Approaching the Prosodic System of Shixing[*]

Katia Chirkova   Alexis Michaud

CNRS, CRLAO   *CNRS, LACITO*

This article focuses on the prosodic organization of Shixing, a tonal Sino-Tibetan language spoken in the South-West of China. It is essentially based on an experiment that explores the derivational relationship between the three contrastive tones on monosyllables, /H/, /L/ and /HL/, and the three contrastive tones on phonological words of two syllables or more, likewise /H/, /L/ and /HL/. The process of tone derivation in phonological words of two syllables or more is determined by the presence or absence of lexical tone on the initial element of the phonological word (a morpheme or a word) as well as by the length and composition of the phonological word. The observed phenomena of tone derivation are here explained under the assumption that a prosodic domain in Shixing is characterized by metrical stress, which is the location for the insertion of either of the three lexical tones. The default location of stress is domain-initial. The lexical tone of a stressed syllable in initial position spreads onto the remaining syllables, followed, in the case of the lexical /L/ tone, by the addition of a postlexical [H] tone. In tonal domains that begin with a toneless syllable (e.g. prefix or proclitic), stress is shifted to the first stressable syllable to its right; the contrast between /L/ and /HL/ neutralizes to /L/, while /H/ remains unchanged. When the first stressable syllable is two syllables apart from the domain-initial position, all three tones are neutralized to /L/.

Key words: Shixing, prosody, tone, metrical stress, boundary tone
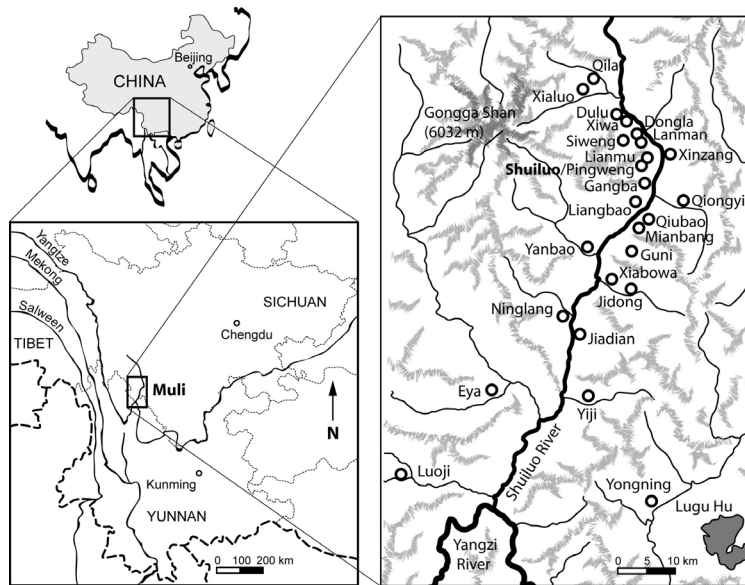
1. Introduction

This article focuses on the prosodic organization of Shixing (史興語), a tonal Sino-Tibetan language spoken in the South-West of China. It is essentially based on an experiment that explores the derivational relationship between the three contrastive tones

on monosyllables, /H/, /L/ and /HL/, and the three contrastive tones on phonological words of two syllables or more, likewise /H/, /L/ and /HL/. The experimental observations are supported and supplemented by non-experimental data derived from a corpus of Shixing narrative texts, of which one is appended to the article to facilitate the assessment of the validity of our analysis and conclusions based on natural speech data.

1.1 Shixing: location and linguistic affiliation

Shixing is spoken by approximately 1,800 people who reside along the banks of the Shuiluo River 水洛河 in Shuiluo Township 水洛鄉 of Muli Tibetan Autonomous County 木里藏族自治縣 (WT *smi li rang skyong rdzong*) in the South-West of Sichuan Province 四川省 in the People's Republic of China (PRC).

Map 1: Location of Shuiluo Township, Muli Tibetan Autonomous County[1]

Shixing is currently classified as belonging to the Qiangic subgroup of the Sino-Tibetan language family (Bradley 1997:36-37, H. Sun 2001, Thurgood 2003:17).

Shixing is one of the lesser-known Sino-Tibetan languages spoken in the PRC. Only two brief outlines in Chinese exist. They focus on two distinct sub-varieties of this language: that of the Lower Reaches of the Shuiluo river (H. Sun 1983), and that of its Upper Reaches (Huang & Renzeng Wangmu 1991). In addition to these two brief outlines, two comparative vocabulary handbooks on Tibeto-Burman languages, H. Sun et al. (1991:240-244) and Huang et al. (1992:646-647), present the phonological system of Shixing as well as approximately 1,000 and 1,800 Shixing words, respectively.[2] This article builds on these studies as well as on the first author's fieldwork on the Upper Reaches variety of Shixing (Chirkova 2007, 2009).

1.2 Shixing tones and tone domain

Shixing is a phonologically monosyllabic, tonal language with a strong tendency towards disyllabicity in the lexicon through affixation, compounding and reduplication. Most Shixing monosyllables are lexically specified for tone (roots), whereas affixes are toneless. The domain of the contrastive tones is the phonological word.

A phonological word in Shixing is a unit equal to or larger than one syllable, which, when larger than one syllable, is subject to the processes of consonant lenition and vowel harmony (Chirkova 2009). For example:[3]

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[2] The phonological analysis of Shixing in H. Sun et al. (1991) is identical to that in H. Sun (1983); that in Huang et al. (1992) differs slightly from the analysis in Huang & Renzeng Wangmu (1991). See Chirkova (2009) for a discussion.

[3] The phonemic transcription adopted in this study essentially follows the conventions proposed for the Upper Reaches sub-variety in Huang & Renzeng Wangmu (1991), with some minor adjustments based on the first author's fieldwork (Chirkova 2009). Shixing has a simple syllabic structure: (C)(G)V, where initial consonant and glide are optional. Since glides have a very restricted distribution, most syllables are simply (C)V.

Superscript letters, /^{H}a/, /^{LH}a/ and /^{HL}a/, are here adopted for tone notation instead of more current and visually preferable diacritics over the vowels, because currently available IPA fonts do not allow a combination of tone diacritics with the diacritic for nasality (Shixing has nasal vowels). Bound morphemes (affixes and clitics) are not marked for tone, if quoted in isolation. Square brackets are used for phonetic transcriptions (surface phonological representations) and slashes for phonemic material (the product of our analysis). The hyphen separates syllables in a word. The dot separates syllables within a monomorphemic polysyllabic word. The pound sign indicates a juncture between two tone domains. The equal sign separates an enclitic from its host word.

(1) [^{H}tɕyi] 'tea' + [^{LH}biæ] 'leaf' > [^{H}tɕyi-^{H}wæ] 'tea leaf'
(2) [^{H}tɕyi] 'tea' + [^{LH}tɕ^{h}ĩ] 'drink' > [^{H}tɕyi-^{H}çĩ] 'drink tea'

A phonological word in Shixing may be equivalent to a lexical word (defined here as representing one unit of meaning), e.g. [^{H}tɕyi-^{H}wæ] 'tea leaf', or to a syntactic phrase (defined here as a relatively independent group of words), e.g. [^{H}tɕyi-^{H}çĩ] 'drink tea'. The average Shixing phonological word is two syllables long. The longest phonological words do not exceed five syllables in length, e.g. [^{L}ba-^{L}ru-^{L}diæ-^{L}q^{h}ɜ-^{H}ʂ̩] 'spider web'.

In isolation, the three contrastive tones on monosyllabic phonological words are realized as one level tone, [H], and two contour tones, [LH] and [HL], as in the minimal tonal triplet in Table 1:[4]

Table 1: The three-way tonal contrast on monosyllabic phonological words

tone	example	meaning
[H]	[^{H}ts^{h}i]	to measure
[LH]	[^{LH}ts^{h}i]	ploughshare
[HL]	[^{HL}ts^{h}i]	section, joint

The three contrastive tones on phonological words of two syllables or more are realized as sequences of level tones, one on each syllable, namely:

- a sequence of H tones, i.e. [H-H-…-H], e.g. [^{H}miæ-^{H}ts^{h}i] 'bamboo joint' (< [^{H}miæ] 'bamboo', [^{HL}ts^{h}i] 'section, joint')
- a sequence of L tones on all syllables up to the penultimate and H on the last syllable, i.e. [L-L-…-H], e.g. [^{L}ʁɛ̃-^{H}ts^{h}i] 'back of the neck' (< [^{LH}ʁɛ] 'neck', [^{HL}ts^{h}i] 'section, joint')
- a sequence of H tone on the first syllable and L on all following syllables, i.e. [H-L-…-L], e.g. [^{H}ʁɑo-^{L}ts^{h}i =^{L}gɜ] 'want to measure swords' (< [^{HL}ʁɑo] 'strength', [^{H}ts^{h}i] 'measure', the volitional marker /gɜ/), see sentence (5) of the appended text

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[4] In terms of Chao Yuen Ren's tone letters, the three contrastive tones on monosyllabic words are represented as follows: (i) H is '55'; (ii) LH is '35' on syllables with voiceless initials (both plain and aspirated) and '14' on syllables with voiced initials; (iii) HL is '53' on syllables with voiceless initials (both plain and aspirated) and '341' on syllables with voiced initials (Huang & Renzeng Wangmu 1991:179-180, H. Sun et al. 1991:244). In addition to the three tones that are contrastive on monosyllables, previous studies posit a fourth tone, i.e. '33', said to occur only in polysyllabic words. This tone corresponds to our 'L' in phonological words of two syllables or more. For example, Huang & Renzeng Wangmu's (1991:180) [ma^{33}-rõ^{55}] 'high, tall' is [^{L}ma-^{H}rõ] in our notation.

