonym) Kal., Â-S., K. <i>vai</i>
*arš-an 'Studly' < PIE <i>h₂s-en</i> 'male'		*arša-ka-	*aršakânâm	*âškunu	Middle Persian <i>aškân</i> 'Arsacid'
			*kâl(a)-arša-ka-	*kalaša	

4.2 An updated linguistic phylogeny of the Aryan languages

The long-debated phylogenetic position of the Nûristânî languages within the Aryan group must now be re-examined in light of the genetic and ethnonymic evidence. Three hypotheses have been proposed:

1. Nûristânî and Irânian form a sub-group split off from Indo-Aryan on the basis of the evolution of Proto-Indo-European **k̑*/**ǵ*/**ǵ^h* to Nûristânî and pre-Irânian prognathized **č*/**ž*/**ž^h* (Konow 1911; Grierson 1919: 8, with caveat);
2. Nûristânî forms a sub-group split off from Irânian and Indo-Aryan on the basis of the retention of PIE **s* after **u*, but otherwise with the same pre-Irânian prognathizing of **k̑*/**ǵ*/**ǵ^h* to **č*/**ž*/**ž^h* and a large amount of loanwords from Indo-Aryan (Morgenstierne [reluctantly] 1945, 1974, Strand 1973);

3. Nûristânî and Indo-Aryan form a sub-group split off from Irânian (Morgenstierne [alternatively] 1974).

The genetic evidence favors Hypothesis 1 and precludes Hypothesis 3, which assumes that the Indo-Âriâs followed the Nûristânîs into India from the Steppe (Morgenstierne 1974: 9).

The historical evidence (*Rg Veda*, *Mahābhārata*) places the intrusive North Âriâs as hegemony over the North Indian indigenes, whom the genetic evidence now shows to be Âriâs also. Over their centuries of rule, the North Âriâs adopted the Vedic speech of their north Indian subjects, in which they glorified their culture; but the Kambojas in their westerly Kâpîsâ-Gândhara stronghold kept their language, while massively adopting words from their Indo-Aryan-speaking subjects and neighbors to the east.

Furthermore, it appears that the major portion of the Kauravas, along with some allied Kambojas and Parçavâs (Paršuâs), migrated to Irân after losing the Kuru-Kṣetra War. It was during that period that their North-Aryan speech evolved into Irânian, with the descendants of the Kauravas founding the Persian Empire generations later. The names of successive father-son rulers of Persia demonstrate the regard that the Haxāmanišiya Persians had toward the Kauravas and Kambojas: Kūruš I (Cyrus, 625–580 BC), Kambūjya I (Cambyses, 580–559 BC), Kūruš II (Cyrus “The Great”, 559–530 BC), Kambūjya II (Cambyses, 530–522 BC).

The conundrum of the Nûristânî “non-*ruki* *u” that underlies Hypothesis 2 can be explained as first an Aryan laminalization of sibilants (*s > *š) after phonemes that have the tongue’s blade close to the alveolar ridge (*i, *r, and *k). Aryan *u did not affect a following *s because the tongue’s blade was down, away from the alveolar ridge. But later in South Aryan a general lingual backing brought the blade closer to the alveolar ridge, with a resulting laminalization of *s to *š to apical ṣ after *u* (as well as after *i*, *r*, and *k*). This post-*u* laminalization apparently was adopted by the North Âriâs in India as ṣ, which spread into Irânian with their subsequent migration to Irân, while bypassing the Kambojas and Early Sakas (*Cakâs) who lived close to the Hindu Kush range.

The so-called “Second Palatalization” (lingual fronting) that propelled PIE fronted labiovelars to Aryan laminal affricates (*k^wi/e > *ki/e > *k̥i/e > *č̥i/e > č̣i/a) must have happened after the “First Palatalization” of PIE *k̥ to Aryan *č and its subsequent change to North Aryan *ć and South Aryan ṣ; otherwise the outcomes of PIE *k̥ and *k^w would be identical. The Second

Palatalization probably arose in North Aryan, where prognathized lingual fronting had already produced *č, and spread into Indo-Aryan during the ensuing North-Aryan hegemony. The Indo-Aryan trend toward lingual backing (as seen in the rise of the retroflex consonants) lowers the likelihood of an endogenous development of the Second Palatalization in that group.

Hypothesis 3 is linguistically precluded by the retention of the North-Aryan prognathized dentals (*č/*ž/*ž^h) in Nûristânî alongside the fronted (labio-)velars (*č/*j/*j^h), a phonetic situation that could not plausibly derive from Indo-Aryan *š/j/j^h* and *č/j/j^h*, as Konow and Morgenstierne pointed out long ago. The preponderance of Indo-Aryan loanwords in the Nûristânî languages no more defines those languages as Indo-Aryan than do French loanwords define English as a Romance language.

The developments that characterized the Âryan languages are suggestively summarized in Table 30. The resulting tree diagram for the Aryan Group appears in Figure 3.

