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A Phonological Sketch of Barpak Ghale*

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Abstract

This paper describes the phonology of the Barpak dialect of Ghale (ISO 639-3: ghe), a language of the Tamangic branch of the Tibeto-Burman language family, based on data collected through the present author's fieldwork. The description includes the phoneme inventory, tone, syllable structures, consonant clusters, and both segmental and suprasegmental morphophonological processes, but not stress and intonation. This paper highlights several typologically interesting features, such as the presence of a velar lateral, a word-tone system, and morphologically conditioned tonal processes. In addition to describing the phonology and its interaction with morphology in Barpak Ghale, this paper underscores the typological significance of the language on phonological studies of word-tone systems as well as on phonetic research on velar laterals.

1. Introduction

This paper is a phonological sketch of Barpak Ghale. Ghale (ISO 639-3 ghe) is a language of the Tamangic branch within the Tibeto-Burman language family (van Driem 2011). The Tamangic branch includes both the Tamangish languages (or TGTM), such as Tamang, Gurung, Thakali, and Manange, and languages possibly peripheral to the Tamangish languages, including Ghale, Kaike, and probably Kuke. According to the 2021 census of Nepal (National Statistics Office 2023), Ghale is spoken by 23,049 people in the Gorkha District of the Gandaki Province of Nepal. This study is based on data collected from my own fieldwork on the dialect spoken in Barpak village, in the Gorkha District. Barpak is the largest village in the Ghale speaking area. Figure 1 shows the location of Barpak on a map of Nepal. In Barpak and the adjacent villages, both the Ghale and Gurung communities speak the same language, referred to as Ghale in the literature and the aforementioned census. In this study, the variety of the language spoken in Barpak is referred to as Barpak Ghale.

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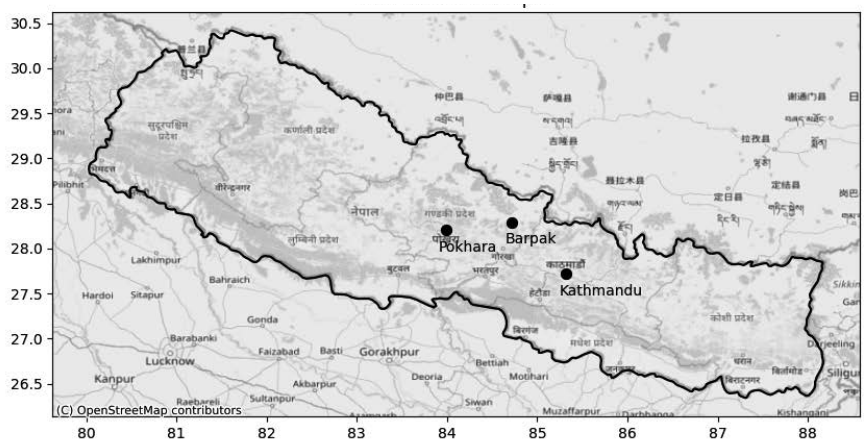

Figure 1. The location of Barpak village, Nepal

Several studies have explored the phonology of Ghale. Nishi (1983) offers a phonemic analysis of the Keura dialect of Ghale, which is mutually intelligible with Barpak Ghale. Paudel (2008) is a brief sketch of Barpak Ghale which includes a phonological description as well. The most recent and detailed work on Ghale has been conducted by Khadgi (2021), who extensively analyzes both segmental and tonal phonology using perceptual and acoustic data of the Barpak dialect. Khadgi's (2021) major findings include, in addition to a detailed analysis of the segmental phonology, that Barpak Ghale has a word-tone system similar to other Tamangic languages and five contrastive tones, which is more than any other Tamangic language. She has also mentioned that, despite having a word-tone system, the language has several tonal affixes. The previous studies primarily focus on phonology; however, the morphosyntactic aspects of Ghale, including the interaction of phonology and morphology, require further exploration.

This paper presents phonological descriptions of Barpak Ghale, emphasizing not only phonology but also morphophonology. The analysis is based on data collected during two fieldwork periods in Barpak, in the Gorkha district of Nepal, from February to March 2023 and from October 2023 to May 2024, as well as occasional sessions conducted with a speaker in Japan or over calls. The database for the phonological description comprises approximately 1,800 words. The description in this paper covers the phoneme inventory, tone, syllable structures, consonant clusters, and morphophonological processes. Additionally, it highlights several typologically interesting features, including the presence of a velar lateral, its word-tone system, and morphologically conditioned tonal processes.

This paper is organized as follows. Sections 2 and Section 3 describe the inventory of consonants and vowels, respectively. Section 4 discusses the syllable structure. Section 5 deals with tone. Section 6 describes some morphophonological processes involving either suprasegmental or segmental operations. Finally, Section 7 concludes the paper.

2. Consonants

There are 20 consonant phonemes that contrast with each other in Barpak Ghale. Table 1 shows those consonant phonemes.

Table 1. Inventory of consonant phonemes

	labial	dental	retroflex	palatal	velar	glottal
Stop	p, p^h	t, t^h	ʈ, $ʈ^h$		k, k^h	
Affricate		ts, ts^h				
Fricative		s				h
Nasal	m	n			ŋ	
Lateral		l				
Rhotic		r				
Approximant	w			j	ɯ	

2.1. Plosives and affricates

Barpak Ghale has eight plosives. Unaspirated and aspirated stops contrast at each place of articulation. All the stops can occur in the onset position. Examples (1)–(8) show the contrast of these consonants in minimal pairs. Note that Barpak Ghale has five tones: /22/, /33/, /55/, /21/, and /25/. These tones are represented by Chao tone letters, with 1 being the lowest and 5 being the highest. The tonal system is discussed in Section 5. These representations are used throughout the paper.

(1) /pa^{21}/ ‘roasted crops’
(2) /p^ha^{21}/ ‘share’
(3) /t^ha^{55}/ ‘grind’
(4) /ta^{55}/ ‘flour’
(5) /$ʈuŋ^{22}$/ ‘sit’
(6) /$ʈ^hu^{55}$/ ‘wash’
(7) /ku^{25}/ ‘spouse’s younger brother’
(8) /k^hu^{25}/ ‘soup’

The stops /p/, /t/, and /k/ can occur in the coda position. Examples (9)–(11) show the contrast of these consonants in quasi-minimal pairs.

(9) /rip^{33}/ ‘become sunny’
(10) /$sjit^{55}$/ ‘dew’
(11) /rik^{33}/ ‘laugh’

The stop /ʈ/ is found in the coda position only as part of gemination (see Section 4).

There are two affricates: /ts/ and /ts^h/. The affricates do not occur in the coda position except for in Nepali loan words. A minimal pair of the affricates is shown in (12) and (13).

(12) /$tsʌ^{55}$/ ‘cut, son’
(13) /$ts^hʌ^{55}$/ ‘hot, frigid, graze’

The allophones of consonant phonemes are described in the following sections.

2.1.1. Voicing

There is no phonemic contrast between voiced and voiceless obstruents. Unaspirated obstruents tend to be voiced word-medially. In the word-initial position, obstruents can be voiced when the word has the tones /33/ or /21/ (Khadgi 2021: 81). Khadgi (2021: 81) has pointed out that male speakers use voicing in word-initial obstruents more often than female speakers.

In the word-initial position, unaspirated obstruents can be voiced when the word has the tones /33/ or /21/ (Khadgi 2021: 81). Table 2 presents minimal or quasi-minimal pairs of words with different tones that start with unaspirated obstruents. Each row lists words that are segmentally identical or nearly identical but differ in tone. When a word with a certain tone is missing, the respective cells are left empty.

Table 2. Words beginning with unaspirated obstruents

	/33/	21/	/55/	/22/	/25/
/p/	/poŋ^{33}/ [poŋ˦ ~ boŋ˦] 'plant'	/poŋ^{21}/ [poŋ˨˩ ~ boŋ˨˩] 'power'	/poŋ^{55}/ [poŋ˥, *boŋ˥] 'bad smell'	/poŋ^{22}/ [poŋ˧˧, *boŋ˧˧] 'wooden rakshi container'	/poŋ^{25}/ [poŋ˧˥, *boŋ˧˥] 'a species of bird'
/t/	/tʌ^{33}/ [tʌ˦ ~ dʌ˦] 'fern'			/tʌ^{22}/ [tʌ˧˧, *dʌ˧˧] 'village'	/tʌ^{25}/ [tʌ˧˥, *dʌ˧˥] 'a unit from thumb to index finger'
		/ta^{21}/ [ta˨˩ ~ da˨˩] 'clean, ripe'	/ta^{55}/ [ta˥, *da˥] 'flour'	/ta^{22}/ [ta˧˧, *da˧˧] 'than'	
/k/	/kɯe^{33}/ [kɯe˦ ~ gɯe˦] 'the grain residue left after brewing alcohol'		/kɯe^{55}/ [kɯe˥, *gɯe˥] 'language'		
	/kʌŋ^{33}/ [kʌŋ˦ ~ gʌŋ˦] 'peak'			/kʌŋ^{22}/ [kʌŋ˧˧, *gʌŋ˧˧] 'dandruff'	/kʌŋ^{25}/ [kʌŋ˧˥, *gʌŋ˧˥] 'meal'
		/kul^{21}/ [kul˨˩ ~ gul˨˩] 'cough'	/kul^{55}/ [kul˥, *gul˥] 'let someone go or come'		
/ts/	/tsoŋ^{33}/ [tsoŋ˦ ~ dzoŋ˦] 'hold'	/tso^{21}/ [tso˨˩ ~ dzo˨˩] 'later, rain'	/tso^{55}/ [tso˥, *dzo˥] 'thorn'		

In the word-medial position, onset obstruents are often voiced regardless of the tone, as in (14)–(17). Voicing is in free variation. So far, I have not found any condition for voicing in the word-medial position.

(14) /t͡ʰwʌ.puŋ^{22}/ [t͡ʰwʌ˩.puŋ˩ ~ t͡ʰwʌ˩.buŋ˩] ‘smell of char’
(15) /ʌ.tʌ^{25}/ [ʌ˩.tʌ˥ ~ ʌ˩.dʌ˥] ‘elder brother’
(16) /pɯe.ke^{22}/ [pɯe˩.ke˩ ~ pɯe˩.ge˩] ‘coffin’
(17) /p^{h}i.tsji^{55}/ [p^{h}i˥.t͡ʃi˩ ~ p^{h}i˥d͡ʒi˩ ~ p^{h}i˥d͡ʒi˩] ‘bark (of tree)’

Coda obstruents are sometimes voiced both in the word-medial and word-final positions, as in (18)–(21). The voiced and voiceless allophones in the coda position are also in free variation. Voicing in the coda position is not as frequent as voicing in the onset position.

(18) /rik^{33}/ [rik˦ ~ rig˦] ‘laugh.IMP’
(19) /rik^{33}-nʌ/ [rik˩.nʌ˦~ rig˩.nʌ˦] ‘laugh-PROG’
(20) /ts^{h}jop^{21}/ [t͡ʃ^{h}op˩ ~ t͡ʃ^{h}ob˩] ‘step_on.IMP’
(21) /ts^{h}jop^{21}-rʌ/ [t͡ʃ^{h}op˩.rʌ˦ ~ t͡ʃ^{h}ob˩.rʌ˦] ‘step_on-COME&DO’

2.1.2. Other allophones of obstruents

Following the discussion on voicing, I describe the remaining allophones of obstruents in this section. First, I discuss the allophones of coda stops. Then, I specifically describe the allophones of /p^{h}/, /t^{h}/, /k^{h}/ and /ts/.

Unaspirated stops in the coda position are often pronounced with no audible release, as in (22)–(24).

(22) /lʌp^{55}/ [lʌp̄˥] ‘bullock’
(23) /pɯet^{55}/ [pɯet̄˥] ‘leech’
(24) /nak^{55}/ [næk̄˥] ‘snake god’

The phoneme /p^{h}/ can be realized either as [p^{h}] or [ɸ^{h}], as in (25)–(29). The allophones are in free variation.

(25) /kʌ^{55}.p^{h}um^{33}/ [kʌ˥.p^{h}um˦ ~ kʌ˥.ɸ^{h}um˦] ‘egg’
(26) /p^{h}op^{55}/ [p^{h}op˥ ~ ɸ^{h}op˥] ‘suddenly’
(27) /p^{h}il^{55}/ [p^{h}il˥ ~ ɸ^{h}il˥] ‘sweep’
(28) /p^{h}jo^{22}/ [p^{h}jo˦ ~ ɸ^{h}jo˦] ‘arrive’
(29) /p^{h}ja^{55}/ [p^{h}jæ˥ ~ ɸ^{h}jæ˥] ‘above’

Note that [ɸ] has been observed as an allophone of the phoneme /h/ (Section 2.2). The fricative allophone of /p^{h}/, [ɸ^{h}], is distinct from the fricative allophone of /h/, [ɸ].

