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A Phonological Sketch of Duoxu

Katia Chirkova (CNRS-CRLAO)

1. Introduction

This report presents a phonological sketch of Duoxu (/do^{33}-ʂu^{33}-na^{31}/, Duōxù 多续 or Duōxū 多须 in Mandarin Chinese), a little-known and virtually undescribed Tibeto-Burman language, spoken in Mianning county (冕宁县), which is located in the Liángshān Yí Autonomous Prefecture (凉山彝族自治州) in Sìchuān province (四川省) in the People's Republic of China. Together with Lizu and Ersu, two closely related languages, Duoxu is currently classified as a member of the Qiangic subgroup of the Tibeto-Burman language family (e.g. Sūn 1983, 2001; Bradley 1997: 36-37).[1]

Duoxu is critically endangered. It is spoken by no more than a few members of the oldest generation, who do not use the language on a regular basis and who, for that reason, have a relatively limited knowledge of it (cf. UNESCO 2003; Moseley 2011: 11-12). A survey of all remaining Duoxu speakers in April 2013, conducted by the author and supported by the Endangered Languages Documentation Programme (ELDP), identified nine last speakers (Chirkova 2014). All are in their 70s and 80s and bilingual in the local variety of Southwest Mandarin (hereafter SW Mandarin), which is their dominant daily language. None of the speakers has regular conversation partners in Duoxu. These circumstances qualify the remaining Duoxu speakers as 'semi-speakers' (cf. Dorian 1973: 417, 1977; Grinevald and Bert 2011: 50).

Duoxu is not only one of the most critically endangered Tibeto-Burman languages of Sìchuān, but it is also one of the least studied. First-hand data on the language are scarce: two short lexical lists (Sūn 1982: 242; Nishida and Sūn 1990:17) and one grammatical sketch

[1] Lizu (/li^{55}-zu^{55}-h̃u^{55}/ or /ly^{55}-zu^{55}-h̃u^{55}/, 里汝语 *lǐrǔyǔ* or 栗苏语 *lìsūyǔ*) is spoken in the counties of (i) Miǎnníng, (ii) Mùlǐ (Mùlǐ Tibetan Autonomous County, 木里藏族自治县, Written Tibetan, *smi li rang skyong rdzong*), and (iii) Jiǔlóng (九龙县, WT *brgyad zur*). Ersu (/ə̀-ʂɣ́ xò/, 尔苏语 *ěrsūyǔ*) is spoken in the counties of (i) Gānluò (甘洛县), (ii) Yuèxī (越西县), (iii) Shímián (石棉县), (iv) Hànyuán (汉源县), and (iv) Jiǔlóng. The kinship between Duoxu, Lizu, and Ersu can be seen in the large amount of cognates with similar morphosyntactic properties (Sūn 1982, 2001; see Chirkova 2014 for a detailed discussion).

(Huáng and Yǐn 2012). The scarcity of data and the restricted number of extant speakers pose considerable challenges for obtaining a comprehensive understanding of the Duoxu language and its history. Fortunately, in the case of Duoxu, both internal and external cues are available to identify the most proficient speakers and to evaluate the intactness and consistency of the data they provide. Internal cues include a comparison of the production of several speakers. External cues include a comparison with earlier attestations of Duoxu, most importantly the grammatical sketch by Huáng and Yǐn (2012), based on fieldwork with one of the last fluent Duoxu speakers in 1990.

Previous work comparing the production of all remaining speakers during the 2014 Duoxu survey identified one most proficient Duoxu speaker, Mr. Wǔ Róngfù 伍荣富 (Chirkova 2014). The present study aims to provide new data and new analysis of the phonological system of Duoxu, based on the speech of that most proficient speaker, so as to contribute to the documentation and research of the Duoxu language. It is a corrected and expanded version of my phonemic analysis of Duoxu (Chirkova 2014), and it is based on additional fieldwork. Essential differences with my earlier phonemic analysis include the addition of (1) detailed sections on tone and tonal patterns on disyllabic domains, and (2) audio files for all illustrative examples in the text. The purposes of providing audio files are to enable and encourage further research and analysis of Duoxu, and to contribute to its preservation.

This study also provides a detailed comparison of the data collected with a semi-speaker with those presented in Huáng and Yǐn (2012) and collected with a fluent speaker. The goal of the comparison is to evaluate the intactness and consistency of the newly collected data.[2]

The sketch is also intended as a reference document for comparative work between Duoxu and its sister languages Lizu and Ersu. For ease of comparison, the present description is modeled on the phonological sketches of Lizu and Ersu (Chirkova and Chen 2013; Chirkova et al. 2015) and it contains the same recorded text ("The North Wind and the Sun").

[2] Huáng and Yǐn's main language consultant, Mr. Wǔ Wéncōng 伍文聪, and Mr. Wǔ Róngfù, the main consultant for this study, are from the same village (Wǔsù 伍宿). Notably, Huáng and Yǐn also worked with Wǔ Róngfù in 2012 cross-checking some of the data collected with Wǔ Wéncōng (Huáng and Yǐn 2012: 58). Huáng and Yǐn note that the phonological system of Wǔ Róngfù is similar to that of Wǔ Wéncōng (ibid.).

Data presented in the sketch were collected in two fieldtrips to Mianning in April-May 2013 and November-December 2013. Lexical elicitations were based on the list of ca. 1,500 basic words (an expanded version of the lexical list of the Chinese Academy of Social Sciences, as in Sūn et al. 1991) (hereafter corpus). All data elicitation sessions were recorded in uncompressed .wav format using a Fostex FR digital audio recorder and an AKG C 480 B microphone with CK61-ULS capsule. The lexical items cited in the report were recorded in citation form with an average of three repetitions per word. Tone analysis in sections on tone and tonal patterns was carried out using scripts developed by James N. Stanford (Dartmouth College) for the software packages PRAAT (Boersma and Weenick 2009) and R (R Development Core Team 2008). Stanford's scripts normalize syllable tokens for time duration. The raw input file is converted to 200 'relative time points', which can be compared using mean pitch values at selected relative time points. The f0 normalization process uses the mean of the Duoxu mid level tone (33) as a point of reference for tone comparison. Tone inventories are presented in semitones, given that semitones better reflect pitch-related perception than the Hertz scale (for more details see Stanford, 2008: 420-421, 2013, and references therein).

2. Consonants

Duoxu has 33 consonant phonemes, listed in Table 1. There is a general three-way contrast in stops and affricates: voiceless aspirated, voiceless unaspirated, and voiced.

	Bilabial	**Labiodental**	**Dental**	**Alveolar**	**Postalveolar**	**Alveolopalatal**	**Velar**	**Uvular**
Plosive	p pʰ b		t tʰ d				k kʰ g	
Affricate			ts tsʰ dz		tʃ tʃʰ dʒ	tɕ tɕʰ dʑ		
Nasal	m		n				ŋ	
Fricative		f v	s z		ʃ ʒ	ɕ ʑ	x	ʁ
Approximant						j		
Lateral			l					

Table 1. Consonant phonemes of Duoxu.

p pe^{33}-pe^{33} 'patch, mend' tʃʰ tʃʰe^{53} 'rice'

pʰ	pʰe^{33} ‘price’	dʒ	dʒe^{22} ‘scold’
b	be^{33}-be^{33} ‘climb’	ʃ	ʃe^{33} ‘meat’
m	me^{53} ‘blow’	ʒ	ʒe^{33} ‘horn’
f	fe^{22} ‘pus’	tɕ	tɕe^{33}le^{33} ‘ladder’
v	ve^{33} ‘vassal, slave’	tɕʰ	tɕʰe^{53} ‘goat’
t	to^{33} ‘cut’	dʑ	dʑe^{33} ‘drum’
tʰ	tʰo^{31} ‘be good’	ɕ	ɕe^{33} ‘pull’
d	do^{33}pʰa^{33} ‘belly’	ʑ	ʑi^{33} ‘shoe’
ts	tsi^{33} [tsʐ^{33}] ‘hemp’	j	je^{33} ‘tobacco’
tsʰ	tsʰi^{33} [tsʰʐ^{33}] ‘excrement’	k	ke^{22} ‘steelyard’
dz	(mo^{31}) dzi^{31} [dzʐ^{31}] ‘ride (a horse)’	kʰ	kʰe^{33}-kʰe^{33} ‘scratch (an itch)’
n	ne^{33} ‘day’	g	ge^{53} ‘set (of the sun)’
s	sa^{53}-sa ‘strike, touch’	ŋ	ŋe^{33} ‘sob, cry’
z	za^{22}-za^{33} ‘be tender’	x	xe^{22} ‘be long’
l	ko^{33}le^{33} ‘crow’	ʁ	ʁa^{53} ‘be full (after meal)’
tʃ	ʃa^{33}-tʃe^{33} ‘iron nail’		

Several consonant phonemes have a restricted distribution. The uvular voiced fricative only occurs before /a/ (as in /ʁa^{31}/ ‘needle’, /ʁa^{53}/ ‘be full (after meal)’). /f/ only occurs before /e/, /a/, and /u/ (as in /fe^{22}/ ‘pus’, /fa^{22}la^{53}-pu/ ‘dustpan, winnowing fan’, /fu^{22}tʃʰu^{53}/ ‘be dry’). /v/ only occurs before /e/, /a/, /u/, and /o/, and its phonetic realization varies according to the following vowel. Before /e/ and /u/, /v/ is realized as a voiced labiodental fricative (as in /ve^{33}/ [ve^{33}] ‘vassal, slave’, /vu^{33}/ [vu^{33}] ‘water’). Before /a/ and /o/, /v/ is realized as a

voiced rounded labio-velar approximant ([w]) (as in /va^{53}=la/ [wa^{53}=la^{31}] ‘have obtained’, /vo^{53}/ [wo^{53}] ‘chicken’).

