HAL
open science

Xumi (part 1)

Katia Chirkova, Yiya Chen

To cite this version:

Katia Chirkova, Yiya Chen. Xumi (part 1). Journal of the International Phonetic Association, 2013, 43 (3), pp.363-379. 10.1017/S0025100313000157 . hal-01136684

HAL Id: hal-01136684

https://hal.science/hal-01136684v1

Submitted on 30 Mar 2015

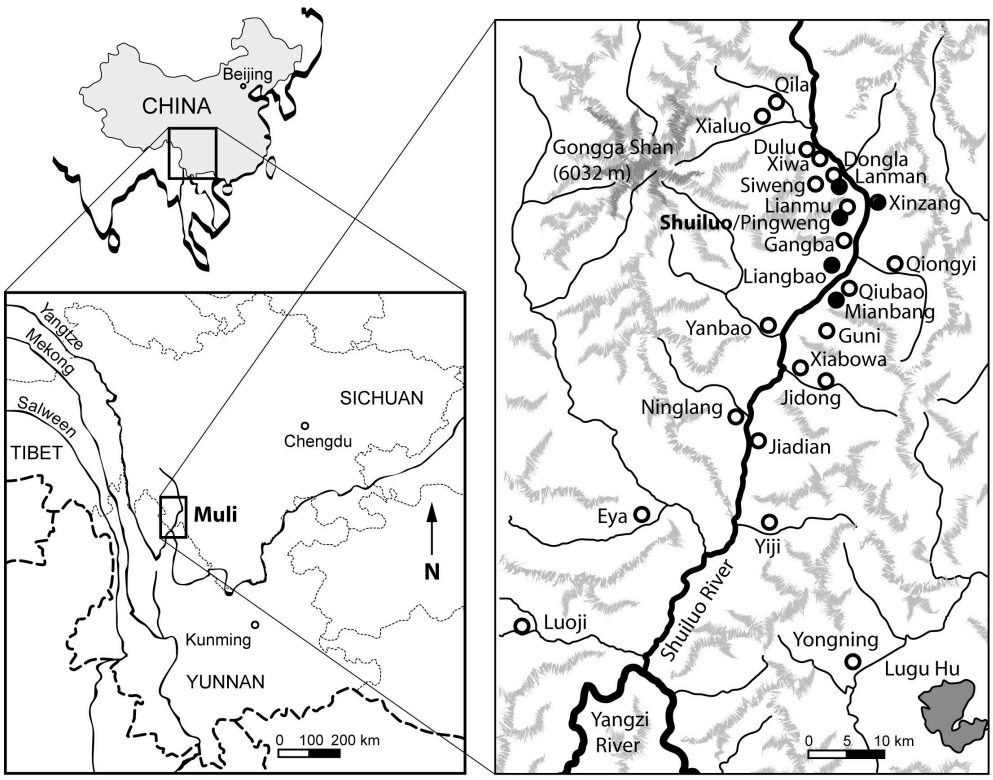
HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Xumi, Part 1: Lower Xumi, the Variety of the Lower and Middle Reaches of the Shuiluo River

Katia Chirkova (CNRS-CRLAO) and Yiyan Chen (Leiden University)

The Xumi 旭米 language (/^{EP}ʃʉ-hĩ ketçɐ/ 'the language of the Shu people') is spoken by approximately 1,800 people who reside along the banks of the Shuiluo River (水洛河) in Shuiluo Township (水洛乡) of Muli Tibetan Autonomous County (木里藏族自治县; *smi li rang skyong rdzong* in Written Tibetan [hereafter, WT]).[1] This county is located in the South-West of Sichuan Province (四川省) in the People's Republic of China (see Map 1).



Map 1. Location of Shuiluo Township (Xumi villages marked with solid black circles)

The language of the group was first described by Sun Hongkai (孙宏开) (1983), who labeled it "Shixing 史兴" based on the autonym of the group (/^{EP}ʃʉ-hĩ/ 'Xumi people'). However, this

label is generally unknown in the county where the group resides and where its official name in the national Mandarin Chinese language is Xumi (旭米) (Muli Gazetteers 2010: 560, 563-564, 568).

Xumi is currently classified as a member of the putative Qiangic subgroup of the Sino-Tibetan language family (Bradley 1997:36-37, Sun 2001). However, the recent migration history of the group from the areas historically populated by the Naxi and Mosuo ethnic groups, in combination with salient typological similarities between Xumi and the Naxi and Mosuo languages, rather suggest that Xumi is more closely related to those two languages (Guo & He 1994:8-9, Chirkova 2009, 2012).

Of old, Shuiluo Township is a multi-ethnic and multi-lingual area. Hence, Xumi villages are interspersed with villages of other ethnic groups. The ethnic neighbors of the Xumi include (in the order of population size, see Map 1): (1) Gami (嘎米) Tibetans in the upper reaches of the Shuiluo river (the village of Dulu),[2] (2) Pumi (普米) in the upper and lower reaches of Shuiluo river (the villages of Siweng and Gangba), (3) Naxi (纳西, the villages of Qiubao and Guni) in the lower reaches of the Shuiluo river, and (4) Muli Mongolians (speakers of the Mosuo [摩些 or 摩梭] language, the village of Lianmu) in the middle reaches of the Shuiluo river (Weckerle et al. 2006, Büeler 2010).

Possibly reflecting these respective contact influences, the Xumi language can be divided into two varieties with restricted mutual intelligibility: (1) the variety of the upper reaches of the Shuiluo River (hereafter, Upper Xumi, spoken in the village of Lanman); and (2) the variety of the lower and middle reaches of the Shuiluo River (hereafter, Lower Xumi, spoken in the villages of Xinzang, Pingweng, Liangbao, and Mianbang). The two varieties differ both in their segmental inventories and phonotactic constraints. At the lexical level, the two varieties have loanwords from different donor languages. Both varieties have a large number of Tibetan loanwords in their lexicon, but the number of Tibetan loanwords is higher

in Upper Xumi, due to its close contact with Gami Tibetan. For example, ‘head’ is /^{RP}ʁu-l̥o/ in Lower Xumi (a native Xumi word), but /^{EP}tʰɑpɔ/ in Upper Xumi (which is a loanword from Tibetan, WT *thod pa* ‘forehead’). Conversely, Lower Xumi has many Pumi loanwords, e.g. ‘wolf’: Lower Xumi /^{H}lɐ/ (loan from the local dialect of Pumi, [lɐ^{53}], Lu 2001:373), Upper Xumi /^{R}pʰu/. As a result of its exposure to multiple linguistic influences, Xumi has large and complex consonant and vowel inventories, much subphonemic variation in the realization of individual phonemes and tonemes, and a number of marginal phonemes in both varieties. Given that most languages with which Xumi is in contact are non-written (with the exception of Tibetan) and little researched, it remains difficult at this stage to realiably assess their respective impact on the phonetics and phonology of Xumi. On the whole, of the two varieties, Lower Xumi has clearer distinctions between vowels, and therefore lends itself better for an introductory overview of the Xumi language. The more complex Upper Xumi will be the topic of a follow up phonological sketch.

The Xumi use their native language as the primary language of oral communication for family and community events. A considerable percentage of Xumi women are monolingual, whereas most men are proficient in Mandarin Chinese (the local variety of South-West Mandarin). In addition, Lower Xumi speakers often have a good command of Pumi (and some even of Naxi and Mosuo), whereas Upper Xumi speakers often have a good command of Gami Tibetan. The language of the Xumi is traditionally considered by its speakers and ethnic neighbors alike as mixed and combining elements of various local languages. It does not have its own writing system.

Xumi is little researched, with only three outlines to date. Of these, one (Sun 1983) focuses on Lower Xumi, whereas two other (Huang & Renzeng 1991, Chirkova 2009) focus on Upper Xumi.

The present description is based on the first author's fieldwork. The word list and the text provided with this paper were recited by a sixty-two-year old male native speaker of Lower Xumi, who was born and raised in Shuiluo Township (Liangbao village 两保村). Examples in the sections on syllable structure and prosodic organization were pronounced by a female speaker in her sixties, also born and raised in Shuiluo Township (Mianbang village 免邦村; sound files marked as "FEMALE_SPKR"). A chart of all C-V combinations is provided in Appendix 1.

Consonants

The consonant inventory comprises of 50 consonant, as listed in the table below. In the table, segments that are low in frequency (the voiced uvular stop) or restricted to loanwords (retroflex affricates, and the voiceless alveolopalatal and velar nasals) are put in parentheses.