We analyze the three contrastive tone patterns on phonological words of two syllables or more as the phonetic implementation of the same three contrastive tones as on monosyllabic phonological words. We treat the mode of association of tones to syllables as one-to-one mapping of tones to available syllables, followed by the spreading of the last tone. We note that the [L-L-…-H] tone pattern is distinct from the remaining two tone patterns in that its final [H] level does not spread. The [L-L-…-H] tone pattern is therefore taken to combine a lexical tone, L, which can spread, and a boundary H tone, which cannot spread and which is added to the final syllable of the domain post-lexically. The addition of this boundary tone stems from the prohibition of all-L tonal domains in this language. Cross-linguistically, addition of a final H tone in domains having /L/ tone is common. It is attested in languages as genetically diverse as Tibetan (J. Sun 1997:499), Japanese (Haraguchi 1999:19), Matengo & Kimatuumbi (Bantu) (Odden 2005:415), and Muka Qiang (Evans 2009). This boundary H tone, while dissimilar in origin from a lexical H tone, is inserted on the same level in the final tonal string (surface phonological representation of the utterance). On monosyllabic phonological words with /L/ tone, both the lexical L tone and the boundary H tone crowd on the only syllable there is, e.g. [^{LH}rõ] 'horse'. On phonological words of two syllables or more, the boundary tone is assigned to the final syllable of the word, e.g. [^{L}rõ=^{H}ji] 'of a horse'. In sum, the three contrastive tones is Shixing are here analyzed as /H/, /L/ and /HL/.

The relationship between the two types of contrastive tones, those on mono-syllables versus those on phonological words of two syllables or more, is not straight-forward and has hitherto not been systematically investigated. The logical assumption would be that tones on phonological words of two syllables or more derive from the tones of the constituting monosyllables (hereafter we refer to this derivational relation-ship as "word tone derivation"). The present study uses an experimental approach to explore this assumption.

2. Experiment: method, speaker, language materials

The experiment that underlies this study sets out to form phonological words by combining two elements (morphemes or words), of which both are lexically specified for tone, or only one is lexically specified for tone whereas the other one is toneless. The aims of the experiment are (i) to examine all possible combinations of toned and toneless elements, and (ii) to compare the tone of each resulting combination with the citation tones of the constituting elements. The range of possible combinations of toned and toneless elements is summarized in Table 2. The symbol 'Ø' stands for toneless elements (affixes). Rows represent the first element in a combination, which may be an affix, a root or a word. Columns represent the second element in a combination, which

may likewise be an affix, a root or a word. The intersection of a row and a column contains the resulting combination. The combination of two toneless elements within a word is non-existent (the shaded gray cell).

Table 2: Combinations of toned and toneless elements in phonological words of two syllables or more

		tone of the second element			
		H	**L**	**HL**	**Ø**
tone of the first element	**H**	H+H	H+L	H+HL	H+Ø
	L	L+H	L+L	L+HL	L+Ø
	HL	HL+H	HL+L	HL+HL	HL+Ø
	Ø	Ø+H	Ø+L	Ø+HL	

While we aimed at a complete coverage of all possible combinations as summarized in Table 2, not all combinations involving toneless elements (affixes) could have been experimentally tested. More precisely, while the synchronically productive process of word formation through prefixation offered us a chance to study combinations of a toneless element with a toned element (i.e. Ø+H, Ø+L, and Ø+HL), comparable combinations of a toned element with a toneless element (i.e. H+Ø, L+Ø, and HL+Ø) could not have been systematically examined, because word formation by suffixation is of restricted productivity in Shixing. Nevertheless, regularities of word tone derivation revealed through the tested combinations shed some light on tone derivation in words formed through processes with restricted productivity, as detailed in §3.2.1.

The experiment was conducted in March-April 2008 in the town of Qiaowa 喬瓦, the administrative seat of Muli Tibetan Autonomous County. The reported data were collected in four elicitation sessions from one adult male speaker, Lurong Duoding, the principal language consultant of the first author since 2005.[5] Examples with monosyllabic /HL/ words were checked for accuracy and supplemented by additional examples with the same language consultant in March 2009.

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[5] Lurong Duoding is a native speaker of the Upper Reaches sub-variety of Shixing, originally from Lanman [Hlã-Hmã] village in Shuiluo Township. In addition to Shixing, he is proficient in South-West Mandarin Chinese (a dialectal variety of Mandarin Chinese spoken in Yunnan and Sichuan), in Kami Tibetan (the local Muli variety of Tibetan), and in Prinmi (a Qiangic language spoken in Lanping and Ninglang counties in northwestern Yunnan, and in Muli and Jiulong counties in southwestern Sichuan). He has lived and worked in Qiaowa for several decades, but he visits his home township regularly and speaks his native language at home with his wife, also a native of Shuiluo, thereby maintaining a good proficiency in Shixing.

The materials for this study are mono- and disyllabic words (both nouns and verbs), taken from the Shixing vocabulary list compiled by the first author during her fieldwork in 2005 and 2006. We used 3-4 words for each tone in each of the studied categories (monosyllabic nouns, disyllabic nouns, monosyllabic verbs, disyllabic verbs). Both native Shixing words, e.g. [^{LH}rõ], /^{L}rõ/ 'horse', [^{H}pu-^{L}mi], /^{HL}pu-mi/, and loanwords (from Tibetan), e.g. [^{H}sɛ̃.^{H}tɕɛ̃], /^{H}sɛ̃.tɕɛ̃/ 'domestic animals' (WT *sems can*), were used.

The first stage of the experiment consisted in recording the target items, first in isolation and then inside carrier sentences. The Chinese equivalent of the target elements were provided orally as a prompt. Our language consultant was instructed to repeat each item twice. We used a total of three carrier sentences for nouns and nine carrier sentences for verbs. Here are some examples:[6]

(3)　^{L}ha =^{H}z̩# 　　NP　　^{L}ɲõ.
　　　this =TOP 　　　　COP
　　　'This is NP.', e.g. [^{L}ha =^{H}z̩# ^{H}ʔɛ̃ ^{L}ɲõ.] 'This is a sheep.'

(4)　^{H}ŋɜ# 　　V　　=^{L}tsʰa =^{L}wu =^{L}sɹ̩.
　　　1SG 　　　　　　=TERM =RES =PRF
　　　'I finished V.', e.g. [^{H}ŋɜ# ^{LH}tɕʰĩ =^{L}tsʰa =^{L}wu =^{L}sɹ̩.] 'I finished drinking.' (< [^{LH}tɕʰĩ], /^{L}tɕʰĩ/ 'drink')

The second stage of the experiment consisted in systematic combinations of two elements into di-, tri-, tetra- and pentasyllabic phonological words. The target items were recorded again first in isolation and then in the appropriate carrier sentence.

The use of carrier sentences led to the following observations. First, fully articulated phonological words may be followed by extrametrical syllables, as the copula /ɲõ/ in example (3) (< [^{LH}ɲõ], /^{L}ɲõ/ in isolation), and the verbal clitics /tsʰa/, /wu/ and /sɹ̩/ in example (4).[7] These syllables do not acquire any tone from their host word, nor do they

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6　The following symbols and abbreviations and are used in the glosses: 1=first person; 2=second person; 3=third person; <=derived from; >=shows the outcome of a derivation; ?=indicates a morpheme or word whose meaning is unclear; AGT=agent; ANM=animate; CMPR=standard of comparison; COM=comitative; COP=copula; DUR=durative; GEN=genitive; IPFV=imperfective; LOC=locative; NEG=negation; NM=nominal; NMLZ=nominalizer; PL=plural; PFV=perfective; PNT=patient; PRF=perfect; PST=past; PROG=progressive; RES=resultative; SG=singular; TERM=terminative; TOP=topic; VOC=vocative; VOL=volition; WT=Written Tibetan.

7　Verbal clitics comprise auxiliaries, negators, and interjections. Nominal clitics include case and discourse markers. In terms of their positioning in relation to other sentence elements, all Shixing verbal and nominal markers are enclitics, with the only exception of negators (the negative marker /mV/, subject to vowel harmony, and the prohibitive marker /tha/) that are proclitics instead. A nominal or a verbal clitic cannot appear in isolation, whereas combinations

surface their inherent tones. Instead, they are realized, phonetically, on a low pitch and are here analyzed as supplied with a phonological L tone before the phonetics. Extrametrical syllables attach to fully articulated phonological words and may influence their tone pattern. Tonal domains combining phonological words and enclitics consequently exhibit a number of additional tone patterns distinct from those on phonological words.

The second observation prompted by the use of carrier sentences is that the realization of tones may change depending on surrounding tones (§3.1).

The experiment reveals that word tone derivation in Shixing is essentially constrained by the presence or absence of tone on the initial element of the phonological word in question. The presentation of experimental results is therefore organized in three parts, including phonological words in which the initial element is toned (§3.2.1), phonological words in which the initial element is toneless (§3.2.2), and domains containing enclitics (§3.2.3).

3. Results

3.1 Tonal alternations in running speech

A comparison of the realization of target elements in isolation and in carrier sentences revealed the following two differences in the realization of tones (conditioned by the surrounding tones).

First, contour tone simplification. Monosyllabic [HL] words are realized as [H] when followed by a [L] tone (a phonological word with the lexical /L/ tone or an extrametrical syllable).[8] The endpoint of the [HL] contour is delayed into the following [L] syllable, where it is absorbed into a like [L] tone (cf. "prohibition of contours in like neighbor contexts" among the most recurrent tonal processes cross-linguistically, Hyman 2007b:13). Consider examples (5) and (6), presenting a nominal and a verbal contrastive [H]-[HL] pair, respectively: [^{H}ʂɿ] 'fishing net' vs. [^{HL}ʂɿ] 'tongue', and [^{H}pũ] 'move' vs. [^{HL}pũ] 'pile'. The contour tone [HL], followed by a syllable with an [L] tone in these carrier sentences, simplifies to [H], so that the tonal contrast in each pair is neutralized.

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of a nominal clitic with another nominal clitic, or of one verbal clitic with another verbal clitic may form phonological words in their own right (see example 57). In view of the assumption that tones on phonological words of two syllables or more derive from the tones of the constituting monosyllables, nominal and verbal clitics appear to be underlyingly specified for tone.

[8] This generalization is not without exceptions. In the corpus of narrative texts, some monosyllabic /HL/ words may also be simplified to /H/ when followed by a /H/ tone, as the word [^{HL}ʁɑo] 'strength', followed by the word [^{H}ka-^{H}pɑo] 'very' in sentence (14) of the appended text. The precise conditioning for this simplification as well as the nature and the distribution of /HL/ tone hence require further investigation.

(5) ᴸha =ᴴz̩#   ᴴʂ̩   ᴸɲõ.
     this =TOP   fishing.net   COP
                     tongue
     'This is a fishing net.' / 'This is a tongue.'