The voiceless dental fricative [θ] has been found as the realization of the phoneme /t^{h}/ in the pronunciation of at least one male speaker. The speaker produced the following word with the voiceless dental fricative [θ].

(30) /met^{h}i^{22}/ [me˦t^{h}i˦ ~ me˦θi˦] ‘fenugreek’

This word is a loanword from Nepali. The word in Nepali is /met^{h}i/ मेथी. However, the phoneme /t^{h}/ in Nepali has not been reported to have the fricative allophone [θ] (Khatiwada 2009). The word is adapted into Ghale and pronounced with the dental fricative. More data is needed on this allophone.

The phoneme /k^{h}/ has a fricative allophone [x], as in (31). [k^{h}] and [x] are in free variation of the phoneme.

(31) /k^{h}um25/ [k^{h}umꟾ ~ xumꟾ] 'front'

Intervocalically, the phoneme /ts/ has an allophone [z] in addition to [ts] and [dz], as in (32) and (33).

(32) /tsʌm.tsʌ^{22}/ [tsʌmɻ.tsʌɻ ~ tsʌmɻ.dzʌɻ ~ tsʌmɻ.zʌɻ] 'young (female)'
(33) /pu.tsu^{22} (kʌŋ^{33})/ [puɻ.tsuɻ ~ pu.ɬdzuɻ ~ puɻ.zuɻ] 'Puchu peak (name of a peak)'

When the consonant /ts/ is followed by the palatal approximant /j/, the sequence /tsj/ can be realized either as [tʃ], [dʒ], or [ʒ], as in (17).

2.2. Fricatives

There are two fricatives: /s/ and /h/. The fricatives do not occur in the coda position except for Nepali loan words. A quasi-minimal pair is shown in (34) and (35).

(34) /sur^{22}/ 'business'
(35) /hul^{22}/ 'group of people'

2.2.1. Allophones of fricatives

There is no significant allophony for the phoneme /s/. When the approximant /j/ follows, the sequence /sj/ is realized as [ʃ]. It is realized as [s] elsewhere.

The phoneme /h/ is realized either as [h], [ɦ], or [ɸ]. The voiced glottal allophone [ɦ] is often observed with the low falling tone /21/, as in (37) and (38). The labial fricative [ɸ] has been observed before the vowel /u/, as in (38).

(36) /ha^{55}/ [hɐ˥] 'quickly'
(37) /ho.ne^{21}/ [hoɻ.neɻ ~ ɦoɻ.neɻ] 'there'
(38) /hul^{21}/ [hulɻ ~ ɦulɻ ~ ɸulɻ] 'be destroyed'

2.3. Nasals

There are three nasals: /m/, /n/, and /ŋ/. A minimal pair for the three nasals in onset position is provided in (39)–(41).

(39) /mʌ^{33}/ 'mother'
(40) /nʌ^{33}/ 'be sick'

(41) /ŋʌ^{33}/ ‘I’

The three nasals can occur in the coda position. Examples (42)–(44) show the contrast of these consonants in quasi-minimal pairs.

(42) /pom^{22}/ ‘wooden rakshi bottle’
(43) /pon^{33}/ ‘hump, wad’
(44) /poŋ^{33}/ ‘plant’

Word-medially, the place of articulation of a nasal is often the same as that of the following consonant. In my database, there is no word in which the dental nasal precedes a non-coronal consonant. What comes after the dental nasal is always a coronal consonant. Even between morphemes, there is a morphophonological rule that prevents the sequence of the dental nasal and a non-coronal consonant (Section 6.1.2). As for the bilabial and velar nasals, the following examples have been found where a consonant with a different place of articulation follows the nasal.

(45) /lʌŋ.mi^{33}/ ‘close friend’s wife’
(46) /toŋ.po^{33}/ ‘tree’
(47) /kim.tsje^{25}/ ‘neighbor’
(48) /tsʌm.tsʌ^{22}/ ‘young (female)’
(49) /tsʌm.tsʌ^{25}/ ‘spoon’ (a loanword from /tsʌmtsa/ चम्चा in Nepali)
(50) /sʌm.tsʌ^{22}/ ‘fine’ (a loanword from /sʌntso/ सन्चो in Nepali)
(51) /tsem^{21}.tse^{33}/ ‘then’

Most probably, /lʌŋ.mi^{33}/ in (45) has some relationship with the word /lʌŋ^{33}/ ‘close friend’ in (55). However, I have found no evidence that /mi/ has the meaning of “someone’s wife.” I have not encountered any other instances where /mi/ means someone’s wife. Thus, /lʌŋ.mi^{33}/ is treated as a simple word with no morpheme boundary in it.

2.3.1. Allophones of nasals

The velar nasal is always palatalized when the front close vowel /i/ follows, as in [ŋ^{j}i]. This happens between morpheme boundaries as well, as in (54). I analyze that the palatal approximant exists between the nasal consonant and the vowel, as in (52) and (53).

(52) /ŋji.nʌ^{22}/ [ŋ^{j}iɻ.nʌɻ] ‘we (inclusive)’
(53) /ŋji^{22}/ [ŋ^{j}iɻ] ‘seven’
(54) /joŋ^{21}-i/ [joŋ^{j}iɻ] ‘go.out-GO.PFV’

If we assume the presence of the independent consonant phoneme for [ŋʲ], the inventory of consonants would be unnecessarily expanded. Since there is no other reason to reject analyzing the sound as the sequence of a nasal and the palatal approximant, I analyze them as such.

No special allophony has been noted for /n/ and /m/.

2.4. Liquids

Examples (55)–(58) show minimal pairs of the liquids, /r/ and /l/, in the onset and coda positions.

(55) /lʌŋ^{33}/ ‘close friend (between Gurung and Ghale or between Gurung and Gurung)’
(56) /rʌŋ^{33}/ ‘field’
(57) /kur^{55}/ ‘bend (tr.)’
(58) /kul^{55}/ ‘let someone go or come’

2.4.1. Allophones of liquids

The phoneme /r/ is realized either as [r], [r̥], [ɹ], or [ɾ]. The allophone [r̥] is restricted to the word-initial position. In the word-initial position, the four allophones are in free variation. In the word-medial or word-final position, the allophones [r], [ɹ], and [ɾ] are in free variation.

(59) /rʌŋ^{33}/ [rʌŋ˩ ~ r̥ʌŋ˩ ~ ɾʌŋ˩ ~ ɹʌŋ˩] ‘field’
(60) /kur^{55}/ [kur˥ ~ kuɾ˥ ~ kuɹ˥] ‘bend (tr.)’

The trill allophone in the coda position must not be too long. When the phoneme /r/ is geminated, it is realized as the trill [r], as in (61) and (62). These are the only words in which the phoneme /r/ is geminated in my database.

(61) /ts^{h}ar.ra^{25}/ [ts^{h}ɐr˩.rɐ˥] ‘waterfall’
(62) /ts^{h}ʌr.rʌ^{22} kʌŋ^{33}/ [ts^{h}ʌr˩.rʌ˩ gʌŋ˩] ‘a place name’

There is also a morphophonological rule that alters the phoneme /r/ into /t̠/ after the dental nasal /n/ (see Section 6.1.1).

The phoneme /l/ is mostly realized as an alveolar lateral approximant [l]. However, when the phoneme forms the consonant cluster /kl/ or /k^{h}l/ in the word-initial position, the phoneme /l/ is realized as a velar lateral release [^{L}], as in (63)–(65).

(63) /kli^{55}/ [k^{L}i˥] ‘feces’
(64) /kli^{22}/ [k^{L}i˩] ‘grime’
(65) /k^{h}lja^{55}/ [k^{hL}ja˥] ‘boil’

Some, especially younger speakers, pronounce the word /kli^{55}/ ‘feces’ as [ki˥] without any lateral release. Figure 2 illustrates the position of the tongue during the lateral phase of the consonant cluster /k^{h}l/, for the word /k^{h}lja^{55}/ [k^{hL}ja˥] ‘boil’. The video of pronouncing the word /k^{h}lja^{55}/ is available as Yoshida (2024) at the Computational

Resource for South Asian Languages (CoRSAL). It is evident that the point of articulation of the lateral release is not alveolar. Instead, the lateral release is articulated at the same point as the preceding consonant [k^h].

Figure 2. The position of the tongue during the lateral release of /k^hl/ [k^{hL}]

The velar lateral release does not occur word-medially. The sequence /kl/ in the word-medial position undergoes resyllabification. The phoneme /k/ becomes the coda of the preceding syllable. In such cases, the phoneme /l/ is realized as the alveolar lateral approximant. Observe the words in (66)–(69) that are most probably compounds of /kli^{22}/ 'grime' and a body part.

(66) /sik.li^{22}/ [sikɬ.liɬ ~ sɯikɬ.liɬ ~ sɯi̯kɬ.liɬ] 'something stuck between teeth' (/sʌ^{25}/ 'tooth' + /kli^{22}/ 'grime')
(67) /nik.li^{22}/ [nikɬ.liɬ] 'earwax' (/nʌ^{25}/ 'ear' + /kli^{22}/ 'grime')
(68) /mjak.li^{22}/ [mjakɬ.liɬ] 'eye mucus' (/mja^{33}/ 'eye' + /kli^{22}/ 'grime')
(69) /pʌk.li^{22}/ [pʌkɬ.liɬ] 'smegma' (/pʌ/ '?' + /kli^{22}/ 'grime')

These are all and the only words where the sequence /kl/ appears word-medially.

I argue that the velar lateral release [^{L}] historically originates from the lateral approximant [l] based on both language-internal and comparative evidence. Language internally, as shown in (66)–(69), the lateral part of the consonant cluster /kl/ is realized as [l] in compounds. From a comparative perspective, the reconstructed form for 'feces' is *kli^{A} in Proto-Tamangish (Mazaudon 1978: 174) and *kləy in Proto-Tibeto-Burman (Matisoff 2003), which corresponds to [k^{L}iɬ] in Barpak Ghale.

Velar laterals are typologically rare outside of Papua New Guinea (Ladefoged, Cochran & Disner 1977; François 2010; Staroverov & Tebay 2022). The only Tibeto-Burman language in the survey of François (2010) that possibly has velar laterals is Laghuu (Edmondson & Ziwo 1999). This study has presented a new instance of velar laterals in the Tibeto-Burman language family. More detailed studies are required for the velar lateral release in Barpak Ghale.

2.5. Approximants

There are three approximants: /w/, /j/, and /ɯ̨/. Among the three approximants, only the palatal approximant /j/ can occur syllable initially. The other two approximants only occur in consonant clusters. The pairs in (70) and (71) show the contrast between a word with the initial palatal approximant and one without it.

(70) /ʌp^{33}/ 'hiccup'
(71) /jʌp^{55}/ 'clean, sharpen'

Khadgi (2021) argues for four approximants: /w/, /j/, /ɯ̨/, and /ɥ/. This study does not consider /ɥ/ as an independent phoneme, instead analyzing the sound as the sequence of /j/ and /w/. In my database, there are sixteen words containing /jw/. Among these sixteen words, thirteen are infinitive forms of verbs. Evidence supporting the analysis of the sound as /jw/ comes from the formation of these infinitive verb forms. As discussed in Khadgi (2021), the infinitive verb form is formed by adding an infinitive suffix, -ʌ or -*e*, to a verb root ending in a back rounded vowel, /u/ or /o/, as shown in (72).

(72)	verb root	infinitive suffix	infinitive		
	/tu^{33}/	/-ʌ/	/twʌ^{33}/	'to meet'	
	/ko^{33}/	/-ʌ/	/kwʌ^{33}/	'to call'	
	/p^{h}u^{21}/	/-e/	/p^{h}we^{21}/	'to blow'	
	/lo^{55}/	/-e/	/lwe^{55}/	'to ask'	(Khadgi 2021: 43–44)

The morphophonological process is formalized as Cu/o-ʌ → Cwʌ or Cu/o-e → Cwe (Khadgi 2021: 44). This study argues for the sequence /jw/ based on this phonological process. When a verb root has the onset consonant cluster Cj, the infinitive form suffixed with the infinitive suffix has what Khadgi (2021) describes as [ɥ], as in (73).

