# Approaching the prosodic system of Shǐxīng[*]

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*Abstract*: This article focuses on the prosodic organization of Shǐxīng, 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 Shǐxīng 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/.
*Keywords:* Shǐxīng, prosody, tone, metrical stress, boundary tone

## 史兴语韵律系统初探

摘要：本文用实验方法研究史兴语单音节词的三个声调（/H/、/L/、/HL/）与多音节词的三个声调（同样/H/、/L/、/HL/）间的变换关系。结果表明多音节词的声调取决于其长度、内部结构及其第一个组成词素或单词有无声调。史兴语韵律域的重音，即词汇声调的插入点，默认位置在首音节上，首音节声调延伸至后面其它音节，全/L/调域的末尾音节采用边界调[H]。以无调音节起头的韵律域，其重音移到右边第一个有调音节。重音位置离默认位置越远，词汇调中立化越大。
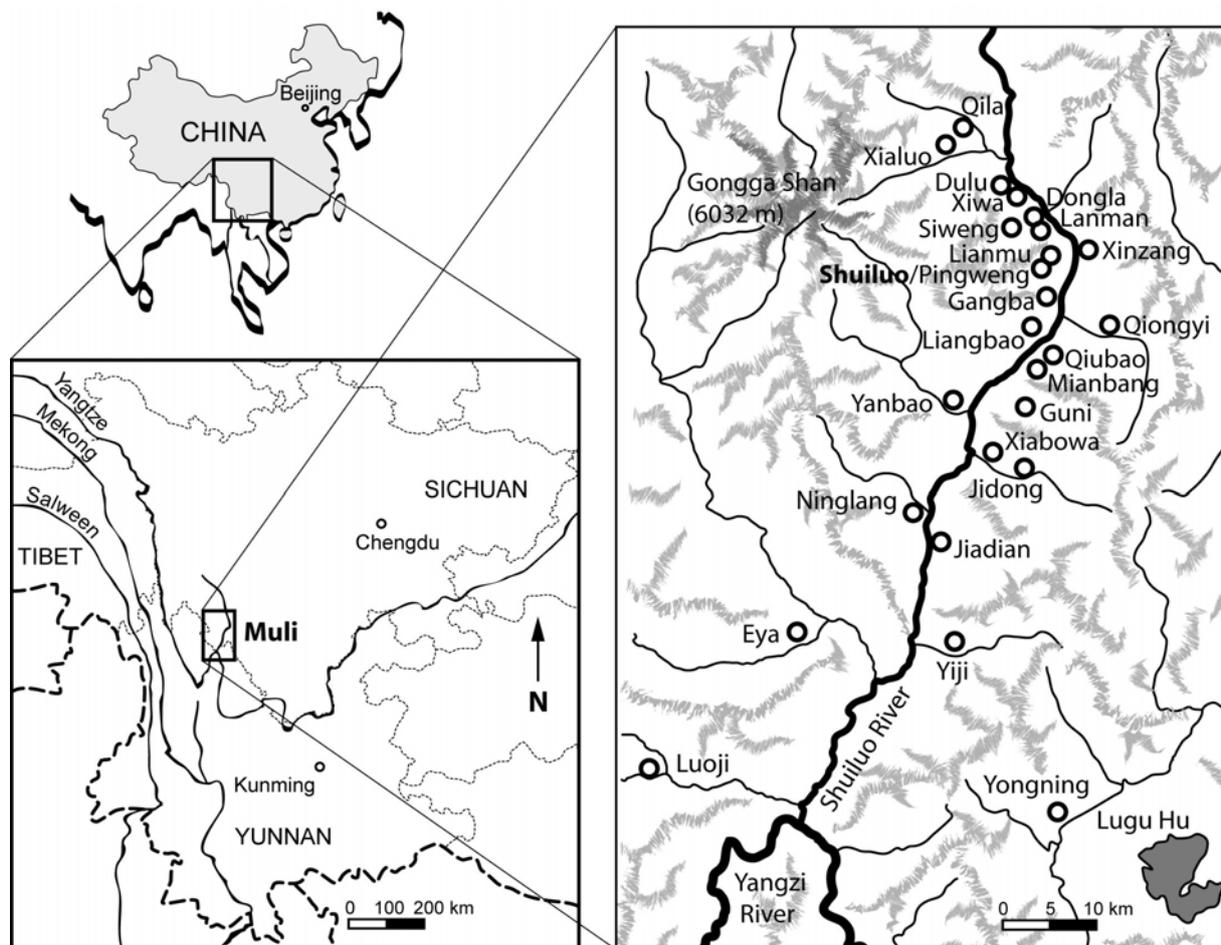关键词：史兴语，韵律，声调，韵律重音，边界调

## 1. Introduction

This article focuses on the prosodic organization of Shǐxīng(史兴语), 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 Shǐxīng 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. Shǐxīng: location and linguistic affiliation

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



*Map 1. Location of Shuǐluò Township, Mùlǐ Tibetan Autonomous County*[1]

Shǐxīng is currently classified as belonging to the Qiangic subgroup of the Sino-Tibetan language family (Bradley 1997:36-37; Sūn 2001; Thurgood 2003:17).

Shǐxīng 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 Shuǐluò river (Sūn 1983), and that of its Upper Reaches (Huáng and Rénzēng 1991). In addition to these two brief outlines, two comparative vocabulary handbooks on Tibeto-Burman languages, Sūn et al. (1991:240-244) and Huáng et al. (1992:646-647), present the phonological system of Shǐxīng as well as approximately

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1,000 and 1,800 Shǐxīng words, respectively.[2] This article builds on these studies as well as on the first author's fieldwork on the Upper Reaches variety of Shǐxīng (Chirkova 2007, 2009).