(6) ᴴtʰi =ᴴrɛ̃#   ᴴpũ#   ᴸtɕi-ᴴtɕi#   ᴸbʒ =ᴴjĩ.
     that =PL   move   do-do   make =PROG
                     pile
     'They are about to move.' / 'They are about to pile.'

This contour simplification may be nullified and the citation [HL] tone "restored" as a strategy to avoid surface homophony of underlyingly distinct forms. For instance, in the absence of a larger context to disambiguate the two homophonous pairs in examples (5)-(6), our language consultant finally chose to pronounce the members of each pair with their respective citation tones, so that his rendering of the sentence 'This is a tongue.' was consequently corrected to [ᴸha =ᴴz̩# ᴴᴸʂ̩ ᴸɲõ.] and that of the sentence 'They are about to pile.' to [ᴴtʰi =ᴴrɛ̃# ᴴᴸpũ# ᴸtɕi-ᴴtɕi# ᴸbʒ =ᴴjĩ].

     Second, late realization of tone. A tone may be realized on a neighboring tone-bearing unit, when this unit is followed by a [L] tone (cf. "horizontal assimilation", realization of tone on a neighboring tone-bearing unit among the most recurrent tonal processes cross-linguistically, Hyman 2007b:4-8). In disyllabic words, [L-H] sequences may be realized as [L-LH] by left-to-right L tone spreading. In a similar fashion, [H-L] may be realized as [H-HL] by left-to-right H tone spreading. Both patterns, [L-H] vs. [L-LH] and [H-L] vs. [H-HL], are in free variation. For example:

(7) ᴸha =ᴴz̩#   ᴸpʰa-ᴸᴴza   ᴸɲõ.
     this =TOP   shoes   COP
     'These are shoes.' (< [ᴸpʰa-ᴴza], /ᴸpʰa-za/ 'shoes' in isolation)

(8) ᴸha =ᴴz̩#   ᴴta-ᴴᴸpi   ᴸɲõ.
     this =TOP   mane   COP
     'This is mane.' (< [ᴴta-ᴸpi], /ᴴᴸta-pi/ 'mane' in isolation)

3.2 Word tone derivation

3.2.1 Word tone derivation in phonological words in which the initial element is toned

Acceptability of modifying noun-noun combinations as one phonological word, subject to word tone derivation, in the course of the experiment was constrained by the

acceptability of the combination as one unit of meaning (a compound or a high frequency combination), e.g. [ᴸba-ᴸru ᴴrə], /ᴸba-ru rə/ 'snake skin' (< [ᴸba-ᴴru], /ᴸba-ru/ 'snake', [ᴴrə] 'skin'). Combinations not satisfying this condition were treated by our language consultant as those of two (phonological and lexical) words (with or without the intervening genitive marker /ji/), each with its own tone, e.g. [ᴸba-ᴴru# ᴸᴴʁɛ̃] 'the neck of a snake'.

In phonological words of two syllables or more, in which the initial element is lexically specified for tone, the tone of the initial element decides the tone of the resulting combination. Consider these examples, grouped by the tone of the initial element:

/H/
(9) [ᴴʔɛ̃] 'sheep' + [ᴴrə] 'skin' > [ᴴʔɛ̃ ᴴrə], /ᴴʔɛ̃ rə/ 'sheep skin'
(10) [ᴴʔɛ̃] 'sheep' + [ᴸᴴʁɛ̃], /ᴸʁɛ̃/ 'neck' > [ᴴʔɛ̃ ᴴʁɛ̃], /ᴴʔɛ̃ ʁɛ̃/ 'sheep neck'
(11) [ᴴʔɛ̃] 'sheep' + [ᴴᴸqʰə] 'excrement' > [ᴴʔɛ̃ ᴴqʰə], /ᴴʔɛ̃ qʰə/ 'sheep excrement'
(12) [ᴴʔɛ̃] 'sheep' + [ᴴkʰa-ᴴmiæ], /ᴴkʰa-miæ/ 'footprint' > [ᴴʔɛ̃ ᴴkʰa-ᴴmiæ], /ᴴʔɛ̃ kʰa-miæ/ 'sheep hoofprints'
(13) [ᴴʔɛ̃] 'sheep' + [ᴸm̥iæ-ᴴtsũ], /ᴸm̥iæ-tsũ/ 'tail' > [ᴴʔɛ̃ ᴴm̥iæ-ᴴtsũ], /ᴴʔɛ̃ m̥iæ-tsũ/ 'sheep tail'
(14) [ᴴʔɛ̃] 'sheep' + [ᴴɲɜ-ᴸmi], /ᴴᴸɲɜ-mi/ 'heart' > [ᴴʔɛ̃ ᴴɲɜ-ᴴmi], /ᴴʔɛ̃ ɲɜ-mi/ 'sheep heart'

/L/
(15) [ᴸᴴrõ], /ᴸrõ/ 'horse' + [ᴴrə] 'skin' > [ᴸrõ ᴴrə], /ᴸrõ rə/ 'horse skin'
(16) [ᴸᴴrõ], /ᴸrõ/ 'horse' + [ᴸᴴʁɛ̃], /ᴸʁɛ̃/ 'neck' > [ᴸrõ ᴴʁɛ̃], /ᴸrõ ʁɛ̃/ 'horse neck'
(17) [ᴸᴴrõ], /ᴸrõ/ 'horse' + [ᴴᴸqʰə] 'excrement' > [ᴸrõ ᴴqʰə], /ᴸrõ qʰə/ 'horse excrement'
(18) [ᴸᴴrõ], /ᴸrõ/ 'horse' + [ᴴkʰa-ᴴmiæ], /ᴴkʰa-miæ/ 'footprint' > [ᴸrõ ᴸkʰa-ᴴmiæ], /ᴸrõ kʰa-miæ/ 'horse hoofprints'
(19) [ᴸᴴrõ], /ᴸrõ/ 'horse' + [ᴸm̥iæ-ᴴtsũ], /ᴸm̥iæ-tsũ/ 'tail' > [ᴸrõ ᴸm̥iæ-ᴴtsũ], /ᴸrõ m̥iæ-tsũ/ 'horse tail'
(20) [ᴸᴴrõ], /ᴸrõ/ 'horse' + [ᴴɲɜ-ᴸmi], /ᴴᴸɲɜ-mi/ 'heart' > [ᴸrõ ᴸɲɜ-ᴴmi], /ᴸrõ ɲɜ-mi/ 'horse heart'

/HL/
(21) [ᴴᴸtsʰɻ] 'goat' + [ᴴrə] 'skin' > [ᴴtsʰɻ ᴸrə], /ᴴᴸtsʰɻ rə/ 'goat skin'
(22) [ᴴᴸtsʰɻ] 'goat' + [ᴸᴴʁɛ̃], /ᴸʁɛ̃/ 'neck' > [ᴴtsʰɻ ᴸʁɛ̃], /ᴴᴸtsʰɻ ʁɛ̃/ 'goat neck'
(23) [ᴴᴸtsʰɻ] 'goat' + [ᴴᴸqʰə] 'excrement' > [ᴴtsʰɻ ᴸqʰə], /ᴴᴸtsʰɻ qʰə/ 'goat excrement'

(24) [ᴴᴸtsʰ] 'goat' + [ᴴkʰa-ᴴmiæ], /ᴴkʰa-miæ/ 'footprint' > [ᴴtsʰ ᴸkʰa-ᴸmiæ], /ᴴᴸtsʰ kʰa-miæ/ 'goat hoofprints'

(25) [ᴴᴸtsʰ] 'goat' + [ᴸm̥iæ-ᴴtsũ], /ᴸm̥iæ-tsũ/ 'tail' > [ᴴtsʰ ᴸm̥iæ-ᴸtsũ], /ᴴᴸtsʰ m̥iæ-tsũ/ 'goat tail'

(26) [ᴴᴸtsʰ] 'goat' + [ᴴɲɝ-ᴸmi], /ᴴᴸɲɝ-mi/ 'heart' > [ᴴtsʰ ᴸɲɝ-ᴸmi], /ᴴᴸtsʰ ɲɝ-mi/ 'goat heart'

The process of word tone derivation in phonological words in which the initial element is toned is hence a left-to-right expansion of the tone of the initial element. Tones of non-initial elements are deleted, whereas the tone of the initial element adjusts to the new number of syllables in the resulting combination. This word tone derivation process is schematically presented in Table 3.

Table 3: Word tone derivation in phonological words in which the initial element is toned

		tone of the second element		
		H	**L**	**HL**
tone of the first element	**H**	H		
	L	L		
	HL	HL		

One noted exception to this otherwise regular process in our experimental data is the monosyllabic /HL/ word [ᴴᴸbõ] 'yak'. In contrast to the other four tested /HL/ words, [ᴴᴸbõ] 'yak' behaves in combinations as a /L/ tone word, as in the following examples:

(27) [ᴴᴸbõ] 'yak' + [ᴴrə] 'skin' > [ᴸbõ ᴴrə], /ᴸbõ rə/ 'yak skin'

(28) [ᴴᴸbõ] 'yak' + [ᴸᴴʁɛ̃], /ᴸʁɛ̃/ 'neck' > [ᴸbõ ᴴʁɛ̃], /ᴸbõ ʁɛ̃/ 'yak neck'

(29) [ᴴᴸbõ] 'yak' + [ᴴᴸqʰə] 'excrement' > [ᴸbõ ᴴqʰə], /ᴸbõ qʰə/ 'yak excrement'

(30) [ᴴᴸbõ] 'yak' + [ᴴkʰa-ᴴmiæ], /ᴴkʰa-miæ/ 'footprint' > [ᴸbõ ᴸkʰa-ᴴmiæ], /ᴸbõ kʰa-miæ/ 'yak hoofprints'

(31) [ᴴᴸbõ] 'yak' + [ᴸm̥iæ-ᴴtsũ], /ᴸm̥iæ-tsũ/ 'tail' > [ᴸbõ ᴸm̥iæ-ᴴtsũ], /ᴸbõ m̥iæ-tsũ/ 'yak tail'

(32) [ᴴᴸbõ] 'yak' + [ᴴɲɝ-ᴸmi], /ᴴᴸɲɝ-mi/ 'heart' > [ᴸbõ ᴸɲɝ-ᴴmi], /ᴸbõ ɲɝ-mi/ 'yak heart'

Aside from this one exception, in phonological words in which the initial element is toned, the tone of this initial element determines the tone of the resulting combination.