(73)	verb root	infinitive suffix	infinitive	
	/ts^{h}jo^{55}/	/-e/	/ts^{h}jwe^{55}/ or /ts^{h}ɥe^{55}/	'to read'

If this sound is analyzed as /jw/ rather than /ɥ/, the infinitive formation in both (72) and (73) can be analyzed as the application of the same morphophonological rules, and it is thus more consistent. Based on this phenomenon, this study analyzes the sound that is analyzed as /ɥ/ in Khadgi (2021) as the sequence of /jw/.

3. Vowels

There are 6 vowel phonemes that contrast with each other in Barpak Ghale. Table 3 shows these vowel phonemes.

Table 3. Inventory of vowel phonemes

	front	back
close	i	u
mid	e	o
open	a	ʌ

Minimal or quasi-minimal pairs for the six vowels are provided below.

/i/	vs	/e/	/p^{h}i^{25}/ [p^{h}iʌ̀] ‘outside’	/pe^{25}/ [peʌ̀] ‘tradition’
		/a/	/mi^{55}/ [miɬ] ‘people’	/ma^{55}/ [mɐɬ] ‘cousins’
		/u/	/li^{25}/ [liʌ̀] ‘tongue’	/lu^{25}/ [luʌ̀] ‘seed’
		/o/	/li^{25}/ [liʌ̀] ‘tongue’	/lo^{25}/ [loʌ̀] ‘stomach’
		/ʌ/	/li^{25}/ [liʌ̀] ‘tongue’	/lʌ^{25}/ [lʌʌ̀] ‘shadow, leaf’
/e/	vs	/a/	/se^{55}/ [seɬ] ‘kill’	/sa^{55}/ [sɐɬ] ‘itchy’
		/u/	/ken^{21}/ [genɻ] ‘Gyaldung (Ghale)’	/kuŋ^{21}/ [guŋɻ] ‘back’
		/o/	/me^{21}/ [meɻ] ‘aunt’	/mo^{21}/ [moɻ] ‘younger sister’
		/ʌ/	/se^{55}/ [seɬ] ‘kill’	/sʌ^{55} rip^{22}/ [sʌ ripɻ] ‘become late’
/a/	vs	/u/	/man^{25}/ [mɐnʌ̀] ‘medicine’	/mun^{25}/ [munʌ̀] ‘night’
		/o/	/la^{33}/ [lɐꜜ] ‘hand’	/lo^{33}/ [loꜜ] ‘twelve zodiac sings’
		/ʌ/	/ka^{55}/ [kɐɬ] ‘blood, chicken’	/kʌ^{55}/ [kʌɬ] ‘thick (liquid)’
/u/	vs	/o/	/lum^{33}/ [lumꜜ] ‘be hot’	/lom^{22}/ [lomɻ] ‘learn’
		/ʌ/	/lum^{33}/ [lumꜜ] ‘be hot’	/lʌm^{33}/ [lʌmꜜ] ‘road’
/o/	vs	/ ʌ/	/lo^{33}/ [loꜜ] ‘twelve zodiac sings’	/lʌ^{33}/ [lʌꜜ] ‘size of a mouth’

3.1. Allophones of vowels

The phoneme /a/ is realized as [æ] when it is preceded by the palatal approximant, as in (74)–(78), and as [ɐ] elesewhere, as in (77).

(74) /pja^{33}/ [pjæꜜ] ‘lungi’
(75) /tja^{55}/ [tjæɬ] ‘one’
(76) /kja^{55}/ [kjæɬ] ‘release’
(77) /ja/ [jæɬ] ‘potato’
(78) /ka^{55}/ [kɐɬ] ‘blood, chicken’

I have observed three words where the word-initial vowel is pronounced as [æ], as in (79)–(81).

(79) /an.jʌ^{55}/ [ɐnɬ.jʌɻ ~ ænɬ.jʌɻ] ‘here’
(80) /a.ne$^{55\sim25}$/ [ɐɬ.neɻ ~ æɬ.neɻ ~ ɐɻ.neɬ ~ æɻ.neɬ] ‘here’
(81) /a.rʌ^{25}/ [ɐɻ.rʌɬ ~ æɻ.rʌɬ] ‘like this’

These examples are idiosyncratic; they are exceptions to the general rule that the allophone [æ] appears after the palatal approximant /j/. These are all deictic adverbs, and the allophone [æ] appears in the word-initial position only in these adverbs.

The phoneme /e/ can be realized as a close-mid vowel [e] or an open-mid vowel [ɛ]. The allophony is phonologically conditioned in some cases. When the vowel is preceded by the palatal approximant /j/, the phoneme /e/ is realized as the close-mid vowel [e] as in the verb roots /tjen^{55}/ in (82) and / kje^{55}/ in (84). When the vowel is preceded by the velar approximant /ɯ/, the phoneme /e/ is realized as the close-mid vowel [ɛ] as in the verb roots /tɯen^{55}/ in (83) and / kɯe^{22}/ in (85). These allophones are in free variation elsewhere as can be observed in the past suffix /-te/ in (84) and (85).

(82) /tjen^{55}/ [tjen˥] ‘shove, press’
(83) /tɯen^{55}/ [tɯɛn˥] ‘show’
(84) /kje^{55}-kʌ-te/ [kje˥.gʌ˥.te˥ ~ kje˥.gʌ˥.tɛ˥] ‘chew-PFV-PST’
(85) /kɯe^{22}-kʌ-te/ [kɯɛ˨.gʌ˨.te˨ ~ kɯɛ˨.gʌ˨.tɛ˨] ‘become.full-PFV-PST’

The vowel /i/ can be voiceless in a certain context. I have observed the voiceless allophone [i̥] when the velar approximant [ɯ] precedes the vowel /i/ in the first syllable of a polysyllabic word and there is another /i/ in the next syllable. The phonological condition of the allophony is formalized as in (86).

(86) /i/ > [i̥] / #C_1ɯ _ (C_2).C_3i(C_4)

Examples (87)–(91) illustrate the voiceless allophone [i̥].

(87) /kɯi.ri^{22}/ [kɯi̥˨.ri˨] ‘some people’
(88) /kɯi.li^{21}/ [gɯi˨.li˨ ~ gɯi̥˨.li˨] ‘went’
(89) /sɯik.li^{22}/ [sɯi̥k˨.li˨ ~ sɯik˨.li˨ ~ sik˨.li˨] ‘earwax’
(90) /mɯit.ti^{55}/ [mɯi̥t˥.ti˨ ~ mɯit˥.ti˨] ‘family’
(91) /sɯit.tri^{33}/ [sɯi̥t˧.tri˧ ~ sɯit˧.tri˧ ~ sit˧.tri˧] ‘marigold’

3.2. Vowel length

Vowel length is not phonologically contrastive in Barpak Ghale. Phonetically, vowels can be pronounced long, potentially due to some morphophonological conditioning. I have observed a few contexts which determine the phonetic length of a vowel. First, a vowel in a closed syllable is never pronounced long. Compare the words in (92) and (93).

(92) /pɯet^{55}/ [pɯet˥, *pɯe:t˥] ‘leech’
(93) /pɯe^{55}/ [pɯe:˥] ‘leech’

Some speakers use the word /puɻet^{55}/, while others use /puɻe^{55}/. When the coda consonant /t/ is pronounced, the vowel /e/ is pronounced with a shorter duration. When there is no coda, the vowel can be pronounced with a longer duration.

Second, the number of syllables in a morpheme also plays a role in determining the duration of the vowel. Monosyllabic free morphemes are pronounced with a longer duration in most cases, as in (93). There is one exception to this. When a monosyllabic verb is used in imperative mood, it is always pronounced with a shorter duration; otherwise, it can be pronounced with a longer duration. Compare the examples in (94) and (95). The verb is in imperative mood in (94), while it is in the infinitive form in (95).

(94) /tsʌ^{33}/ [tsʌ˩, *tsʌː˩] 'eat.IMP'

(95) /tsʌ^{33}=ne/ [tsʌː˩.ne, *tsʌ˩.ne] 'eat.INF=LOC'

The vowel is pronounced with a shorter duration in (94), while it is pronounced long in (95). Except for imperative mood, monosyllabic morphemes are pronounced with a longer duration.

In contrast, the vowels in polysyllabic free morphemes are almost always pronounced with a shorter duration. Most polysyllabic free morphemes in my database are disyllabic. In these disyllabic morphemes, an open syllable is mostly pronounced with a shorter duration. Table 4 shows disyllabic morphemes of different syllable weights with different tones. The vowels in the open syllables are all pronounced with a shorter duration.

Table 4. Vowel length in disyllabic morphemes

	CV.CV	CVC.CV	CV.CVC
/55/	/k^{h}o.ta^{55}/	/mus.se^{55}/	/tu.pum^{55}/
	[k^{h}o˥.tɐ˩, *k^{h}oː˥.tɐː˩]	[mus˥.se˩, *musː˥.seː˩]	[tuː˥.pum˩, *tuː˥.pum˩]
	'all'	'whole night'	'unit of measurement (from elbow to fist)'
/33/	/pu.ʌ^{33}/	/tup.kjʌ^{33}/	/po.lom^{33}/
	[pu˧.(w)ʌ˧, *puː˧.(w)ʌː˧]	[tup˧.kjʌ˧, *tup˧.kjʌː˧]	[po˧.lom˧, *poː˧.lom˧]
	'husk'	'a kind of cooking pot'	'rock'
/22/	/tsu.ku^{22}/	/t^{h}ul.ku^{22}/	/k^{h}u.jiŋ^{22}/
	[tsu˩.gu˩, *tsuː˩.guː˩]	[t^{h}ul˩.gu˩, *t^{h}ul˩.guː˩]	[k^{h}u˩.jiŋ˩, * k^{h}uː˩.jiŋ˩]
	'barley'	'worn out'	'the year before last'
/21/	/mi.lʌ^{21}/	/hʌm.bʌ^{21}/	/ŋjʌ.lʌm^{21}/
	[mi˩.lʌ˩, *miː˩.lʌː˩]	[hʌm˩.bʌ˩, hʌm˩.bʌː˩]	[ŋjʌ˩.lʌm˩, *ŋjʌː˩.lʌm˩]
	'ash'	'that'	'milk'
/25/	/ʌ.tʌ^{25}/	/tsʌm.tsʌ^{25}/	/pʌ.jun^{25}/
	[ʌ˩.tʌ˥, *ʌː˩.tʌː˥]	[tsʌm˩.tsʌ˥, *tsʌm˩.tsʌː˥]	[pʌ˩.jun˥, *pʌː˩.jun˥]
	'elder brother'	'young (female)'	'brotherhood'

There are 10 trisyllabic morphemes in my database. In all the trisyllabic morphemes except one, the open syllable is pronounced with a shorter duration. Examples (96)–(103) show the trisyllabic morphemes in which the vowels are pronounced short.

(96) /hʌt.ti.mʌ^{22}/ [hʌt˩.ti˩.mʌ˩, *hʌt˩.ti:˩.mʌ:˩] 'horizon, skyline'
(97) /ʌ.su.ro^{22} ~ ʌ.sʌ.ro^{22}/ [ʌ˩.su˩.ro˩ ~ ʌ˩.sʌ˩.ro˩] 'hope' (loanword from Nepali)
(98) /ku.tu.ru^{22} ~ ko.to.ra^{22} ~ ko.to.ro^{22}/ [ku˩.tu˩.ru˩ ~ ko˩.to˩.ra˩ ~ ko˩.to˩.ro˩] 'onomatopoeia for the manner of walking slowly when carrying a basket'
(99) /muɥen.tsji.ni^{33}/ [muɥen˦.tsji˦.ni˦] 'a stick to stir milk'
(100) /mi^{55} kuʈuʈu^{33}/ [mi˥ gu˦.ʈu.˦ʈu˦] 'flame'
(101) /tu.a.lo^{21}/ [du˩.(w)ɐ˩.lo˩] 'same age'
(102) /nʌŋkʌni^{25}/ [nʌŋ˩.gʌ˩.ni˥] 'later'
(103) /pu.su.ʌ^{25}/ [pu˩.su˩.(w)ʌ˥] 'anaphalis margaritacea' (flowering plant)

In these examples, the vowels cannot be pronounced with a longer duration. There is one exceptional trisyllabic morpheme in which one of the vowels is pronounced longer, this is shown in the example below.