## 1.2. Shǐxīng tones and tone domain

Shǐxīng is a phonologically monosyllabic, tonal language with a strong tendency towards disyllabicity in the lexicon through affixation, compounding and reduplication. Most Shǐxīng 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 Shǐxīng 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]

(1) [$^H$tɕyi] 'tea' + [$^{LH}$biæ] 'leaf' > [$^H$tɕyi-$^H$wæ] 'tea leaf'

(2) [$^H$tɕyi] 'tea' + [$^{LH}$tɕʰĩ] 'drink' > [$^H$tɕyi-$^H$ɕĩ] 'drink tea'

A phonological word in Shǐxīng 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-$^H$ɕĩ] 'drink tea'. The average Shǐxīng 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-$^L$qʰɻ-$^H$ʂɻ] '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]

| tone | example | meaning |
|------|---------|---------|
| [H] | [$^H$tsʰi] | to measure |
| [LH] | [$^{LH}$tsʰi] | ploughshare |
| [HL] | [$^{HL}$tsʰi] | section, joint |

[2] The phonological analysis of Shǐxīng in Sūn et al. (1991) is identical to that in Sūn (1983); that in Huáng et al. (1992) differs slightly from the analysis in Huáng and Rénzēng (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 Huáng and Rénzēng (1991), with some minor adjustments based on the first author's fieldwork (Chirkova 2009). Shǐxīng 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 (Shǐxīng 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 equals sign separates an enclitic from its host word.
[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 (Huáng and Rénzēng 1991:179-180; Sūn 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, Huáng and Rénzēng's (1991:180) [ma³³-rõ⁵⁵] 'high, tall' is [$^L$ma-$^H$rõ] in our notation.

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

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. [ᴴmiæ-ᴴtsʰi] 'bamboo joint' (< [ᴴmiæ] 'bamboo', [ᴴᴸtsʰi] '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. [ᴸʁɛ̃-ᴴtsʰi] 'back of the neck' (< [ᴸᴴʁɛ] 'neck', [ᴴᴸtsʰi] 'section, joint')

- a sequence of H tone on the first syllable and L on all following syllables, i.e. [H-L-…-L], e.g. [ᴴʁɑo-ᴸtsʰi =ᴸgɜ] 'want to measure swords' (< [ᴴᴸʁɑo] 'strength', [ᴴtsʰi] 'measure', the volitional marker /gɜ/), see sentence (5) of the appended text

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 (Sun 1997:499), Japanese (Haraguchi 1999:19), Matengo and Kimatuumbi (Bantu) (Odden 2005:415) and Mùkǎ Qiāng (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. [ᴸᴴrõ] 'horse'. On phonological words of two syllables or more, the boundary tone is assigned to the final syllable of the word, e.g. [ᴸrõ =ᴴji] 'of a horse'. In sum, the three contrastive tones is Shǐxīng are here analyzed as /H/, /L/ and /HL/.

The relationship between the two types of contrastive tones, those on monosyllables versus those on phonological words of two syllables or more, is not straightforward 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 relationship 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).

|  |  | 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 | |

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

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 Shǐxīng. 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 Qiáowǎ 乔瓦, the administrative seat of Mùlǐ Tibetan Autonomous County. The reported data were collected in four elicitation sessions from one adult male speaker, Lǔróng Duōdīng, 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.

The materials for this study are mono- and disyllabic words (both nouns and verbs), taken from the Shǐxīng 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 Shǐxīng 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  = $^H$zι̩#     NP      $^L$ɲõ.
       this =TOP           COP
       'This is NP.', e.g. [$^L$ha  = $^H$zι̩# $^H$ʔɛ̃ $^L$ɲõ.] 'This is a sheep.'

(4)    $^H$ŋɜ#    V    = $^L$ts$^h$a  = $^L$wu  = $^L$sι̩.
       1SG         =TERM =RES =PRF
       'I finished V.', e.g. [$^H$ŋɜ# $^{LH}$tɕ$^h$ĩ  = $^L$ts$^h$a  = $^L$wu  = $^L$sι̩.] 'I finished drinking.' (< [$^{LH}$tɕ$^h$ĩ],
       /$^L$tɕ$^h$ĩ/ '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 /ts$^h$a/, /wu/ and /sι̩/ in example (4).[7] These syllables do not acquire any tone from their host word, nor do they 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 Shǐxīng 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

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[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 Shǐxīng 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 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.

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.

(5)     $^{L}$ha = $^{H}$zɿ#     $^{H}$ʂɿ          $^{L}$ɲõ.
        this = TOP     fishing.net     COP
                            tongue
        'This is a fishing net.' / 'This is a tongue.'

(6)     $^{H}$tʰi = $^{H}$rɛ̃#     $^{H}$pũ#     $^{L}$tɕi-$^{H}$tɕi#     $^{L}$bɜ = $^{H}$jĩ.
        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 [$^{L}$ha = $^{H}$zɿ# $^{HL}$ʂɿ $^{L}$ɲõ.] and that of the sentence 'They are about to pile.' to [$^{H}$tʰi = $^{H}$rɛ̃# $^{HL}$pũ# $^{L}$tɕi-$^{H}$tɕi# $^{L}$bɜ = $^{H}$jĩ].

        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)     $^{L}$ha = $^{H}$zɿ#     $^{L}$pʰa-$^{LH}$za      $^{L}$ɲõ.
        this = TOP     shoes          COP
        'These are shoes.' (< [$^{L}$pʰa-$^{H}$za], /$^{L}$pʰa-za/ 'shoes' in isolation)

(8)     $^{L}$ha = $^{H}$zɿ#     $^{H}$ta-$^{HL}$pi     $^{L}$ɲõ.
        this = TOP     mane     COP
        'This is mane.' (< [$^{H}$ta-$^{L}$pi], /$^{HL}$ta-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. [$^{L}$ba-$^{L}$ru $^{H}$rə], /$^{L}$ba-ru rə/ 'snake skin' (< [$^{L}$ba-$^{H}$ru], /$^{L}$ba-ru/ 'snake', [$^{H}$rə] '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. [$^{L}$ba-$^{H}$ru# $^{LH}$ʁɛ̃] '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) [$^{H}$ʔɛ̃] 'sheep'+ [$^{H}$rə] 'skin'  >  [$^{H}$ʔɛ̃ $^{H}$rə], /$^{H}$ʔɛ̃ rə/ 'sheep skin'

(10) [$^{H}$ʔɛ̃] 'sheep'+ [$^{LH}$ʁɛ̃], /$^{L}$ʁɛ̃/ 'neck'  >  [$^{H}$ʔɛ̃ $^{H}$ʁɛ̃], /$^{H}$ʔɛ̃ ʁɛ̃/ 'sheep neck'

(11) [$^{H}$ʔɛ̃] 'sheep'+ [$^{HL}$qʰə] 'excrement'  >  [$^{H}$ʔɛ̃ $^{H}$qʰə], /$^{H}$ʔɛ̃ qʰə/ 'sheep excrement'

(12) [$^{H}$ʔɛ̃] 'sheep'+ [$^{H}$kʰa-$^{H}$miæ], /$^{H}$kʰa-miæ/ 'footprint'  >  [$^{H}$ʔɛ̃ $^{H}$kʰa-$^{H}$miæ], /$^{H}$ʔɛ̃ kʰa-miæ/ 'sheep hoofprints'