This regularity appears to account also for word tone derivation in words formed through processes with a synchronically restricted productivity, such as the formation of nouns by suffixation. This is suggested by a comparison of nouns that exist in doublets: one form as monosyllable (free root) and another suffixed (root+suffix) (Chirkova 2007).

(33) [^{H}ʔɛ̃] 'sheep' and [^{H}ʔɛ̃-^{H}mi], /^{H}ʔɛ̃-mi/ 'ewe'
(34) [^{HL}tsʰ̩] 'goat' and [^{H}tsʰ̩-^{L}mi], /^{HL}tsʰ̩-mi/ 'doe'

Table 4 summarizes this derivation process:

Table 4: Word tone derivation in words formed through suffixation

		suffix (Ø)
	H	H
root	**L**	L
	HL	HL

Notably, the "irregular" /HL/ word [^{HL}bõ] behaves phonologically as a /L/ word also when followed by a suffix, i.e. similar to its behavior in noun-noun combinations, i.e. [^{L}bõ-^{H}mi], /^{L}bõ-mi/ 'dri, female yak'.

3.2.2 Word tone derivation in phonological words in which the initial element is toneless

The examined phonological words in which the initial element is toneless include verbs formed through prefixation. We examined combinations of monosyllabic verb roots with one or two prefixes, and disyllabic verb roots with one prefix (the remaining option of disyllabic verb roots with two prefixes is non-occurring in this language). Combinations of verb roots with one prefix yielded the following tone derivation patterns:

If the tone of the verbal root is /H/, the prefix assimilates to it, resulting in a /H/ word tone. /H/ is hence anticipated onto the penult and realized on its original syllable. For example:

(35) /miæ-/ 'downward' + [^{H}çĩ] 'look' > [^{H}miæ-^{H}çĩ], /^{H}miæ-çĩ/ 'look down'
(36) /bə-/ 'outward' + [^{H}çĩ] 'look' > [^{H}bə-^{H}çĩ], /^{H}bə-çĩ/ 'look out'
(37) /kʰu-/ 'inward' + [^{H}çĩ] 'look' > [^{H}kʰu-^{H}çĩ], /^{H}kʰu-çĩ/ 'look inside'
(38) /dʑi-/ 'upward' + [^{H}çĩ] 'look' > [^{H}dʑi-^{H}çĩ], /^{H}dʑi-çĩ/ 'look up'

If the tone of the verbal root is /L/ or /HL/, the resulting word tone is /L/, i.e. neutralizing the contrast between /L/ and /HL/ over the root. For example:

(39) /dʑi-/ 'upward' + [ᴸᴴpiæ], /ᴸpiæ/ 'climb' > [ᴸdʑi-ᴴpiæ], /ᴸdʑi-piæ/ 'climb up'

(40) /kʰu-/ 'inward' + [ᴸdzõ-ᴴdzõ], /ᴸdzõ-dzõ/ 'run' > [ᴸkʰu-ᴸdzõ-ᴴdzõ], /ᴸkʰu-dzõ-dzõ/ 'run inside'

(41) /miæ-/ 'downward' + [ᴴᴸkʰɪ] 'throw' > [ᴸmiæ-ᴴxɪ], /ᴸmiæ-xɪ/ 'throw down'

(42) /miæ-/ 'downward' + [ᴴᴸpũ] 'pile' > [ᴸmiæ-ᴴpũ], /ᴸmiæ-pũ/ 'pile down, put down'

Combinations of a monosyllabic verbal root with two prefixes, on the other hand, invariably yielded one single tone pattern, namely /L/, irrespective of the citation tone of the verbal root. For example:

(43) ᴸdʑi-ᴸlɜ-ᴴçĩ#   ᴸmiæ-ᴸlɜ-ᴴçĩ#,   ᴸkʰu-ᴸlɜ-ᴴçĩ#   ᴸbə-ᴸlɜ-ᴴçĩ#
upward-PFV-look downward-PFV-look inward-PFV-look outward-PFV-look
'have looked up and down, inside and outside' (< [ᴴçĩ] 'look')

(44) ᴸçi-ᴸlɜ-ᴴpʰɜ# ᴸkʰu-ᴸlɜ-ᴴpʰɜ#, ᴸdʑi-ᴸlɜ-ᴴpʰɜ#   ᴸmiæ-ᴸlɜ-ᴴpʰɜ#
to-PFV-dig   fro-PFV-dig   upward-PFV-dig downward-PFV-look
'have dug to and fro, up and down' (< [ᴸᴴpʰɜ], /ᴸpʰɜ/ 'dig')

(45) ᴸçi-ᴸlɜ-ᴴtsa# ᴸkʰu-ᴸlɜ-ᴴtsa#, ᴸdʑi-ᴸlɜ-ᴴtsa#   ᴸmiæ-ᴸlɜ-ᴴtsa#
to-PFV-jump   fro-PFV-jump   upward-PFV-jump downward-PFV-jump
'have jumped to and fro, up and down' (< [ᴴᴸtsa] 'jump')

Table 5 summarizes the observed patterns:

Table 5: Word tone derivation in phonological words in which the initial element is toneless

		verb root		
		H	**L**	**HL**
prefix	**Ø**	H	L	
	Ø+Ø	L		

Notably, the phonetic realization of /L/ tone pattern on verbs formed through prefixation is distinct from that of /L/ tone pattern on nominal compounds (§3.2.1). In verbs formed through prefixation, the syllables carrying /L/ tone (prefixes) are different from that carrying /H/ tone (verbal root) in duration and articulatory precision, whereas no similar difference is observed on /L/ nominal compounds. In verbs, the syllables carrying /L/

tone have more reduced vowels, which may moreover be subject to regressive vowel harmony, e.g. [ᴸbə-ᴴgi] 'pull out, lengthen', [ᴸbɜ-ᴴpʰɜ] 'pull out', [ᴸbu-ᴴtʂʰu] 'spit out'. The distinction in prominence is here taken as indication of the stressed status of the syllable carrying the boundary [H] tone and the unstressed status of the toneless prefixes carrying the phonological [L] tone. This issue is further taken up in §4.1.[9]

3.2.3 Tonal domains containing enclitics

Examined combinations of words with nominal and verbal enclitics yielded two distinct types of tone patterns, depending on the overall length of the resulting combination and the number of its constituting elements (the number of attached enclitics).

(i) Word-enclitic combinations may be treated as one phonological word. The tone of the resulting combination is the expansion of the tone of its initial element. For example:

(46) [ᴴʔɛ̃] 'sheep' + the genitive marker /ji/ > [ᴴʔɛ̃ =ᴴji], /ᴴʔɛ̃ =ji/ 'of a sheep'
(47) [ᴸᴴrõ], /ᴸrõ/ 'horse' + the genitive marker /ji/ > [ᴸrõ =ᴴji], /ᴸrõ =ji/ 'of a horse'
(48) [ᴴᴸtsʰɿ] 'goat' + the genitive marker /ji/ > [ᴴtsʰɿ =ᴸji], /ᴴᴸtsʰɿ =ji/ 'of a goat'

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[9] Vowel harmony taken as diagnostic of the unstressed status of the syllables on which it operates helps to identify in Shixing a set of pronominal proclitics. Overall, vowel harmony has very restricted productivity in Shixing and affects, in addition to directional verbal prefixes, only the negator [mV] and the first and third person pronouns in combinations with the plural suffix [-rɛ̃] and nominal clitics, e.g. [ᴸtʰi =ᴴji] 'his', [ᴸtʰɜ =ᴴsɿ] 'him', [ᴴtʰu-ᴴwu] 'his family, they as a family'. If assumed to be derived from the tone of the third person pronoun [ᴴᴸtʰi] (§3.2.1), the resulting tone of these combinations is expected to be /HL/, i.e. *[ᴴtʰi =ᴸji], *[ᴴtʰɜ =ᴸsɿ] and *[ᴴtʰu-ᴸwu], hence yielding the incorrect tone. If, on the other hand, the initial syllable in these combinations is regarded as unstressed and toneless, as suggested by the assimilation of the vowel of this syllable to the vowel of the following syllable, its tone can be explained as depending on the tone of the adjacent stressed syllable (§3.2.2). The assimilation of both the vowel of the initial syllable and its tone to the vowel and tone of the second syllable of the word [ᴴtʰu-ᴴwu] 'his family, they as a family', derived from the root [ᴴwu] 'family', supports this assumption. The same analysis, positing a set of unstressed and toneless pronominal proclitics, can be extended to those pronominal forms that, while not subject to vowel harmony, exhibit tonal behavior inconsistent with the tones of the corresponding free pronominal forms, e.g. [ᴴɲi-ᴴwu] 'you (as a family)' (< [ᴴᴸɲi] 'thou', [ᴴwu] 'family'), [ᴸɲi =ᴴwu] 'with you' (< the comitative marker /wu/). The same analysis also applies to combinations with the negator [mV], e.g. sentence (7) of the appended text.