	Bilabial	**Alveolar**	**Retroflex**	**Post-alveolar**	**Alveolo-palatal**	**Velar**	**Uvular**	**Glottal**
Plosive	p pʰ b	t tʰ d				k kʰ g	q qʰ (ɢ)	
Affricate		ts tsʰ dz	(tʂ tʂʰ dʐ)	tʃ tʃʰ dʒ	tɕ tɕʰ dʑ			
Nasal	m̥ m	n̥ n			(ɲ̥) ɲ	(ŋ̥) ŋ		
Fricative		s z		ʃ ʒ	ɕ ʑ	x ɣ	ʁ	h ɦ
Approximant	w	ɹ			j			
Lateral Approximant		l̥ l			ʎ̥ ʎ			

p ˻pɐ ‘hedgehog’ ʒ ˻ʒɐ ‘to stamp’

pʰ	ᴴpʰɐ	‘price’	tɕ	ᴴtɕɐ	‘star’
b	ᴴbɐ	‘girder’	tɕʰ	ᴿtɕʰɐ	‘muntjac’
m	ᴿmɐ	‘sky’	dʑ	ᴴdʑɐ [ᴴdʑɐʔ]	‘water’
m̥	ᴴm̥ɛ̃	‘medicine’	ɲ	ᴿɲɐ	‘fire’
w	ᴴwɐ [ᴴvɐʔ]	‘tooth’	ɕ	ᴿᴾdʑi-ɕɐ	‘one hundred’
t	ᴴtjɛ	‘cutting board’	ʑ	ᴴʑɐ	‘beer, wine’
tʰ	ᴴtʰjɛ	‘below’	j	ᴴjɐ	‘tent’
d	ᴴdjɛ	‘fox’[3]	ʎ	ᴿʎo	‘musk deer’
ts	ᴿtsu	‘to be in debt’	ʎ̥	ᴴʎ̥o	‘spirit, soul’
tsʰ	ᴿtsʰu	‘ghost’	k	ᴴko	‘to be able’
dz	ᴿdzu	‘eat (IMP)’	kʰ	ᴿᴾkʰu = ji	‘to want’
n	(ᴿᴾdʑɐ)nɑ̃	‘inside (water)’	g	ᴴgu	‘to wear’
n̥	ᴿn̥ɑ̃	‘fur, hair’	ŋ	ᴴŋɐ	‘I’
s	ᴴsɐ	‘to know’	x	ᴴxu	‘rain’
z	ᴿzɐ	‘to wash’	ɣ	ᴴɣu	‘lake’
ɹ	ᴿɹɐ	‘good’	q	ᴴqo	‘hearth’
l	ᴿᴾlo-lo	‘to wrap’	qʰ	ᴴqʰo	‘bowl’
l̥	ᴿᴾʁu-l̥o	‘head’	ɢ	ᴿɢo	‘to stew’

tʃ	^{RP}qotʃʉ	‘skin’	ʁ	^{R}ʁo	‘needle’
tʃ^{h}	^{LP}tʃ^{h}ʉ-tʃ^{h}ʉ	‘to suck (milk)’	h	^{H}hã	‘vegetable’
dʒ	^{R}dʒʉ	‘yeast’	ɦ	^{H}ɦã	‘pigeon’
ʃ	^{RP}ʃʉ-ʃʉ	‘paper’			

There is a general thee-way contrast in stops and affricates: voiceless aspirated, voiceless unaspirated, and voiced. Velar and uvular stops contrast before /ɐ, u, ʉ, o/, as in /^{H}k^{h}ɐ/ ‘foot’ vs. /^{H}q^{h}ɐ/ ‘feces’. Elsewhere, they are in complementary distribution. Velar stops are found before front vowels, whereas uvular stops are found before the low back vowel /ɑ/, as in /^{H}k^{h}e/ ‘to pour’, /^{R}gjɛ/ ‘eggplant’ vs. /^{H}q^{h}ɑ/ ‘to slaughter’. The voiced uvular stop occurs only in a few words. It shows varying degrees of frication at the beginning of the following vowel, after the release (e.g. /^{R}ɢo/ [^{R}ɢʁ̞o] ‘to stew’).[4]

Xumi affricates include three-way contrasts in place of articulation: alveolar, postalveolar, and alveolopalatal. Postalveolar and alveolopalatal affricates mostly occur before front and central vowels. No constrast is found before /i, ɛ/ (in which cases we use symbols for alveolopalatal affricates in our transcriptions) (e.g. /^{H}tɕi/ ‘to be afraid’, /^{H}tɕɛ/ ‘earth’). Postalveolar and alveolopalatal affricates contrast before /e, ʉ, o/ (as well as marginally, also before /ɐ/). Examples include:

/^{RP}dʑe-dʑe/ ‘to play, to amuse oneself’ vs. /^{H}dʒe/ ‘traditional chess-like game’

/^{H}tɕ^{h}ʉ/ ‘milk curd’ vs. /^{LP}tʃ^{h}ʉ-tʃ^{h}ʉ/ ‘to suck (milk)’

/^{H}dʑo/ ‘swan, goose’ vs. /^{H}dʒo/ ‘to shout, to yell, to make sounds’

Xumi has an additional set of retroflex affricates in Tibetan loanwords, which mostly occur before back vowels, but occasionally also with high front vowels (in loanwords). In such cases, retroflex affricates correspond to WT initial clusters with the medial *-r-*. For example, /^{RP}tʂiwɑ/ ‘business, affair’ (WT *brel ba*), /^{RP}tʂupɑ/ ‘sixth lunar month’ (WT *drug pa*), /^{RP}tʂɑpjɛ/ ‘monk’ (WT *grwa ba*). In a very few cases (e.g. before the syllabic consonant /ɹ̩/), retroflex affricates contrast with postalveolar affricates, e.g. /^{H}tʃ^{h}ɹ̩/ [^{H}tʃ^{h}ʒ̩] ‘to sell’ vs. /^{H}tʂ^{h}ɹ̩/ [^{H}tʂ^{h}ʐ̩] ‘dollar’ (WT *khrid*).

Xumi fricatives are pronounced at six different places of articulation: alveolar, postalveolar, alveolopalatal, velar, uvular, and glottal. Most fricatives contrast in voicing (viz., /s/ vs. /z/, /ʃ/ vs. /ʒ/, /ɕ/ vs. /ʑ/, /x/ vs. /ɣ/, /h/ vs. /ɦ/), whereas the uvular voiced fricative /ʁ/ does not have a voiceless counterpart. Alveolar and alveolopalatal fricatives (/s/, /z/, /ɕ/, /ʑ/) have the broadest distribution, co-occurring with most vowels, e.g. /^{H}se/ ‘breath’, /(^{H}tɐ) ^{H}ɕe/ ‘to spend a night (there)’, /^{H}sjɛ/ ‘blood’ vs. /^{H}ɕɛ/ ‘louse’, /^{EP}soje/ ‘saw’ (WT *sog le*) vs. /^{H}ɕo/ ‘meat’. /ʃ/ vs. /ʒ/ have a more restricted distribution, as they are essentially attested with central vowels and the syllabic consonant /ɹ̩/, e.g. /^{RP}ʃʉ-ʃʉ/ ‘paper’ (WT *shog shog*), /^{H}ʒʉ/ ‘to stamp’, /^{H}ʃɹ̩/ ‘tongue’, /^{RP}ʎɐ-ʒɹ̩/ ‘to sleep’. The voiced glottal fricative /ɦ/ has the most

restricted distribution of all fricatives, co-occurring only with /õ/ and /ã/, e.g. /ʰɦõ/ ‘silver’, /ʰɦã/ ‘pigeon’.

There is a complex relationship between velar and glottal voiceless fricatives and nasalization. Xumi essentially follows the areal tendency to nasalize glottal-initial words, as is the case in a number of Ngwi (Yi) and Na languages (e.g. Matisoff 1973: 20-21, 1975; Bradley 1989), and in some neighboring Qiangic languages (e.g. Lizu, Chirkova & Chen, in press). Words beginning with /h-/, /ɦ-/ or a zero-initial (preceded by a non-phonemic glottal stop) mostly co-occur with nasal vowels and tend to be nasalized throughout. Examples include: /ʰhã/ ‘deep’, /ʰɦã/ ‘pigeon’, /ʰã/ [ʰʔã] ‘self’. Conversely, words beginning with /x-/, /ɣ-/ (as well as some words with a zero-initial) co-occur with oral vowels, e.g. /ʰxu/ ‘rain’, /ʰɣu/ ‘lake’, /ʳᵖpʰi-u/ [ʳᵖpʰi-ʔu] ‘patch’. Overall, velar fricatives are infrequent in the word-initial position, where they mostly co-occur with the vowel /u/ (see the examples above).

Xumi nasals are pronounced at four places of articulation: bilabial, alveolar, alveolopalatal, and velar. /m/ has the broadest distribution, and /ŋ/ has the most restricted distribution of all nasals. /ŋ/ only occurs in a few words and before low vowels (/ɐ, ɑ/), e.g. /ʰŋɐ/ ‘I’, /ʳᵖŋɑpɑ/ ‘fifth lunar month’ (WT *lnga pa*). /n/ and /ɲ/ contrast before /ɐ, ã/, e.g. /ʳɲɐ/ ‘fire’, /ʳnɐ/ ‘brain’ (loanword from the local dialect of Pumi, [nɐ^{13}] ‘brain’, Lu, 2001:382-383), /(ʳᵖdʑɐ) nã/ ‘inside (water)’, /ʳᵖbə-ɲã/ ‘to push (outward)’.[5] The contrast is not found before /i, ɛ, ɯ/ (in which cases, we use symbols for alveolopalatal nasals in our

transcriptions), as in /ʰɲi/ ‘you, thou’, /ʰɲɛ/ ‘milk’, /ˡᵖɲɯ-ɲɯ/ ‘breast’. Finally, before /e/, only /n/ is found (e.g. /ʰne/ ‘snivel, snot’).