(13) [$^{H}$ʔɛ̃] 'sheep'+ [$^{L}$m̥iæ-$^{H}$tsũ], /$^{L}$m̥iæ-tsũ/ 'tail'  >  [$^{H}$ʔɛ̃ $^{H}$m̥iæ-$^{H}$tsũ], /$^{H}$ʔɛ̃ m̥iæ-tsũ/ 'sheep tail'

(14) [$^{H}$ʔɛ̃] 'sheep'+ [$^{H}$ɲɜ-$^{L}$mi], /$^{HL}$ɲɜ-mi/ 'heart'  >  [$^{H}$ʔɛ̃ $^{H}$ɲɜ-$^{H}$mi], /$^{H}$ʔɛ̃ ɲɜ-mi/ 'sheep heart'

/L/

(15) [$^{LH}$rõ], /$^{L}$rõ/ 'horse'+ [$^{H}$rə] 'skin'  >  [$^{L}$rõ $^{H}$rə], /$^{L}$rõ rə/ 'horse skin'

(16) [$^{LH}$rõ], /$^{L}$rõ/ 'horse'+ [$^{LH}$ʁɛ̃], /$^{L}$ʁɛ̃/ 'neck'  >  [$^{L}$rõ $^{H}$ʁɛ̃], /$^{L}$rõ ʁɛ̃/ 'horse neck'

(17) [$^{LH}$rõ], /$^{L}$rõ/ 'horse'+ [$^{HL}$qʰə] 'excrement'  >  [$^{L}$rõ $^{H}$qʰə], /$^{L}$rõ qʰə/ 'horse excrement'

(18) [$^{LH}$rõ], /$^{L}$rõ/ 'horse'+ [$^{H}$kʰa-$^{H}$miæ], /$^{H}$kʰa-miæ/ 'footprint'  >  [$^{L}$rõ $^{L}$kʰa-$^{H}$miæ], /$^{L}$rõ kʰa-miæ/ 'horse hoofprints'

(19) [$^{LH}$rõ], /$^{L}$rõ/ 'horse'+ [$^{L}$m̥iæ-$^{H}$tsũ], /$^{L}$m̥iæ-tsũ/ 'tail'  >  [$^{L}$rõ $^{L}$m̥iæ-$^{H}$tsũ], /$^{L}$rõ m̥iæ-tsũ/ 'horse tail'

(20) [$^{LH}$rõ], /$^{L}$rõ/ 'horse'+ [$^{H}$ɲɜ-$^{L}$mi], /$^{HL}$ɲɜ-mi/ 'heart'  >  [$^{L}$rõ $^{L}$ɲɜ-$^{H}$mi], /$^{L}$rõ ɲɜ-mi/ 'horse heart'

/HL/

(21) [$^{HL}$tsʰɻ̩] 'goat'+ [$^{H}$rə] 'skin'  >  [$^{H}$tsʰɻ̩ $^{L}$rə], /$^{HL}$tsʰɻ̩ rə/ 'goat skin'

(22) [$^{HL}$tsʰɻ̩] 'goat'+ [$^{LH}$ʁɛ̃], /$^{L}$ʁɛ̃/ 'neck'  >  [$^{H}$tsʰɻ̩ $^{L}$ʁɛ̃], /$^{HL}$tsʰɻ̩ ʁɛ̃/ 'goat neck'

(23) [$^{HL}$tsʰɻ̩] 'goat'+ [$^{HL}$qʰə] 'excrement'  >  [$^{H}$tsʰɻ̩ $^{L}$qʰə], /$^{HL}$tsʰɻ̩ qʰə/ 'goat excrement'

(24) [$^{HL}$tsʰɻ̩] 'goat'+ [$^{H}$kʰa-$^{H}$miæ], /$^{H}$kʰa-miæ/ 'footprint'  >  [$^{H}$tsʰɻ̩ $^{L}$kʰa-$^{L}$miæ], /$^{HL}$tsʰɻ̩ kʰa-miæ/ 'goat hoofprints'

(25) [$^{HL}$tsʰɻ̩] 'goat'+ [$^{L}$m̥iæ-$^{H}$tsũ], /$^{L}$m̥iæ-tsũ/ 'tail'  >  [$^{H}$tsʰɻ̩ $^{L}$m̥iæ-$^{L}$tsũ], /$^{HL}$tsʰɻ̩ m̥iæ-tsũ/ 'goat tail'

(26) [$^{HL}$tsʰɻ̩] 'goat'+ [$^{H}$ɲɜ-$^{L}$mi], /$^{HL}$ɲɜ-mi/ 'heart'  >  [$^{H}$tsʰɻ̩ $^{L}$ɲɜ-$^{L}$mi], /$^{HL}$tsʰɻ̩ ɲɜ-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.

| tone of the second element |
| --- |

|  |  | H | L | HL |
|---|---|---|---|---|
| **tone of** | **H** | H | | |
| **the first** | **L** | L | | |
| **element** | **HL** | HL | | |

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

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

(27) [$^{HL}$bõ] 'yak'+ [$^{H}$rə] 'skin' > [$^{L}$bõ $^{H}$rə], /$^{L}$bõ rə/ 'yak skin'

(28) [$^{HL}$bõ] 'yak'+ [$^{LH}$ʁɛ̃], /$^{L}$ʁɛ̃/ 'neck' > [$^{L}$bõ $^{H}$ʁɛ̃], /$^{L}$bõ ʁɛ̃/ 'yak neck'

(29) [$^{HL}$bõ] 'yak'+ [$^{H}$qʰə] 'excrement' > [$^{L}$bõ $^{H}$qʰə], /$^{L}$bõ qʰə/ 'yak excrement'

(30) [$^{HL}$bõ] 'yak'+ [$^{H}$kʰa-$^{H}$miæ], /$^{H}$kʰa-miæ/ 'footprint' > [$^{L}$bõ $^{L}$kʰa-$^{H}$miæ], /$^{L}$bõ kʰa-miæ/ 'yak hoofprints'

(31) [$^{HL}$bõ] 'yak'+ [$^{L}$m̥iæ-$^{H}$tsũ], /$^{L}$m̥iæ-tsũ/ 'tail' > [$^{L}$bõ $^{L}$m̥iæ-$^{H}$tsũ], /$^{L}$bõ m̥iæ-tsũ/ 'yak tail'