(104) /hatimpʌ^{22}/ [hɐ:˩.tim˩.bʌ˩, *hɐ˩.tim˩.bʌ˩] 'that over there'

In this example, the first vowel is pronounced long. The reason for the vowel being pronounced with a longer duration remains unclear. /hatimpʌ^{22}/ is possibly formed from /ha/ '?' and /timpʌ^{22}/ 'that'. My tentative hypothesis is that the vowel in /ha/ is pronounced longer because /hatimpʌ^{22}/ is morphologically complex and is not originally a single morpheme.

3.3. Diphthongs

Diphthongs are marginal in Barpak Ghale. They are often found in onomatopoeia, place names, and kinship terms. In my database, there are four words containing /ai/, two words containing /ʌi/, two words containing /ei/, and three words containing /ʌu/. All the words are listed below.

(105) /nu.ai^{33}/ [nu˦.ɐi˦] 'close elder sister'
(106) /jwai^{33}/ [jwɐi˦] 'younger sister's husband'
(107) /hai^{33}/ [hɐi˦] 'sigh'
(108) /hwai^{21} hwai^{21}/ [hwɐi˩ hwɐi˩] 'onomatopoeia for the manner of small insects or leeches moving'
(109) /kuɥʌi^{22} ʌne^{33}/ [kuɥʌi˩ ʌ˦ne˦] 'where'
(110) /nʌiʈʌ^{22}/ [nʌi˩ʈʌ˩] 'clitoris'
(111) /teisjʌŋ^{33}/ [tei˦.ʃʌŋ˦] 'a village name (which is now known as Kashigaun)'
(112) /wei55/ [wei˥] 'hello'[1]
(113) /tsjʌu^{55}/ [tsjʌu˥] 'hello (respectful)'

[1] [˥] is an allotone of the high tone /55/. See the discussion in Section 5.4.

(114) /nʌulja^{22}/ [nʌu˩˧ljæ˩] ‘wonderfull’
(115) /raŋtsjʌu^{22} tʌ^{22}/ [raŋ˩˧dʒʌu˩˧ tʌ˩] ‘a place name’

3.4. Nasalization

Nasalised vowels are also marginal in Barpak Ghale. However, there are some words with nasalized vowels in my database. I have found /ĩ/, /ã/, /ũ/, and /ɵ̃/. The following examples show the words in which the nasalized vowels occur. These are all I have found so far.

(116) /ma.ĩ^{25}/ [mɐ˩.ĩ˥] ‘before’
(117) /ti.jã^{33}/ [ti˩.jæ̃˩] ‘dish’
(118) /mʌ.ũ^{25} tsje^{55}/ [mʌ˩.ũ˥˧tʃe˥] ‘a place name (an area in Barpak)’
(119) /k^{h}jɵ̃^{55}/ [k^{h}jɵ̃˥] ‘infinitive form of copula’
(120) /hɵ̃^{55}/ [hɵ̃˥] ‘infinitive form of copula’

Two of these words exhibit variation in their pronunciation. The word that means ‘before’ can be pronounced as /mani^{25}/ or /muru^{21} t^{h}ani^{55}/ as well as /ma.ĩ^{25}/. This is the compound of /muru^{21}/ ‘yesterday’ and /t^{h}ani^{55}/ ‘the day before yesterday’. The nasality on the vowel /i/ in /ma.ĩ^{25}/ possibly originates from /n/ in /mani^{25}/. The place name /mʌ.ũ^{25} tsje^{55}/ is also called /ma.huŋ^{25} tsje^{55}/ or /maŋ^{25} tsje^{55}/. When it is written in the village, it is written as ‘mahungche’ or ‘माहुंचे’, as in Figure 3. The nasality on the vowel /u/ in /mʌ.ũ^{25} tsje^{55}/ possibly originates from /ŋ/ in /ma.huŋ^{25} tsje^{55}/ or /maŋ^{25} tsje^{55}/. /k^{h}jɵ̃^{55}/ and /hɵ̃^{55}/ are the infinitive form of the copulae /k^{h}jʌŋ^{25}/ ‘is’ and /hʌŋ^{25}/ ‘is’, respectively. The nasality on the vowel of /k^{h}jɵ̃^{55}/ and /hɵ̃^{55}/ has something to do with the velar nasal /ŋ/ in /k^{h}jʌŋ^{25}/ and /hʌŋ^{25}/.

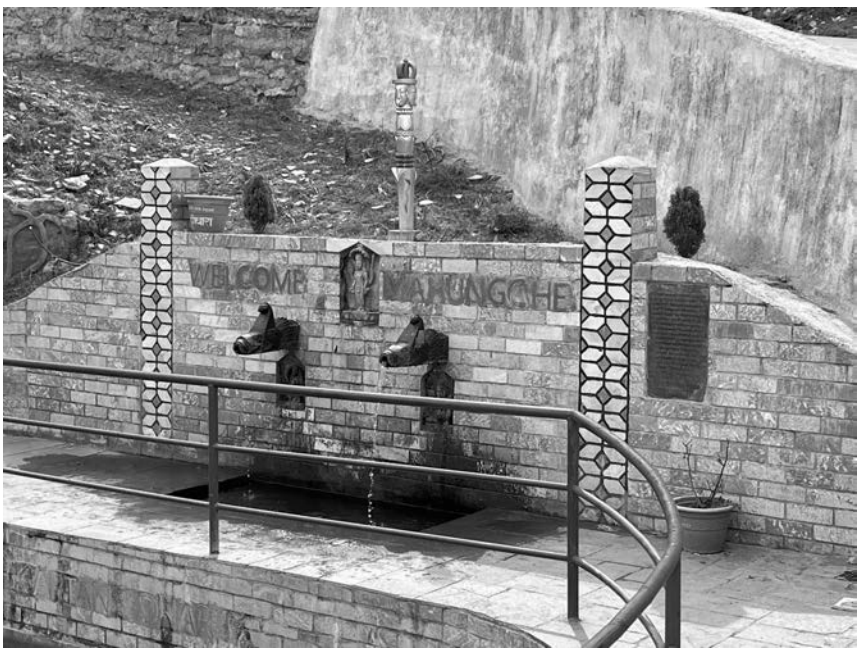

Figure 3. The place name /mʌ.ũ^{25} tsje^{55}/ is written as MAHUNGCHE in Barpak

3.5. Phonation

Unlike other Tamangic languages (Mazaudon 2005), phonation is not phonologically contrastive. However, even in Barpak Ghale, there is some free variation of phonation types. The front open vowel /a/ with no coda in monosyllabic words with the tone /21/ can be realized with creaky voice, as in (121) and (122).

(121) /pa^{21}/ [pa̰˩ ~ pɐ˩ ~ ba̰˩ ~ bɐ˩]
(122) /na^{21}/ [na̰˩ ~ nɐ˩]

In these examples, the vowel in an open syllable can be realized with creaky voice.

4. Syllable structure

The syllable structure in Barpak Ghale can be described as in (123). C_1 represents any consonant except for /ɯ̨/. L represents /l/ and /r/ in a consonant cluster. G_1 represents any approximant. G_2 represents /w/. V represents any vowel. C_2 represents /p, t, ʈ, k, m, n, ŋ, l, r/.

(123) $(C_1)(L)(G_1)(G_2)V_1(C_2)$

There are 11 possible patterns of syllable structure, as shown in Table 5. I have not found any word that consists only of a vowel. The syllable pattern V_1 occurs within polysyllabic words.

Table 5. Types of syllable structure

Schema	Examples
V_1	/e^{25}a^{21}/ ‘interjection’, /omʌ^{22}/ ‘bee’
V_1C_2	/ik^{55}/ ‘hiccup’, /up^{55}/ ‘cover’
C_1V_1	/mi^{55}/ ‘people’, /ja^{55}/ ‘potato’
$C_1V_1C_2$	/hoŋ^{25}/ ‘river’, /nuk^{55}/ ‘dip’
C_1LV_1	/prʌ^{33}/ ‘go’, /ple^{55}/ ‘carry’
$C_1LV_1C_2$	/prʌŋ^{33}/ ‘animal shelter’, /mliŋ^{33}/ ‘vagina’
$C_1LG_1V_1$	/plja^{55}/ ‘(the sun) rise’, /kljʌ^{22}/ ‘a kind of bird’
$C_1LG_1G_2V_1$	/kljwʌ^{22}/ ‘to peel off’
$C_1LG_1V_1C_2$	/pljaŋ^{25}/ ‘flat stone’, /kljom^{33}/ ‘speak’
$C_1G_1V_1$	/mja^{55}/ ‘bamboo’, /kjo^{55}/ ‘dog’
$C_1G_1V_1C_2$	/puɥet^{55}/ ‘leech’, /kjon^{25}/ ‘friend’
$C_1G_1G_2V_1$	/ts^{h}jwe^{55}/ ‘to read (infinitive)’, /sjwi^{55}/ ‘wet’

Barpak Ghale has a variety of consonant clusters in the onset position. There are only a handful of consonant clusters that have C_1L. Table 6 shows the possible consonant clusters with C_1L.

Table 6. Consonant clusters with C_1L

C_1	L	G	Cluster	Example
p	r		/pr/ [pr]	/prʌ^{33}/ 'go'
	l		/pl/ [pl]	/ple^{55}/ 'carry'
	r	j	/prj/ [prj]	/prja^{33}/ 'scratch'
	l	j	/plj/ [plj]	/pljaŋ^{21}/ 'burn'
p^h	r		/p^hr/ [p^hr]	/p^hrup^{55}/ 'shiver'
	r	j	/p^hrj/ [p^hrj]	/p^hrja^{55}/ 'fry'
k	l		/kl/ [k^L]	/kli^{55}/ 'feces'
	l	j	/klj/ [k^Lj]	/kljʌ^{22}/ 'a kind of bird'
	l	jw	/kljw/ [k^Ljw]	/kljwʌ^{22}/ 'to peel off'
k^h	l	j	/k^hlj/ [k^{hL}j]	/k^hlja^{55}/ 'boil'
m	l		/ml/ [ml]	/mliŋ^{33}/ 'vagina'

The clusters /ml/ and /kl/ are not listed in Khadgi (2021). The cluster /ml/ has only been found in the word /mliŋ^{33}/ 'vagina'. This word might have a connection with Proto-Tamangish *^{Ah}mriŋ 'woman' (Mazaudon 1994). As discussed in Section 2.4.1, the clusters /kl/ and /k^hl/ are realized with a lateral release as [k^L] and [k^{hL}], respectively. The clusters /kl/ and /k^hl/ are always followed by the palatal approximant /j/ or the front close vowel /i/.

All consonants that can occur in the onset position can form a consonant cluster with a glide. Table 7 shows the possible patterns of CG consonant clusters.

In the coda position, /p, t, ʈ, k, m, n, ŋ, l, r/ can occur. Examples of these consonants in the coda position are provided in Section 2. Of these consonants, /ʈ/ is observed in the coda position only in gemination. The consonant /ŋ/ cannot be geminated. The gemination of the consonants /p, t, ʈ, k, m, n, l, r/ is illustrated in (124)–(138). These geminated consonants can occur both within a morpheme and across morpheme boundaries. Gemination of /m/ has only been found across morpheme boundaries, as in (132).

(124) /muppʌ^{55}/ [mupˈpʌˌ] 'cloud'
(125) /tsji^{55}-pʌ/ [tʃipˌpʌˈ] 'do-GO&DO'
(126) /jettar^{33}=ne/ [jetˌtərˌneˈ] 'always'
(127) /tsji^{55}-te/ [tʃitˈteˈ] 'do-PST'
(128) /p^haʈa^{33} p^huʈi^{22}/ [p^həˈtəˌ p^huˈtiˌ] 'onomatopoeia for a manner of working hard'
(129) /tsji^{55}-rʌ/ [tʃiˈtʌˈ] 'do-COME&DO'
(130) /ʈʌkkʌ^{21}=ne/ [ʈʌkˌkʌˌneˌ] 'all'
(131) /tsji^{55}-kʌ/ [tʃikˈkʌˈ] 'do-PFV'
(132) /tsji^{55}-mi/ [tʃimˌmiˈ] 'do-BEN'
(133) /tin^{21}nʌ/ [tin^{21}nʌ] 'lately'
(134) /tsji55-nʌ/ [tʃinˌnʌˈ] 'do-PROG'
(135) /tsɯɻillin^{22}/ [tsɯɻilˌliŋˌ] 'bell'
(136) /tsji^{55}-li^{22}/ [tʃilˈliˌ] 'do-CONC'

(137) /ts^{h}arra^{25}/ [ts^{h}ɐrɬrɐɬ] ‘waterfall’

(138) /kjʌr^{21}-rʌ/ [gjʌrɬrʌɬ] ‘roll-COME’

Examples (124) and (125) show gemination of /p/. The examples (126) and (127) show gemination of /t/. Examples (128) and (129) show gemination of /ʈ/. The examples (130) and (131) show gemination of /k/. Example (132) shows gemination of /m/ across morpheme boundaries. Examples (133) and (134) show gemination of /n/. Examples (135) and (136) show gemination of /l/. And examples (137) and (138) show gemination of /r/. The morphophonological processes involved in the suffixation of the associated motion or directional suffixes *-pʌ* and *-rʌ*, the benefactive suffix *-mi*, and the progressive suffix *-nʌ* are discussed in Section 6.