/f/ and /x/ are contrastive before /e/ and /a/ (as in /fe^{22}/ ‘pus’ vs. /xe^{22}/ ‘be long’, /fa^{22}la^{53}-pu/ ‘dustpan, winnowing fan’ vs. /xa^{22}-xa^{53}/ ‘laugh’). /f/ and /x/ are not contrastive before /u/, where /f/ can be considered an allophone of /x/. Realization of /x/ as [f] before /u/ is a strong areal feature, which is shared by many local languages, including SW Mandarin, and the sister-languages of Duoxu, Lizu and Ersu (Yuán et al. 2001 [1960]: 29; Chirkova and Chen 2013:78; Chirkova et al. 2015: 6).

2.1. Consonant clusters

Duoxu has consonant clusters of two types: (1) clusters with approximants, and (2) marginally, prenasalized clusters.

2.1.1. Clusters with approximants

The approximant /j/ occurs in the second position in consonant clusters, where it may be realized as secondary palatalization of the first position consonant. /j/ co-occurs with labial and denti-alveolar stops, /l/, /m/, and /n/. Clusters with labial and denti-alveolar stops followed by /j/ only co-occur with /e/. Examples include /bje^{33}ka^{31}/ ‘be soft’ (compare /be^{33}-be^{33}/ ‘climb’), /tje^{31}/ ‘sow (v.)’, /dje^{53}/ ‘push’ (compare /pa^{22}de^{53}-ka/ ‘stool, bench’, the bound root /ka/ is a classifier for elongated objects). Clusters with /m/ may co-occur with /e/ and /a/ (as in /mje^{33}/ ‘name’, /mja^{53}/ ‘be many’, compare /xo^{33}tɕa^{33} me^{33}/ ‘what [are you] doing?’, and /ma^{22}-ma^{53}/ ‘teach’). Clusters with /l/ may co-occur with /e a u/. Examples include /lje^{33}/ ‘fertilizer, manure’ (compare /ko^{33}le^{33}/ ‘crow’), /lja^{22}-lja^{53}/ ‘search, look for’ (compare /la^{31}=la/ ‘have come’), /lju^{55}bu/ ‘stone’ (compare /ju^{22}lu^{55}-ma/ ‘shark’).[3] Finally,

[3] The word for ‘shark’ is recorded in a handwritten manuscript discovered during the 2014 Duoxu survey. The manuscript contains an extensive Duoxu vocabulary list transcribed in Chinese characters and recording the speech of the last fluent Duoxu speakers (who are all

clusters with /n/ have the broadest distribution and may co-occur with /e a u o/. Examples include /nje^{33}/ [ɲe^{33}] ‘year’ (compare /ne^{33}/ ‘day’), /njo^{53}/ [ɲo^{53}] ‘dare’ (compare /no^{33}/ ‘you, thou’), /nju^{22}k^{h}o^{53}/ [ɲu^{22}k^{h}o^{53}] ‘mud’ (compare /ʃa^{22}nu^{53}/ ‘pea’), /nja^{33}/ [ɲa^{33}] ‘be ill’ (compare /na^{33}/ ‘vegetable’).

In addition to clusters with /j/, Duoxu also has marginal clusters with [w]. Only combinations with velar stops are attested in the collected data, including a few native Duoxu words (such as [kwa^{22}-ɕe^{53}] ‘birch’) and some loanwords from Mandarin Chinese (such as [kwa^{22}mi^{53}] ‘fine dried noodles’, *guàmiàn* 挂面, SW Mandarin /kua^{213}mian^{213}/).[4]

2.1.2. Prenasalized clusters

Duoxu marginally distinguishes between plain voiced and prenasalized voiced stops and affricates.[5] Alternatively, the two are in free variation. In prenasalized clusters, the place of articulation of the nasal is homorganic with that of the obstruent in the cluster (the homorganic nasal is here notated as “N”). Compare the two realizations of the word /ba^{33}/ ‘mountain’, one with a plain voiced initial ([ba^{33}]) and another with a prenasalized initial ([mba^{33}]). The variant with the simple voiced initial is more frequent in the speech of my language consultant. Conversely, the variant with the prenasalized initial (/Nba^{33}/) is likely to be more conservative, given that Huáng and Yǐn (2012: 60) transcribe that word as /mba^{44}/.

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deceased by now). The word for ‘shark’ (recorded as “育鲁麻 *yùlǔmá*”) was crosschecked with Mr. Wǔ Róngfù, who confirmed the reading provided in the manuscript.

[4] SW Mandarin transcriptions are from Lǐ Lán (2010, p.c.).

[5] An anonymous reviewer of this paper asks whether there is phonological evidence that prenasalized clusters in Duoxu are not in fact unitary segments. Phonological constraints that could provide support for viewing prenasalized segments as unit phonemes, such as compensatory lengthening or independent tone specification, are unavailable in Duoxu. Prenasalized segments are analyzed as two-member consonant clusters in order to simplify the underlying repertory of Duoxu unit segments.

In addition to /Nb/, attested prenasalized clusters also include /Nd Ndʑ Ng/, as in /Nda^{53}/ ‘earth, soil’, /Ndʑa^{53}-pu/ ‘door’, /Ngo^{33}lje^{33}/ ‘tile’.

3. Vowels

The vowel system of Duoxu comprises six oral vowels (/i e a u o ɯ/), and one rhotic vowel (/ə˞/), which only occurs in isolation.

/i e a u o/ may co-occur with most consonant initials, whereas /ɯ/ is restricted both in frequency and distribution. Examples of /i e a u o/ include:

i	bi^{31} ‘bee’	mi^{33} ‘bamboo’
e	be^{33}-be^{33} ‘climb’	me^{22} ‘make’
a	ba^{33} ‘mountain’	ma^{22}-ma^{53} ‘teach’
u	bu^{33} ‘yak’	mu^{33} ‘steal’
o	bo^{31} ‘gulley, trench’	mo^{33} ‘be tall’

After denti-alveolar and postalveolar affricates and fricatives (/ts ts^{h} dz s z tʃ tʃ^{h} dʒ ʃ ʒ/), Duoxu has two fricative vowels, which are realized as homorganic to the preceding consonant onset: [ʐ̩] after denti-alveolar affricates and fricatives, and [ɻ̩] after postalveolar affricates and fricatives. Examples include /zi^{53}/ [zʐ̩^{53}] ‘urine’, /mo^{31} dzi^{31}/ [mo^{31} dzʐ̩^{31}] ‘ride a horse’, /(dʒi^{33}dʑi^{33}) ʒi^{53}/ [(dʒɻ̩^{33}dʑi^{33}) ʒɻ̩^{53}] ‘write (a letter)’. The fricative vowels are in complementary distribution with /i/ and are analyzed as its allophones. Both the realization and the distribution of the fricative allophones of /i/ are similar to those of the apical vowels /ɿ/ and /ʅ/ in Mandarin (cf. Chao 1972 [1948]: 22).

After alveolopalatals, /u/ is realized as [y]. Examples include /dʑu^{22}-ɕe^{53}/ [dʑy^{22}-ɕe^{53}] ‘cedar’, lit. ‘thorn-tree’; /tɕ^{h}u^{53}-tɕ^{h}u/ [tɕ^{h}y^{53}-tɕ^{h}y] ‘jump’.