(49) [ᴴʂu-ᴴhĩ], /ᴴʂu-hĩ/ 'a Shixing person' + the genitive marker /ji/ > [ᴴʂu-ᴴhĩ =ᴴhĩ], /ᴴʂu-hĩ =hĩ/ 'of a Shixing person' (in this combination, the genitive marker /ji/ assimilates to the preceding syllable, /hĩ/)

(50) [ᴸtʂa.ᴴwɜ], /ᴸtʂa.wɜ/ 'monk' (WT *grwa pa*) + the genitive marker /ji/ > [ᴸtʂa.ᴸwɜ =ᴴji], /ᴸtʂa.wɜ =ji/ 'of a monk'

(51) [ᴴsĩ-ᴸzu], /ᴴᴸsĩ-zu/ 'carpenter' + the genitive marker /ji/ > [ᴴsĩ-ᴸzu =ᴸji], /ᴴᴸsĩ-zu =ji/ 'of a carpenter'

The "irregular" /HL/ word /ᴴᴸbõ/ 'yak' behaves as a regular /HL/ word in this type of combinations, as in the following example:

(52) [ᴴᴸbõ] 'yak' + the genitive marker /ji/ > [ᴴbõ =ᴸji], /ᴴᴸbõ =ji/ 'of a yak'

(ii) Alternatively, only the host word or, variously, the first two syllables of the combination of a word with enclitics may carry tone, deriving this tone from the tone of the initial element of the combination (the host word). The remaining syllables are toneless and surface with a phonological [L] tone. For example:

(53) ᴴŋɜ#   ᴴqua =ᴸtsʰa =ᴸwu =ᴸsɻ.
      1SG   weep =TERM =RES =PRF
      'I finished weeping.' (< [ᴴqua] 'cry, weep')

(54) ᴴŋɜ#   ᴸᴴdzɜ =ᴸtsʰa =ᴸwu =ᴸsɻ.
      1SG   eat =TERM =RES =PRF
      'I finished eating.' (< [ᴸᴴdzɜ], /ᴸdzɜ/ 'eat')

The corresponding /HL/ monosyllabic verb in the same carrier sentence is realized as /H/, i.e. the citation /HL/ tone is simplified due to the adjacent [L] tone:[10]

(55) ᴴŋɜ#   ᴴtsa =ᴸtsʰa =ᴸwu =ᴸsɻ.
      1SG   weep =TERM =RES =PRF
      'I finished jumping.' (< [ᴴᴸtsa] 'jump')

The following example illustrates the alternative situation, in which the first two syllables of a combination of a word with enclitics are treated as one fully articulated

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[10] In the corpus of narrative texts, monosyllabic /HL/ words followed by several enclitics are also attested with their citation /HL/ tone, as in sentence (14) of the appended text, [ᴴᴸɕyɜ =ᴸli =ᴸɲõ] '[he] thought' (< [ᴴᴸɕyɜ] 'think', the patient nominalizer /li/, the copular verb /ɲõ/).

phonological word, carrying one of the three contrastive tone patterns, /H/, /L/ or /HL/, whereas the remaining syllables are toneless and surface as [L]. Note that in this type of situation, the domain for the contrastive tone pattern may not be coextensive with the constituents into which this domain is analysed morphologically and syntactically, as in example (56):

(56) [^{H}tsõ] 'things' + the disyllabic optional plural marker /mə-ʑi/ > [^{H}tsõ =^{H}mə-^{L}ʑi] 'things'

Finally, an even number of enclitics attached to a disyllabic host word may form disyllabic phonological words in their own right. Consider, for instance, the phonological word [^{L}rɛ̃ =^{H}ʐ̩], composed of the agentive marker /rɛ̃/ and the topic marker /ʐ̩/, in sentence (20) of the appended text, reproduced here for convenience:

(57) ^{L}t^{h}i =^{H}ji# ^{L}ts^{h}ɻ-^{H}dʑyɝ# ^{L}rɛ̃ =^{H}ʐ̩# ^{HL}pɝ =^{L}li =^{L}ɲõ.
      ^{L}t^{h}i =^{H}ji ^{L}ts^{h}ɻ-^{H}dʑyɝ ^{L}rɛ̃ =^{H}ʐ̩ ^{HL}pɝ =^{L}li =^{L}ɲõ
      3SG =GEN   life-friend   AGT =TOP   speak =NMLZ.PST =COP
      'His wife answered.'

Overall, the shorter the word-enclitics combination (one monosyllabic host word followed by one single enclitic), the likelier it is that the enclitic will be integrated into one phonological word with its host; the longer the combination, the likelier it is that the enclitic(s) will be treated as extrametrical syllables, as if they did not count as part of the tonal domain.

4. Discussion

The following tables summarize the observed patterns in word tone derivation: (i) tone patterns in phonological words of two syllables or more (which are equivalent to lexical words, compounds and word-enclitic combinations); and (ii) tone patterns in domains containing enclitics, treated as one phonological word followed by extrametrical syllables. Sequences enclosed in square brackets in Table 7 are fully articulated phonological words, whereas those outside are extrametrical. "PW" stands for phonological words formed out of enclitics.

Table 6: Word tone derivation in phonological words of two syllables or more

		tone of the second element			
		H	**L**	**HL**	**Ø**
tone of the first element	**H**	H			
	L	L			
	HL	HL			
	Ø	H	L		
	Ø+Ø	L			

Table 7: Tone patterns in tonal domains containing one to three enclitics (treated as a combination of a phonological word and extrametrical syllables)

		one enclitic	two enclitics	three enclitics
monosyllabic host word	**H**	[H]-L	[H]-L-L or [H-H]-L	[H]-L-L-L or [H-H]-L-L
	L	[LH]-L	[LH]-L-L or [L-H]-L	[LH]-L-L-L or [L-H]-L-L
	HL	[HL]-L	[HL]-L-L or [H-L]-L	[HL]-L-L-L or [H-L]-L-L
disyllabic host word	**H**	[H-H]-L	[H-H]-L-L or [H-H]-[PW]	[H-H]-L-L-L or [H-H]-[PW]-L
	L	[L-H]-L	[L-H]-L-L or [L-H]-[PW]	[L-H]-L-L-L or [H-H]-[PW]-L
	HL	[H-L]-L	[H-L]-L-L or [H-L]-[PW]	[H-L]-L-L-L or [H-H]-[PW]-L

The following observations can be made:

(i) *Tones*. The observed patterns of tone derivation suggest that of the three contrastive tones, /HL/ has a special status, dissimilar to that of /H/ and /L/. /H/ and /L/ are not subject to modifications in tonal context and remain stable in derivations, with the only exception of verbs formed by adding two prefixes. /HL/ tone, on the other hand, is subject to simplification to /H/ in running speech and also neutralizes with /L/ to /L/ in most derivations, except for those where the initial element of the word carries /HL/ tone.

(ii) *Tonal processes*. Shixing displays a wide range of tonal processes, including (a) contour tone simplification, (b) left-to-right tone spreading on nouns, (c) antici-patory (right-to-left) tone spreading on verbs formed with one prefix, and (d) tone neutralization to tone /H/ on verbal roots in verbs formed with two prefixes. A notable by-product of word tone derivation in Shixing is tone deletion, e.g. the deletion of tone on non-initial elements in phonological words in which the initial element is toned.

(iii) *Word tone derivation*. The experiment reveals the following major factors that constrain word tone derivation in phonological words of two syllables or more in Shixing:

(a) Presence or absence of tone on the initial element of the phonological word, triggering two distinct tonal processes: anticipatory tone spreading and tone neutralization in the case of verbs formed through prefixation vs. perseverative tone spread in the case of nominal compounds and phrases containing enclitics.

(b) Length of the phonological word: the prototypical tone domain in Shixing is two syllables long. Even sequences exceeding this length may be divided into two or more disyllabic phonological words; alternatively, only the first two syllables of the domain may be treated as one phonological word, whereas the remaining syllables are extrametrical (§3.2.3). The process of tone anticipation in verbs is also restricted to the first two syllables of the domain (§3.2.2). Altogether, this suggests that Shixing has a strong preference towards disyllabicity in its prosodic organization, with the disyllabic foot being the building block for the prosodic structure of Shixing. At the same time, monosyllabic (minimal) feet are allowed in Shixing (free roots that can stand alone as monosyllabic lexical words).

(c) Composition of the phonological word: the more elements a phonological word contains, the likelier it is that only the first element (or the first disyllabic foot) will be treated as a fully articulated phonological word, whereas the remaining elements will be treated as extrametrical.

4.1 Word tone derivation and the prosodic organization of Shixing

A unified account of the observed phenomena is possible, if a prosodic domain in Shixing is taken to be characterized, in addition to tone, also by metrical stress.

We argue that Shixing is a language with culminative word prominence (stress): a phonological word in Shixing has a single syllable bearing stress, which is the location for the insertion of lexical tones. The default location of stress is the initial syllable of the domain. A prosodic domain in Shixing is hence divided into one stressed syllable and the remaining unstressed syllables, the tones of which are deleted. The tone of the stressed syllable determines the tone pattern of the domain. All in all, a prosodic domain is first and foremost defined by stress.

When appearing on the initial stressed syllable of the domain, the three contrastive tones, /H/, /L/ and /HL/, extend their respective tones onto the remaining unstressed syllables, followed by the addition of a postlexical boundary [H] tone in the case of the lexical /L/ tone (§3.2.1). If the domain exceeds two syllables in length, the expansion of the tone of the initial syllable is correlated with the morphosyntactic constituency of the domain. If the prosodic domain in question is equivalent to a lexical word, the tone of the initial stressed syllable will expand onto all remaining syllables. If the domain is

equivalent to a syntactic phrase, the expansion can also take place, but the expansion of tone may be restricted to the initial disyllabic foot, whereas the remaining syllables are extrametrical and receive a phonological [L] tone (§3.2.3). Altogether, lexical words are characterized by stable tone patterns, which are lexically encoded, whereas the tone pattern of a group of words making up one prosodic domain is characterized by a certain degree of variability. To reflect this difference, we propose to distinguish within a prosodic stress domain a distinct level of tonal domain, which is characterized by the three contrastive tones, /H/, /L/ and /HL/. While a tonal domain may be restricted to the first disyllabic foot, a stress domain may be larger, including also extrametrical syllables. Both domains (stress domain and tonal domain) coincide in the case of lexical words; the stress domain may be larger than the tonal domain for syntactic phrases.