Table 7. CG Consonant clusters

	w	j	ɯ	jw
p	/pwe^{33}/ ‘Tibetan’	/pja^{33}/ ‘lungi’	/pɯe^{55}/ ‘leech’	/pjwʌ^{55}/ ‘to take out’
p^{h}	/p^{h}wʌ^{55}/ ‘to hide’	/p^{h}jʌŋ^{22}/ ‘stick’	/p^{h}ɯe^{33}/ ‘to thirst’	/p^{h}jwʌ^{22}/ ‘to arrive’
t	/twa^{33}/ ‘shy’	/tjor^{21}/ ‘this year’	/tɯen^{55}/ ‘show’	
t^{h}	/t^{h}wa/ ‘crow (v.)’	/t^{h}jep^{55}/ ‘more’	/t^{h}ɯel^{55}/ ‘use a cane’	
ʈ	/ʈwe^{55}/ ‘orphan’	/ʈja^{55}tsʌŋ^{55}/ ‘stubborn’		
ʈ^{h}	/ʈ^{h}wʌ^{22} poŋ^{55}/ ‘burnt smell’			
k	/kwa^{55}/ ‘naughty’	/kju^{25}/ ‘water’	/kɯe^{55}/ ‘language’	/kljwʌ^{22}/ ‘peel off’
k^{h}	/k^{h}wʌ^{55}/ ‘to dig’	/k^{h}jʌŋ^{25}/ ‘is’	/k^{h}ɯel^{22}/ ‘twist’	
ts	/tswʌ^{22}/ ‘make alcohol’	/tsjer^{22}/ ‘loan’		
ts^{h}	/ts^{h}wʌ^{55}/ ‘to cook’	/ts^{h}jo^{22}/ ‘no’	/ts^{h}ɯen^{21}/ ‘bamboo rope’	/ts^{h}jwe^{55}/ ‘to read’
s	/swe^{55}/ ‘tame’	/sjop^{33}/ ‘string’		/sjwi^{55}/ ‘wet’
h	/hwʌ^{25}/ ‘wheat’			
m		/mja^{33}/ ‘eye’	/mɯi^{22}/ ‘buffalo’	
n	/nwi^{55}/ ‘unripen’	/njum^{21}/ ‘sleep’		
ŋ	/ŋwʌ^{33}/ ‘to cry’	/ŋjʌ^{22}/ ‘jump’		
l	/lwa^{21}/ ‘return’	/ljaŋ^{33}/ ‘snow’		
r	/rwa^{21}/ ‘six’	/rja^{33}/ ‘cliff’		
j	/jwa^{55}/ ‘monkey’			

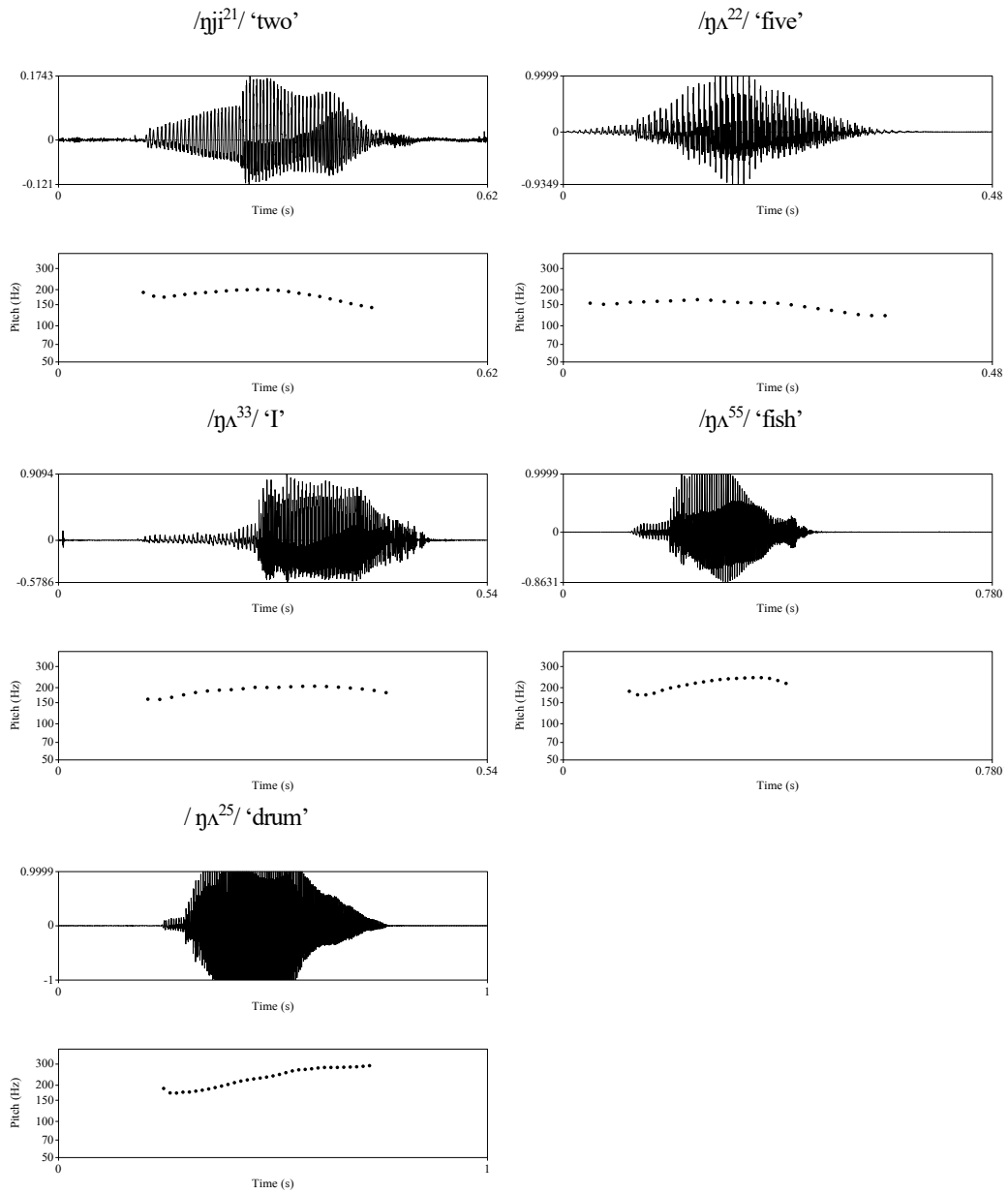

Figure 4. Waveforms and F0 tracks for monosyllabic words with five tones

5. Tone

There are five contrastive tones: /55/, /33/, /22/, /21/, and /25/. These tones are represented by Chao tone letters, with 1 being the lowest and 5 the highest. The phonological notation of tone represents the realization of the tones on a monosyllabic morpheme as shown below. In Section 5.1, I describe the realization of tone on free morphemes with varying numbers of syllables. In Section 5.2, I focus on the tonal status of bound morphemes like clitics and affixes. In Section 5.3, I examine how tone is realized in a word formed of a free morpheme and bound morphemes. In Section 5.4, I discuss several cases of allotony. In Section 5.5, I address a restriction of tone occurring in a particular word class.

5.1. Tone on free morphemes

Each lexical morpheme has its own tone. The realization of tone is different for monosyllabic morphemes and polysyllabic morphemes. The following examples show the contrast of five tones on monosyllabic morphemes.

(139) /poŋ^{55}/ [poŋ˥] ‘bad smell’
(140) /poŋ^{33}/ [poŋ˧] ‘plant’
(141) /poŋ^{22}/ [poŋ˨] ‘wooden rakshi bottle’
(142) /poŋ^{21}/ [poŋ˩] ‘power’
(143) /poŋ^{25}/ [poŋ˧˥] ‘a kind of yellow plant’

On monosyllabic morphemes, /55/ is realized as the high level tone [˥]. /33/ is realized as the mid level tone [˧]. When a morpheme with the tone /33/ consists of a single open syllable, the glottal stop [ʔ] is often pronounced after the vowel as in /ŋʌ^{33}/ [ŋʌʔ˧] ‘I’. /22/ is realized as the low level tone [˨]. /21/ is realized as the low falling tone [˩]. Finally, /25/ is realized as the rising tone [˧˥]. The waveforms and F0 tracks of monosyllabic words with the five tones are shown in Figure 4.

These tones are realized differently on polysyllabic morphemes. Polysyllabic morphemes in Ghale are mostly disyllabic morphemes. Minimal pairs of disyllabic morphemes are shown in (144)–(147).

(144) /mi.jiŋ^{55}/ [mi˥.jiŋ˩] ‘a kind of bird’
(145) /mi.jiŋ^{33}/ [mi˧.jiŋ˧] ‘many years ago’
(146) /mi.jiŋ^{22}/ [mi˨.jiŋ˨] ‘last year’
(147) /mi.jiŋ^{21}/ [mi˨.jiŋ˩] ‘smoke’

The tones /22/ and /33/ are realized on disyllabic words with both the first and second syllables having approximately the same pitch height. The /55/ tone is realized on disyllabic words with the first syllable pronounced higher, using the same pitch as a monosyllabic word with /55/, and the second syllable pronounced lower. In disyllabic words with the low falling tone /21/, the pitch gradually lowers from the first syllable to the second syllable. In disyllabic words with the rising tone /25/, both the first and second syllables have level pitch with the first pronounced low and the second pronounced high. There is no pitch rising within a syllable. A disyllabicword with /25/ is shown in (148).

(148) /mi.ja^{25}/ [mi˨.jæ˥] ‘sun’

The waveforms and F0 tracks of the disyllabic words in (144)–(148) are shown in Figure 5.

