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# A PHONETIC ANALYSIS OF DRENJONGKE: A FIRST CRITICAL ASSESSMENT

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ABSTRACT

Drenjongke or Bhutia is a Trans-Himalayan language spoken in Sikkim. This paper presents the phonetics of the sound system of Drenjongke. In consonants, devoiced plosives and voiceless nasals are described, and for the vowels nasalised vowels and vowel length are further described. After a succinct description of tone and syllable structures, a Drenjongke version of the text 'The North Wind and the Sun' is presented. Recordings of all example words are available.

***Keywords:*** Drenjongke (Bhutia), devoiced consonants, vowel length, voiceless nasals

## 1. Introduction

Drenjongke [ɖɛ̀ndʑòŋké] (written Tibetan: *ḥBras-ljoṅs-skad* 'rice district language') is a Trans-Himalayan language of the Bodish subgroup spoken in Sikkim. The once sovereign kingdom of Sikkim or *ḥBras-ljoṅs* was annexed by India in 1975 and is currently a federal state of the Republic of India, where the indigenous Bhutia and Lepcha, however, enjoy privileged land ownership rights. The language is also called *Lhoke* [łoke] (written Tibetan: *Lho-skad* 'language of the south'), Bhutia [bʰuʈiʲa] or Sikkimese. The latter term is used much less because both Lepcha and Limbu are likewise indigenous Sikkimese languages. In the present paper, the name Drenjongke, conventionally used in Western sources since the 19th century, will be used as a cover term.

Some native speakers, when speaking their language, refer to their language as *Lhoke,* a name which implicitly qualifies the language historically as a southern dialect of Tibetan, although in terms of mutual intelligibility, or the lack thereof, both the Dzongkha language of Bhutan and Drenjongke of Sikkim represent languages quite distinct from Central Tibetan. When speaking English or Nepali, which is currently the official language of the Indian state of Sikkim, the Indic exonym 'Bhutia' (written Nepali: *Bhuṭiyā*, historically denoting 'Tibetan') is currently favoured by many native speakers. There are an estimated 80,000 speakers of Drenjongke, Sikkimese Bhutia or Lhoke. Based on negligible phonetic differences, differences in the form of several morphological desinences and some lexical differences, Drenjongke can be divided into eastern, southern, northern and western dialects.

The eastern dialects of Drenjongke form a dialect continuum with the western dialects of Dzongkha, with transitional lects represented by the Dzongkha dialect of Hâ in western Bhutan. The intermediate lect spoken in the Chumbi valley (written *Gyu-mo, Gro-mo*), which historically formed part of the Kingdom of Sikkim now constitutes a narrow sliver of Tibetan territory wedged in between eastern Sikkim and western Bhutan. Drenjongke and Dzongkha are indeed sister

languages with a high degree of mutual intelligibility, together comprising the set of Tibetic lects once grouped together under the label 'South Bodish' by Shafer (1966). Therefore, both for synchronic descriptive purposes and from a historical comparative perspective, certain Drenjongke phonetic and phonological features are most insightfully compared with their well understood counterparts in the more thoroughly documented phonology and phonetics of Dzongkha (van Driem, 1998; Karma Tshering & van Driem, 2019).

The first and, for over a century, the only description of Drenjongke was the succinct grammar written by Graham Sandberg (Sandberg, 1888, 1895), first published at Calcutta and later in a modified edition at Westminster. Classical Tibetan served as the written language in Sikkim for centuries, and in the 1970s, the lexicographers Norden Tshering (written: *Nor-ldan Tshe-riṅ*) Pema Ringzing Takchundarpo Drezongpo (written: *Padma Rig-ḥdzins Tag-chuṅ Dar-poḥ Bras-ljoṅs-po*) and Dorjee Rinchen Lama (written: *rDo-rje Rin-chen bLa-ma*), each proposed a number of unsystematic orthographic reforms in an attempt to create a written form more representative of the vernacular language. The former's *Sikkimese Bhutia Language Dictionary* and *English-Hindi-Bhutia-Nepali Dictionary* exist in several editions. Norboo (1995) provided a short discussion of Drenjongke.

Recently, Yliniemi (2005, 2014, 2019) provided preliminary accounts of Drenjongke phonetics and phonology, which are partially corrected here, and the phonology of the language will be treated in greater detail in a forthcoming study of Drenjongke phonology. Detailed phonetic studies of tone and laryngeal contrasts are reported and analysed in Lee et al. (2018), Lee et al. (2019a, b), and Guillemot et al. (2019). An account of Drenjongke is contained in van Driem (2001), and van Driem (2016) contains a description of Drenjongke phonology, subsequently refined during four month-long workshops conducted by van Driem in Gangtok in 2017 and 2018.

Most recordings in this paper come from a male speaker in his 40s who lives in Gangtok but comes originally from Lachung, North Sikkim. Recordings used for Figures 4 and 5 are spoken by a female speaker in her 40s and some recordings of voiceless nasals were recorded by a male speaker in his 40s. Both speakers reside in Gangtok. In Drenjongke, tone is contrastive. In our phonetic transcription, an acute accent indicates a high register tone, and a grave accent mark a low register tone. Tone can be predicted in syllables with a plosive, affricate or sibilant onset, and therefore tone is written in the phonological transcription known as Roman Drenjongke only in syllables beginning with a sonorant onset, i.e. vowel, nasal, liquid or approximant.