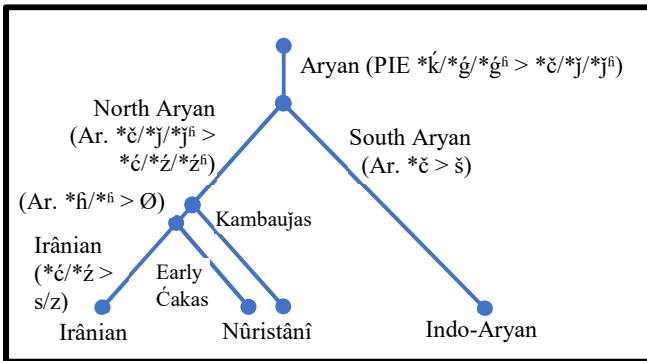


Figure 3. Aryan-Language sub-family tree.

Table 30. A rough chronology of the ethnolinguistic development of the Áryan languages

Phase	Dates BC	Genetic Groups	Peoples	Phonetic Markers	Archaeology, Monuments
Áryan	5600	The Aryas formed a genetic group in the northern Zagros Mountains based on the R1A1 haplotype	Áriás	Laminized Sibilants 1: *s > *š / *t/*r/*k_ ₋ ; Fronted Dorso-Velars 1: *k' > *č; *k's > *čš > *čš > *č; *k't > *čt > *št	
	5600 – 4000	They spread southeast to the Indus Valley and north to the Steppe Zone.	Áriás	Brugmann's Law: *o > *o_ / _CV; Delabialization: *k ^w > k; *o(ː) > a(ː) (*aː = á); Fronted Dorso-Velars 2a: *k' > *č	
	5400 – 3700	At the Indus they formed the Indus Valley Civilization, mixing with Ancient Ancestral South Indians to form the Indus-Peripheral Cline as ancestors of the Indo-Aryan speakers.	South (Indo-)Áriás	Laminized Sibilants 2: *s > *š / {*u, V_*, *a/*ā_d}; Lingual Backing 2: *l > r; *š > š; *t/*d > t/d / *š_; š-Voicing: *š > *ž / {*t/*u/*a/*ā_d, V_*, *r}; ž-Laxing: *až > *ai/*u > e/o or *V_ž > Vː = V̇; Deaffrication 1: *č > š; Laryngeal Vocalization: *h/*f̥ > i	Indus Valley Civilization
North Áryan	4000	In the north they mixed with East-European Hunter-Gatherers.	North Áriás	Prognathizing 1: *č > *č̣; Finno-Ugrian loanwords	horse domestication
	3500	They spread across the steppe zone from Hungary to the Altai Mountains.	North Áriás	Fronted Velars 2b: *k' > č̣; Posterior-to-Anterior Voicing Shift: *f̥, *f̥ > Ø	Yamnaya Culture
	3000	In the northeast they mixed with West-Siberian Hunter-Gathers.	Northeast Áriás		

1800	They later migrate southwest along the northwest side of the Tien Shan and Pâmîr Mountains into Afghân-istân, Pâkistân, and north India.	Northeast Âriâs		Andronovo Culture
1800-1500	They enter the Panjâb and mix with the local population to form the Ancestral North Indian population.	North Âriâs intruding into the South-Aryan-speaking population	Fronted Dorso-Velars 3: * $\text{k} > \check{\text{c}}$ spread from North-Aryan throughout South-Aryan; then * $\text{e} > a$ spread throughout Aryan	Gandhara Grave Culture (Swat)
1500 – 1000		Kambujâs, Bhârâtâs, Kuruâs, Parçûâs, Alinâs	North-Aryan speech retained by Kambojas in Kâpîcâ, with large adopted South-Aryan lexicon; otherwise replaced by South-Aryan in India	Invaders spread from Kâpîcâ to Kuru-Kṣetra. Vedas of the invaders are composed in the local language.
1200 – 800	Çakas in far northeast develop out of earlier Central-Steppe nomads and follow the same route to the south	Late North Âriâs: Kauravâs; Parçavâs; Central Kambaujas split off; Early Çakas	Laminized Sibilants 2 (after Lingual Backing of * u): * $\text{us} > \text{uṣ}$, or $\text{uṣ} \leftarrow \text{SAr } * \text{uṣ}$; this change bypasses the Kambojas and Early Çakas	Kuru-Kṣetra War of the Mahâ-bhârata; losers (some Kauravas and Kambojas) migrate to Irân
800 – 400 AD		Kauravas, Parçavas; Pre-Nûristânîs: Kambojas and Early Sakas, with languages separated by 1,000 years	Anterior Aspirate Loss: * $\text{h} > \emptyset$; (For Early Çakas few further Irânian changes)	
Nûristânî				

Iranian	800 – 300	Kauravas, Parćavas	Persian Prognathizing: *ć [ts] > θ; *ź [dz] > d	Median and Persian Empires; Iranian traits spread with empires back into Central Asia
	800 – 600	Kauravas, Parćavas, Madas, Late Sakas	Despirantization 2: *s > h	
	600 – 500	Madas, all Sakas (→ Saňu)	Deaffrication 2: *ć [ts] > s; *ź [dz] > z	
	600 – 500	Parćavas, Madas, Late Sakas	Laryngeal Narrowing: *pt > ft, *pr > fr, *kš > xš, etc; Aspirate spirantization: *pʰ > f; *tʰ > θ; *kʰ > x	
	200 – 400 AD	Sakas, Parthians (Parćavas) (→ Saňu)	Northeast-Iranian Prognathizing: *ć > č	

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