/ɯ/ may be realized as [əu] or [ɯ]. It is here treated as a monophthong for it would otherwise be the only diphthong in the language. This vowel is only attested in five roots in the corpus: /kʰɯ^{53}-pʰo^{53}/ ‘up (-side), above’, /kʰɯ^{22}-pʰo^{53}/ ‘down (-side), below’, the root /ʃɯ^{53}/ ‘next, coming’ (as in /ʃɯ^{55}-ne^{33}/ ‘tomorrow’), /ʃɯ^{53}-pu/ [ʃəu^{53}-pu] ‘scarf, kerchief, turban’, and /dzɯ^{53}/ [dzəu^{53}] ‘building’.

The rhotic vowel /ɚ/ only occurs in isolation (as in /ɚ^{33}dʑa^{33}/ ‘dragon’). When occurring as the second syllable of disyllabic words, /ɚ/ fuses with the vowel of the preceding root, resulting in a unit that is slightly longer than a stressed monosyllabic root. Examples include /ʑiɚ^{33}/ ‘vegetable oil’, /mi^{55}-ɚ^{33}/ ‘tears’, /xaɚ^{25}/ ‘be yellow’. In a number of words, the root /ɚ/ is likely to have the meaning ‘liquid’ (as in the former two examples above). The etymology of /ɚ/ in some other words (such as /xaɚ^{25}/ ‘be yellow’) is less clear. In some cases, /ɚ/ appears to have an assimilatory effect on the preceding vowel, as in /njeɚ^{25}-pu/ ‘ear’ (where /-pu/ ‘item’ is a general classifier) (compare /njo^{22}-bo^{33}/ ‘deaf person’, lit. ‘ear-deaf’).

Duoxu vowels are presented in Figure 1, where they are plotted on their relative F1/F2 formant values.

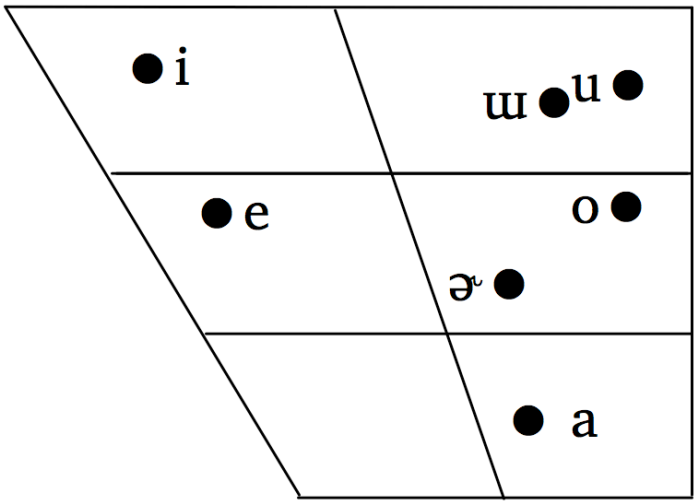


Figure 1: Duoxu vowel phonemes.

Duoxu does not have phonemic nasal vowels and nasal codas. Two exceptions can be noted: /ẽ^{33}ja^{33}/ ‘duck’ and /xuŋ^{33}/ ‘want’. In loanwords from Mandarin Chinese and Tibetan, where the original nasal coda is followed by a syllable that begins with a vowel or nasal or when it is word final, the original nasal element is generally lost without compensation. Examples include /pa^{22}de^{53}-ka/ ‘stool, bench’ (*bǎndèng* 板凳, SW Mandarin /pan^{53}teŋ^{213}/), [kwa^{22}mi^{53}] ‘fine dried noodles’ (*guàmiàn* 挂面, SW Mandarin /kua^{213}mian^{213}/), /nje^{22}to^{53}-pu/ ‘sickle’ (*liándāo* 镰刀, SW Mandarin /nian^{21}tao^{44}/). In addition, diphthongs are attested in recent loanwords from the local SW Mandarin dialect (as in /pei^{55}təu/ ‘basket carried on the back’, SW Mandarin /pei^{213}təu^{44}/, *bèidōu* 背篼).

4. Syllable structure

Duoxu is phonologically and morphologically monosyllabic with a strong tendency towards disyllabicity in its lexicon. The canonical Duoxu syllable minimally consists of an obligatory nucleus and a tone. It may additionally contain up to three optional elements in the following linear structure: (C1)(C2)(C3)V(ŋ), where C1 can be nasal, C2 can be any consonant in Table 1, C3 can only be -j- or -w-; V stands for vowel, and parentheses indicate optional constituents. (Note that C1 and C3 are mutually exclusive.) The following structures have been attested:

(1) V /ə^{33}dʑa^{33}/ ‘dragon’

(2) C2V /be^{33}-be^{33}/ ‘climb’, /ma^{22}-ma^{53}/ ‘teach’

(3) C1C2V /Nba^{33}/ ‘mountain’

(4) C2C3V /bje^{33}ka^{31}/ ‘be soft’, /mja^{53}/ ‘be many’

(5) C2Vŋ /xuŋ^{33}/ ‘want’

5. Tonal system

Duoxu has four contrastive lexical tones on monosyllabic words, three tonal patterns on disyllabic words with the root /ə˞/ in second-syllable position (which are slightly longer than monosyllabic words), 15 tonal patterns on regular disyllabic domains (words and phrases), and neutral tone (or weak stress). (Words and compounds longer than two syllables are infrequent in the corpus. For that reason, an analysis of tonal patterns on tri- and tetra-syllabic domains is left for future work.)

5.1. Lexical tone on monosyllabic words and tonal patterns on words with /ə˞/ in second-syllable position

Any citation monosyllabic word belongs to one of four contrastive tones. In the five-scale pitch system developed by Yuen Ren Chao (1930), these tones may be annotated as 53, 33, 22, and 31. All four tones occur with modal phonation. Examples include /mi^{53} [dje^{53}]/ 'destiny, fate [is good]', /mi^{33}/ 'bamboo', /mi^{22}/ 'monkey', /mi^{31}/ 'fire'; /vu^{53}/ 'wine', /vu^{33}/ 'water', /ve^{22}/ 'wear', /vu^{31}/ 'be narrow'.

The two falling tones—the high falling tone (53) and the mid falling tone (31)—begin with a slight rise (phonetically [453] and [231], respectively). The two tones differ in the alignment of f0 peaks with regard to the segmental anchor; the high falling tone shows a later peak than the mid falling tone. Examples include /Nba^{53}/ 'drink' vs. /ba^{31}/ 'give birth', /dʐa^{53}/ 'sing' vs. /dʑa^{31}/ 'like, love', /vo^{53}/ 'chicken' vs. /vo^{31}/ 'pig'. It should be noted that some syllables with the two falling tones end rather abruptly, as if followed by a glottal stop (as in /mu^{53}/ [muʔ^{45}] 'hat', /(ts^{h}o^{33}) ja^{31}/ [ts^{h}o^{55} jaʔ^{231}] 'hit (a person)'). In addition, some syllables with the mid falling tone may be realized as creaky, as in /vo^{31}/ [wo̰^{31}] 'pig'.[6] The two types of realization are likely to be related, given that glottal stops can function as a variation in phonation types, being sometimes realized as a complete stop and sometimes as creaky phonation on the preceding vowel (Ladefoged and Maddieson 1996: 74-75). Glottal stops in coda position are not contrastive in Duoxu. Compare, for example, the two

[6] Creaky phonation is "typically associated with vocal folds that are tightly adducted but open enough along a portion of their length to allow for voicing" (Gordon and Ladefoged 2001: 386; cf. Ladefoged 1971: 14-15 for 'laryngealization'; Laver 1980: 122-126).

realizations of the word /mu^{53}/ ‘hat’: [mu?^{45}] and [mu^{453}], or the two realizations of the word ‘pig’ above.

The mid level tone (33) is always realized as level. The low level tone (22), on the other hand, is commonly realized with a slight rise in the second half of the syllable (as can be seen in Figure 2). Examples include /no^{33}/ ‘you, thou’ vs. /no^{22}/ ‘be deep’, /p^{h}je^{33}/ ‘be fat’ vs. /p^{h}je^{22}/ ‘spit’, /mje^{33}/ ‘name’ vs. /mje^{22}/ ‘ripen, be ripe’.

The four lexical tones are distributed relatively evenly among the 309 monosyllabic words in the corpus. The mid level tone (33) has a slightly higher proportion of words (90, or 29%). The two falling tones (53 and 31) have equal proportions of words (79 or 25.5% each). The low level tone (22) has a slightly lower proportion of words (61 or 20%, of which the majority are verbs, including intransitive stative verbs or adjectives).