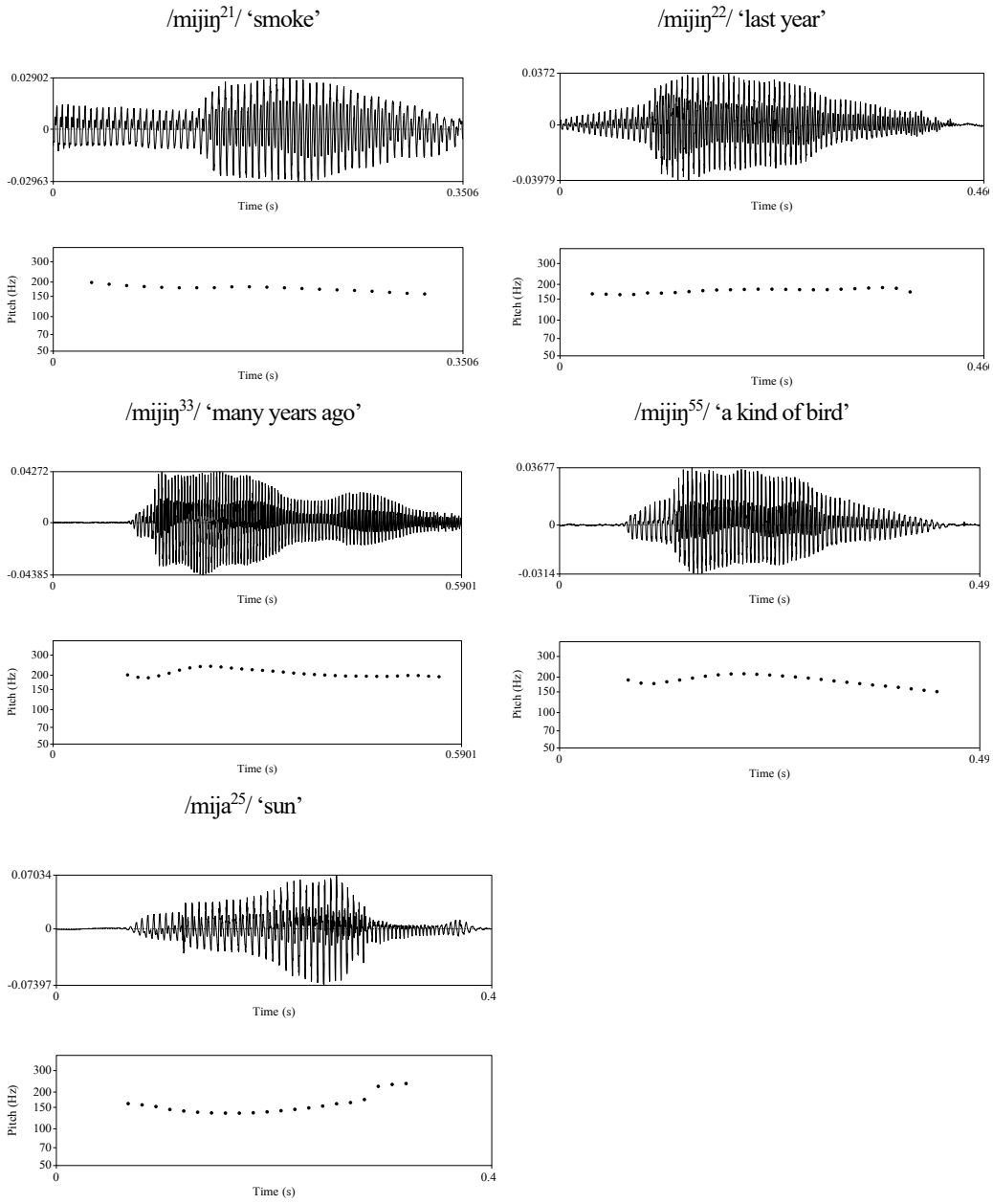

Figure 5. Waveforms and F0 tracks for disyllabic words with five tones

There are 10 trisyllabic morphemes in my database. The examples in (149)–(158) show the trisyllabic morphemes with different tones.

(149) /hʌt.ti.mʌ^{22}/ [hʌt↓.ti↓.mʌ↓] ‘horizon, skyline’

(150) /ʌ.su.ro^{22} ~ ʌ.sʌ.ro^{22}/ [ʌ↓.su↓.ro↓ ~ ʌ↓.sʌ↓.ro↓] ‘hope’ (loanword from Nepali)

(151) /ku.tu.ru^{22} ~ ko.to.ra^{22} ~ ko.to.ro^{22}/ [ku↓.tu↓.ru↓ ~ ko↓.to↓.ra↓ ~ ko↓.to↓.ro↓] ‘onomatopoeia for a manner of walking slowly when carrying a basket’

(152) /ha.tim.pʌ^{22}/ [hɐːɬ.timɬ.bʌɬ] ‘that over there’
(153) /mɯen.tsji.ni^{33}/ [mɯenɬ.ʧiɬ.niɬ] ‘a stick to stir milk’
(154) /mi^{33} ku.ʈu.ʈu^{33}/ [miɬ guɬ.ʈu.ɬʈuɬ] ‘flame’
(155) /is.sa.ra^{33}/ [isɬ.sɐɬ.rɐɬ] ‘contiguously’
(156) /tu.a.lo^{21}/ [duɬ.(w)ɐɭ.loɭ] ‘same age’
(157) /nʌŋ.kʌ.ni^{25}/ [nʌŋɬ.gʌɬ.niʔ] ‘later’
(158) /pu.su.ʌ^{25}/ [puɬ.suɬ.(w)ʌʔ] ‘anaphalis margaritacea’ (flowering plant)

I have attested trisyllabic words with two level tones: /33/ and /22/. There are no trisyllabic words with the high tone /55/ in my database. In trisyllabic words with the two level tones /33/ and /22/, all the syllables have approximately the same pitch height. In trisyllabic words with the low falling tone /21/, the pitch gradually lowers from the first syllable to the third syllable. In trisyllabic words with the rising tone /25/, the pitch of the first and second syllables is almost the same, and the third syllable is higher than the other syllables.

5.2. Tone on bound morphemes

The tonal status of bound morphemes like affixes and clitics is complex and requires further investigation. The tone system of bound morphemes is analyzed using two parameters. The first parameter is whether the bound morpheme has its own tone. In Ghale, some affixes and clitics have their own tone. Tonal affixes and clitics that I have found so far are listed below. Examples (159) and (160) list tonal bound morphemes in the nominal and verbal domains, respectively.

(159) Tonal bound morphemes in the nominal domain
  a. /=pre^{22}/ or /=pɯe^{22}/ ‘with’
  b. /=tse^{33}/ ‘genitive’
  c. /=ju^{55}/ ‘plural’
  d. /=prʌ^{22}/ or /=pʌ^{22}/ ‘like’
  e. /-phɯe^{22}/ or /-khɯep^{22}/ ‘times’
  f. /=mɯe^{22}/ ‘classifier’
(160) Tonal bound morphemes in the verbal domain
  a. /ʌn^{33}-/ ‘negative’
  b. /-pi^{55}/ or /-pɯi^{55}/ ‘volitional’
  c. /-jʌ^{22}/, /-kjʌ^{22}/ ‘nonpast’
  d. /-pʌ^{33}/ ‘nominalization’
  e. /-li^{22}/ ‘concessive’
  f. /-ta^{22}/ ‘until’
  g. /-lim^{33}/ ‘iterative’
  h. /-tsʌ^{22}/ ‘permissive’
  i. /=po^{33}/ ‘past’

Khadgi (2021: 75–76) lists eight tonal bound morphemes, including three morphemes in the nominal domain – the plural marker *-ju*^{55}, the genitive marker *-dze*^{33}, and the comitative marker *-pre*^{22} – and five morphemes in the verbal domain: the negative prefix *ʌn*^{33}-, the nonpast suffix *-kjʌ*^{22}, the nominalizer *-bʌ*^{33}, the volitional suffix *-pi*^{55}, and the benefactive suffix *-mi*^{22}. This study argues that the benefactive suffix, described as *-mi*^{22} in Khadgi (2021), does not have its own tone. Instead, this suffix is analyzed as changing the root tone in a certain context (Section 6). The morphemes listed in (159d–f) and (160e–i) are not mentioned in Khadgi (2021). The second parameter for analyzing the tone system of bound morphemes in Barpak Ghale is whether the bound morpheme changes the tone of the preceding morpheme. Some affixes alter the root tone in Barpak Ghale; these suffixes are discussed in Section 6.2.

5.3. Tone realization in words

As in other Tamangish languages (Mazaudon 2005), Barpak Ghale has a word-tone system where the prosodic pattern of a word, formed from a root and bound morphemes, is determined by the root tone. However, the system in Barpak Ghale differs from that of other Tamangish languages in the realization of tone within a word. In other Tamangish languages, the prosodic pattern of a morphologically complex polysyllabic word is the same as that of a polysyllabic morpheme when the root of the polysyllabic word and the polysyllabic morpheme have the same tone. In contrast, in Barpak Ghale, the prosodic pattern of a morphologically complex polysyllabic word differs from that of a polysyllabic morpheme. The prosodic patterns of words in Barpak Ghale are described with examples below, focusing on whether the bound morpheme is a clitic and if the bound morpheme has its own tone.

First, atonal clitics and the past suffix *-te*, on the one hand, and other atonal suffixes, on the other hand, show different prosodic realizations. When an atonal clitic or the past suffix *-te* is attached to a root with the tone /21/, the bound morpheme is pronounced with low pitch. In contrast, when an atonal suffix is attached to a root with the tone /21/, the suffix is pronounced with mid pitch. Compare the phonetic realization of the following pairs.

(161) /tsen^{21}-te/ [tsen˩.de˩ ~ tsen˩.de˩] ‘finish-PST’
(162) /kɯili^{21}-te/ [gɯi˩.li˩.te˩] ‘went-PST’
(163) /tsen^{21}-kʌ/ [tsen˩.gʌ˧] ‘finish-PFV’
(164) /kɯili^{21}-kʌ/ [gɯi˩.li˩.gʌ˧] ‘went-PFV’
(165) /nʌ^{21}=te/ [nʌ˩.de˩ ~ nʌ˩.de˩] ‘2SG=ERG’
(166) /nʌmʌ^{21}=te/ [nʌ˩.mʌ˩.de˩] ‘2SG=ERG’

The past suffix *-te* in (161) and the ergative marker *=te* in (165) are realized low [˩], whereas the perfective suffix *-kʌ* in (163) is realized with mid pitch [˧]. The other tones /22/, /33/, /55/, and /25/ are realized in the same way regardless of whether the bound morpheme is a clitic or a suffix. Roots with each tone attached by different bound morphemes are shown in (167)–(180).

(167) /kʌ^{22}-te/ [kʌ˩.te˧] ‘become full-PST’
(168) /kʌ^{22}-kʌ/ [kɯe˩.kʌ˧] ‘become full-PFV’

(169) /mɯi^{22}=te/ [mɯiɬ.teɬ] 'buffalo=ERG'
(170) /kita^{22}=te/ [kiɬ.taɬ.teɬ] 'cow=ERG'
(171) /tu^{33}-te/ [tuɬ.deɬ] 'meet-PST'
(172) /tu^{33}-kʌ/ [tuɬ.gʌɬ] 'meet-PFV'
(173) /tuk^{33}=te/ [dukɬ.teɬ] 'poison=ERG'
(174) /rʌla^{33}=te/ [rʌɬ.laɬ.deɬ] 'cattle=ERG'
(175) /pre^{55}-te/ [preɬ.teɬ] 'find-PST'
(176) /pre^{55}-kʌ/ [prekɬ.kʌɬ] 'find-PFV'
(177) /p^{h}ja^{55}=te/ [p^{h}jaɬ.deɬ] 'above=ABL'
(178) /jumʌ^{55}=te/ [juɬ.mʌɬ.deɬ] 'old lady=ERG'
(179) /kim^{25}=te/ [kimʔ.deɬ] 'house=ABL'
(180) /kumi^{25}=te/ [kuɬ.miɬ.deɬ] 'grandaughter=ERG'

The pitch of a bound morpheme matches that of the end of the preceding syllable. When a word is formed from a root with the tone /22/ or /33/ and bound morphemes, the pitch height remains consistent across all syllables, regardless of the number of syllables of the root, as in (167)–(174). For a root with the tone /55/, the pitch of a bound morpheme varies depending on the number of syllables of the root. When the root is monosyllabic, the bound morpheme has a high pitch, as in (175)–(177). When the root is polysyllabic, the tone is realized with the first syllable of the root being high [ɬ] and the following syllables of the root being low [ɬ] ,as illustrated in (144). In this case, the bound morpheme has the same low pitch [ɬ] as the final syllable of the root, as in (178). When a root has the rising tone /25/, the contour tone only occurs within the root morpheme and the bound morpheme is realized as having the same high pitch as the final syllable of the root, as in (179) and (180).

Second, when atonal bound morphemes are attached to another tonal bound morpheme, the prosodic realizations of atonal clitics and atonal suffixes vary. As described above, the pitch realization of a clitic and a suffix is the same when they are attached to a root with the tone /22/, /33/, /55/, or /25/. However, when they attach to a tonal bound morpheme with the high tone /55/, the pitch realization of the bound morpheme varies depending on the morphological status of the bound morpheme. When an atonal clitic or the past suffix is attached to a tonal morpheme with /55/, the atonal bound morpheme has the same pitch height as the tonal morpheme. This is illustrated in (181) and (182).

(181) /pʌr^{55}-pi^{55}-te/ [pʌrɬ.piɬt.eɬ] 'break-VOL-PST'[2]
(182) /ku.mi^{25}=ju^{55}=te/ [kuɬ.miɬ.juɬ.deɬ] 'granddaughter=PL=ERG'

The past suffix *-te* and the ergative clitic *=te* have the same pitch height as the volitional suffix *-pi*^{55} and the plural clitic *=ju*^{55}, respectively. In contrast, the other atonal suffixes have a lower pitch when they are attached to a tonal suffix, as in (183).

(183) /pʌr^{55}-pi^{55}-kʌ-te/ [pʌrɬ.piɬ.kʌɬ.teɬ] 'break-VOL-PFV-PST'

[2]A tonal morphophonological process is involved here to alter the root tone. This process is discussed in Section 6.2.