All Xumi nasals show the contrast of voiced vs. voiceless nasals, as the (near) minimal pairs below show: /ʰmẽ/ ‘today’, /ʰm̥ɛ̃/ ‘medicine’; /(ʳᵖdʑɐ) nã/ ‘inside (water)’, /ʳn̥ã/ ‘fur, hair’; /ʰɲɛ/ ‘milk’, /ᵉᵖʃɛ̃ɲ̥ɛ/ ‘clean’; /ʳᵖŋɑpɑ/ ‘fifth lunar month’, /ᵉᵖŋ̊ɑmõ/ ‘camel’ (WT *rnga mo*). For voiceless nasals, there is a sustainable amount of nasal airflow, due to velum lowering before the oral release, resulting in a sequential timing relationship between oral and velic articulations. We therefore transcribe them as voiceless nasals. Voiceless nasals are infrequent and mostly restricted to loanwords from Tibetan, where the original initial was a cluster beginning with *s*- or *r*-, e.g. /ʰm̥ɛ̃/ (WT *sman*) ‘medicine’, /ᵉᵖɲ̥õku/ ‘pen’ (WT *smyug gu*), /ᵉᵖŋ̊ɑmõ/ ‘camel’ (WT *rnga mo*). /m̥/ and /n̥/ are also attested in the native vocabulary, e.g. /ᵉᵖɹum̥ɑ/ ‘lower part of the body’, /ʳᵖm̥jɛtsõ/ ‘tail’, /ʳn̥ã/ ‘fur, hair’.

Xumi has three central approximants and four lateral approximants: /w/, /j/, /ɹ/, /l/, /l̥/, /ʎ/, /ʎ̥/. The approximant /j/ occurs before front and central oral vowels (/i, e, ɛ, ɐ/) as well as before the nasal vowels /ĩ, õ, ã/ (as in /ʳji/ ‘wart’, /ʳje/ [ʳjɪ] ‘to lick’, /ʳjɛ/ ‘vegetable oil’, /ʰjĩ＝ji/ ‘to plough’, /ᵉᵖkãjã/ ‘oil lamp’ (WT *kong?*), /ʰjõ/ ‘to bark’). Before /i/, /j/ contrasts with a zero initial, e.g. /ʳji/ ‘wart’, /ʳᵖine/ ‘in the past’.

/w/ and /ɹ/ have a broad distribution, occurring before most oral vowels (/i, e, ɐ, ɯ, u, o, ɑ/). For example, /ˡᵖowe/ ‘downstairs shed’, /ʳᵖbɯ-wɯ/ ‘to go out’, /ʳᵖdiwu/ ‘bullet’ (WT

mde'u), /^{EP}tʰuwɑ/ ‘hammer’ (WT *tho ba*). Before /ɐ/, /w/ is realized as [v], as in /^{H}wɐ/ [^{H}vɐʔ] ‘tooth’. Examples with /ɹ/ include: /^{H}ɹi/ ‘now’, /^{H}ɹe/ ‘cloth’, /^{H}ɹɨ/ ‘to walk’, /^{RP}bɐɹo/ ‘snake’, /^{R}ɹɐ/ ‘good’. We note that in word-initial position, /ɹ/ is realized as preceded by a schwa (e.g. /^{H}ɹi/ [^{H}əɹi] ‘now’). (In the appended text, a similar addition of schwa is also observed in the words /^{H}tʰi/ [^{H}ətʰi] ‘that’ and /^{H}tɐ/ [^{H}ətɐ] ‘there’.) No such effect is observed in word-medial position, where /ɹ/ is realized as [ɹ]. In addition to being an initial, /ɹ/ is also found as a rhyme, i.e. /ɹ̩/ (see below).

Xumi laterals are pronounced at two places of articulation: alveolar and alveolopalatal. They contrast before /ɐ, o/, as in /^{H}lɐ/ ‘wolf’ vs. /^{R}lo ^{H}ʎɐ/ ‘come again’. No contrast is found before /i, ɛ, ɨ/ (in which cases we use symbols for alveolopalatal laterals in our transcriptions), e.g. /^{LP}negu ^{RP}be-ʎi/ ‘to dry clothes near fire’, /^{R}ʎɛ/ ‘predestined affinity’, /^{RP}dʑi-ʎɨ/ ‘one item of clothing’. Before /e/, we only observe /l/, as in /^{R}le/ ‘hand’.

All laterals show the correlation voiced-voiceless (/l/ vs. /l̥/, /ʎ/ vs. /ʎ̥/), which is similar to that of Xumi nasals. Examples of (near) minimal pairs include: /^{H}lɑ/ ‘tiger’, /^{RP}giɬɑ/ ‘mountain spirit’ (WT *dge? lha*); /^{RP}lo-lo/ ‘to wrap’, /^{RP}ʁu-l̥o/ ‘head’; /^{RP}dʑi-lu/ ‘one time’, /^{RP}l̥uβi/ ‘timber’; /^{R}le/ ‘hand’, /^{H}l̥e/ ‘wind’; /^{R}ʎo/ ‘musk deer’, /^{H}ʎ̥o/ ‘spirit, soul’.

Syllabic consonant

As a syllabic consonant, /ɹ̩/ may occur with a zero-initial (e.g. the topic marker /ɹ̩/, see the appended text). We take the position that this syllabic consonant is phonologically the same as the fricative vowel after alveolar sibilants and retroflexes (/s, z, ts, tsʰ, dz, ʃ, ʒ, tʃʰ, tʂʰ/). In the latter case, /ɹ̩/ is realized as homorganic to the preceding consonant onset. Consider the following examples: /ᴴtsɹ̩/ [ᴴtsʐ̩] 'leopard, panther', /ᴴdzɹ̩/ [ᴴdzʐ̩] 'wheat', /ᴴtsʰɹ̩/ [ᴴtsʰʐ̩] 'goat', /ᴴʃɹ̩/ [ᴴʃʒ̩] 'tongue', /ᴿᴾʌɐ-ʒɹ̩/ [ᴿᴾʌɐ-ʒʒ̩] 'to sleep', /ᴴtʃʰɹ̩/ [ᴴtʃʰʒ̩] 'to sell', /ᴴtʂʰɹ̩/ [ᴴtʂʰʐ̩] 'dollar'. Fricative vowels are found in many languages of Southwest China. For example, they are attested in Northern Ngwi (Nuosu) (Li & Ma 1983:36, Bradley 1979:70), Lisu (Bradley 2003:224), Naxi and Mosuo (Michaud 2008). In these languages, syllabic fricatives are often analyzed as allophones of high vowels (of /i/ in Chinese; of /i/ or /y/ in Nuosu and Lisu; and of /ɯ/ in Naxi and Mosuo, see references above). This option, however, does not appear possible for Xumi, where the syllabic consonant /ɹ̩/ contrasts with the entire range of high vowels (/i, ɨ, u/), as in /ᴴtsi/ 'lock', /ᴴtsɹ̩/ 'leopard, panther', /ᴿᴾʌɐ-tsɨ/ 'to filter tea', /ᴿtsu/ 'to be in debt'. We therefore analyze it as a separate phoneme in this language.

Consonant clusters

The approximant /w/ and /j/ occur in the second position in consonant clusters, where they may be realized as secondary labialization or palatalization of the first position consonant.

/j/ occurs after bilabials, alveolars, alveolopalatals, velars, nasals, and laterals. In most cases it is restricted in co-occurrence with the vowel /ɛ/ (see on vowels below). In addition, it

marginally co-occurs in clusters with alveolars, followed by the vowels /õ, ɑ̃/, as in /^{RP}mjɛ-tjõ/ ‘to add’ (compare, /^{R}dõ/ ‘wild cat’), /^{R}tjɑ̃/ ‘to add up’ (compare, /^{EP}tɑ̃-tɑ̃/ ‘to chat’).

/w/ occurs after alveolars, postalveolars, alveolopalatals, velars, uvulars, laterals, and /ɹ/; most frequently before /i, ɐ/, as well as before /e, ɛ, ɑ, ɐ̃, ɑ̃/. If preceded by a palatal initial and/or followed by the front vowels /i, e, ɛ/, /w/ is palatalized and realized as [ɥ]. For example, /^{R}dʑwɛ/ [^{R}dʑɥɛ] ‘fang’ vs. /^{R}dʑwɐ/ [^{R}dʑɥɐ] ‘snow’, /^{LP}butɕwɛ/ [^{LP}butɕɥɛ] ‘whip’ vs. /^{H}tɕwɐ/ [^{H}tɕɥɐ] ‘sweat’, /^{EP}gwɛlɑ/ [^{EP}gɥɛlɑ] ‘to hunt’ vs. /^{RP}ɐ-gwɐ/ [^{RP}ɐ-gwɐ] ‘uncle’, /^{RP}dʑi-tɕ^{h}wɐ/ [^{RP}dʑi-tɕ^{h}ɥɐ] ‘to hang’, /^{R}ʎwe/ [^{R}ʎɥe] ‘heavy’; /^{H}twi/ [^{H}tɥi] ‘mule’ (compare, /^{H}twɐ/ ‘to plant’), /^{H}ts^{h}wi/ [^{H}ts^{h}ɥi] ‘paint, lacquer’ (WT *tshos*) (compare, /^{R}ts^{h}wɐ/ ‘fat’).