Words with /-ə̆/ in second-syllable position may have one of the following three tonal patterns: (a) a long mid level pattern (33), as in /ʑiə̆^{33}/ ‘vegetable oil’; (b) a high-mid pattern (55-33), as in /mi^{55}-ə̆^{33}/ ‘tears’; and (c) a long rising pattern (25), as in /xaə̆^{25}/ ‘be yellow’. Given that the former two patterns are also attested on regular disyllabic domains, where they combine the lexical tones of the constituting syllables (33-33 and 55-33, respectively), the latter, long rising tonal pattern 25 is also analysed as a combination of two lexical tones: tentatively, 22-53 and/or 31-53 (see on tone sandhi below). Examples include /njeə̆^{25}-pu/ ‘ear’, cf. /njo^{22}-bo^{33}/ ‘deaf person’, lit. ‘ear-deaf’; /biə̆^{25}/ ‘honey, lit. bee-liquid?’, from /bi^{31}/ ‘bee’.

The mean pitch tracks for the four tones on monosyllabic words and the long rising tonal pattern 25 on disyllabic words with /ə̆/ in second-syllable position are plotted in Figure 2 on the basis of 195 tokens (words in citation form, with a mix of onsets in terms of voicing and sonority), with 2 to 4 repetitions for each lexical item.

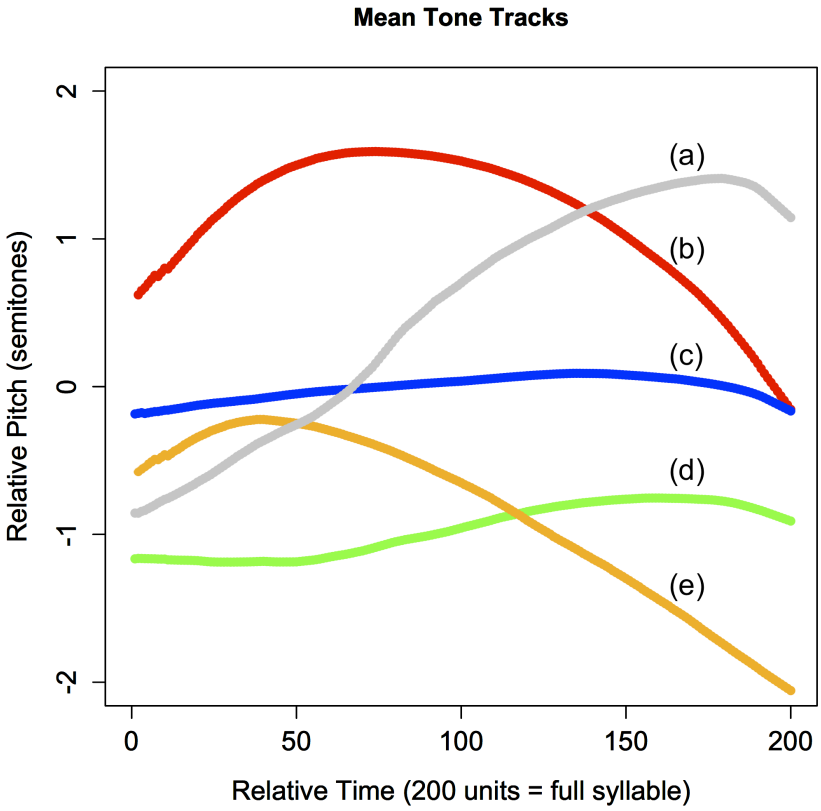


Figure 2: Four contrastive tones on monosyllabic words and the long rising tonal pattern 25 on disyllabic words with /ɚ/ in second-syllable position: (a) the tonal pattern 25 (grey), 9 tokens; (b) tone 53 (red), 44 tokens; (c) tone 33 (blue), 58 tokens; (d) tone 22 (green), 47 tokens; (e) tone 31 (orange), 37 tokens. Plotted as relative time versus Hz. Normalized for duration and mean T3 pitch.

5.2. Tonal patterns on disyllabic words and phrases

5.2.1. Productive tone sandhi

Productive tone sandhi rules are summarized on the basis of a systematic derivation of disyllabic words and phrases out of monosyllabic words. Two types of sandhi rules can be distinguished: one involving alternation between tonemes (tone sandhi 1), and another involving non-phonemic alternation (tone sandhi 2).

Tone sandhi 1: In word-initial position, the two falling tones (53 and 31) are realized as level.

Tone sandhi 1a: In word-initial position, the high falling tone is realized as high level (cf. Huáng and Yǐn 2012: 66). Examples include /ʒu^{53}/ ‘grass’ + /mu^{53}/ ‘hat’ > /ʒu^{53}-mu^{53}/

[ʒu^{55}-mu^{53}] ‘straw hat’. The mean pitch tracks for the high falling tone in word-initial position and in citation form are plotted in Figure 3. (The lexical mid level tone [33] is provided for comparison.)

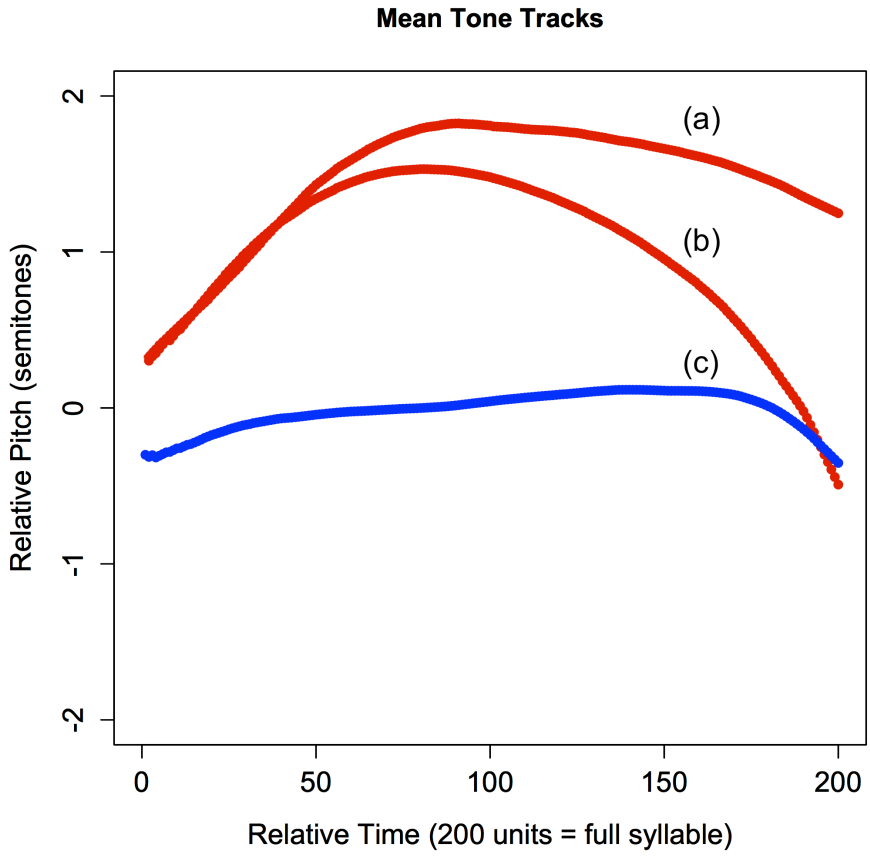


Figure 3: The high falling tone in word-initial position (a, red, 7 tokens) and in citation form (b, red, 43 tokens). Tone 33 (c, blue, 52 tokens) is provided for comparison. Each line represents the mean of each tone. Plotted as relative time versus Hz. Normalized for duration and mean T3 pitch.

Tone sandhi 1b: In word-initial position, the mid falling tone is realized as low level. Examples include /vo^{31}/ ‘pig’ + /ʃe^{33}/ ‘meat’ > /vo^{22}-ʃe^{33}/ ‘pork’; /mo^{31}/ ‘horse’ + /dzo^{53}/ ‘stable’ > /mo^{22}-dzo^{53}/ ‘horse stable’. As a result of this tone sandhi, the contrast between the lexical mid falling tone and the lexical low level tone is neutralized in word-initial position. Compare /mi^{22}-ge^{33}/ ‘monkey skin’ (from /mi^{22}/ ‘monkey’) and /mi^{22}-tɕ^{h}a^{53}/ ‘warm oneself by the fire’ (from /mi^{31}/ ‘fire’). Note that in contrast to the realization of the low level tone in citation form, where it often has a slight rise in the second half of the syllable, the realization

of the low level tone in word-initial position is level throughout the entire syllable. Note also that in word-initial position, the lexical low level tone begins slightly higher than in citation form. This is illustrated in Figure 4, which presents the mean pitch tracks for the low level tone (22) and the mid falling tone (31), both in citation form and in word-initial position. The mid level tone (33) (also in citation form and in word-initial position) is provided for comparison.