(32) [$^{HL}$bõ] 'yak'+ [$^{H}$ɲɜ-$^{L}$mi], /$^{HL}$ɲɜ-mi/ 'heart' > [$^{L}$bõ $^{L}$ɲɜ-$^{H}$mi], /$^{L}$bõ ɲɜ-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:

|  |  | suffix (Ø) |
|---|---|---|
| **root** | **H** | H |
| | **L** | L |
| | **HL** | HL |

*Table 4. Word tone derivation in words formed through suffixation*

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' + [ᴴɕĩ] 'look'  >  [ᴴmiæ-ᴴɕĩ], /ᴴmiæ-ɕĩ/ 'look down'

(36) /bə-/ 'outward' + [ᴴɕĩ] 'look'  >  [ᴴbə-ᴴɕĩ], /ᴴbə-ɕĩ/ 'look out'

(37) /kʰu-/ 'inward' + [ᴴɕĩ] 'look'  >  [ᴴkʰu-ᴴɕĩ], /ᴴkʰu-ɕĩ/ 'look inside'

(38) /dʑi-/ 'upward' + [ᴴɕĩ] 'look'  >  [ᴴdʑi-ᴴɕĩ], /ᴴdʑi-ɕĩ/ '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-ᴴɕĩ#        ᴸmiæ-ᴸlɜ-ᴴɕĩ#,        ᴸkʰu-ᴸlɜ-ᴴɕĩ#        ᴸbə-ᴸlɜ-ᴴɕĩ#
      upward-PFV-look   downward-PFV-look   inward-PFV-look   outward-PFV-look
      'have looked up and down, inside and outside' (< [ᴴɕĩ] 'look')

(44)  ᴸɕi-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)  ᴸɕi-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:

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

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

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. [$^L$bə-$^H$gi] 'pull out, lengthen', [$^L$bɜ-$^H$pʰɜ] 'pull out', [$^L$bu-$^H$tʂʰu] '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) [$^H$ʔɛ̃] 'sheep'+ the genitive marker /ji/ > [$^H$ʔɛ̃ =$^H$ji], /$^H$ʔɛ̃ =ji/ 'of a sheep'

(47) [$^{LH}$rõ], /$^L$rõ/ 'horse'+ the genitive marker /ji/ > [$^L$rõ =$^H$ji], /$^L$rõ =ji/ 'of a horse'

(48) [$^{HL}$tsʰɻ] 'goat'+ the genitive marker /ji/ > [$^H$tsʰɻ =$^L$ji], /$^{HL}$tsʰɻ =ji/ 'of a goat'

(49) [$^H$ʂu-$^H$hĩ], /$^H$ʂu-hĩ/ 'a Shǐxīng person' + the genitive marker /ji/ > [$^H$ʂu-$^H$hĩ =$^H$hĩ], /$^H$ʂu-hĩ =hĩ/ 'of a Shǐxīng person' (in this combination, the genitive marker /ji/ assimilates to the preceding syllable, /hĩ/)

(50) [$^L$tʂa.$^H$wɜ], /$^L$tʂa.wɜ/ 'monk' (WT *grwa pa*) + the genitive marker /ji/ > [$^L$tʂa.$^L$wɜ =$^H$ji], /$^L$tʂa.wɜ =ji/ 'of a monk'

(51) [$^H$sĩ-$^L$zu], /$^{HL}$sĩ-zu/ 'carpenter' + the genitive marker /ji/ > [$^H$sĩ-$^L$zu =$^L$ji], /$^{HL}$sĩ-zu =ji/ 'of a carpenter'

The "irregular" /HL/ word /$^{HL}$bõ/ 'yak' behaves as a regular /HL/ word in this type of combinations, as in the following example:

(52) [$^{HL}$bõ] 'yak'+ the genitive marker /ji/ > [$^H$bõ =$^L$ji], /$^{HL}$bõ =ji/ 'of a yak'

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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 Shǐxīng a set of pronominal proclitics. Overall, vowel harmony has very restricted productivity in Shǐxīng 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. [$^L$tʰi =$^H$ji] 'his', [$^L$tʰɜ =$^H$sɻ] 'him', [$^H$tʰu-$^H$wu] 'his family, they as a family'. If assumed to be derived from the tone of the third person pronoun [$^{HL}$tʰi] (§3.2.1), the resulting tone of these combinations is expected to be /HL/, i.e. *[$^H$tʰi =$^L$ji], *[$^H$tʰɜ =$^L$sɻ] and *[$^H$tʰu-$^L$wu], 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 [$^H$tʰu-$^H$wu] 'his family, they as a family', derived from the root [$^H$wu] '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. [$^H$ɲi-$^H$wu] 'you (as a family)' (< [$^{HL}$ɲi] 'thou', [$^H$wu] 'family'), [$^L$ɲi =$^H$wu] '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.

(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)  $^H$ŋɜ#  $^H$qua $=^L$tsʰa $=^L$wu $=^L$sɻ.
      1SG   weep =TERM =RES =PRF
      'I finished weeping.' (< [$^H$qua] 'cry, weep')

(54)  $^H$ŋɜ#  $^{LH}$dzɜ $=^L$tsʰa $=^L$wu $=^L$sɻ.
      1SG   eat =TERM =RES =PRF
      'I finished eating.' (< [$^{LH}$dzɜ], /$^L$dzɜ/ '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)  $^H$ŋɜ#  $^H$tsa $=^L$tsʰa $=^L$wu $=^L$sɻ.
      1SG   weep =TERM =RES =PRF
      'I finished jumping.' (< [$^{HL}$tsa] '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 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)  $^L$tʰi $=^H$ji# $^L$tsʰ̩-$^H$dʑyɜ# $^L$rɛ̃ $=^H$ʐ̩# $^{HL}$pɜ $=^L$li $=^L$ɲõ.
      $^L$tʰi $=^H$ji   $^L$tsʰ̩-$^H$dʑyɜ   $^L$rɛ̃ $=^H$ʐ̩   $^{HL}$pɜ $=^L$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.

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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, [$^{HL}$ɕyɜ $=^L$li $=^L$ɲõ] '[he] thought' (< [$^{HL}$ɕyɜ] 'think', the patient nominalizer /li/, the copular verb /ɲõ/).