Consonant lenition

Xumi has a set of productive lenition rules, which transform most voiced and voiceless aspirated stops and affricates into spirants. This happens when these initials appear intervocalically—in compounds (most commonly in disyllabic numeral-classifier and verb-object collocations) as well as when the verb root is preceded either by a prefix or by a negator. Lenition appears to mostly operate within disyllabic domains. The outputs of the above rules are by and large allophones of the corresponding stops and affricates (such as [β, ɸ, χ]), but also independent phonemes that can occur word-initially (the remaining phonemes are listed in the table below). For example:

Change	Examples
b > β	/^{R}bjɛ/ ‘leaf’ > /^{LP}sɛ̃-βjɛ/ [^{LP}sɛ̃-ɥɛ] ‘tree leaves’
p^h > ɸ	/^{H}p^hi/ ‘to weave’ > /^{RP}ʁu ɸi/ [^{RP}ʁu ɸɥi] ‘to plait hair’
dz > z	/^{H}dzjɛ/ ‘to ride’ > /^{RP}rɑ̃-zjɛ/ ‘to ride a horse’
dʒ > ʒ	/^{H}dʒɛ̃/ [^{H}dʒẽ] ‘to fly’ > /^{R}be-ʒɛ̃/ [^{R}be-ʒẽ] ‘to take off’
dʑ > ʑ	/^{R}dʑɑ̃/ ‘to have, to possess’ > /^{LP}me = ʑɑ̃/ ‘not have’
$tɕ^h$ > ɕ	/^{R}$tɕ^h$ĩ/ ‘to drink’ > /^{EP}je ɕĩ/ ‘to smoke tobacco’
g > ɣ	/^{H}gɑ̃/ ‘illness’ > /^{LP}bɯ-ɣɑ̃/ ‘smallpox’ (from /^{R}bɯ/ ‘fly’)
k^h > x	/^{H}k^he/ ‘to pour’ > /^{RP}mjɛ-xe/ ‘to pour down’
q^h > χ	/^{H}q^ho/ ‘bowl’ > /^{RP}sɛ̃-χo/ ‘wooden bowl’[6]

Lenition in Xumi is regular and affects most stops and affricates (with the only exception of /ts^h/ and /$tʃ^h$/), although the degree of contrast varies slightly. (In addition, we have no examples of the lenition of the voiced uvular stop, possibly, due to its low frequency.) For example, while bilabial and alveolar stops and affricates show a clear case of alternation between a stop or an affricate in the word-initial position and its corresponding lenited allophone in the word-medial position, the lenition in velar and uvular stops is less categorical. For example, in the compound /^{RP}dʑi-q^hɯ/ ‘one year’, the initial /q^h/ of the words /^{H}q^hɯ/ ‘year’ does not undergo the otherwise pervasive change to [χ]. In a similar fashion, in the compound /^{LP}sɛ̃ k^hɯ/ ‘root of a tree’, the initial /k^h/ of the word /^{R}k^hɯ/ ‘root’ does not

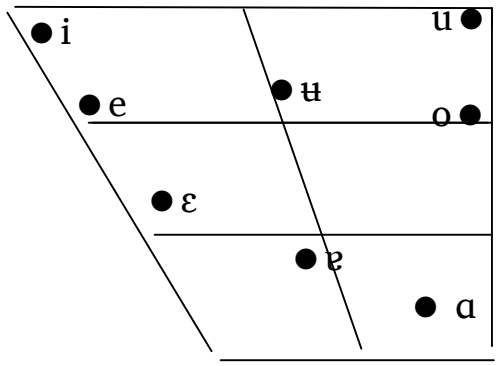
undergo lenition to [x]. Overall, the stability of spirantization may be attributed to the frequency of the item in question (high stability in high frequency phrases and variable in low frequency phrases).

Vowels

The Xumi vowel system comprises 8 oral vowels and 6 nasal vowels.

Oral vowels

i	^{H}tsi	'lock'		
e	^{RP}tseme	'flint stone'	^{H}ts^{h}e	'arm'
ɛ			^{RP}be-ts^{h}jɛ	'lard'
ɐ	^{RP}k^{h}ɐ-tsɐ-tsɐ	'to bundle'	^{H}ts^{h}ɐ	'salt'
ʉ	^{RP}ʎɐ-tsʉ	'to filter tea'		
u	^{R}tsu	'to be in debt'	^{R}ts^{h}u	'ghost'
o	^{RP}tsõtso	'bedroom'	^{H}ts^{h}o	'deer; lungs'
ɑ	^{H}tsɑ	'to jump'		



Front mid vowels contrast two degrees of vowel height: /e/ vs. /ɛ/, as in the following examples (where these vowels are also contrasted with /i/): /^{R}ji/ ‘wart’, /^{R}je/ ‘to lick’, /^{R}jɛ/ ‘vegetable oil’.

The front vowel /ɛ/ seems to be limited to co-occur only with [j] (with only one exception in our present corpus of ca. 1,500 words, e.g. /^{RP}lɑɹɛ/ ‘turban’). For example, /^{H}pjɛ/ ‘to climb’, /^{H}tjɛ/ ‘(large old-style) cutting board (for cutting bones)’, /^{R}gjɛ/ ‘eggplant’, /^{H}mjɛ/ ‘bamboo’. /ʉ/ co-occurs with bilabial, alveolar, velar and uvular stops, and with alveolar, postalveolar, and alveolopalatal affricates and fricatives. Consider some examples of the contrast between /u/ and /ʉ/ (also contrasted with /o/): /^{R}bu/ ‘crops’, /^{R}bʉ/ ‘fly’, /^{LP}boxo/ ‘gourd’; /^{H}su/ ‘to count’, /^{H}sʉ/ ‘to wipe’, /^{EP}soje/ ‘saw’ (WT *sog le*); /^{LP}q^{h}ulɑ/ ‘crow’, /^{H}q^{h}ʉ/ ‘year’, /^{H}q^{h}o/ ‘bowl’.

Contrast between /ɐ/ and /ɑ/ can be illustrated with the following minimal pairs: /^{H}pɐ/ ‘to speak’ vs. /^{H}pɑ/ ‘to arrive’, /^{H}lɐ/ ‘wolf’ vs. /^{H}lɑ/ ‘tiger’, /^{LP}ʎɐ-zɐ/ ‘have washed’ vs. /^{LP}ʎɐ-zɑ/ ‘thin, skinny’, /^{H}q^{h}wɐ/ ‘horn; to steal’ vs. /^{H}q^{h}wɑ/ ‘far’.

Nasal vowels

The nasal vowels include /ĩ, ɛ̃, ɐ̃, õ, ɑ̃/, as in the following examples: /^{LP}mĩdɑ/ ‘pitiful’, /^{H}bɛ̃/ ‘measure cup for grain’, /^{H}bɐ̃/ ‘millet’, /^{H}bõ/ ‘thick’, /^{H}bɑ̃/ ‘yak’; /^{H}hĩ/ ‘man, person’, /^{H}hɐ̃/ ‘to cut’, /^{H}hõ/ ‘to blow’, /^{H}hɑ̃/ ‘deep; vegetable’. /ĩ/ can be realized as [ĩ] or [ẽ], in free variation. Compare the two realization of the word /^{H}hĩ/ ‘man, person’: (a) [^{H}hĩ] in isolation (as above) and (b) [^{H}hẽ] in the compound /^{EP}ʃɯ-hĩ/ [^{EP}ʃɯ-hẽ] ‘Xumi people’. After postalveolar and alveolopalatal initials, /ɛ̃/ is realized as [ẽ] (as in /^{H}dʒɛ̃/ [^{H}dʒẽ] ‘to fly’). In addition, Xumi has one marginal nasal vowel /ə̃/, which occurs in only one word in our corpus (e.g. /^{LP}mə̃dɑ ^{R}ʁo/ ‘on the roof, upstairs’, compare with /^{LP}mĩdɑ/ ‘pitiful’).

Syllable Structure

The canonical Xumi syllable minimally consists of an initial consonant, a nucleus and a tone. It may also contain an optional element in the following linear structure: (C1)(C2)V, where C1 can be any consonant, and C2 can only be or -w- or -j-; V stands for vowel (or the syllable consonant /ɹ̩/), and parentheses indicate optional constituents. A non-phonemic glottal stop

can be inserted at the left edge of a vowel-initial stressed syllable (e.g. /^{H}õ/ [^{H}ʔõ] ‘collar’, /^{H}ɐ̃/ [^{H}ʔɐ̃ʔ] ‘sheep’) and at the left edge of a vowel-initial root (e.g. /^{RP}mjɛ-õ/ [^{RP}mjɛ-ʔõ] ‘to swallow’, /^{RP}ʎɐ-ɐ̃/ [^{RP}ʎɐ-ʔɐ̃ʔ] ‘to be drunk’).