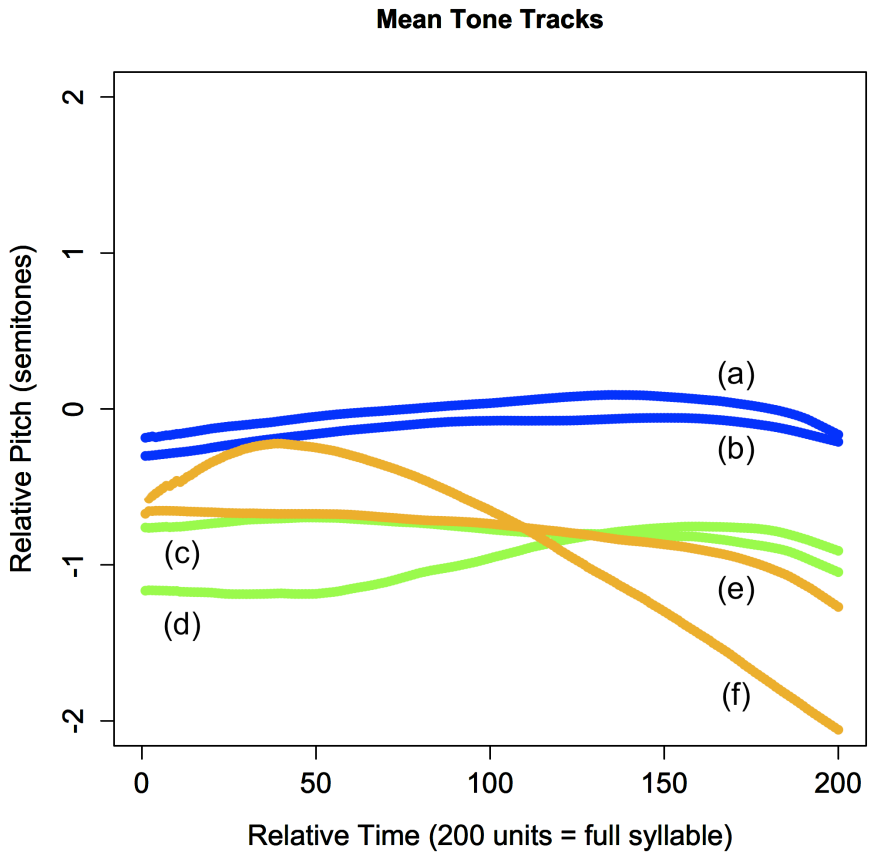


Figure 4: The mean pitch tracks for the lexical tones 33, 22, and 31 in citation form and in word-initial position: (a) tone 33 in citation form, blue, 58 tokens; (b) tone 33 in word-initial position, blue, 19 tokens; (c) tone 22 in word-initial position, green, 28 tokens; (d) tone 22 in citation form, green, 47 tokens; (e) tone 31 in word-initial position, orange, 19 tokens; (f) tone 31 in citation form, orange, 37 tokens. Each line represents the mean of each tone. Plotted as relative time versus Hz. Normalized for duration and mean T3 pitch.

Tone sandhi 2: When followed by the mid falling tone (31) and the low level tone (22), the mid level tone (33) is realized as high level (55) (cf. Huáng and Yǐn 2012: 66).

This tone sandhi rule is illustrated with combinations of the numeral /tɕi^{33}/ ‘one’ with monosyllabic verbal roots, as occurring in the expression /tɕi^{33} V ɕe^{53}/, lit. ‘one + V + do.IMP’ ‘let’s V, have a V, V for a while’:

/tɕi^{33} [^{55}] la^{31} ɕe^{53}/ ‘come here, come for a while’ (from /la^{31}/ ‘come’)

/tɕi^{33} [^{55}] mo^{22} ɕe^{53}/ ‘hide for a while’ (from /mo^{22}/ ‘hide’)

5.2.2. Neutral tone syllables

Duoxu neutral tone syllables (without tonal marking in transcriptions) include clitics (such as the perfective marker /la/, the genitive marker /i/), reduplicated forms (e.g. /to^{53}-to/ ‘hold, carry in the arms’), classifiers in disyllabic nouns consisting of a nominal root and a classifier (e.g. /Ndʑa^{53}-pu/ ‘door’), and possibly, also the nominal affix -ma (as in /dje^{55}ma/ ‘buttocks’). Similar to neutral tone syllables in Chinese (e.g. Chao 1968: 35), neutral tone syllables in Duoxu do not have identifiable etymological tone and their f0 contour varies depending on the tone of the preceding syllable. The duration of neutral tone syllables in Duoxu is also typically shorter than that of stressed syllables. (The mean durations of Duoxu stressed syllables followed by neutral tone syllables are 54%:46%. The mean durations of disyllabic sequences consisting of two stressed syllables are 42%:58%.) However, unlike Chinese, Duoxu does not exhibit vowel reduction in non-stressed positions.

In combinations of full words with enclitics, the neutral tone has the following realizations. After the falling tones (53 and 31), it is realized as a falling contour (e.g. /va^{53}=la/ [wa^{53}=la^{31}] ‘have obtained’, /la^{31}=la/ [la^{32}=la^{31}] ‘have come’). After the mid level tone and the low level tone, the neutral tone is realized as mid level (e.g. /vu^{33}=la/ [vu^{33}=la^{33}] ‘have bought’, /mje^{22}=la/ [mje^{22}=la^{33}] ‘have ripened’).

The realization of neutral tone syllables in productively reduplicated forms is similar to that in combinations of full words with enclitics (as above). Examples include /ʒi^{53}-ʒi ɕe^{53}/ ‘write for a while’ (from /ʒi^{53}/ ‘write’), /tɕ^{h}u^{33}-tɕ^{h}u^{33}/ ‘pestle, pound’ (from /tɕ^{h}u^{33}/ ‘pound, hit’), /dʒe^{22}-dʒe^{33}/ ‘quarrel’ (from /dʒe^{22}/ ‘scold’). (The corpus contains no examples of productive reduplication with the lexical mid falling tone.)

In combinations of monosyllabic nominal roots with classifiers, neutral tone syllables have a short falling contour regardless of the tone of the preceding syllable (as in /Ndʑa^{53}-pu/ ‘door’, /ts^{h}e^{33}-pu/ ‘lungs’, /ge^{31}-pu/ ‘pot, pan’). Note that the short falling contour on neutral tone syllables is distinct from the lexical mid falling tone, which begins with a slight rise and has a more gradual fall. Durational and contour differences between the two tones are illustrated in Figure 5 with the words /Nda^{53}-be^{31}/ ‘harrow/rake land’ and /Ndʑa^{53}-pu/ ‘door’.

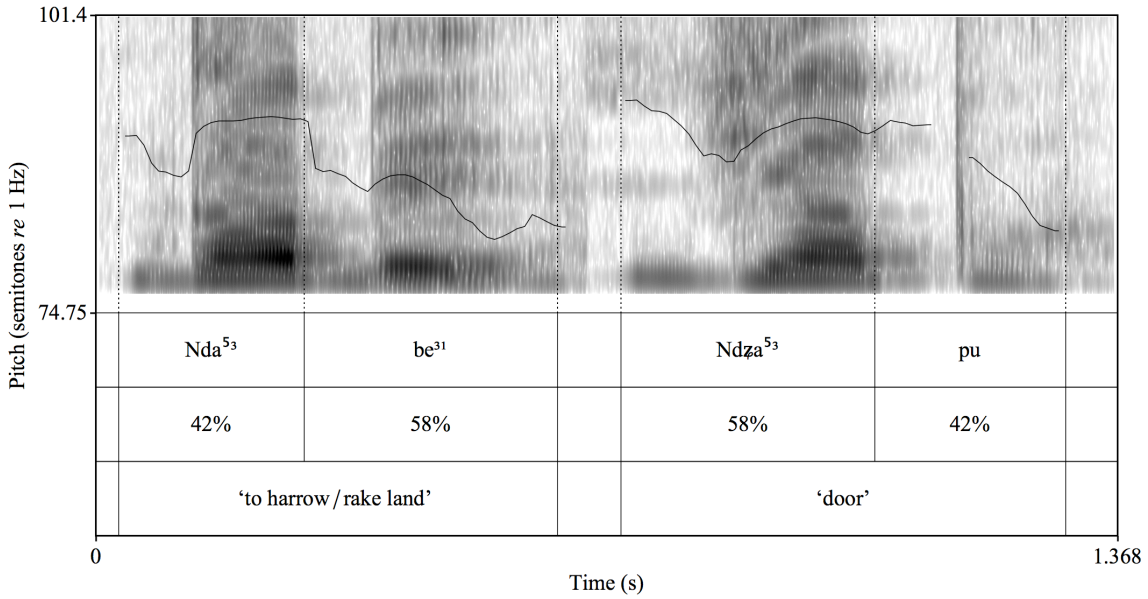


Figure 5: Illustration of the durational and contour differences between the mid falling tone and the neutral tone in the words /Nda^{53}-be^{31}/ ‘harrow/rake land’ and /Ndʑa^{53}-pu/ ‘door’.