The perfective suffix has a lower pitch [˩] than the high pitch of the plural suffix *=ju*^{55}. I have no data on an atonal bound morpheme being attached to a tonal bound morpheme with the tones /22/ or /33/. More research is needed on the pitch realization of suffixes.

It is important to mention that, from a contrastive perspective, the pitch patterns of morphologically complex words and simple morphemes are different in Barpak Ghale. For the two level tones /22/ and /33/, the realization remains consistent regardless of morphological complexity. For example, both the bimorphemic word /muɻi^{22}=te/ 'by the buffalo' in (169) and the monomorphemic word /mijiŋ^{22}/ in (146) have the same pitch realization. However, the tones /55/, /21/, and /25/ show varying realizations depending on morphological complexity. For the tones /55/ and /25/, both disyllabic and trisyllabic words have different pitch realizations depending on whether the word is monomorphemic or not. In such polysyllabic words, the pitch realization of the root is the same as when it is pronounced independently and a bound morpheme has the same pitch height as the preceding syllable. Thus, monomorphemic and polymorphemic words with the same number of syllables have varying pitch realizations. For example, in the monomorphemic word mijiŋ^{55}/ [mi˥.jiŋ˩] 'a kind of bird' in (144), the first syllable is higher than the second syllable; while in the bimorphemic word /p^{h}ja^{55}=te/ [p^{h}ja˥.de˥, *p^{h}ja˥.de˩] 'from above' in (177), both syllables have the same pitch height. The bimorphemic word cannot be pronounced as [*p^{h}ja˥.de˩] with a higher pitch height on the first syllable like [mi˥.jiŋ˩]. These patterns of the pitch realization of words contrast with what has been described in other Tamangish languages. In other Tamangish languages, it is common for both morphologically complex and simple words to have the same pitch realization. For example, in Risiangku Tamang, the pitch patterns of the four tones on disyllabic bimorphemic words are the same as those on disyllabic monomorphemic words (Mazaudon 2005). The pitch realization patterns of words is therefore one of the unique characteristics of Barpak Ghale among Tamangic languages.

5.4. Allotony

There are some instances of allotony in Barpak Ghale to be noted. First, the high level tone /55/ is sometimes realized as high falling [53] or [˥˩]. The only lexical word I have found pronounced with the high falling allotone is /luŋ^{55}/ 'stone'. When the word /luŋ^{55}/ 'stone' is followed by another word with /55/, it is often pronounced with the high falling allotone [˥˩]. This allotone is also found in the pronunciation of interjections. For example, /ã^{55}/ 'okay' is always pronounced as [ã˥˩]. Since the high falling [˥˩] has only been observed in interjections and one lexical morpheme in a specific context, I treat this as an allotone of /55/. Second, a morpheme with the mid level tone /33/ gets lower at the left edge of the morpheme when it is followed by a morpheme with the high tone /55/, as in (184).

(184) /ŋi^{33}=ju^{55}/ [ŋi˧˩.ju˥]

I analyze this as an allotone of the mid level tone /33/.

5.5. Tone and word classes

Certain word classes impose restrictions on the occurrence of tones in morphemes. The rising tone /25/ rarely occurs in verbal morphemes. It occurs in the copulae /hʌŋ^{25}/ 'is' and /k^{h}jʌŋ^{25}/ 'is'. These copulae are considered verbs because they can take mood verbal suffixes like /-li^{22}/ 'concessive' in (160e) or /-ta^{22}/ 'until' in (160f).

Except for these two verbs, the rising tone /25/ has not been found in verbal morphemes. Interestingly, the rising tone seems to be avoided when a verb is derived from a noun. For example, the verb /mʌŋ^{33}/ 'to dream' is derived from the noun /mʌŋ^{25}/ 'dream'. The rising tone on the noun 'dream' changes to the level tone on the verb here. There are no other restrictions on the occurrence of tone and word classes.

6. Morphophonological processes

This section describes morphophonological processes in Barpak Ghale. Section 6.1 describes segmental morphophonological processes. Section 6.2 describes tonal morphophonological processes.

6.1. Segmental morphophonological processes

In this section, I describe segmental morphophonological processes that are applied inside a word. These include the retroflexization of /r/, nasal place assimilation of /n/, and the assimilation of /r/ to /l/.

6.1.1. Retroflexization of /r/

First, the consonant /r/ becomes [ʈ] when it follows /n/ across morpheme boundaries. The following examples show this process occurring between the prefix and the root and between the root and the suffix.

(185) ʌn^{33}ʈʌ^{33}
ʌn^{33}-rʌ^{33}
NEG-come
'do not come'

(186) kin^{22}ʈi^{55}jʌ^{22}
kin^{55}-ri-jʌ^{22}
buy-COME&DO-NPST
'will come to buy'

This process does not occur between words, as in (187).

(187) pʌ^{55}ken^{33} re^{21}nʌ (*ʈe^{21}nʌ)
pʌ^{55}ken^{33} rʌ^{33}-nʌ
uncle come-PROG
'The uncle is coming.'

The sequence /nr/ is not found within a morpheme either.

6.1.2. Nasal place assimilation of /n/

Second, the dental nasal /n/ can assimilate to the place of articulation of the following consonant across morpheme boundaries, as in (188)–(190).

(188) tsen^{21}
finish.IMP
'Finish it!'

(189) tseŋ^{21}kʌte
tsen^{21}-kʌ-te
finish-PFV-PST
'finished it'

(190) tsem^{21}pi^{55}jʌ^{22}
tsen^{21}-pi^{55}-jʌ^{22}
finish-VOL-NPST
'will finish it'

The root *tsen*^{21} has /n/ in the coda as seen in the imperative mood in (188). When a velar consonant follows, it can be the velar nasal [ŋ], as in (189). When a labial consonant follows, it can be the labial nasal [m], as in (190). This process does not occur between words.

6.1.3. Assimilation of /r/ to /l/

Third, the consonant /r/ assimilates to the preceding /l/ when they are adjacent across morpheme boundaries, as in (191). This process is obligatory.

(191) ʈel^{21}lijʌ^{22}
ʈel^{21}-ri-jʌ^{22}
hold-COME-NPST
'bring'

This process does not occur between words, as in (192).

(192) hul^{33} ri^{33}jʌ^{22}
hul^{33} ri^{33}-jʌ^{22}
group come-NPST
'A group will come.'

6.2. Tonal morphophonological processes

In this section, I describe one general tonal morphophonological process and three morpheme-specific tonal morphophonological processes. All of the tonal processes discussed in this section are in the verbal domain.

6.2.1. General tonal morphophonological process

When a consonant-final verb root with the tone /55/ is suffixed by a vowel-initial suffix, the tone of the word becomes /25/. This process is general in that the trigger of the process, i.e., a vowel-initial suffix, is not restricted to a specific suffix. This process is illustrated in (193) and (194).

(193) tsʌŋʌ^{25}
tsʌŋ^{55}-ʌ
insert-INF
'inserting'

(194) tsʌŋo^{25}
tsʌŋ^{55}-o
insert-PST.ALLO
'inserted'

This tonal operation is observed in the suffixation of both *-ʌ* and *-o*. It is not specific to a suffix.

6.2.2. Morpheme-specific tonal morphophonological processes

There are other tonal operations that are restricted to a specific morpheme. First, the benefactive suffix *-mi* lowers the tone /55/ on the root to /33/. This is illustrated in (195).

(195) ʈʰu^{33}mijʌ^{22}
ʈʰu^{55}-mi-jʌ^{22}
wash-BEN-NPST
'will wash (someone)'

I analyze the benefactive suffix as not having its own tone.

Second, this study observes that there are suffixes that alter the tone of the word in Barpak Ghale: the modal suffix *-pi*^{55} and the aspectual suffixes *-nʌ* and *-nu.* The suffixes *-nʌ* and *-nu* are aspectual suffixes, whose value is progressive or perfect, depending on the lexical aspect of a verb. These suffixes change the tone of /33/ on the preceding TBU to /21/ and the tone of /55/ to /22/. Because of this phonological process, the differences of /33/ and /21/ and of /55/ and /22/ are neutralized when they are suffixed with one of these suffixes. This process is applied both for verbal roots, as in (196)–(199), and tonal suffixes, as in (198) and (199).

(196) pre^{21}nʌ
prʌ^{33}-nʌ
go-PROG
'is going'

(197) pre^{21}nʌ
prʌ^{21}-nʌ
break-PRF
'having been torn'

(198) tel^{22}pi^{22}nʌ
tel^{55}-pi^{55}-nʌ
drop-VOL-PROG
'is dropping something

(199) tel^{22}pi^{22}nʌ
tel^{22}-pi^{55}-nʌ
chase.away-VOL-PROG
'is chasing away something'

Third, when the associated motion suffixes, *-pʌ*, *-kuɣi*, *-rʌ*, and *-ri*, are suffixed to a verb root with /55/, the associated motion suffix bears the tone /55/ and the tone on the root is altered to /22/. Examples (200) and (201) show this tonal operation.

(200) p^{h}a^{22}ri^{55}jʌ^{22}
pha^{55}-rʌ-jʌ^{22}
pay-COME&DO-NPST
'will come to pay'
(201) p^{h}a^{22}pi^{55}jʌ^{22}
p^{h}a^{55}-pʌ-jʌ^{22}
pay-GO&DO-NPST
'will go to pay'

This process makes words that consist of a verb root with /55/ and the volitional suffix *-pi*^{55} and of a verb root with /55/ and the translocative suffix *-pʌ* identical, both segmentally and tonally. Compare examples (201) and (202).

(202) p^{h}a^{22}pi^{55}jʌ^{22}
p^{h}a^{55}-pi^{55}-jʌ^{22}
pay-VOL-NPST
'will pay'

The tonal operation discussed above makes the tone of the root /22/. This makes the forms of both (201) and (202) the same.

7. Conclusion

This paper has described the phonology of the Barpak dialect of Ghale. Previous studies have solely focused on phonology. This study additionally described the interaction of phonology and morphology, as well as the language's phonology. It described the phoneme inventory, tone, syllable structures, consonant clusters, and both segmental and tonal morphophonological processes. This paper highlighted several typologically interesting features, such as the presence of a velar lateral, the language's word-tone system, and morphologically conditioned tonal processes. In Barpak Ghale, the phoneme /l/ is realized as the typologically rare velar lateral release [^{L}] after velar stop consonants /k/ and /k^{h}/. The realization of tone on a word is different depending on the number of morphemes in the word. I explained that this kind of word-tone system has not been described in Tamangish languages and is unique to Barpak Ghale. Last, Barpak Ghale has several tonal

morphophonological processes where a certain suffix changes the root tone. In addition to describing Barpak Ghale, this paper underscored the language's typological significance, particularly in the context of phonological studies on word-tone systems and phonetic research on velar laterals.

Appendix: A sample text

This is a short story about an arrogant tiger who ended up dying when he tried to fight with his own reflection in a well. This story was narrated by Dhan Bir Ghale on February 15th, 2023, in the yard of his house. The audio file and the ELAN file for the entire text are available as Yoshida (2023a) and Yoshida (2023b), respectively.