(1) V /^{H}ɐ̃/ ‘sheep’, /^{H}ã/ ‘self’

(2) CV /^{H}sɐ/ ‘to know’, /^{EP}tã-tã/ ‘to chat’

(3) CCV /^{H}swɐ/ ‘to whet (a knife)’, /^{R}tjã/ ‘to add up’

Similar to its linguistic neighbors, Xumi is phonologically monosyllabic with a strong tendency towards disyllabicity in its lexicon. Disyllabic feet are domains for the phonological processes of lenition and vowel assimilation.

Polysyllabic words are mostly composite, e.g. /^{EP}mã-tʃwe/ ‘butter tea’ (from /^{H}mã/ ‘butter’, /^{H}tʃwe/ ‘tea’), /^{RP}lɑwu-dʑwɐ/ ‘peach’ (from the bound root /dʑwɐ/ ‘fruit’), /^{LP}ɲɐmi bu-bu/ ‘sunflower’ (from /^{LP}ɲɐmi/ ‘sun’, /^{RP}bu-bu/ ‘flower’). Xumi also has a handful of di-, tri- and tetra-syllabic monomorphemic words (e.g. /^{EP}l̥ɐβi/ ‘ear’, /^{RP}ɲiɹge/ ‘morning’, /^{LP}ɕãtsɹpɑpɑ/ ‘bat’, a loan from the local Pumi dialect, [ɕõ^{35}gue^{55}pA^{55}pA^{55}], Lu 2001:375).

In a few cases in our corpus (mostly involving low vowels), we observe that some syllables end rather abruptly, as if followed by a glottal stop. The examples include /^{H}dʑɐ/ [^{H}dʑɐʔ] ‘water’, /^{H}wɐ/ [^{H}vɐʔ] ‘tooth’, /^{H}lɑ/ [^{H}lɑʔ] ‘tiger’, /^{H}ɐ̃/ [^{H}ʔɐ̃ʔ] ‘sheep’. No contrastive pairs involving a glottal stop coda have, however, been found. Furthermore, one and the same

word may be realized with or without a glottal stop. For example, compare the two realizations of the word /^{H}lɑ/ ‘tiger’. In our corpus, these syllables typically associate with the high tone.

Prosodic organization

Xumi is a tone language. Xumi shares the areal prosodic type of languages of Southwestern Sichuan in having a sparse tone system (cf. Evans 2008, 2009 for an overview and discussion). In such a system, no more than one pitch contour is pronounced per word (or longer phonological unit). This is similar to its neighboring languages, such as Lizu (Chirkova & Chen, in press). Most Xumi syllables (roots) have etymological tones, whereas affixes are toneless and may carry all surface tones, depending on the tone of the root. Xumi function words and discourse particles (e.g. the genitive particle /ji/, the topic marker /ɹ̩/ in the appended text) are never pronounced in isolation. Their surface pitch contour depends on the tone of the preceding (host) lexical word (similar to tonal realization in compounds).

Given the current state of our knowledge and the limited corpus that we have at our disposal, the present overview is not meant to be exhaustive in its description. Instead, it is limited to lexical tonal contrasts and tonal patterns in disyllabic compounds, leaving a broader range of morphosyntactic contexts and intonational patterns for more detailed follow-up work.

Tone and tonal melodies on lexical words

On monosyllabic roots, we observe a two-way tonal contrast: (1) rising (R), as in /^{R}je/ ‘to lick’, /^{R}wɐ/ ‘cow’, and (2) high (H), as in /^{H}je/ ‘tobacco’, /^{H}wɐ/ [^{H}vɐʔ] ‘tooth’. Of the two contrastive tones, the rising tone is more consistent in its rising pitch contour across lexical items. The high tone, on the other hand, is subject to considerable variation. Its pitch contour may be (a) rising (as in /^{H}je/ [je^{24}] ‘tobacco’ and /^{H}ʒʉ/ [ʒʉ^{25}] ‘to stamp’) or (b) falling (as in /^{H}dʑo/ [dʑo^{252}] ‘swan’). Note that perceptually, the high contour in the word /^{H}je/ [je^{24}] ‘tobacco’ sounds like a high level tone. This may be due to its early f0 peak alignment, especially in comparison to the rising contour in the word /^{R}je/ ‘to lick’. Here we label this tonal category as “high” in order to highlight the difference from the rising tone category. The consistent difference between the rising tone and the high tone appears to be in the alignment of f0 peak with regard to the segmental anchor, where the rising tone shows a later peak than the high tone. Conversely, the pitch level of the start of rising as well as the rising peak may vary. This is illustrated in Figures 1 and 2, where we observe a higher rising peak in the rising tone in the word /^{R}je/ ‘to lick’ (in the minimal pair /^{H}je/ ‘tobacco’ vs. /^{R}je/ ‘to lick’), but a lower peak in the rising tone in the word /^{R}wɐ/ ‘cow’ (in the minimal pair /^{H}wɐ/ ‘tooth’ vs. /^{R}wɐ/ ‘cow’). For both pairs, the early alignment of the f0 peak seems to lead to the perception of a rather level tone, despite the fact that there is a clear rising pitch contour on both the high tone and the rising tone.

Figure 1. Pitch contours of the high (H) and rising (R) tones illustrated with the minimal pair /^{H}je/ ‘tobacco’ and /^{R}je/ ‘to lick’

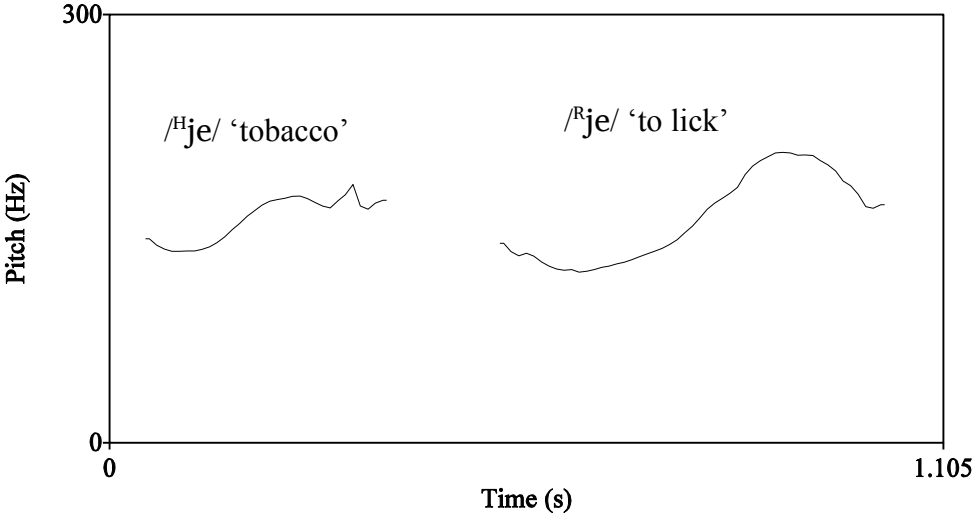
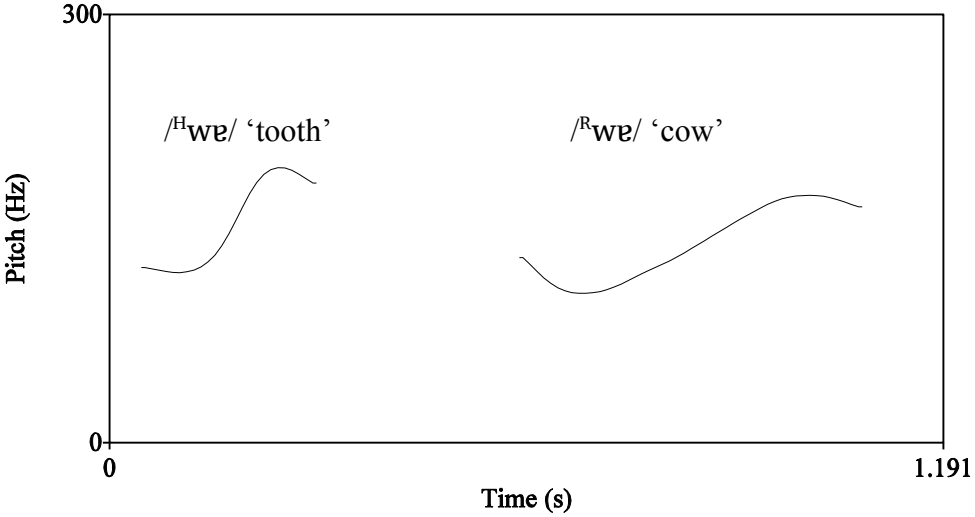
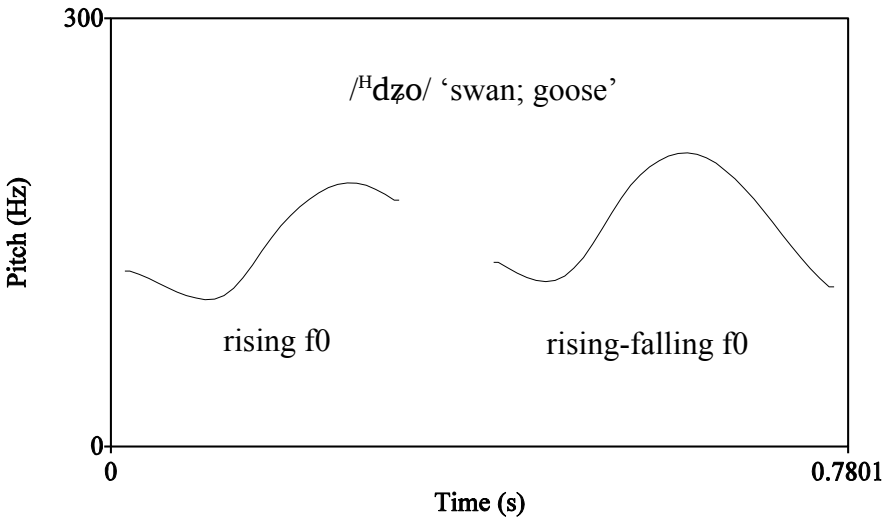