## 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.

|  |  | 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 6. Word tone derivation in phonological words of two syllables or more*

|  |  | 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 |

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

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*. Shǐxīng displays a wide range of tonal processes, including (a) contour tone simplification, (b) left-to-right tone spreading on nouns, (c) anticipatory (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 Shǐxīng 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 Shǐxīng:

  (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 Shǐxīng 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

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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 Shǐxīng has a strong preference towards disyllabicity in its prosodic organization, with the disyllabic foot being the building block for the prosodic structure of Shǐxīng. At the same time, monosyllabic (minimal) feet are allowed in Shǐxīng (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 Shǐxīng

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

We argue that Shǐxīng is a language with culminative word prominence (stress): a phonological word in Shǐxīng 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 Shǐxīng 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 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, Shǐxīng 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 Shǐxīng), as the phonological word [ᴸrɛ̃ =ᴴʐ̩] 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 Shǐxīng 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.

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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 =ᴸs̩ =ᴴʐ̩] 'there existed' (</bu-/ 'outward', [ᴸdʑõ] 'exist' (NB: the initial of this root is lenited in the intervocalic position), the perfect marker /s̩/, the topic marker /ʐ̩/).

[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).

## 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 Shǐxīng:

(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 Shǐxīng, that reportedly has a distinct prosodic structure.

(c) The present study, focused on synchronic Shǐxīng 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 Shǐxīng.

## Appendix. Daly Kuku and Gutsen Padzhe[13]

(1) $^{H}$ji-$^{L}$ɲɪ# $^{H}$ji-$^{L}$ɲɪ# $^{H}$hĩ# $^{L}$da-$^{H}$lə-$^{L}$ku-$^{L}$ku# $^{H}$ma-$^{H}$hĩ# $^{LH}$dʑĩ# $^{LH}$jĩ =$^{L}$dʑõ.

| $^{H}$ji-$^{L}$ɲɪ | $^{H}$ji-$^{L}$ɲɪ | $^{H}$hĩ | $^{L}$da-$^{H}$lə-$^{L}$ku-$^{L}$ku | $^{H}$ma-$^{H}$hĩ |
|---|---|---|---|---|
| previous-? | previous-? | person | *personal.name* | name-person |

$^{LH}$dʑĩ $^{LH}$jĩ =$^{L}$dʑõ.
one    exist.ANM=DUR
'A long time ago, there was a man by the name of Daly Kuku.'

(2) $^{H}$ha $^{H}$hĩ $^{H}$ha# $^{H}$ʁɑo-$^{L}$duʒ.

| $^{H}$ha | $^{H}$hĩ | $^{H}$ha | $^{H}$ʁɑo-$^{L}$duʒ |
|---|---|---|---|
| this | person | this | strength-big |

'This man was very strong.'

(3) $^{L}$tʰʒ-$^{L}$læ =$^{H}$z̩# $^{H}$gu-$^{H}$tsɛ̃-$^{H}$pa-$^{H}$tɕʒ# $^{H}$pʒ-$^{L}$hĩ# $^{L}$dʑĩ =$^{H}$lʒ# $^{LH}$jĩ =$^{L}$dʑõ.

| $^{L}$tʰʒ-$^{L}$læ =$^{H}$z̩ | $^{H}$gu-$^{H}$tsɛ̃-$^{H}$pa-$^{H}$tɕʒ | $^{H}$pʒ-$^{L}$hĩ |
|---|---|---|
| that-become=TOP | *personal.name* | speak-person |

$^{L}$dʑĩ =$^{H}$lʒ          $^{LH}$jĩ =$^{L}$dʑõ
one =also          exist.ANM =DUR
'Then, there was also a man called Gutsen Padzhe.'

(4) $^{L}$tʰi =$^{H}$lʒ# $^{H}$ʁɑo-$^{L}$duʒ-$^{L}$hĩ $^{L}$ɲõ.

| $^{L}$tʰi =$^{H}$lʒ | $^{H}$ʁɑo-$^{L}$duʒ-$^{L}$hĩ | $^{L}$ɲõ |
|---|---|---|
| 3SG =also | strength-big-person | COP |

'He, too, was very strong.'

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[13] Personal names in Shǐxīng normally carry /H/ tone, e.g. /$^{H}$gu-tsɛ̃-pa-tɕʒ/. The tone pattern of the name of the main protagonist, [$^{L}$da-$^{H}$lə-$^{L}$ku-$^{L}$ku] 'Daly Kuku', is therefore unusual. At present, we do not know what this name means and therefore cannot explain how it acquired its tone.

(5) <sup>L</sup>dʑi-<sup>H</sup>ma# <sup>H</sup>gu-<sup>H</sup>tsɛ̃-<sup>H</sup>pa-<sup>H</sup>tɕʒ =<sup>L</sup>rɛ̃# <sup>L</sup>bi =<sup>H</sup>sɿ# <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku =<sup>L</sup>kʒ# <sup>H</sup>ʁao-<sup>L</sup>tsʰi =<sup>L</sup>gʒ#
<sup>HL</sup>ɕyʒ =<sup>L</sup>li =<sup>L</sup>ɲõ.

| <sup>L</sup>dʑi-<sup>H</sup>ma | <sup>H</sup>gu-<sup>H</sup>tsɛ̃-<sup>H</sup>pa-<sup>H</sup>tɕʒ =<sup>L</sup>rɛ̃ | <sup>L</sup>bi =<sup>H</sup>sɿ | <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku =<sup>L</sup>kʒ |
|---|---|---|---|
| one-day | *personal.name* =AGT | walk =PRF | *personal.name* =at |

| <sup>H</sup>ʁao-<sup>L</sup>tsʰi =<sup>L</sup>gʒ | <sup>HL</sup>ɕyʒ =<sup>L</sup>li =<sup>L</sup>ɲõ |
|---|---|
| strength-measure =VOL | think =NMLZ.PST =COP |

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

(6) <sup>L</sup>tʰʒ =<sup>L</sup>ma =<sup>H</sup>li# <sup>H</sup>gu-<sup>H</sup>tsɛ̃-<sup>H</sup>pa-<sup>H</sup>tɕʒ# <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku =<sup>L</sup>ji# <sup>L</sup>dʑo-<sup>L</sup>hõ =<sup>H</sup>no# <sup>H</sup>pao =<sup>L</sup>tɕʰu
=<sup>L</sup>li =<sup>L</sup>ɲõ.

| <sup>L</sup>tʰʒ =<sup>L</sup>ma =<sup>H</sup>li | <sup>H</sup>gu-<sup>H</sup>tsɛ̃-<sup>H</sup>pa-<sup>H</sup>tɕʒ | <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku =<sup>L</sup>ji |
|---|---|---|
| that = day= NMLZ.PST | *personal.name* | *personal.name*=GEN |

| <sup>L</sup>dʑo-<sup>L</sup>hõ =<sup>H</sup>no | <sup>H</sup>pao =<sup>L</sup>tɕʰu =<sup>L</sup>li =<sup>L</sup>ɲõ |
|---|---|
| house =inside | arrive =come =NMLZ.PST =COP |

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

(7) <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku# <sup>L</sup>mi =<sup>LH</sup>jĩ =<sup>L</sup>li =<sup>L</sup>ɲõ.

| <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku | <sup>L</sup>mi =<sup>LH</sup>jĩ =<sup>L</sup>li =<sup>L</sup>ɲõ |
|---|---|
| *personal.name* | NEG =exist.ANM =NMLZ.PST =COP |

'Daly Kuku was not at home.'