(203) mijiŋ^{33}bʌ
mijiŋ^{33}=pʌ
long.time.ago=EMPH
'A long time ago,' (ghale_13-01)

(204) tsjen^{25} tja^{55} hɅ̃^{55} ʈuŋ^{22}je^{33}
tsjen^{25} tja^{55} hɅ̃^{55} ʈuŋ^{22}=je^{33}
tiger one COP.INF COP.ALLO=HRS
'There was a tiger.' (ghale_13-02)

(205) mijiŋ^{33}bʌ na^{21}ne na^{21} gen^{33}ne tsjen^{25} tja^{55} kʰjɅ̃^{55} ʈuŋ^{22}je^{33}
mijiŋ^{33}=pʌ na^{21}=ne na^{21} ken^{33}=ne tsjen^{25} tja^{55} kʰjɅ̃^{55} ʈuŋ^{22}=je^{33}
long.time.ago=EMPH forest=LOC forest big=LOC tiger one COP.INF COP.ALLO=HRS
'There was a tiger in a big forest a long time ago' (ghale_13-03)

(206) hʌmbʌ^{21} tsjen^{25}bʌ pattja^{33} gʰʌmʌndi ʈuŋ^{22}je^{33}
hʌmbʌ^{21} tsjen^{25}=pʌ pattja^{33} gʰʌmʌndi ʈuŋ^{22}=je^{33}
that tiger=EMPH very arrogant COP.ALLO=HRS
'The tiger was very arrogant.' (ghale_13-04)

(207) a: su^{22}je ti^{21} a: su^{22}je ti^{21} ʒʌngʌl^{33}tse^{33} sʌbbʌnda gen^{33}bʌ ŋʌ^{33}je^{33}
a: su^{22}=je ti^{21} a: su^{22}=je ti^{21} ʒʌngʌl=tse^{33} sʌbbʌnda ken^{33}=pʌ ŋʌ^{33}=je^{33}
INJ who=also NEG INJ who=also NEG forest=GEN most big=EMPH 1SG=HRS
'No one no one, the biggest in the forest is me.' (ghale_13-05)

(208) mijiŋ^{33}pʌ na^{21} gen^{33}nʌwʌ tsjen^{25} tja^{55} kʰjɅ̃^{55} ʈuŋ^{22}je^{33}
mijiŋ^{33}=pʌ na^{21} ken^{33}=ne=pʌ tsjen^{25} tja^{55} kʰjɅ̃^{55} ʈuŋ^{22}=je^{33}
long.time.ago=EMPH forest big=LOC=EMPH tiger one COP.INF COP.ALLO=HRS
'There was a tiger in the forest a long time ago.' (ghale_13-06)

(209) tsjen^{25}bʌ pattja^{33} gʰʌmʌndi ʈuŋ^{22}je^{33}
tsjen^{25}=pʌ pattja^{33} gʰʌmʌndi ʈuŋ^{22}=je^{33}
tiger=EMPH very arrogant COP.ALLO=HRS
'The tiger was very arrogant.' (ghale_13-07)

(210) su^{22}je ti^{21} ŋʌ^{33} gen^{33}
su^{22}=je ti^{21} ŋʌ^{33} ken^{33}
who=also NEG 1SG big
'No one, I am the biggest' (ghale_13-08)

(211) a: soso^{25} soso^{25} ʒʌnawʌrnʌ ŋu^{33}te mʌnte^{33}ne ʌm^{33}mʌnti^{33} ʈuŋ^{22}je^{33}
a: soso^{25} soso^{25} ʒʌnawʌr=ne ŋu^{33}=te mʌn^{33}-te=ne ʌn^{33}-mʌn^{33}-ti ʈuŋ^{22}=je^{33}
INJ other other animal=LOC 3SG=ERG respect-LVM.INF=LOC NEG-respect-LVM COP.ALLO=HRS
'He did not respect other animals at all.' (ghale_13-09)

(212) hore^{21} kjup^{33}pʌ^{33} kjup^{33}pʌ^{33} kjup^{33}pʌ33 kjup^{33}pʌ^{33} ŋʌ^{33} pattja^{33} g^{h}ʌmndʌ je^{33}
hore^{21} kjur^{33}-pʌ^{33} kjur^{33}-pʌ^{33} kjur^{33}-pʌ^{33} kjur^{33}-pʌ^{33} ŋʌ^{33} pattja^{33} g^{h}ʌmndʌ=je^{33}
like.that happen-NMLZ happen-NMLZ happen-NMLZ happen-NMLZ 1SG very arrogant=HRS
'Being like this, he was very arrogant.' (ghale_13-10)

(213) hʌmmʌ^{21} tsjen^{25}bʌ
hʌmbʌ^{21} tsjen25=pʌ
that tiger=EMPH
'The tiger,' (ghale_13-11)

(214) na^{21}tse^{33} sʌbbʌnda gen^{33}ne^{33}
na^{21}=tse^{33} sʌbbʌnda ken^{33}=je^{33}
forest=GEN most big=HRS
'He was the biggest in the forest.' (ghale_13-12)

(215) hore^{21} kjup^{33}pʌ^{33} kjup^{33}pʌ^{33} kjup^{33}pʌ33 kjup^{33}pʌ^{33} ŋu^{33}wʌ
hore21 kjur^{33}-pʌ^{33} kjur^{33}-pʌ^{33} kjur^{33}-pʌ^{33} kjur^{33}-pʌ^{33} ŋu^{33}=pʌ
like.that happen-NMLZ happen-NMLZ happen-NMLZ happen-NMLZ 3SG=EMPH
'Being like this, he,' (ghale_13-13)

(216) tjap^{55}phɯe^{22}bʌ
tja^{55}-phɯe^{22}=pʌ
one-time=EMPH
'Once,' (ghale_13-14)

(217) ʈwa^{22}kɯi^{55}bʌ^{33} ʈwa^{22}kɯi^{55}bʌ^{33}wʌ
ʈwa^{55}-kɯi-pʌ^{33} ʈwa^{55}-kɯi-pʌ^{33}=pʌ
troll-GO.AROUND-NMLZ troll-GO.AROUND-NMLZ=EMPH
'When he was going around,' (ghale_13-15)

(218) na^{21} nʌŋ^{22}ne ʈwa^{22}kɯi^{55}bʌ^{33} ʈwa^{22}kɯi^{55}bʌ^{33}wʌ
na^{21} nʌŋ^{22}=ne ʈwa^{55}-kɯi-pʌ^{33} ʈwa^{55}-kɯi-pʌ^{33}=pʌ
forest inside=loc troll-GO.AROUND-NMLZ troll-GO.AROUND-NMLZ=EMPH
'When he was going around, going around inside the forest,' (ghale_13-16)

(219) ŋu^{33}tʌwʌ inar^{22} gen^{33} tja^{55} twʌ^{33}je^{33}
ŋu^{33}=te=pʌ inar^{22} ken^{33} tja^{55} tu^{33}-ʌ=je^{33}
3SG=ERG=EMPH well big one meet-INF=HRS
'He found a big well.' (ghale_13-17)

(220) inar^{22} gen^{33} tja^{55}
inar^{22} ken^{33} tja^{55}
well big one
'A big well.' (ghale_13-18)

(221) inar^{22} gen^{33} tja^{55} tu^{33}bʌ^{33}wʌ
inar^{22} ken^{33} tja^{55} tu^{33}-pʌ^{33}=pʌ
well big one meet-NMLZ=EMPH
'When finding a big well,' (ghale_13-19)

(222) ŋu^{33}tʌwʌ
ŋu33=te=pʌ
3SG=ERG=EMPH
'He,' (ghale_13-20)

(223) hor^{21}te mo^{22} lette^{55}
hor^{21}te mo^{22} le^{55}-te
then down look-PST
'looked down from there' (ghale_13-21)

(224) hʌmmʌ^{21} inar^{22} gen^{33} lep^{55}pʌ^{33}bʌ
hʌmbʌ^{21} inar^{22} ken^{33} le^{55}-pʌ^{33}=pʌ
that well big look-NMLZ=EMPH
'Looking inside the well,' (ghale_13-22)

(225) p^{h}eri ŋu^{33}bʌ^{33}ne tsjen^{25} tja^{55} tʌŋʌ^{25}je^{33}
p^{h}eri ŋu^{33}=pʌ^{33}=ne tsjen^{25} tja^{55} tʌŋ^{55}-ʌ=je^{33}
again 3SG=like=LOC tiger one see-INF=HRS
'He saw a tiger like himself.' (ghale_13-23)

(226) tsjen^{25} tja^{55} tʌŋʌ^{25} muɥe^{21}sje^{33}bʌ
tsjen^{25} tja^{55} tʌŋ^{55}-ʌ muɥe^{21}sje^{33}=pʌ
tiger one see-INF and=EMPH
'After seeing a tiger,' (ghale_13-24)

(227) ŋu^{33}tʌwʌ
ŋu^{33}=te=pʌ
3SG=ERG=EMPH
'He,' (ghale_13-25)

(228) hʌmmʌ^{21} tsjen^{25}nʌwʌ
hʌmbʌ^{21} tsjen^{25}=ne=pʌ
that tiger=LOC=EMPH
'To that tiger,' (ghale_13-26)

(229) nʌ^{21} gen^{33}ji ŋʌ^{33} gen^{33} jʌ^{33}je^{33}
nʌ^{21} ken^{33}=ji ŋʌ^{33} ken^{33} jʌ^{33}=je^{33}
2SG big=or 1SG big say=HRS
"He said 'Are you bigger or am I bigger?'" (ghale_13-27)

(230) tʌrʌ hʌmmʌ^{21} tsjen^{25}tʌwʌ tse^{22}je ʌn^{33}jʌ^{33}

tʌrʌ hʌmbʌ^{21} tsjen^{25}=te=pʌ tse^{22}=je ʌn^{33}-jʌ^{33}

but that tiger=ERG=EMPH what=also NEG-say

'But, the tiger did not say anything.' (ghale_13-28)

(231) ŋu^{33}te lep^{55}pʌ^{33} lep^{55}pʌ^{33}bʌ

ŋu^{33}=te le^{55}-pʌ^{33} le^{55}-pʌ^{33}=pʌ

3SG=ERG look-NMLZ look-NMLZ=EMPH

'Looking and looking,' (ghale_13-29)

(232) hʌmmʌ^{21} tsjen^{25} jʌ^{33}li^{22}wʌ nʌ^{21} gen^{33} ti^{21} ŋʌ^{33} gen^{33} jʌ^{33}tʌbɯe ŋu^{33}ne sʌmdzjite jʌ^{33}je^{33}

hʌmmʌ^{21} tsjen^{25} jʌ^{33}li^{22}=pʌ nʌ^{21} ken^{33} ti^{21} ŋʌ^{33} ken^{33}

that tiger than=EMPH 2SG big NEG 1SG big

jʌ^{33}-te=pɯe ŋu^{33}=ne sʌmtsji-te jʌ^{33}=je^{33}

say-CVB=and 3SG=LOC remind-CVB say.INF=HRS

"He reminded him by saying, 'you are not bigger; I am bigger'" (ghale_13-30)

(233) hor^{21}temɯe^{25}wʌ lʌ^{21} dzjiŋe^{21} jʌ^{33}tʌbɯe

hor^{21}te=mɯe^{25}=pʌ lʌ^{21} tsjiŋ^{21}-e jʌ^{33}-te=pɯe

then=and=EMPH INJ fight-HORT say-CVB=and

"And then said, 'Okay, let's fight'" (ghale_13-31)

(234) hʌmmʌ^{21} tsjen^{25}ne

hʌmbʌ^{21} tsjen^{25}=ne

that tiger=LOC

'To that tiger.' (ghale_13-32)

(235) tsʌmti^{22}ne kɯili^{21}bʌ^{33}bʌ

tsʌmti^{22}=ne kɯili^{21}-pʌ^{33}=pʌ

fight=LOC go.PFV-NMLZ=EMPH

'Attacking that tiger,' (ghale_13-33)

(236) ŋu^{33}ba hʌmmʌ^{21} inar^{22}ne p^{h}op^{55} kjo^{21}tebɯe sji^{33}joje^{33}

ŋu^{33}=pʌ hʌmmʌ^{21} inar^{22}=ne p^{h}op^{55} kjo^{21}-te=pɯe sji^{33}-o=je^{33}

3SG=EMPH that well=LOC suddenly go.into-CVB=and die-PST.ALLO=HRS

'He sank in the well and died.' (ghale_13-34)

Abbreviations

1	first person	CVB	converb	INF	infinitive
2	second person	DAT	dative	INJ	interjection
3	third person	EMPH	empasis	loc	locative
ABL	ablative	ERG	ergative	LVM	loan verb marker
ALLO	allophoricity	GEN	genitive	NEG	negative
BEN	benefactive	HORT	hortative	NMLZ	nominalizer
CONC	concessive	HRS	hearsay	NPST	nonpast
cop	copula	IMP	imperative	PFV	perfective

PL	plural	PROG	progressive	SG	singular
PRF	perfect	PST	past	VOL	volitional

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ガレ語バルパック方言の音韻論スケッチ

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要旨

ガレ語はネパールで話されるチベットビルマ語派タマン諸語に属する言語である。本論文ではゴルカ郡バルパック村で話されるガレ語バルパック方言の音韻論について、フィールドワークで得られた一次データに基づき記述する。この音韻論スケッチの範囲は音素目録、音節構造、声調、文節音的および超文節音的形態音韻的プロセスに及ぶ。さらに本論文は、軟口蓋側面開放音の存在、語声調のシステム、形態論的に条件づけられた声調プロセスなど、ガレ語において類型論的に興味深い特徴をいくつか指摘する。このようにして、本研究はガレ語の音韻論や、音韻論と形態論の関わりを記述するだけでなく、語声調の音韻論的研究や軟口蓋側面音の音声研究にとってこの言語が類型論的に興味深いことを示す。

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