Figure 2. Pitch contours of the high (H) and rising (R) tones illustrated with the minimal pair /Hwɐ/ 'tooth' and /Rwɐ/ 'cow'



We note, furthermore, that the high tone may be realized with a continued falling after the alignment of the f0 peak in the early part of the syllable, giving the perception of a falling tone. This is illustrated in Figure 3 with two instantiations of the high rising tone in the word /Hdʑo/ 'swan; goose'.

Figure 3. Pitch contours of the two instantiations of the word /^{H}dʑo/ ‘swan; goose’: A rising f0 contour vs. a rising-falling f0 contour



Similar to Lizu, the rich latitude of tonal variation in Xumi may be due to the fact that there are only two tonal contrasts to be made in this language over monosyllabic words. Given this amount of variation, we refrain ourselves from using the five-scale pitch system developed by Yuen Ren Chao (1930), as it would overrepresent the actual amount of lexical tonal contrasts in Xumi.

In polysyllabic monomorphemic words, we observe a three-way contrast of tonal melodies. No minimal three-way contrast of the three tonal melodies has been attested in Xumi, whereas binary tonal contrasts are relatively common (see examples below). The pattern is broadly similar to that in the neighboring Lizu language (Chirkova & Chen, in press), but it also displays a number of differences, as detailed below. To give one example, while in Lizu, the three-way contrast of tonal melodies is correlated with relative durational differences between the syllables, Xumi appears to rely instead on the melodic difference between the three patterns, without the accompanying durational differences between the syllables.

In our analysis, such tonal melodic difference is reminiscent of stress effect in polysyllabic words in stress languages. Similar, again, to Lizu, this suggests the existence of a hybrid prosodic system in Xumi, in which the pitch contour of the prosodic domain is correlated with the prominence pattern. In order to better reflect this correlation and to bring about, what appears to us, to be the crucial prosodic contrasts within polysyllabic domains in this language, we opt for the notation system that represents the prominent syllable(s) within the domain, which we originally developed for the Lizu language (Chirkova & Chen, in press). This hybrid analysis and the associated notation system are distinct from an alternative autosegmental analysis of the data (as in, for instance, Chirkova & Michaud 2009). In our opinion, the approach adopted presently accounts better for the strong correlation between the prominence pattern and the pitch contour of the domain. Naturally, further investigation is in order to confirm these preliminary observations and to gain a better understanding of the prosodic organization of this language.

The three tonal melodies on polysyllabic words are as follows:

(1) Equally-Prominent Contour (EP): There is no salient rise or fall over any of the syllables. Rather, it seems to be high-level pitch contours throughout the two syllables. This is different from Lizu, where we usually observe a slightly lowered level pitch contour over the second syllable (Chirkova & Chen, in press). This pattern is mostly attested in monomorphemic words and in loanwords. For example, /^{EP}l̥ɐβi/ ‘ear’, /^{EP}poqɑ/ ‘shoe’, /^{EP}ŋ̊ɑmõ/ ‘camel’ (WT *rnga mo*), /^{EP}bɐkɐɹã/ ‘spider’.

(2) Left-Prominent Contour (LP): The high f0 peak is realized before the end of the first syllable, where the pitch starts to fall already and it continues to fall in the second syllable. For example, /^{LP}ɲɐqõ/ ‘nose’, /^{LP}bemi/ ‘axe’, /^{LP}q^{h}ɐ-χɐ/ ‘to itch’, /^{LP}ʎwɐʁumi/ ‘lizard’.

(3) Right-Prominent Contour (RP): The high f0 peak is realized over the last syllable of the word, which also sounds more prominent. The high peak can be realized earlier, which gives the perception of a high level tone or later, which lends to the perception of a rising tone. No contrastive pairs for the two patterns have so far been found. We analyze them here as belonging to the same pattern. For example, /^{RP}ʁu-l̥o/ 'head', /^{RP}dʐãhõ/ 'house', /^{RP}be-mi/ 'sow', /^{RP}ɲiɹge/ 'morning'. This is different from Lizu where the last prominent syllable typically shows a falling f0 contour.

Tone in compounds

Xumi generally conforms to the areal characteristics, in which the prosodic pattern of the leftmost root determines in many cases the tonal melody of the whole compound domain. The observed patterns are reminiscent of tonal spreading effect over post-lexical domains, as discussed in previous work on the neighboring languages (see Evans 2009 for an overview). Nonetheless, we refrain from analyzing such spreading effect as the decomposition of the lexical tones and the reassociation of these individual tones to the following syllables sequentially. This is because our data suggest that the left-most lexical tone is realized over the entire derived compound domain. This pattern is different from the prediction of the decomposition analysis.

(i) *Disyllabic domains*

If the tone of the leftmost monosyllabic root is high, the resulting compound has the left-prominent pattern. Conversely, if the tone of the leftmost monosyllabic root is rising, the resulting melody is right prominent (see examples below). Note that on the compound (i.e.

postlexical) level, we adopt the same notation system that we use on the lexical level. However, at the current stage of research, it is unclear whether these two levels share the same level of prosodic organization. It is in fact plausible that the lexical-level prominence difference may be different from the post-lexical difference, an issue to be clarified in follow-up studies.

/^{H}sɛ̃/ ‘wood, tree’ + /^{H}q^{h}o/ ‘bowl’ = /^{LP}sɛ̃-χo/ ‘wooden bowl’

/^{H}sɛ̃/ ‘wood, tree’ + /^{R}k^{h}ʉ/ ‘root’ = /^{LP}sɛ̃ k^{h}ʉ/ ‘root of a tree’

/^{R}ɦõ/ ‘silver’ + /^{H}q^{h}o/ ‘bowl’ = /^{RP}ɦõ-χo/ ‘silver bowl’

/^{R}le/ ‘hand’ + /^{R}bjɛ/ ‘leaf’ = /^{RP}le-βjɛ/ ‘palm of the hand’

Transcription of the appended text

The original recording (made with a solid-state recorder Fostex FR-2 and a Beyerdynamic M88 N microphone) has been made available to the JIPA along with this analysis. In the transcription, only lexical items are marked for tone, whereas function words are not.

North wind and the sun

Semi-narrow phonetic transcription

^{RP}tɕ^{h}ike ^{LP}ʔine ^{H}l̥e ɲi | ^{LP}ɲɐmi ^{RP}ɲɐ=ko | ^{RP}ɲɐ=ko | ^{H}ɲi χɑ ^{RP}tʂɑ=ji | ^{LP}ts^{h}elo

^{H}pɐ=ʎo=wɛ̃=ji || ^{LP}ts^{h}elo ^{H}pɐ=ʎo=wɛ̃=ji ^{H}ʎɐ=ɹ̩ | ^{H}tɐ | ^{H}hĩ ^{R}dʑĩ ^{H}tɐ

^{H}pɑ = tɕ^{h}õ = ʎo = wɛ̃ = ji || ^{H}hĩ ^{H}t^{h}i = ɹ̩ | ^{H}hĩ | ^{RP}t^{h}ɐ = no | ^{H}ɲi | ^{H}gu | ^{LP}negu ^{RP}ʎɐ-dʑi-p^{h}ɥ

^{RP}dɐ = ʁo | ^{H}pɐ = ʎo = wɛ̃ = ji || ^{LP}negu ^{RP}ʎɐ-dʑi-p^{h}ɥ ^{RP}dɐ = ʁo ^{H}pɐ = ʎo = wɛ̃ = ji ^{H}ʎɐ = ɹ̩ |