Tone placement rules on domains that begin with a toneless syllable deviate from the default rule above. The relevant set of facts is here explained under the assumption that toneless syllables (affixes as well as proclitics, see footnote 9) cannot receive stress. In domains that begin with toneless syllables, stress shifts to the first toned (and thus stressable) syllable to the right. The precise process of tone derivation appears to be further constrained by the distance of the first stressable syllable from the default domain-initial stress location: the further from the default stress location, the greater the neutralization between the three lexical tones (§3.2.2). In domains beginning with a toneless syllable, the lexical tone of the first stressable syllable can determine the derivation of the output tone pattern only if this stressable syllable is located within the initial disyllabic foot. In this case, if the first stressable syllable carries /H/ tone, this tone can be anticipated on the preceding toneless syllable. If, on the other hand, the first stressable syllable carries /L/ or /HL/ tone, the contrast between these two tones is neutralized to /L/, all syllables within the domain up to the final syllable receive /L/ tone, whereas the final syllable receives a boundary [H] tone.[11] If a prosodic domain begins with two unstressed syllables, so that the initial foot consists entirely of unstressed toneless syllables and the first stressable syllable is not within its scope (as in verbs formed with two prefixes), the contrast between the three lexical tones appears to be

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[11] While we did not test combinations of an unstressed toneless elements followed by a stressable toned element, which is, in turn, followed by one or several unstressed, toneless elements, the textual corpus allows us to see word tone derivation in this type of situation. If the root carries /H/ tone, this tone is anticipated on the preceding syllable, realized on the original syllable and spread onto the following syllable, as in [ᴴha ᴴhĩ ᴴha] 'this man' (< [ᴴhĩ] 'man', the pronominal clitic /ha/ 'this', which frames the modified noun) in sentence (2) of the appended text. If the root carries /L/ or /HL/ tone, this tonal contrast is neutralized to /L/. All syllables up to the final receive /L/ tone and the final syllable receives a boundary [H] tone, e.g. [ᴸbu-ᴸzõ =ᴸsɿ =ᴴzɭ] 'there existed' (</bu-/ 'outward', [ᴸdʑõ] 'exist' (NB: the initial of this root is lenited in the intervocalic position), the perfect marker /sɿ/, the topic marker /zɭ/).

disregarded altogether. All syllables within the domain receive /L/ tone, and the domain-final syllable receives a boundary [H] tone.

To conclude this overview of experimental results, we would like to tentatively suggest one option for phonological modeling that, in the present state of knowledge, may shed further light on the link between stress and tone (§3.2.2) and the related pattern of stress placement, as well as on the tonal behavior of nominal and verbal clitics, which, while cannot occur in isolation, may combine to form phonological words. This option for phonological modeling consists in considering L as an underspecified tone. In this analysis, Shixing would have only two active tones, /H/ that can spread (/H/ in current notation), and /H/ that cannot spread and that appears only in domain-initial position (/HL/ in current notation). The category of toneless syllables would include, in addition to affixes, free and bound monosyllables previously analyzed as having /L/ tone (e.g. /rõ/ 'horse').[12] A further distinction would then be drawn between free toneless monosyllables (free roots) that can stand alone as monosyllabic phonological words, thus constituting minimal monosyllabic feet, and bound toneless monosyllables (e.g. clitics) that cannot stand alone as monosyllabic phonological words. Notably, toneless monosyllables of the latter type can form phonological words if combined by two (i.e. constituting disyllabic feet, the building block of the prosodic organization of Shixing), as the phonological word [^{L}rẽ =^{H}z̩] formed out of two enclitics in example (57) above or disyllabic combinations of pronominal proclitics with case clitics mentioned in footnote 9. In a domain that begins with a monosyllabic or disyllabic foot formed out of one or two toneless syllables, respectively, stress shifts to the final syllable, tentatively due to the phonetic cue of duration, commonly shared between stressed syllables and final syllables cross-linguistically. Hence, in phonological words that consist of toneless syllables, stress is realized as a boundary [H] tone. In sum, in this analysis, stress in Shixing is linked to lexical tone and uniformly targets the initial foot of the domain (either minimal, monosyllabic, or prototypical, disyllabic). If the domain-initial foot does not contain syllables that are lexically specified for tone, stress shifts to the final syllable of the domain.

4.2 Prospects for further research

This pilot study is inevitably limited in its exploratory nature. The following steps are envisaged to obtain a comprehensive understanding of the prosodic organization of Shixing:

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[12] For a discussion of two-level tone systems in which a marked tone (frequently H) is contrasted with its absence, see Hyman (2001), Kubozono (2001) and Evans (2009).

(a) The proffered generalizations and hypotheses need to be carefully scrutinized, by testing against a broader range of experimental and non-experimental data. The most pressing task is to understand the nature and the distribution of /HL/ tone, as well as its relationship to /H/ tone. The already collected data and hypotheses are to be verified with more speakers.

(b) The investigation is to be extended to the Lower Reaches dialect of Shixing, that reportedly has a distinct prosodic structure.

(c) The present study, focused on synchronic Shixing phonology, is to include a diachronic perspective in an attempt to account for the noted exceptions in tone derivation (e.g. the word for 'yak', [^{HL}bõ]), as well as in order to explore the paths along which tone arose in Shixing.

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Appendix: Daly Kuku and Gutsen Padzhe[13]

(1) ᴴji-ᴸɲɪ# ᴴji-ᴸɲɪ# ᴴhĩ# ᴸda-ᴴlə-ᴸku-ᴸku# ᴴma-ᴴhĩ# ᴸᴴdʑĩ# ᴸᴴjĩ =ᴸdʑõ.

ᴴji-ᴸɲɪ   ᴴji-ᴸɲɪ   ᴴhĩ   ᴸda-ᴴlə-ᴸku-ᴸku   ᴴma-ᴴhĩ

previous-?   previous-?   person   *personal.name*   name-person

ᴸᴴdʑĩ   ᴸᴴjĩ =ᴸdʑõ.

one   exist.ANM=DUR

'A long time ago, there was a man by the name of Daly Kuku.'

(2) ᴴha ᴴhĩ ᴴha# ᴴʁɑo-ᴸduʒ.

ᴴha   ᴴhĩ   ᴴha   ᴴʁɑo-ᴸduʒ

this   person   this   strength-big

'This man was very strong.'

(3) ᴸtʰʒ-ᴸlæ =ᴴʐ̩# ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ# ᴴpʒ-ᴸhĩ# ᴸdʑĩ =ᴴlʒ# ᴸᴴjĩ =ᴸdʑõ.

ᴸtʰʒ-ᴸlæ =ᴴʐ̩   ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ   ᴴpʒ-ᴸhĩ

that-become=TOP   *personal.name*   speak-person

ᴸdʑĩ =ᴴlʒ   ᴸᴴjĩ =ᴸdʑõ

one =also   exist.ANM =DUR

'Then, there was also a man called Gutsen Padzhe.'

(4) ᴸtʰi =ᴴlʒ# ᴴʁɑo-ᴸduʒ-ᴸhĩ ᴸɲõ.

ᴸtʰi =ᴴlʒ   ᴴʁɑo-ᴸduʒ-ᴸhĩ   ᴸɲõ

3SG =also   strength-big-person   COP

'He, too, was very strong.'

(5) ᴸdʑi-ᴴma# ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ =ᴸrɛ̃# ᴸbi =ᴴsɻ# ᴸda-ᴴlə-ᴸku-ᴸku =ᴸkʒ# ᴴʁɑo-ᴸtsʰi =ᴸgʒ# ᴴᴸçyʒ =ᴸli =ᴸɲõ.

ᴸdʑi-ᴴma   ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ =ᴸrɛ̃   ᴸbi =ᴴsɻ   ᴸda-ᴴlə-ᴸku-ᴸku =ᴸkʒ

one-day   *personal.name* =AGT   walk =PRF   *personal.name* =at

ᴴʁɑo-ᴸtsʰi =ᴸgʒ   ᴴᴸçyʒ =ᴸli =ᴸɲõ

strength-measure =VOL   think =NMLZ.PST =COP

'One day, Gutsen Padzhe wanted to measure swords with Daly Kuku.'

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[13] Personal names in Shixing normally carry /H/ tone, e.g. /ᴴgu-tsɛ̃-pa-tɕʒ/. The tone pattern of the name of the main protagonist, [ᴸda-ᴴlə-ᴸku-ᴸku] 'Daly Kuku', is therefore unusual. At present, we do not know what this name means and therefore cannot explain how it acquired its tone.

(6) ᴸtʰɜ =ᴸma =ᴴli# ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕɜ# ᴸda-ᴴlə-ᴸku-ᴸku =ᴸji# ᴸdʑo-ᴸhõ =ᴴno# ᴴpɑo =ᴸtɕʰu =ᴸli =ᴸɲõ.

ᴸtʰɜ =ᴸma =ᴴli ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕɜ ᴸda-ᴴlə-ᴸku-ᴸku =ᴸji

that = day= NMLZ.PST *personal.name* *personal.name*=GEN

ᴸdʑo-ᴸhõ =ᴴno ᴴpɑo =ᴸtɕʰu =ᴸli =ᴸɲõ

house =inside arrive =come =NMLZ.PST =COP

'That day he arrived at Daly Kuku's house.'

(7) ᴸda-ᴴlə-ᴸku-ᴸku# ᴸmi =ᴸᴴjĩ =ᴸli =ᴸɲõ.

ᴸda-ᴴlə-ᴸku-ᴸku ᴸmi =ᴸᴴjĩ =ᴸli =ᴸɲõ

personal.name NEG =exist.ANM =NMLZ.PST =COP

'Daly Kuku was not at home.'

(8) ᴸda-ᴴlə#-ᴸku-ᴸku =ᴴji# ᴸtsʰ-ᴸdʑyɜ =ᴴʐ̩# ᴸdʑõ-ᴴhõ# ᴸᴴjĩ =ᴸdʑõ.

ᴸda-ᴴlə#-ᴸku-ᴸku =ᴴji ᴸtsʰ-ᴸdʑyɜ =ᴴʐ̩ ᴸdʑõ-ᴴhõ ᴸᴴjĩ =ᴸdʑõ

personal.name =GEN life-friend =TOP house exist.ANM =DUR

'Daly Kuku's wife was at home.'

(9) ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕɜ# ᴸtʰu-ᴴwu# ᴸdʑõ-ᴴhõ# ᴴkʰu-ᴴpɑo =ᴸtɕʰu =ᴸli =ᴸɲõ.

ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕɜ ᴸtʰu-ᴴwu ᴸdʑõ-ᴴhõ

personal.name 3SG-family house

ᴴkʰu-ᴴpɑo =ᴸtɕʰu =ᴸli =ᴸɲõ

inward-arrive =come =NMLZ.PST =COP

'Gutsen Padzhe entered their house.'

(10) "ᴴŋɜ# ᴸtʰɜ =ᴴwu# ᴴʁɑo-ᴴdɜ =ᴴgɜ#," ᴴᴸpɜ =ᴸli =ᴸɲõ.

"ᴴŋɜ ᴸtʰɜ =ᴴwu ᴴʁɑo-ᴴdɜ =ᴴgɜ," ᴴᴸpɜ =ᴸli =ᴸɲõ

1SG 3SG =COM strength-perform =VOL speak =NMLZ.PST =COP

"'I was to fight with him!", he said.'