In combinations of full words with proclitics (the bound negative and prohibitive markers /ma/ and /t^{h}a/), the following patterns are attested: (1) a low level contour before the high falling tone; (2) a mid level contour before the mid level tone; and (3) a high level contour before the low level tone and the mid falling tone. This is illustrated in Table 2:

verb	**/ma/ NEG - verb**	**/t^{h}a/ PROH - verb**
/dʑa^{53}/ ‘sing’	[ma^{22} = dʑa^{53}] ‘have not sung’	[t^{h}a^{22} = dʑa^{53}] ‘do not sing’
/vu^{33}/ ‘buy’	[ma^{33} = vu^{33} la^{33}] ‘have not bought’	[t^{h}a^{33} = vu^{33}] ‘do not buy’
/ve^{22}/ ‘wear’	[ma^{55} = ve^{22} = la^{33}] ‘have not	[ɕu^{33} = i^{33} t^{h}a^{55} = ve^{22}] ‘do not

	worn’	wear other people’s clothes’
/dʑi^{31}/ ‘eat’	[ma^{55} = dʑi^{22} = la^{22}] ‘have not eaten’	[t^{h}a^{55} = dʑi^{22}] ‘do not eat’

Table 2: Combinations of the negative marker /ma/ and the prohibitive marker /t^{h}a/ with monosyllabic verbs with the four lexical tones.

5.2.3. Tonal patterns on disyllabic words and compounds

This section lists possible tonal patterns on disyllabic domains, as attested on 779 disyllabic words (formed by reduplication, affixation, and compounding), and some numeral-classifier and V-O compounds. Tonal patterns on the examined disyllabic domains combine: (1) juxtapositions of lexical tones (as in /vu^{33}-zi^{31}/ ‘potion, liquid medicine’, from /vu^{33}/ ‘water’, /zi^{31}/ ‘medicine’), (2) combinations of stressed syllables with neutral tone syllables (as in /ge^{31}-pu/ ‘pot, pan’, from /ge^{31}/ ‘pot, pan’), and (3) tonal alternations (productive or lexicalized tone sandhi, as discussed in sections 5.2.1 and 5.2.4) (as in /ɕe^{55}-k^{h}u^{53}/ ‘wooden bowl’, from /ɕe^{53}/ ‘wood, firewood’, /k^{h}u^{53}/ ‘bowl’; or /lja^{22}-lja^{53}/ ‘search, look for’). Etymological tones of individual monosyllabic roots in the examined disyllabic forms are known only in a limited number of cases (V-O compounds, some nominal compounds, some reduplicated forms and noun-classifier combinations). The majority of the examined lexicalized words consist of bound roots, whose etymological tones are unknown and whose surface tones may be products of secondary sandhi. This is possibly the case of the bound root /lo/ ‘hand’, which surfaces in different lexical items with different tones, compare /lo^{22}-ko^{33}/ ‘hand’ and /lo^{55}-k^{h}u^{22}/ ‘wrist’. For that reason, tones in disyllabic words are notated phonetically.

Of the total of 15 tonal patterns attested in the corpus, four patterns account together for over 80% of the data:

(1) 33-33 (30% of all disyllabic sequences). Examples include /to^{33}-to^{33}/ ‘chop, cut, mince’, /tɕ^{h}u^{33}-tɕ^{h}u^{33}/ ‘pestle, pound’, /xa^{33}-xa^{33}/ ‘cover (v.); cover, lid’, /dʑa^{33}-dʑa^{33}/ ‘fly (v.)’, /ji^{33}na^{33}/ ‘vegetable’, /nje^{33}-ma^{33}/ ‘sun’, /va^{33}-ma^{33}/ ‘road’

(2) 22-53 (21% of all disyllabic sequences). Examples include /(ts^{h}o^{33}) xa^{22}-xa^{53}/ ‘laugh (at someone)’, /lja^{22}-lja^{53}/ ‘search, look for’, /nje^{22}-ma^{53}/ ‘moon; heart’

(3) 22-33 (19% of all disyllabic sequences). Examples include /dʑa^{22}-dʑa^{33} (ji^{33})/ ‘(go) have fun’, /ji^{22}na^{33}/ ‘be stinky, smelly’, /je^{22}-je^{33}/ ‘itch’, /va^{22}-ma^{33}/ ‘rich person’

(4) 53-Ø or 55-Ø (13% of all disyllabic sequences). Examples include /to^{53}-to/ ‘hold/carry in arms’, /tɕ^{h}u^{53}-tɕ^{h}u/ ‘jump’, /ɕe^{53}-pu/ ‘tree’ (from /ɕe^{53}/ ‘wood, firewood’), /dje^{55}-ma/ ‘buttocks’

The four most frequent tonal patterns on disyllabic sequences are illustrated in Figure 6 with the words /va^{33}-ma^{33}/ ‘road’, /vo^{22}-ma^{53}/ ‘sow’, /va^{22}-ma^{33}/ ‘rich person’, and /dje^{55}-ma/ ‘buttocks’.

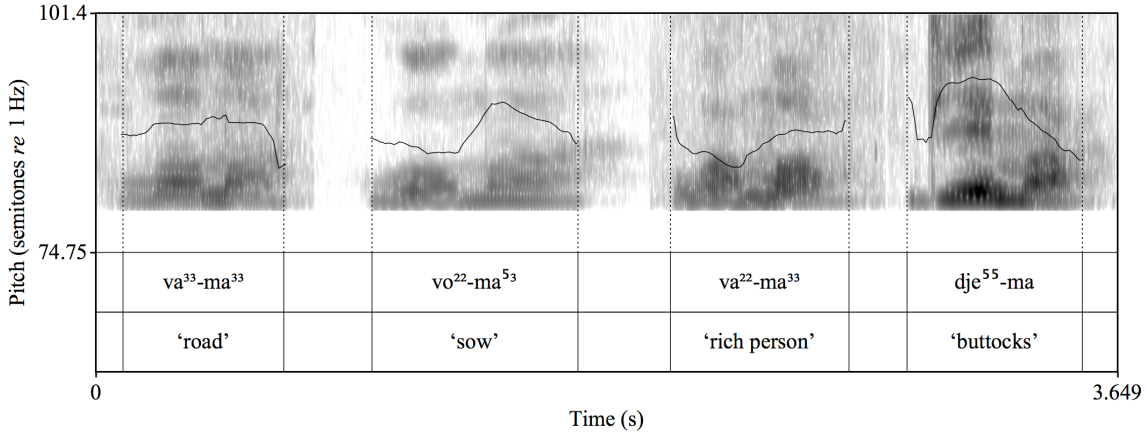


Figure 6: Pitch contours of the four most frequent tonal patterns on disyllabic words and compounds, illustrated with the words /va^{33}-ma^{33}/ ‘road’, /vo^{22}-ma^{53}/ ‘sow’, /va^{22}-ma^{33}/ ‘rich person’, and /dje^{55}-ma/ ‘buttocks’.

Words formed through reduplication may only have one of the four patterns above. Words formed through compounding and suffixation, on the other hand, have a larger range of tonal patterns. These include (in the order of descending frequency):

(5) 55-22 (4%), as in /ɕe^{55}-p^{h}e^{22}/ ‘board, plank’

(6) 33-Ø (3%), as in /va^{33}mu/ ‘ashes’, /ts^{h}e^{33}-pu/ ‘lungs’

(7) 33-53 (1%), as in /mi^{33}-mu^{53}/ ‘bamboo hat’

(8) 55-53 (1%), as in /ɕe^{55}-k^{h}u^{53}/ ‘wooden bowl’

All remaining tonal patterns occur with the frequency of 1% or less.

(9) 55-33, as in /mi^{55}-ə^{33}/ ‘tears’

(10) 55-31: /ʒu^{55}-zi^{31}/ ‘herbal medicine’

(11) 33-31: /vu^{33}-zi^{31}/ ‘potion, liquid medicine’

(12) 31-31: /mi^{31}-ge^{31}/ ‘chafing dish’

(13) 31-Ø: /ge^{31}-pu/ ‘pot, pan’

(14) 33-33: /tsa^{22} tʃ^{h}o^{22}/ ‘comb hair’

(15) 33-42: /nja^{22}-mu^{31}/ ‘nose hair’

The total number of attested combinations of tones on disyllabic words and compounds (15) is five combinations less than the 20 theoretically possible combinations of the four lexical tones with each other or with the neutral tone. The missing patterns are: 22-Ø, 33-22, 31-53, 31-33, 31-22. The absence of these tonal patterns may be in part explained by the operation of productive tone sandhi (whereby the lexical mid falling tone neutralizes with the low level tone in word-initial position) and lexicalized tone sandhi (as discussed in the following section). An alternative explanation would be simply the restricted size of the sample used in the study.