(8) <sup>L</sup>da-<sup>H</sup>lə#-<sup>L</sup>ku-<sup>L</sup>ku =<sup>H</sup>ji# <sup>L</sup>tsʰɿ-<sup>L</sup>dʑyʒ =<sup>H</sup>zɿ# <sup>L</sup>dʑõ-<sup>H</sup>hõ# <sup>LH</sup>jĩ =<sup>L</sup>dʑõ.

| <sup>L</sup>da-<sup>H</sup>lə#-<sup>L</sup>ku-<sup>L</sup>ku =<sup>H</sup>ji | <sup>L</sup>tsʰɿ-<sup>L</sup>dʑyʒ =<sup>H</sup>zɿ | <sup>L</sup>dʑõ-<sup>H</sup>hõ <sup>LH</sup>jĩ =<sup>L</sup>dʑõ |
|---|---|---|
| *personal.name* =GEN | life-friend =TOP | house exist.ANM =DUR |

'Daly Kuku's wife was at home.'

(9) <sup>H</sup>gu-<sup>H</sup>tsɛ̃-<sup>H</sup>pa-<sup>H</sup>tɕʒ# <sup>L</sup>tʰu-<sup>H</sup>wu# <sup>L</sup>dʑõ-<sup>H</sup>hõ# <sup>H</sup>kʰu-<sup>H</sup>pao =<sup>L</sup>tɕʰu =<sup>L</sup>li =<sup>L</sup>ɲõ.

| <sup>H</sup>gu-<sup>H</sup>tsɛ̃-<sup>H</sup>pa-<sup>H</sup>tɕʒ | <sup>L</sup>tʰu-<sup>H</sup>wu | <sup>L</sup>dʑõ-<sup>H</sup>hõ |
|---|---|---|
| *personal.name* | 3SG-family | house |

| <sup>H</sup>kʰu-<sup>H</sup>pao =<sup>L</sup>tɕʰu =<sup>L</sup>li =<sup>L</sup>ɲõ |
|---|
| inward-arrive =come =NMLZ.PST =COP |

'Gutsen Padzhe entered their house.'

(10) "<sup>H</sup>ŋʒ# <sup>L</sup>tʰʒ =<sup>H</sup>wu# <sup>H</sup>ʁao-<sup>H</sup>dʒ =<sup>H</sup>gʒ#," <sup>HL</sup>pʒ =<sup>L</sup>li =<sup>L</sup>ɲõ.

| "<sup>H</sup>ŋʒ | <sup>L</sup>tʰʒ =<sup>H</sup>wu | <sup>H</sup>ʁao-<sup>H</sup>dʒ =<sup>H</sup>gʒ," | <sup>HL</sup>pʒ =<sup>L</sup>li =<sup>L</sup>ɲõ |
|---|---|---|---|
| 1SG | 3SG =COM | strength-perform =VOL | speak =NMLZ.PST =COP |

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

(11) <sup>L</sup>tʰʒ =<sup>H</sup>læ# <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku =<sup>L</sup>ji# <sup>L</sup>tsʰɿ-<sup>H</sup>dʑyʒ =<sup>L</sup>rɛ̃# <sup>L</sup>ʐu =<sup>H</sup>sɿ# <sup>H</sup>tsʰʒ# <sup>L</sup>dʑʒ-<sup>H</sup>bu =<sup>L</sup>ʁõ#
<sup>L</sup>kʰu-<sup>L</sup>tʂʰa =<sup>H</sup>sɿ# <sup>L</sup>dʑyʒ-<sup>H</sup>lʒ =<sup>L</sup>tɕi =<sup>L</sup>li =<sup>L</sup>ɲõ.

| <sup>L</sup>tʰʒ =<sup>H</sup>læ | <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku =<sup>L</sup>ji | <sup>L</sup>tsʰɿ-<sup>H</sup>dʑyʒ =<sup>L</sup>rɛ̃ | <sup>L</sup>ʐu =<sup>H</sup>sɿ | <sup>H</sup>tsʰʒ |
|---|---|---|---|---|
| that=become | *personal.name* =GEN | life-friend =AGT | be.afraid =PRF | salt |

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<sup>L</sup>dʑɜ-<sup>H</sup>bu =<sup>L</sup>ʁõ      <sup>L</sup>kʰu-<sup>L</sup>tʂʰa =<sup>H</sup>sɻ      <sup>L</sup>dʑyɜ-<sup>H</sup>lɜ =<sup>L</sup>tɕi =<sup>L</sup>li =<sup>L</sup>ɲõ

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) <sup>H</sup>gu-<sup>H</sup>tsɛ̃-<sup>H</sup>pa-<sup>H</sup>tɕɜ# <sup>L</sup>dõ =<sup>H</sup>læ# <sup>HL</sup>tʰi# <sup>H</sup>çyɜ =<sup>L</sup>li =<sup>L</sup>ɲõ.

<sup>H</sup>gu-<sup>H</sup>tsɛ̃-<sup>H</sup>pa-<sup>H</sup>tɕɜ      <sup>L</sup>dõ =<sup>H</sup>læ      <sup>HL</sup>tʰi      <sup>H</sup>çyɜ =<sup>L</sup>li =<sup>L</sup>ɲõ

*personal.name*      see =become      that      think =NMLZ.PST =COP

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


(13) "<sup>H</sup>ha <sup>H</sup>a-<sup>H</sup>me# <sup>H</sup>hĩ <sup>H</sup>ha =<sup>H</sup>rɛ̃ =<sup>L</sup>lɜ# <sup>L</sup>dʑɜ-<sup>H</sup>bu =<sup>L</sup>lɜ# <sup>L</sup>dʑyɜ-<sup>H</sup>lɜ# <sup>L</sup>dõ =<sup>H</sup>jĩ."