^{H}l̥e = ɹ̩ | ^{H}ɾu = βɐ = se = ɹ̩ ^{H}l̥e = ^{H}pe = ^{H}tɕ^{h}o = ʎo = wɛ̃ = ji || ^{H}ɾu = βɐ = se ^{H}l̥e ^{H}ʎɐ = ɹ̩ | ^{H}t^{h}i

^{RP}ʎɐ-p^{h}ɥ ^{LP}me = dã ʎo = wɛ̃ = ji || ^{RP}ʎɐ-p^{h}ɥ ^{LP}me = dã ^{RP}ʎɐ = xɐ = ʎo = wɛ̃ = ji ʎɐ = ɹ̩ |

^{RP}dʑi-dʑo = ɹɛ̃ = nã = ɹ̩ | ^{LP}ɲɐmi ^{RP}dʑi-ɕõ xɐ = ʎo = wɛ̃ = ji || ^{LP}ɲɐmi ^{H}tɕ^{h}õ = ʎɐ = ɹ̩ |

^{LP}ɲɐmi ^{RP}q^{h}u-tʃɥ bɥ = se = ɹ̩ | ^{RP}bə-ts^{h}ɹ̩ pe = ʎɐ = se ^{H}tɕ^{h}wɐ ^{RP}bə-pã = ʎɐ = ɹ̩ | ^{LP}negu |

^{LP}negu | ^{RP}ʎɐ-p^{h}ɥ ^{H}dã ^{H}xɐ = ʎo = wɛ̃ = ji || ^{RP}t^{h}ɐ = ʎɐ = ɹ̩ | ^{RP}dʑi-lɑ ^{RP}pɛ̃xuɐ ^{LP}me = ʑã |

^{H}t^{h}o ^{LP}me = ʑã | ^{H}t^{h}i ^{LP}ɲɐmi ^{H}χɑ ^{H}t^{h}o ^{R}dʑã | i^{21}sɹ̩^{55} | ^{H}t^{h}i ^{R}wɛ̃ = ji ||

Interlinear morphemic glossing

^{RP}tɕ^{h}ike	^{LP}ʔine	^{H}l̥e	ɲi |	^{LP}ɲɐmi	^{RP}ɲɐ = ko |	^{RP}ɲɐ = ko |
now	in.the.past	wind	CONJ	sun	two=item	two=item

^{H}ɲi χɑ	^{RP}tʂɑ = ji |	^{LP}ts^{h}elo	^{H}pɐ = ʎo = wɛ̃ = ji ||	
who only	strong=PROG	compare	speak=NMLZ.PST=COP=PROG	

^{LP}ts^{h}elo	^{H}pɐ = ʎo = wɛ̃ = ji	^{H}ʎɐ = ɹ̩ |	^{H}tɐ |	^{H}hĩ	^{R}dʑĩ
compare	speak=NMLZ.PST=COP=PROG	complete=TOP	there	person	one

^{H}tɐ	^{H}pɑ = tɕ^{h}õ = ʎo = wɛ̃ = ji ||	^{H}hĩ	^{H}t^{h}i = ɹ̩ |	^{H}hĩ |
there	arrive=come=NMLZ.PST=COP=PROG	person	that=TOP	person

^{RP}t^{h}ɐ = no |	^{H}ɲi |	^{H}gu |	^{LP}negu	^{RP}ʎɐ-dʑi-p^{h}ɥ	^{RP}dɐ = ʁo |
that=on	you	clothes	clothing	PFV-one-take.off	do=IRR

^{H}pɐ = ʎo = wɛ̃ = ji || ^{LP}negu ^{RP}ʎɐ-dʑi-p^{h}ɥ ^{RP}dɐ = ʁo

speak=NMLZ.PST=COP=PROG clothing PFV-one-take.off do=IRR

^{H}pɐ = ʎo = wɛ̃ = ji ^{H}ʎɐ = ɹ̩ | ^{H}l̥e = ɹ̩ | ^{H}ɹu = βɐ = se = ɹ̩

speak=NMLZ.PST=COP=PROG complete=TOP wind=TOP with.all.might=make=PRF=TOP

^{H}l̥e = ^{H}pe = ^{H}tɕ^{h}õ = ʎo = wɛ̃ = ji || ^{H}ɹu = βɐ = se ^{H}l̥e

wind.blow=IPFV=come=NMLZ.PST=COP=PROG with.all.might=make=PRF wind.blow

^{H}ʎɐ = ɹ̩ | ^{H}t^{h}i ^{RP}ʎɐ-p^{h}ɥ ^{LP}me = dã ʎo = wɛ̃ = ji ||

complete=TOP that PFV-take.off NEG=be.able NMLZ.PST=COP=PROG

^{RP}ʎɐ-p^{h}ɥ ^{LP}me = dã ^{RP}ʎɐ = xɐ = ʎo = wɛ̃ = ji

PFV-take.off NEG=be.able complete=go.PRF=NMLZ.PST=COP=PROG

ʎɐ = ɹ̩ | ^{RP}dʑi-dʑo = ɹɛ̃ = nã = ɹ̩ | ^{LP}ɲɐmi ^{RP}dʑi-ɕõ

complete=TOP one-instant=AGT=inside=TOP sun one-come

xɐ = ʎo = wɛ̃ = ji || ^{LP}ɲɐmi ^{H}tɕ^{h}õ = ʎɐ = ɹ̩ | ^{LP}ɲɐmi

go.PRF=NMLZ.PST=COP=PROG sun come=complete=TOP sun

^{RP}q^{h}u-tʃɥ bɥ = se = ɹ̩ | ^{RP}bə-ts^{h}ɹ̩ = pe = ʎɐ = se ^{H}tɕ^{h}wɐ

inside-burning go=PRF=TOP outward-hot=IPFV=complete=PRF sweat

^{RP}bə-pã = ʎɐ = ɹ̩ | ^{LP}negu | ^{LP}negu | ^{RP}ʎɐ-p^{h}ɥ ^{H}dã

outward-perspire=complete=TOP clothing clothing PFV-take.off be.able

^{H}xɐ = ʎo = wɛ̃ = ji || ^{RP}t^{h}ɐ = ʎɐ = ɹ̩ | ^{RP}dʑĩ = lɑ ^{RP}pɛ̃xuɐ

go.PRF=complete=COP=PROG there=complete=TOP one=also means

^{LP}me = ʑã | ^{H}t^{h}o ^{LP}me = ʑã | ^{H}t^{h}i ^{LP}ɲɐmi ^{H}χɑ ^{H}t^{h}o ^{R}dʑã |

NEG=have means NEG=have that sun only means have

i^{21}ɹ̩^{55} | ^{H}tʰi ^{R}wɛ̃=ji ||

meaning that COP=PROG

Acknowledgment

We would like to thank our principal language consultants, Mr. Waxia Danyou 瓦下旦友 and Mrs. Dazhen Lachu 打珍拉初, for their patience and assistance. We are grateful to Jonathan Evans and the anonymous reviewers of this journal for helpful comments and suggestions. Thanks are also due to Franz Huber (ETH Zürich) for creating the map in this paper. We gratefully acknowledge the financial support of the Agence Nationale de la Recherche (France) as part of the research project "What defines Qiang-ness? Towards a phylogenetic assessment of the Southern Qiangic languages of Muli" (ANR-07-JCJC-0063) to Katia Chirkova. Yiya Chen is currently supported by the Netherlands Organization for Scientific Research (NWO-VIDI 016084338) and the European Research Council (ERC-Starting Independent Researcher Grant, 206198).

References

Boersma, Paul & David Weenink. 2009. Praat: Doing phonetics by computer. http://www.praat.org/.

Bradley, David. 1979. *Proto-Loloish* (*Scandinavian Institute of Asian Studies, Monograph Series 39*). London: Curzon Press

Bradley, David. 1989. Nasality as a prosody in Loloish. In David Bradley, Eugénie J.A. Henderson, & Martine Mazaudon (eds.), *Prosodic analysis and Asian linguistics: To*

honour R.K. Sprigg, 143–155. Canberra: Department of Linguistics, Research School of Pacific Studies, the Australian National University.

Bradley, David. 1997. Tibeto-Burman languages and classification. In David Bradley (ed.), *Tibeto-Burman languages of the Himalayas (Papers in Southeast Asian Linguistics no.14)*, 1–71. Canberra: Department of Linguistics, Research School of Pacific and Asian Studies, Australian National University.

Bradley, David. 2003. Lisu. In Graham Thurgood & Randy LaPolla (eds.), *The Sino-Tibetan Languages (Routledge Language Family Series)*, 222–235. London & New York: Routledge.

Büeler, Franziska. 2010. Ethnobotanical study among ethnic groups in the Shuiluo valley, Southwest China: Local knowledge of ritual plant use. MA Dissertation: Department of Geography, University of Zürich.

Chao, Yuen Ren. 1930. ə sɪstəm əv "toun-lɛtəz". *Le Maître Phonetique* 30, 24–27.

Chirkova, Katia. 2009. Shixing, a Sino-Tibetan language of South-West China: A grammatical sketch with two appended texts. *Linguistics of the Tibeto-Burman area* 32(1), 1–90.