5.2.4. Lexicalized tone sandhi

By relating observed tonal patterns on disyllabic words to the known etymological tones of the monosyllabic roots of which they consist, it is possible to discover some irregularities and potentially, some secondary, lexicalized tone sandhi rules. More specifically:

(1) fossilized tone sandhi in reduplicated forms. A total of four tonal patterns are attested on such forms: (a) 33-33, (b) 22-53, (c) 22-33, (d) 53-Ø. Of these, patterns (a, c, d) are also attested in productive derivations of reduplicated forms from monosyllabic roots with the

lexical tones 33, 22, and 53 (as discussed in section 5.2.1). The remaining pattern (b) is not productive and it may or may not be related to the fourth lexical tone (31).

(2) fossilized tone sandhi in nouns with the suffix -ma. A total of five tonal patterns are attested on such nouns: (a) 33-33, (b) 22-53, (c) 22-33, (d) 55-Ø (see examples in section 5.2.3), and (e) 33-Ø (as in /k^ho^{33}-ma/ 'eagle'). Of these, patterns (a, c, d) may be accounted for by analyzing this suffix as toneless, whereas the remaining patterns (b and e) are currently unexplained.

(3) irregular tonal behaviour of some monosyllabic roots. Take the word /$tɕ^he^{53}$/ 'goat' as an example. It has the high falling tone in citation form, but surfaces with either a high-level contour and a low level contour in word-initial position, compare /$tɕ^he^{55}$-ʃe^{33}/ 'goat's meat, mutton' and /$tɕ^he^{22}$-bu^{33}/ 'he-goat'. (Another example is the root /lo/ 'hand', discussed in section 5.2.3.)

Obviously, a more comprehensive understanding of the tonal system of Duoxu will be possible once more data from different speakers become available.

6. Comparison with Huáng and Yǐn (2012)

A comparison of the newly collected data and with those presented in Huáng and Yǐn (2012) (hereafter H&Y) reveals very few differences. The consonant and vowel inventories in the two sketches are nearly identical, with some minor differences which may be due to different strategies in phonemicization rather than to actual differences in the data. To give one example, in the consonant system, some minor differences include the treatment of /w/, /v/, and /ɲ/ as distinct phonemes in H&Y; whereas in the present analysis, [w] and [v] are considered as allophones of one phoneme (/v/), and /nj/ is analyzed as a cluster. One possible difference in the data relates to the phonemic distinction between /a/ and /æ/ in H&Y (as in /w$æ^{33}$/ 'general classifier' vs. /wa^{33}/ 'storey'), which is not attested in the newly collected data.

Differences in the tonal inventories in the two sketches, on the other hand, appear quite large, at least at first glance. In contrast to the four-tone system on monosyllabic words, as described presently, the tonal inventory in H&Y consists of six tones, characterized not only by their pitch height (high, mid, low) and pitch contour (falling, rising, level, and falling-rising), but also by their duration (short vs. long) (Huáng and Yǐn 2012: 61). Hence, in H&Y's analysis, Duoxu has three short tones (54, 32, 21) and three long tones (44, 35, 214). However, here again there is a good correspondence between the six-tone system in H&Y and the four-tone system in this sketch, as summarized in Table 3.

H&Y length	**H&Y pitch height and contour**	**Present data**	**Example**	**H&Y**	**Present data**
short	54	53	'drink'	/ba^{54}/	/ba^{53}/
	32	31	'come' 'horse'	/la^{32}/ /mo^{32}/	/la^{31}/ /mo^{31}/
	21		'needle'	/ɣa^{21}/	/ʁa^{31}/
long	44	33	'mountain'	/mba^{44}/	/[N]ba^{33}/
	214	22	'burn' 'be few'	/ɲa^{214}/ /ɲo^{214}/	/nja^{22}/ /njo^{22}/
	35	25	'be yellow' 'honey'	/xaəɹ^{35}/ /bi^{21}əɹ^{35}/	/xaə^{25}/ /biə^{25}/

Table 3: Correpondences between the six-tone system in Huáng and Yǐn (2012) and the four-tone system on monosyllabic words, as described presently.

Differences between the two sketches reflect, on the one hand, differences in analysis (i.e. the present sketch analyses the long tonal contour 25 as a combination of two lexical tones rather than one lexical tone), and, on the other hand, possible loss of the distinction between tones 32 and 21 (as reported in H&Y).

The difference in length between syllables with different tones has not been attested in the present corpus. One possibility to account for the reported shorter duration percept of the falling tones in H&Y would be to correlate it with glottal stop codas in some syllables with these tones (e.g. 'hat': [mu$ʔ^{54}$] 'hat', Huáng and Yǐn, 2012: 61; in the present corpus [mu$ʔ^{45}$]). Such syllables possibly derive from earlier checked syllables. A distinction between earlier checked and smooth syllables is attested as that of phonation (respectively, tense or "harsh" vs. modal) in many neighboring languages of Duoxu (various Lolo-Burmese languages, e.g. Edmondson et al. 2001; Yang 2010). Notably, duration (tense vowels being shorter than lax vowels) is a prominent factor in the phonation difference in these languages (cf. Maddieson and Ladefoged 1985: 449; Edmondson and Esling 2006: 174). Further comparative work is needed to understand how Duoxu syllables with "short tones" (which correspond to tones 53 and 31 in the present description) correlate with tense syllables in the neighboring Lolo-Burmese languages.

There is a good correspondence between tonal patterns on disyllabic words cited in Huáng and Yǐn (2012: 84-87) and those described presently. A variety of tonal patterns (with a total of 14) are reported in H&Y's data, combining various lexical tones. At the same time, 75% of all examples are represented by just five tonal patterns (all examples below are cited from Huáng and Yǐn 2012: 84): (1) 44-44 (as in /ɲe^{44}ma^{44}/ 'sun'), (2) 21-44 (as in /lo^{21}ko^{44}/ 'hand'), (3) 32-44 (as in /me^{32}k^{h}a^{44}/ 'smoke'), (4) 54-32 (as in /je^{54}pu^{32}/ 'tongue'), and (5) 21-54 (as in /ɲe^{21}ma^{54}/ 'moon' or /ɲa^{21}ku^{54}/ 'nose'). The distinction between tones 32 and 21 in word-initial position is not clearly attested in my data. H&Y's words with a low- or mid falling tone in word-initial position correspond to words with a clear low level tone in my data. Examples include 'wind': H&Y /me^{21}ɲe^{44}/, my data /me^{22}lje^{33}/; 'smoke': H&Y /me^{32}k^{h}a^{44}/, my data /me^{22}k^{h}a^{33}/; 'moon; heart': H&Y /ɲe^{21}ma^{54}/, my data /ɲje^{22}ma^{53}/. Consequently, the original phonemic distinction between tones 32 and 21 in word-initial position, as reported in Huáng and Yǐn 2012, appears to be lost in the speech of my language consultant.

6. Final remarks

This report presented new data and new analysis of Duoxu with a particular focus on its tonal system. A preliminary analysis of Duoxu, restricted both by the size of the corpus and the

number of speakers, reveals a tonal system, which is more complex than those of its closely related languages Lizu and Ersu. In contrast to Duoxu, Lizu and Ersu only have two lexical tones on monosyllabic words and three tonal patterns on polysyllabic domains. Assuming that the more complex Duoxu tone system is more conservative, a systematic investigation of the commonalities and differences in the respective tonal systems of these three closely related languages is of interest for furthering our understanding of the development of the sparse tone systems (as in Lizu and Ersu), which are commonly attested in many Tibeto-Burman languages of Sìchuān (see Evans 2008, 2009 for an overview and discussion). At the same time, an analysis of the more complex Duoxu tone system in the context of the tonal systems in languages whose historical tonal development is better understood (most importantly, Lolo-Burmese languages, e.g. Matisoff 1972; Bradley 1979) may further our understanding of the history of Duoxu, Lizu, and Ersu and their position within the Tibeto-Burman language family.