(11) ᴸtʰɜ =ᴴlæ# ᴸda-ᴴlə-ᴸku-ᴸku =ᴸji# ᴸtsʰ-ᴴdʑyɜ =ᴸrɛ̃# ᴸʐu =ᴴʂ̩# ᴴtsʰɜ# ᴸdʑɜ-ᴴbu =ᴸʁõ# ᴸkʰu-ᴸtʂʰa =ᴴʂ̩# ᴸdʑyɜ-ᴴlɜ =ᴸtɕi =ᴸli =ᴸɲõ.

ᴸtʰɜ =ᴴlæ ᴸda-ᴴlə-ᴸku-ᴸku =ᴸji ᴸtsʰ-ᴴdʑyɜ =ᴸrɛ̃ ᴸʐu =ᴴʂ̩ ᴴtsʰɜ

that=become *personal.name* =GEN life-friend =AGT be.afraid =PRF salt

ᴸdʑɜ-ᴴbu =ᴸʁõ ᴸkʰu-ᴸtʂʰa =ᴴʂ̩ ᴸdʑyɜ-ᴴlɜ =ᴸtɕi =ᴸli =ᴸɲõ

chest =on inward-seize =PRF lift =do =NMLZ.PST =COP

'Then, scared out of her wits, the wife of Daly Kuku grabbed the salt cupboard and lifted it.'

(12) ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕ3# ᴸdõ =ᴴlæ# ᴴᴸtʰi# ᴴɕy3 =ᴸli =ᴸɲõ.

ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕ3   ᴸdõ =ᴴlæ   ᴴᴸtʰi   ᴴɕy3 =ᴸli =ᴸɲõ
personal.name   see =become   that   think =NMLZ.PST =COP

'Upon seeing that, Gutsen Padzhe thought the following.'

(13) "ᴴha ᴴa-ᴴme# ᴴhĩ ᴴha =ᴴrɛ̃ =ᴸl3# ᴸdʑ3-ᴴbu =ᴸl3# ᴸdʑy3-ᴴl3# ᴸdõ =ᴴjĩ."

"ᴴha   ᴴa-ᴴme   ᴴhĩ   ᴴha =ᴴrɛ̃ =ᴸl3   ᴸdʑ3-ᴴbu =ᴸl3
this   VOC-mother   person   this =AGT =also   chest =also

ᴸdʑy3-ᴴl3   ᴸdõ =ᴴjĩ."
lift   be.able =PROG

'"This woman can lift a whole cupboard!"'

(14) "ᴸda-ᴴlə-ᴸku-ᴸku =ᴸli# ᴸs3-ᴸʁɑ =ᴴl3# ᴴʁɑo# ᴴka-ᴴpɑo# ᴸkʰu3 =ᴴso-ᴸti#,"
ᴴᴸɕy3 =ᴸli =ᴸɲõ.

"ᴸda-ᴴlə-ᴸku-ᴸku =ᴸli   ᴸs3-ᴸʁɑ =ᴴl3   ᴴʁɑo   ᴴka-ᴴpɑo
personal.name =?NMLZ.PST   CMPR =also   strength   very

ᴸkʰu3 =ᴴso-ᴸti,"   ᴴᴸɕy3 =ᴸli =ᴸɲõ
big =probably   think =NMLZ.PST =COP

'"Daly Kuku is probably even stronger than she is," he thought.'

(15) ᴸsɪ-ᴸji =ᴴzɹ̩# ᴸᴴda# ᴸtʰ3 =ᴸmu =ᴴtʂɹ̩# ᴸb3 =ᴴsɹ̩# ᴸʐu =ᴴsɹ̩# ᴸbə-ᴴtsɑ =ᴸxa =ᴸli
=ᴸɲõ.

ᴸsɪ-ᴸji =ᴴzɹ̩   ᴸᴴda   ᴸtʰ3 =ᴸmu =ᴴtʂɹ̩   ᴸb3 =ᴴsɹ̩   ᴸʐu =ᴴsɹ̩
then-? =TOP   nothing   ?= NEG =delay   make =PRF   be.afraid =PRF

ᴸbə-ᴴtsɑ =ᴸxa =ᴸli =ᴸɲõ
outward-go =go.PST =NMLZ.PST =COP

'Then, without saying a word, he ran away in fear.'

(16) ᴸma-ᴸl3-ᴴʁua# ᴸda-ᴴlə-ᴸku-ᴸku# ᴸdʑõ-ᴴhõ# ᴴl3-ᴴpɑo =ᴸtɕʰũ =ᴸli =ᴸɲõ.

ᴸma-ᴸl3-ᴴʁua   ᴸda-ᴴlə-ᴸku-ᴸku   ᴸdʑõ-ᴴhõ
day-?LOC-back   *personal.name*   house

ᴴl3-ᴴpɑo =ᴸtɕʰũ =ᴸli =ᴸɲõ
PFV-arrive =come =NMLZ.PST =COP

'Then Daly Kuku returned home later that afternoon.'

(17) ᴸtʰɜ =ᴴlæ# ᴸtʰi =ᴴji# ᴸtsʰ]-ᴴdʑyɜ =ᴸrɛ̃# ᴸda-ᴴlə-ᴸku-ᴸku =ᴸno# ᴴpɜ =ᴸli =ᴸɲõ.

ᴸtʰɜ =ᴴlæ   ᴸtʰi =ᴴji   ᴸtsʰ]-ᴴdʑyɜ =ᴸrɛ̃   ᴸda-ᴴlə-ᴸku-ᴸku =ᴸno

that =become   3SG=GEN   life-friend =AGT   *personal.name* =inside

ᴴpɜ =ᴸli =ᴸɲõ

speak =NMLZ.PST =COP

'His wife told Daly Kuku.'

(18) "ᴴma# ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕɜ# ᴸa =ᴴlɜ# ᴸtɕʰũ =ᴴs]#, ᴸɲi =ᴴwu# ᴴʁɑo-ᴴdɜ =ᴴgɜ# ᴴpɜ =ᴸjĩ."

"ᴴma   ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕɜ   ᴸa =ᴴlɜ   ᴸtɕʰũ =ᴴs]#,   ᴸɲi =ᴴwu

today   *personal.name*   here =LOC   come =PRF   2SG =COM

ᴴʁɑo-ᴴdɜ =ᴴgɜ   ᴴpɜ =ᴸjĩ."

strength-perform =VOL   speak =PROG

'"Gutsen Padzhe came over today, saying he wanted to fight with you."'

(19) ᴸtʰɜ =ᴴlæ# ᴸda-ᴴlə-ᴸku-ᴸku# ᴸrɛ̃ =ᴴz]:# "ᴸᴴza# ᴸᴴjĩ,"# ᴴᴸpɜ =ᴸli =ᴸɲõ.

ᴸtʰɜ =ᴴlæ   ᴸda-ᴴlə-ᴸku-ᴸku   ᴸrɛ̃ =ᴴz]:   "ᴸᴴza   ᴸᴴjĩ,"

that =become   *personal.name*   AGT =TOP   where   exist.ANM

ᴴᴸpɜ =ᴸli =ᴸɲõ

speak =NMLZ.PST =COP

'Daly Kuku asked: "Where is he?"'

(20) ᴸtʰi =ᴴji# ᴸtsʰ]-ᴴdʑyɜ# ᴸrɛ̃ =ᴴz]# ᴴᴸpɜ =ᴸli =ᴸɲõ.

ᴸtʰi =ᴴji   ᴸtsʰ]-ᴴdʑyɜ   ᴸrɛ̃ =ᴴz]   ᴴᴸpɜ =ᴸli =ᴸɲõ

3SG =GEN   life-friend   AGT =TOP   speak =NMLZ.PST =COP

'His wife answered.'

(21) "ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕɜ# ᴴʔõ-ᴴwu =ᴸkɜ# ᴴpɑo =ᴴlæ#, ᴴŋɜ# ᴸʑu =ᴴs]# ᴴtsʰɜ# ᴸdʑɜ-ᴴbu# ᴸdʑyɜ-ᴸdʑi-ᴴlɜ# ᴸdɜ =ᴴs]#, ᴸtʰɜ =ᴸlæ =ᴴz]# ᴸᴴda# ᴸtʰɜ =ᴸmu =ᴴtʂ]# ᴸbɜ =ᴴs]# ᴴtsɑ =ᴸwu =ᴸs]."

"ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕɜ   ᴴʔõ-ᴴwu =ᴸkɜ   ᴴpɑo =ᴴlæ   ᴴŋɜ

personal.name   self-family =at   arrive =become   1SG

ᴸʑu =ᴴs],   ᴴtsʰɜ   ᴸdʑɜ-ᴴbu   ᴸdʑyɜ-ᴸdʑi-ᴴlɜ   ᴸdɜ =ᴴs]

be.afraid =PRF   salt   chest   lift-one-lift   perform =PRF

ᴸtʰʒ =ᴸlæ =ᴴʐ̩   ᴸᴴda#   ᴸtʰʒ =ᴸmu =ᴴtʂ̩#   ᴸbʒ =ᴴs̩

that =become =top   nothing   ? =NEG =delay   make =PRF

ᴴtsɑ =ᴸwu =ᴸs̩."

go =RES =PRF

'"When Gutsen Padzhe came to our place, I was so afraid that I lifted the cupboard in the air, and seeing this, he went away without saying a word."'

(22) ᴸma-ᴴs̩-ᴸma-ᴸli# ᴸda-ᴴlə-ᴸku-ᴸku# ᴸᴴlu# ᴸbi =ᴴs̩# ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ# ᴴlʒ-ᴴɕæ# ᴴxa =ᴸli =ᴸɲõ.

ᴸma-ᴴs̩-ᴸma-ᴸli   ᴸda-ᴴlə-ᴸku-ᴸku   ᴸᴴlu   ᴸbi =ᴴs̩

the.second.day   personal.name   again   walk =PRF

ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ   ᴴlʒ-ᴴɕæ   ᴴxa =ᴸli =ᴸɲõ

personal.name   PFV-search   go.PST =NMLZ.PST =COP

'The following day, Daly Kuku went to look for Gutsen Padzhe.'