Chirkova, Katia. 2012. The Qiangic subgroup from an areal perspective: A case study of languages of Muli. *Language and Linguistics* 13(1), 133–170.

Chirkova, Katia & Alexis Michaud. 2009. Approaching the prosodic system of Shixing. *Language and Linguistics* 10(3), 539–568.

Chirkova, Katia & Yiya Chen. In press. Lizu (Illustrations of the IPA). *Journal of the International Phonetic Association*.

Evans, Jonathan. 2008. 'African' tone in the Sinosphere. *Language and Linguistics* 9(3), 463–490.

Evans, Jonathan. 2009. Types of tone culminativity in languages of Sichuan and elsewhere. Manuscript, available at: http://www.ling.sinica.edu.tw/eip/FILES/publish/2009.4.30.24511354.9165533.pdf.

Guo Dalie & He Zhiwu. 1994. *Naxizu shi* [History of the Naxi]. Chengdu: Sichuan Nationalities Press.

Huang Bufan & Renzeng Wangmu. 1991. Shixingyu [The Shixing language]. In Dai Qingxia, Huang Bufan, Fu Ailan, Renzeng Wangmu & Liu Juhuang (eds.), *Zang-Mianyu shiwu zhong / Fifteen Tibeto-Burman languages*, 174–197. Beijing: Beijing Yanshan Chubanshe.

Li Min & Ma Ming. 1983. *Liangshan yiyu yuyin gailun* [Introduction to the phonetics of the Yi language of Liangshan Prefecture]. Chengdu: Sichuan Nationalities Press.

Lu Shaozun. 2001. *Pumiyu fangyan yanjiu* [A dialectal study of the Pumi language]. Beijing: Nationalities Press.

Matisoff, James A. 1973. *A grammar of Lahu*. Berkeley & Los Angeles: University of California Press.

Matisoff, James A. 1975. Rhinoglottophilia: the mysterious connection between nasality and glottality. In Charles A. Ferguson, Larry M. Hyman & John J. Ohala (eds.), *Nasálfest: Papers from a symposium on nasals and nasalization*, 265–287. Stanford: Language Universals Project.

Michaud, Alexis. 2008. Phonemic and tonal analysis of Yongning Na. *Cahiers de linguistique - Asie Orientale* 37(2), 159–196.

Muli Gazetteers Compilation Committee (Muli Zangzu Zizhixian Difang Zhi Bianzuan Weiyuanhui). 2010. *Muli Zangzu Zizhixian zhi* [Gazetteers of the Muli Tibetan Autonomous County (1991-2006)]. Beijing: Zhongguo Wenshi Chubanshe.

Sprigg, R. K. 1987. “Rhinoglottophilia” re-visited: Observations on “the mysterious connection between nasality and glottality”. *Linguistics of the Tibeto-Burman Area* 10(1), 44–62.

Sun Hongkai. 1983. Liujiang liuyu de minzu yuyan ji qi xishu fenlei [Minority languages of the Six River Valley and their genetic classification]. *Minzu Xuebao* [Scholarly Journal of Nationalities] 3, 99–274.

Sun Hongkai. 2001. Lun Zang-Mian yuzu zhong de Qiang yuzhi yuyan [On the Qiangic branch of the Tibeto-Burman language family]. *Language and Linguistics* 2(1), 157–181.

Weckerle, Caroline S., Franz K. Huber, Yang Yongping & Sun Weibang. 2006. Plant knowledge of the Shuhi in the Hengduan Mountains, Southwest China. *Economic Botany* 60(1), 3-23.

Appendix 1: C-V combinations in Lower Xumi, as based on a list of basic vocabulary of ca. 1,500 words

	i	e	ɛ	ɹ̩	ɐ	ɨ	u	o	ɑ	ĩ	ɛ̃	ɐ̃	õ	ɑ̃
Ø	✓	✓		✓	✓		✓	✓				✓	✓	✓
p	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓
pʰ	✓	✓	✓		✓	✓	✓		✓		✓	✓	✓	✓
b	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓
t			✓		✓		✓	✓	✓		✓			✓
tʰ	✓	✓	✓		✓	✓	✓	✓			✓			✓
d	✓		✓		✓	✓	✓	✓	✓		✓		✓	✓
k		✓	✓		✓	✓	✓	✓			✓			✓
kʰ	✓	✓			✓	✓	✓	✓		✓				
g	✓	✓	✓		✓		✓			✓				✓
q					✓		✓	✓	✓			✓	✓	✓
qʰ					✓	✓	✓	✓	✓			✓	✓	✓
ɢ					✓			✓						
ts	✓	✓		✓	✓	✓	✓	✓	✓				✓	✓
tsʰ	✓	✓	✓	✓	✓		✓	✓	✓	✓			✓	✓
dz	✓		✓	✓	✓	✓	✓	✓			✓		✓	✓
tʂ	✓						✓		✓					✓
tʂʰ				✓			✓	✓			✓			
dʐ	✓													
tʃ		✓		✓		✓					✓	✓	✓	
tʃʰ		✓		✓	✓	✓								✓
dʒ		✓				✓	✓	✓			✓		✓	
tɕ	✓	✓	✓		✓	✓	✓	✓		✓		✓	✓	
tɕʰ	✓	✓	✓		✓	✓	✓	✓		✓			✓	
dʑ	✓	✓	✓		✓		✓	✓	✓	✓	✓			✓
m̥			✓								✓			✓
m	✓	✓	✓		✓		✓	✓	✓	✓		✓	✓	✓
n̥									✓				✓	✓
n		✓			✓							✓	✓	✓
ɲ̥			✓										✓	
ɲ	✓		✓		✓	✓	✓	✓						✓

	i	e	ɛ	ɨ	a	ɯ	u	o	ɑ	ĩ	ɛ̃	ɐ̃	õ	ɑ̃
ŋ̊									✓					
ŋ					✓				✓					
s		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
z	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓
ʃ				✓		✓					✓	✓	✓	✓
ʒ				✓	✓	✓			✓		✓			✓
ɕ	✓	✓	✓		✓		✓	✓				✓	✓	✓
ʑ	✓	✓	✓		✓	✓	✓	✓						
x	✓		✓		✓		✓	✓	✓					
ɣ							✓							
ʁ		✓			✓		✓	✓	✓			✓	✓	✓
h										✓		✓	✓	✓
ɦ													✓	✓
w	✓	✓			✓	✓	✓	✓	✓			✓		✓
ɹ	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓
j	✓	✓	✓		✓					✓			✓	✓
l̥		✓			✓		✓	✓	✓					
l		✓			✓	✓	✓	✓	✓		✓			✓
ʎ̥	✓		✓		✓			✓						
ʎ	✓		✓		✓			✓					✓	

Clusters with *-w-*

	i	e	ɛ	a	ɑ	ɐ̃	ɑ̃
tw	✓			✓			
t^hw				✓			
dw		✓		✓			
kw		✓		✓			
k^hw				✓			
gw		✓	✓	✓			
qw						✓	
q^hw				✓	✓		
tsw				✓			
ts^hw	✓			✓			

	i	e	ɛ	ɐ	ɑ	ɐ̃	ɑ̃
dzw				✓			
tʃw							✓
tʃʰw						✓	
dʒw							
tʂw	✓						
tʂʰw						✓	
dʐw							
tɕw	✓	✓	✓	✓			
tɕʰw		✓		✓			
dʑw			✓	✓			
sw	✓			✓			
z							
ɕw	✓			✓			
ʑw			✓	✓		✓	
xw	✓	✓	✓			✓	
ɣw			✓				
ʁw							✓
ɹw				✓	✓		
ʎw		✓		✓	✓		

[1] In transcriptions "-" stands for morpheme boundary, and "=" stands for clitic boundary. See section "Word-level tone patterns" for the adopted system of tone notation.

[2] The two neighboring villages of Xiwa and Dongla are formerly Xumi-speaking, but have shifted to Gami in the recent decades.

[3] The three examples with alveolar stops (/ᴴtjɛ/ 'cutting board', /ᴴtʰjɛ/ 'below', and /ᴴdjɛ/ 'fox') are strongly palatalized and realized close to palatal stops, i.e. [cɛ], [cʰɛ], and [ɟɛ], respectively.

[4] In addition, Lower Xumi also has one prenasalized voiced stop initial, namely /ŋɡ/. In our corpus, it occurs in only one word, /^{RP}ɲɐ ŋɡɐ/ ‘to be scorched’, where the first syllable is a free morpheme meaning ‘fire’.

[5] Note that in prefixes (which are prosodically unstressed), such as the directional prefix /bu-/ ‘outward’, /u/ is reduced to a schwa, as in this example /^{RP}bə-ɲɑ̃/ ‘to push (outward)’.

[6] To this category also possibly belongs the word [^{LP}qʰɐ-χɐ] ‘to itch’, which is likely to be formed through reduplication (i.e., /^{LP}qʰɐ-qʰɐ/), similar to the reciprocal verb /^{LP}qɑ-qɑ/ ‘to help (each other)’.