"<sup>H</sup>ha      <sup>H</sup>a-<sup>H</sup>me      <sup>H</sup>hĩ      <sup>H</sup>ha =<sup>H</sup>rɛ̃ =<sup>L</sup>lɜ      <sup>L</sup>dʑɜ-<sup>H</sup>bu =<sup>L</sup>lɜ

this      VOC-mother      person      this =AGT =also      chest =also


<sup>L</sup>dʑyɜ-<sup>H</sup>lɜ      <sup>L</sup>dõ =<sup>H</sup>jĩ."

lift      be.able =PROG

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


(14) "<sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku =<sup>L</sup>li# <sup>L</sup>sɜ-<sup>L</sup>ʁa =<sup>H</sup>lɜ# <sup>H</sup>ʁao# <sup>H</sup>ka-<sup>H</sup>pao# <sup>L</sup>kʰuɜ =<sup>H</sup>so-<sup>L</sup>ti#," <sup>HL</sup>çyɜ =<sup>L</sup>li =<sup>L</sup>ɲõ.

"<sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku =<sup>L</sup>li      <sup>L</sup>sɜ-<sup>L</sup>ʁa =<sup>H</sup>lɜ      <sup>H</sup>ʁao      <sup>H</sup>ka-<sup>H</sup>pao

*personal.name* =?NMLZ.PST      CMPR =also      strength      very


<sup>L</sup>kʰuɜ =<sup>H</sup>so-<sup>L</sup>ti,"      <sup>HL</sup>çyɜ =<sup>L</sup>li =<sup>L</sup>ɲõ

big =probably      think =NMLZ.PST =COP

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


(15) <sup>L</sup>sɪ-<sup>L</sup>ji =<sup>H</sup>z̩# <sup>LH</sup>da# <sup>L</sup>tʰɜ =<sup>L</sup>mu =<sup>H</sup>tʂɻ# <sup>L</sup>bɜ =<sup>H</sup>sɻ# <sup>L</sup>ʐu =<sup>H</sup>sɻ# <sup>L</sup>bə-<sup>H</sup>tsɑ =<sup>L</sup>xa =<sup>L</sup>li =<sup>L</sup>ɲõ.

<sup>L</sup>sɪ-<sup>L</sup>ji =<sup>H</sup>z̩      <sup>LH</sup>da      <sup>L</sup>tʰɜ =<sup>L</sup>mu =<sup>H</sup>tʂɻ      <sup>L</sup>bɜ =<sup>H</sup>sɻ      <sup>L</sup>ʐu =<sup>H</sup>sɻ

then-? =TOP      nothing      ?= NEG =delay      make =PRF      be.afraid =PRF


<sup>L</sup>bə-<sup>H</sup>tsɑ =<sup>L</sup>xa =<sup>L</sup>li =<sup>L</sup>ɲõ

outward-go =go.PST =NMLZ.PST =COP

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


(16) <sup>L</sup>ma-<sup>L</sup>lɜ-<sup>H</sup>ʁua# <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku# <sup>L</sup>dʑõ-<sup>H</sup>hõ# <sup>H</sup>lɜ-<sup>H</sup>pao =<sup>L</sup>tɕʰũ =<sup>L</sup>li =<sup>L</sup>ɲõ.

<sup>L</sup>ma-<sup>L</sup>lɜ-<sup>H</sup>ʁua      <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku      <sup>L</sup>dʑõ-<sup>H</sup>hõ      <sup>H</sup>lɜ-<sup>H</sup>pao =<sup>L</sup>tɕʰũ =<sup>L</sup>li =<sup>L</sup>ɲõ

day-?LOC-back      *personal.name*      house      PFV-arrive =come =NMLZ.PST =COP

'Then Daly Kuku returned home later that afternoon.'


(17) <sup>L</sup>tʰɜ =<sup>H</sup>læ# <sup>L</sup>tʰi =<sup>H</sup>ji# <sup>L</sup>tsʰɻ-<sup>H</sup>dʑyɜ =<sup>L</sup>rɛ̃# <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku =<sup>L</sup>no# <sup>H</sup>pɜ =<sup>L</sup>li =<sup>L</sup>ɲõ.

<sup>L</sup>tʰɜ =<sup>H</sup>læ      <sup>L</sup>tʰi =<sup>H</sup>ji      <sup>L</sup>tsʰɻ-<sup>H</sup>dʑyɜ =<sup>L</sup>rɛ̃      <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku =<sup>L</sup>no

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

<sup>H</sup>pʒ =<sup>L</sup>li =<sup>L</sup>ɲõ

speak =NMLZ.PST =COP

'His wife told Daly Kuku.'

(18) "<sup>H</sup>ma# <sup>H</sup>gu-<sup>H</sup>tsɛ̃-<sup>H</sup>pa-<sup>H</sup>tɕʒ# <sup>L</sup>a =<sup>H</sup>lʒ# <sup>L</sup>tɕʰũ =<sup>H</sup>sɹ̩#, <sup>L</sup>ɲi =<sup>H</sup>wu# <sup>H</sup>ʁao-<sup>H</sup>dʒ =<sup>H</sup>gʒ# <sup>H</sup>pʒ =<sup>L</sup>jĩ."

| "<sup>H</sup>ma | <sup>H</sup>gu-<sup>H</sup>tsɛ̃-<sup>H</sup>pa-<sup>H</sup>tɕʒ | <sup>L</sup>a =<sup>H</sup>lʒ | <sup>L</sup>tɕʰũ =<sup>H</sup>sɹ̩#, | <sup>L</sup>ɲi =<sup>H</sup>wu |
|---|---|---|---|---|
| today | *personal.name* | here =LOC | come =PRF | 2SG =COM |

| <sup>H</sup>ʁao-<sup>H</sup>dʒ =<sup>H</sup>gʒ | <sup>H</sup>pʒ =<sup>L</sup>jĩ." |
|---|---|
| strength-perform =VOL | speak =PROG |

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

(19) <sup>L</sup>tʰʒ =<sup>H</sup>læ# <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku# <sup>L</sup>rɛ̃ =<sup>H</sup>zɹ̩:# "<sup>LH</sup>za# <sup>LH</sup>jĩ,"# <sup>HL</sup>pʒ =<sup>L</sup>li =<sup>L</sup>ɲõ.

| <sup>L</sup>tʰʒ =<sup>H</sup>læ | <sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku | <sup>L</sup>rɛ̃ =<sup>H</sup>zɹ̩: | "<sup>LH</sup>za | <sup>LH</sup>jĩ," |
|---|---|---|---|---|
| that =become | *personal.name* | AGT =TOP | where | exist.ANM |