(23) ᴸtʰʒ =ᴴlæ# ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ# ᴴtʂʰu-ᴸbu-ᴸza-ᴸhĩ# ᴴjĩ =ᴴno# ᴸᴴjĩ =ᴸli =ᴸɲõ.

ᴸtʰʒ =ᴴlæ   ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ   ᴴtʂʰu-ᴸbu-ᴸza-ᴸhĩ   ᴴjĩ =ᴴno

that =become   personal.name   other.side   field =inside

ᴸᴴjĩ =ᴸli =ᴸɲõ

exist.ANM =NMLZ.PST =COP

'He found Gutsen Padzhe in a field on the other side of the river.'

(24) ᴸtʰʒ =ᴴlæ# ᴸda-ᴴlə-ᴸku-ᴸku# ᴴtʒ# ᴴpɑo =ᴸtɕʰũ =ᴸli =ᴸɲõ#, ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ# ᴸda-ᴴlə-ᴸku-ᴸku# ᴴdõ =ᴸtɕi =ᴸli =ᴸɲõ#, ᴸʐu-ᴴwu# =ᴸpu =ᴸwu =ᴴs̩# ᴸʐ̩-ᴴbʒ# ᴸdʑi-ᴸwu ᴴɲi# ᴸwʒ-ᴸsuʒ-ᴴhĩ# ᴸdʑyʒ-ᴸlʒ =ᴴs̩# ᴴtʰa.ᴴpɑo# ᴸʁu-ᴴla# ᴴsũ =ᴸku.ᴸri# ᴸto-ᴴwu =ᴸtɕi =ᴸli =ᴸɲõ.

ᴸtʰʒ =ᴴlæ   ᴸda-ᴴlə-ᴸku-ᴸku   ᴴtʒ   ᴴpɑo =ᴸtɕʰũ =ᴸli =ᴸɲõ,

that =become   personal.name   there   arrive =come =NMLZ.PST =COP

ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ   ᴸda-ᴴlə-ᴸku-ᴸku   ᴴdõ =ᴸtɕi =ᴸli =ᴸɲõ,

personal.name   personal.name   see =do =NMLZ.PST =COP

ᴸʐu-ᴴwu =ᴸpu =ᴸwu =ᴴs̩   ᴸʐ̩-ᴴbʒ   ᴸdʑi-ᴸwu   ᴴɲi

be.afraid =IPFV =RES =PRF   plough.ox   one-pair   and

ᴸwʒ-ᴸsuʒ-ᴴhĩ   ᴸdʑyʒ-ᴸlʒ =ᴴs̩   ᴴtʰa.ᴴpɑo   ᴸʁu-ᴴla   ᴴsũ =ᴸku.ᴸri

cow-lead-person   lift =PRF   head   ?around   three=circle

ᴸto-ᴴwu =ᴸtɕi =ᴸli =ᴸɲõ
circle =do =NMLZ.PST =COP

'When Daly Kuku arrived there, Gutsen Padzhe saw him and, scared out of his wits, grabbed the pair of oxen together with the boy leading the oxen, lifted all of them and swung them three times around his head.'

(25) ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ# ᴴᴸtʰi# ᴴᴸpʒ =ᴸli =ᴸɲõ.
      ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ   ᴴᴸtʰi   ᴴᴸpʒ =ᴸli =ᴸɲõ
      personal.name   that   speak =NMLZ.PST =COP
      'Gutsen Padzhe then [pretended he was not himself, and] said.'

(26) "ᴸɲi =ᴴwu# ᴴʁao-ᴴdʒ =ᴴgʒ# ᴴpʒ-ᴸhĩ# ᴴŋʒ# ᴴmõ =ᴸɦõ#, ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ#
      ᴴŋʒ# ᴴmõ =ᴸɦõ#," ᴴtʰi ᴸpʒ =ᴸlæ#, ᴸda-ᴴlə-ᴸku-ᴸku# ᴴtsɑ =ᴸxa =ᴸli =ᴸɲõ.
      "ᴸɲi =ᴴwu   ᴴʁao-ᴴdʒ =ᴴgʒ   ᴴpʒ-ᴸhĩ   ᴴŋʒ   ᴴmõ=ᴸɦõ
      2SG =COM   strength-perform =VOL   speak-person   1SG   NEG.COP=EMPH

      ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ   ᴴŋʒ   ᴴmõ =ᴸɦõ,"   ᴴtʰi   ᴸpʒ =ᴸlæ
      personal.name   1SG   NEG.COP =EMPH   that   speak =become

      ᴸda-ᴴlə-ᴸku-ᴸku   ᴴtsɑ =ᴸxa =ᴸli =ᴸɲõ
      personal.name   go =go.PST =NMLZ.PST =COP

      "'I am not the one who wanted to fight with you. I am not Gutsen Padzhe."
      So, Daly Kuku went away.'

References

Bradley, David. 1997. Tibeto-Burman languages and classification. *Tibeto-Burman Languages of the Himalayas*, ed. by David Bradley, 1-71. Papers in South-East Asian Linguistics No. 14. Canberra: The Australian National University.

Chirkova, Katia. 2007. Zai zhongyin yu shengdiao de lianxuti shang kan Shixingyu [The stress and tone continuum in Shixing]. *Eastling* 2:143-152.

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 (In press).

Evans, Jonathan P. 2009. Structured privativity and the complexity of simplicity, or the ups and downs of privative tone. Manuscript. Taipei: Institute of Linguistics, Academia Sinica.

Haraguchi, Shosuke. 1999. Accent. *The Handbook of Japanese Linguistics*, ed. by Natsuko Tsujimura, 1-30. Malden: Blackwell.

Huang, Bufan, and Renzeng Wangmu. 1991. Shixingyu [The Shixing language]. *Zang-Mianyu Shiwu Zhong* [*Fifteen Tibeto-Burman Languages*], ed. by Qingxia Dai, Bufan Huang, Ailan Fu, Renzeng Wangmu & Juhuang Liu, 174-197. Beijing: Beijing Yanshan Press.

Huang, Bufan, Shouchun Xu, Jiaying Chen, and Huiyin Wang. (eds.) 1992. *Zang-Mian Yuzu Yuyan Cihui* [*A Tibeto-Burman Lexicon*]. Beijing: The Central University for Nationalities Press.

Hyman, Larry M. 2001. Privative tone in Bantu. *Proceedings of the Symposium Cross-Linguistic Studies of Tonal Phenomena: Tonogenesis, Japanese Accentology, and Other Topics*, ed. by Shigeki Kaji, 237-258. Tokyo: Institute for the Study of Languages and Cultures of Asia and Africa, Tokyo University of Foreign Studies.

Hyman, Larry M. 2007a. Elicitation as experimental phonology: Thlantlang Lai tonology. *Experimental Approaches to Phonology*, ed. by Maria-Josep Solé, Patrice Speeter Beddor & Manjari Ohala, 7-24. Oxford & New York: Oxford University Press.

Hyman, Larry M. 2007b. Universal of tone rules: 30 years later. *Tones and Tunes*, Vol. 1: *Typological Studies in Word and Sentence Prosody*, ed. by Tomas Riad & Carlos Gussenhoven, 1-34. Berlin & New York: Mouton de Gruyter.

Hyman, Larry M., and Kenneth VanBik. 2002. Tone and stem2-formation in Hakha Lai. *Linguistics of the Tibeto-Burman Area* 25.1:113-121.

Kubozono, Haruo. 2001. Comments on Larry Hyman, "Privative tone in Bantu". *Proceedings of the Symposium Cross-Linguistic Studies of Tonal Phenomena: Tonogenesis, Japanese Accentology, and Other Topics*, ed. by Shigeki Kaji, 259-

265. Tokyo: Institute for the Study of Languages and Cultures of Asia and Africa, Tokyo University of Foreign Studies.

Odden, David. 2005. Comments on Nobuko Yoneda, "Tone patterns of Matengo nominals". *Proceedings of the Symposium Cross-Linguistic Studies of Tonal Phenomena: Historical Development, Tone-Syntax Interface, and Descriptive Studies*, ed. by Shigeki Kaji, 411-418. Tokyo: Institute for the Study of Languages and Cultures of Asia and Africa, Tokyo University of Foreign Studies.

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* 3:99-273.

Sun, Hongkai. 2001. Lun Zang-Mian yuzu zhong de Qiang yuzhi yuyan [On the Qiangic branch of the Tibet-Burman language family]. *Language and Linguistics* 2.1:157-181.

Sun, Hongkai et al. 1991. *Zang-Mianyu Yuyin he Cihui* [*Tibeto-Burman Phonology and Lexicon*]. Beijing: China Social Sciences Press.

Sun, Jackson T.-S. 1997. The typology of tone in Tibetan. *Chinese Languages and Linguistics*, Vol. 4: *Typological Studies of Languages in China*, ed. by Chiu-yu Tseng, 485-521. Taipei: Institute of History and Philology, Academia Sinica.

Thurgood, Graham. 2003. A subgrouping of the Sino-Tibetan languages: the interaction between language contact, change, and inheritance. *The Sino-Tibetan Languages*, ed. by Graham Thurgood & Randy J. LaPolla, 3-21. London: Routledge.

Katia Chirkova
Centre National de la Recherche Scientifique
Centre de recherches linguistiques sur l'Asie orientale
49 bis avenue de la Belle Gabrielle
94736 Nogent sur Marne
France
katia.chirkova@gmail.com

Alexis Michaud
alexis.michaud@vjf.cnrs.fr

Katia Chirkova & Alexis Michaud

史興語韻律系統初探

齊卡佳 米　可

CNRS, CRLAO *CNRS, LACITO*

　　本文用實驗方法研究史興語單音節詞的三個聲調（/H/、/L/、/HL/）與多音節詞的三個聲調（同樣 /H/、/L/、/HL/）間的變換關係。結果表明多音節詞的聲調取決於其長度、內部結構及其第一個組成詞素或單詞有無聲調。史興語韻律域的重音，即詞彙聲調的插入點，默認位置在首音節上，首音節聲調延伸至後面其他音節，全 /L/ 調域的末尾音節採用邊界調 [H]。以無調音節起頭的韻律域，其重音移到右邊第一個有調音節。重音位置離默認位置越遠，詞彙調中立化越大。

關鍵詞：史興語，韻律，聲調，韻律重音，邊界調