A comparison of the newly collected data with those presented in Huáng and Yǐn (2012) reveals very few differences between the production of one of the last fluent speakers and that of the most proficient speaker as established in the 2014 Duoxu survey. These include: (1) a possible merger involving vowels /a/ and /æ/, and (2) a possible merger involving tones 32 and 21 on monosyllabic words and in word-initial position in disyllabic words. Put differently, despite the limited number of remaining Duoxu speakers and their limited opportunities for actively using Duoxu, reliable and versatile data on this language can still be collected. This is encouraging for the ongoing revitalization efforts within the Duoxu community, and for the future of Duoxu.

Transcription of the recorded text: "The North Wind and the Sun"

Semi-narrow phonetic transcription

tɕi^{33} tʃa^{53} | me^{22}lje^{33} | me^{22}tɕ^{h}a^{33} ɲa^{53}-gu dʑe^{53}-dʑe | se^{33}gu^{33}=i pe^{22}ʃɻ^{53} ja^{22}-k^{h}a^{53} ||
dʑe^{53}-dʑe | se^{33}gu^{33} ɲa^{53} ma^{22}=ɲa^{53} ma^{55}=se^{31} || ja^{55}no wa^{33}-ma^{33} ɕe^{33}-ɕe^{33}=ɕu a^{22}-
la^{22}=la^{34} || ge^{55}ma-t^{h}o^{31} | dʑu^{22}=i dʑu^{22}=i be^{22}tɕ^{h}e^{33} tɕa^{33} ve^{22}=i=zo || tɕ^{h}i^{33}-gu^{33}
ɲa^{53} k^{h}a^{22}t^{h}o^{33} du^{53}=la | se^{33}gu^{33} tɕ^{h}i^{22} ve^{22}le^{33} tɕa^{33} ka^{33} | ka^{33} ʃɻ^{33}=la tɕa^{33} | t^{h}e^{22}
tɕa^{33} pe^{22}ʃɻ^{53} k^{h}a^{53} || me^{22}lje^{33} tɕa^{55} ja^{22}-k^{h}a^{53} me^{33} me^{53} | me^{22}lje^{33} ja^{22}-tɕi^{33}xo^{33} me^{33}

me^{53}=la | jo^{22}-me^{33} me^{53} || ve^{22}le^{33} tɕa^{55} le^{22}-le^{22} ne^{33} tɕi^{33}xo^{33} || ja^{55}no tɕa^{33} ma^{22}=dʑi^{53}=la || ja^{55}no tɕa^{33} me^{22}tɕ^{h}a^{33} pe^{33}=la^{33}=la || me^{22}tɕ^{h}a^{33} tɕa^{55} | ja^{22}-ko^{33} me^{33} | t^{h}a^{22} u^{22}-tɕ^{h}a^{53} || ja^{55}no | wa^{33}-ma^{33} ɕe^{33}-ɕe^{33} ɕu^{33}=i t^{h}e^{33}=i tɕa^{55} | tɕ^{h}i^{33} ve^{22}le^{33} tɕa^{33} ka^{33} ge^{53}=la || tɕ^{h}i^{33} t^{h}e^{33} dʑu^{22}=i t^{h}e^{33} ve^{22}le^{33} ka^{33} ge^{53}=la || ja^{55}no tɕa^{33} | me^{22}lje^{33} tɕa^{33} | dʑi^{53}=la || ɲa^{53}-gu tɕa^{33} | me^{22}tɕ^{h}a^{33}=i | pe^{22}ʃɻ^{53} ja^{22}-dʒe^{53} ||

Interlinear morphemic gloss

tɕi^{33}	tʃa^{53} |	me^{22}lje^{33} |	me^{22}tɕ^{h}a^{33}	ɲa^{53}-gu		dʑe^{53}-dʑe |	
one	time	wind	sunlight	two.CLF-CLF		dispute-dispute	
se^{33}gu^{33}=i		pe^{22}ʃɻ^{53}	ja^{22}-k^{h}a^{53}	||	dʑe^{53}-dʑe |	se^{33}gu^{33}
who=GEN		ability	ITSF-be.big			dispute-dispute	who
ɲa^{53}	ma^{22}=ɲa^{53}	ma^{55}=se^{31}	|| ja^{55}no	wa^{33}-ma^{33}			
be.strong	NEG=be.strong	NEG=know		afterwards	road		
ɕe^{33}-ɕe^{33}=ɕu		a^{22}-la^{22}=la^{34} ||	ge^{55}ma-t^{h}o^{31} |		dʑu^{22}=i	
walk-walk=AGT.NMLZ		here?-come=come.PFV?		body-on		be.thick=GEN	
dʑu^{22}=i		be^{22}tɕ^{h}e^{33}	tɕa^{33}	ve^{22}=i=zo ||	tɕ^{h}i^{33}-gu^{33}	
be.thick=GEN		clothes	one.CLF	wear=GEN=DUR		3.GEN-CLF	
ɲa^{53}	k^{h}a^{22}t^{h}o^{33}	du^{53}=la |	se^{33}gu^{33}	tɕ^{h}i^{22}	ve^{22}le^{33}		
two.CLF	speech	become=PFV	who	3.GEN	clothes		
tɕa^{33}	ka^{33} |	ka^{33}	ʃɻ^{33}=la	tɕa^{33} |	t^{h}e^{22}	tɕa^{55}	
one.CLF	take.off	take.off	fetch=PFV	one.CLF	3	one.CLF	
pe^{22}ʃɻ^{53}	k^{h}a^{53} ||	me^{22}lje^{33}	tɕa^{55}	ja^{22}-k^{h}a^{53}	me^{33}	me^{53}|	
ability	be.big	wind	one.CLF	ITSF-be.big	make	blow	
me^{22}lje^{33}	ja^{22}-tɕi^{33}xo^{33}	me^{33}	me^{53}=la |	jo^{22}-me^{33}	me^{53} ||	
wind	ITSF-be.difficult	make	blow=PFV	ITSF.?-make	blow		
ve^{22}le^{33}	tɕa^{55}	le^{22}-le^{22}	ne^{33}	tɕi^{33}xo^{33} ||	ja^{55}no	
clothes	one.CLF	tight-tight	RLV	be.difficult	afterwards		

tɕa^{33}	ma^{22} = dʑi^{53} = la ||	ja^{55}no	tɕa^{33}	me^{22}tɕ^{h}a^{33}
one.CLF	NEG=COP=PFV	afterwards	one.CLF	sunlight

pe^{33} = la^{33} = la ||	me^{22}tɕ^{h}a^{33}	tɕa^{55} |	ja^{22}-ko^{33}	me^{33} |
come.out=come=PFV	sunlight	one.CLF	IPFV.?-quick	make

t^{h}a^{22}	u^{31}-tɕ^{h}a^{53}||	ja^{55}no |	wa^{33}-ma^{33}	ɕe^{33}-ɕe^{33}-ɕu^{33} = i
3.N-AGT	downward-be.hot	afterwards	road	walk-walk-AGT.AMLZ=GEN

t^{h}e^{33} = i	tɕa^{55} |	tɕ^{h}i^{33}	ve^{22}le^{33}	tɕa^{55}	ka^{33}	ge^{53} = la ||
3=GEN	one.CLF	3.GEN	clothes	one.CLF	take.off	descend=PFV

tɕ^{h}i^{33} t^{h}e^{33}	dʑu^{22} = i	t^{h}e^{33}	ve^{22}le^{33}	ka^{33}	ge^{53} = la ||	
3.GEN 3	be.thick=GEN	3	clothes	take.off	descend=PFV	

ja^{55}no	tɕa^{33} |	me^{22}lje^{33}	tɕa^{33} |	dʑi^{53} = la ||	ɲa^{53}-gu
afterwards	one.CLF	wind	one.CLF	COP=PFV	two.CLF-CLF

tɕa^{33} |	me^{22}tɕ^{h}a^{33} = i |	pe^{22}ʃɻ^{53}	ja^{22}-dʒe^{53} ||
one.CLF	sunlight=GEN	ability	ITSF-contain

Once upon a time, the North Wind and the Sun were disputing which one of them was the stronger. No matter how hard they argued, they could not settle the dispute. Then, a traveler came along. He was wearing a thick cloak. The two contenders agreed that whoever could make the traveler take off his cloak would be considered the stronger of the two. The North Wind huffed and puffed with all his might, the wind blew with all its might, harder and harder, but [the traveler only] wrapped his cloak tighter and tighter. Then, the North Wind gave up. Then, the Sun came out. The heat of its shine made the traveler take off his thick cloak. The North Wind could not but concede that the Sun was the stronger of the two.

Abbreviations

Abbreviations used in the gloss below follow the Leipzig Glossing Rules (LGR, http://www.eva.mpg.de/lingua/resources/glossing-rules.php). Non-standard abbreviations (those not included in the LGR) include: AGT = agentive, ITSF = intensifying prefix, RLV = contextual relevance.

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