<sup>HL</sup>pʒ =<sup>L</sup>li =<sup>L</sup>ɲõ

speak =NMLZ.PST =COP

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

(20) <sup>L</sup>tʰi =<sup>H</sup>ji# <sup>L</sup>tsʰɹ̩-<sup>H</sup>dʑyʒ# <sup>L</sup>rɛ̃ =<sup>H</sup>zɹ̩# <sup>HL</sup>pʒ =<sup>L</sup>li =<sup>L</sup>ɲõ.

| <sup>L</sup>tʰi =<sup>H</sup>ji | <sup>L</sup>tsʰɹ̩-<sup>H</sup>dʑyʒ | <sup>L</sup>rɛ̃ =<sup>H</sup>zɹ̩ | <sup>HL</sup>pʒ =<sup>L</sup>li =<sup>L</sup>ɲõ |
|---|---|---|---|
| 3SG =GEN | life-friend | AGT =TOP | speak =NMLZ.PST =COP |

'His wife answered.'

(21) "<sup>H</sup>gu-<sup>H</sup>tsɛ̃-<sup>H</sup>pa-<sup>H</sup>tɕʒ# <sup>H</sup>ʔõ-<sup>H</sup>wu =<sup>L</sup>kʒ# <sup>H</sup>pao =<sup>H</sup>læ#, <sup>H</sup>ŋʒ# <sup>L</sup>ʐu =<sup>H</sup>sɹ̩# <sup>H</sup>tsʰʒ# <sup>L</sup>dʑʒ-<sup>H</sup>bu# <sup>L</sup>dʑyʒ-<sup>L</sup>dʑi-<sup>H</sup>lʒ# <sup>L</sup>dʒ =<sup>H</sup>sɹ̩#, <sup>L</sup>tʰʒ =<sup>L</sup>læ =<sup>H</sup>zɹ̩# <sup>LH</sup>da# <sup>L</sup>tʰʒ =<sup>L</sup>mu =<sup>H</sup>tʂɹ̩# <sup>L</sup>bʒ =<sup>H</sup>sɹ̩# <sup>H</sup>tsɑ =<sup>L</sup>wu =<sup>L</sup>sɹ̩."

| "<sup>H</sup>gu-<sup>H</sup>tsɛ̃-<sup>H</sup>pa-<sup>H</sup>tɕʒ | <sup>H</sup>ʔõ-<sup>H</sup>wu =<sup>L</sup>kʒ | <sup>H</sup>pao =<sup>H</sup>læ | <sup>H</sup>ŋʒ |
|---|---|---|---|
| *personal.name* | self-family =at | arrive =become | 1SG |

| <sup>L</sup>ʐu =<sup>H</sup>sɹ̩, | <sup>H</sup>tsʰʒ | <sup>L</sup>dʑʒ-<sup>H</sup>bu | <sup>L</sup>dʑyʒ-<sup>L</sup>dʑi-<sup>H</sup>lʒ | <sup>L</sup>dʒ =<sup>H</sup>sɹ̩ |
|---|---|---|---|---|
| be.afraid =PRF | salt | chest | lift-one-lift | perform =PRF |

| <sup>L</sup>tʰʒ =<sup>L</sup>læ =<sup>H</sup>zɹ̩ | <sup>LH</sup>da# | <sup>L</sup>tʰʒ =<sup>L</sup>mu =<sup>H</sup>tʂɹ̩# | <sup>L</sup>bʒ =<sup>H</sup>sɹ̩ |
|---|---|---|---|
| that =become =top | nothing | ? =NEG =delay | make =PRF |

<sup>H</sup>tsɑ =<sup>L</sup>wu =<sup>L</sup>sɹ̩."

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-ᴴsɿ-ˡma-ˡli# ˡda-ᴴlə-ˡku-ˡku# ᴸᴴlu# ˡbi =ᴴsɿ# ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ# ᴴlʒ-ᴴɕæ# ᴴxa =ˡli =ˡɲõ.

| ˡma-ᴴsɿ-ˡma-ˡli | ˡda-ᴴlə-ˡku-ˡku | ᴸᴴlu | ˡbi =ᴴsɿ |
|---|---|---|---|
| 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 =ᴴsɿ# ˡzɿ-ᴴbʒ# ˡdʑi-ˡwu ᴴɲi# ˡwʒ-ˡsuʒ-ᴴhĩ# ˡdʑyʒ-ˡlʒ =ᴴsɿ# 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 =ᴴsɿ | ˡzɿ-ᴴbʒ | ˡdʑi-ˡwu | ᴴɲi |
|---|---|---|---|
| be.afraid =IPFV =RES =PRF | plough.ox | one-pair | and |

| ˡwʒ-ˡsuʒ-ᴴhĩ | ˡdʑyʒ-ˡlʒ =ᴴsɿ | 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# ᴴʁɑo-ᴴdʒ =ᴴgʒ# ᴴpʒ-ˡhĩ# ᴴŋʒ# ᴴmõ =ˡɦõ#, ᴴgu-ᴴtsɛ̃-ᴴpa-ᴴtɕʒ# ᴴŋʒ# ᴴmõ =ˡɦõ#," ᴴtʰi ˡpʒ =ᴴlæ#, ˡda-ᴴlə-ˡku-ˡku# ᴴtsɑ =ˡxa =ˡli =ˡɲõ.

"<sup>L</sup>ɲi =<sup>H</sup>wu    <sup>H</sup>ʁɑo-<sup>H</sup>dʒ =<sup>H</sup>gʒ      <sup>H</sup>pʒ-<sup>L</sup>hĩ      <sup>H</sup>ŋʒ      <sup>H</sup>mõ =<sup>L</sup>ɦõ

2SG =COM      strength-perform =VOL      speak-person   1SG      NEG.COP=EMPH

<sup>H</sup>gu-<sup>H</sup>tsɛ̃-<sup>H</sup>pa-<sup>H</sup>tɕʒ      <sup>H</sup>ŋʒ      <sup>H</sup>mõ =<sup>L</sup>ɦõ,"      <sup>H</sup>t<sup>h</sup>i      <sup>L</sup>pʒ =<sup>L</sup>læ

*personal.name*      1SG      NEG.COP =EMPH      that      speak =become

<sup>L</sup>da-<sup>H</sup>lə-<sup>L</sup>ku-<sup>L</sup>ku      <sup>H</sup>tsɑ =<sup>L</sup>xa =<sup>L</sup>li =<sup>L</sup>ɲõ

*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.'

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