## 2. Consonants

The plosives have four major places of articulation: bilabial, alveolar, retroflex and velar. The formant transition patterns of the four major places of articulation are illustrated in Figure 1.

The patterns of bilabials, alveolars, and velars show cross-linguistically well-known patterns: labials lower all the formants, alveolars lower F1 and raise F2, whereas velars lower F1, raise F2 and lower F3. Retroflex stops in this language are characterised by lowering of F3 and F4, which seems to match well with the acoustic nature of retroflex consonants (Stevens & Blumstein, 1975). Lowering of F4 is substantial almost to the extent that F3 and F4 are merged. The segments [p] and [t] do not have very clear bursts, whereas [ʈ] and [k] do.

Drenjongke has a four-way laryngeal contrast in the plosives and most affricates: voiceless, aspirated, voiced and what will be referred to as 'voiceless-low' consonants. The voiceless-low consonants are also called 'devoiced' (van Driem, 2016).

Table 1: Consonants in Drenjongke

| | bilabial | | alveolar | | retroflex | | alveolo-palatal | | palatal | | velar | | glottal | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| voiceless/voiced plosive | p | b | t | d | ʈ | ɖ | | | | | k | g | ʔ | |
| aspirated/devoiced plosive | pʰ | b̥ | tʰ | d̥ | ʈʰ | ɖ̥ | | | | | kʰ | g̊ | | |
| voiceless/voiced affricate | | | ʦ | ʣ | | | ʨ | ʥ | | | | | | |
| aspirated/devoiced affricate | | | ʦʰ | | | | ʨʰ | ʥ̊ | | | | | | |
| voiceless/voiced nasal | m̥ | m | n̥ | n | | | | | ɲ̊ | ɲ | ŋ̊ | ŋ | | |
| voiceless/voiced tap or trill | | | ɾ̥ | ɾ | | | | | | | | | | |
| voiceless/voiced fricative | | | s | z | | | ɕ | ʑ | | | | | | |
| devoiced sibilant fricative | | | | z̥ | | | | ʑ̥ | | | | | | |
| voiced approximant | | w | | | | | | | | j | | | | |
| voiceless/voiced lateral | | | ɬ | l | | | | | | | | | | |

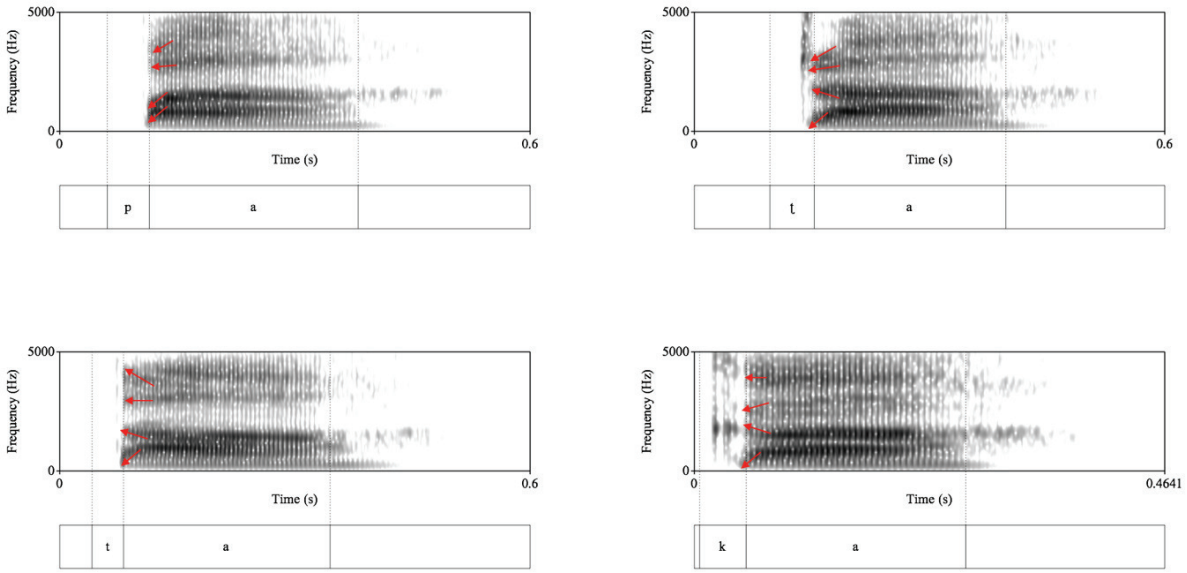


Figure 1: Formant transition patterns of four major places of articulation of oral plosives

In the context of Bodish languages more generally, this term is justified by the diachronic process of devoicing of initials which gave rise to breathy syllables in a lowered pitch register (Michailovsky, 1986; van Driem, 1998). Although voiceless low consonants can be prevoiced, the majority of them are realised as voiceless (Lee et al., 2019). All of these voiceless-low consonants trigger a low tone on the following vowel. We use the devoicing diacritic [ ̥ ] either under or above a voiced consonant symbol to represent these initials.

Representative near-minimal pairs are as follows: [pǿ] ‘incense’, [pʰó] ‘stomach’, [bùʔ] ‘middle’, [b̥ù] ‘son’, [kíʔ] ‘peace’, [kʰíː] ‘dog’, [gə̀ʔ] ‘eight’, [g̊ə̀ː] ‘row’, [tǿn] ‘to show’, [tʰǿ] ‘to see’, [dò] ‘stone’, [dò] ‘progressive auxiliary’, [d̥ò] ‘pair, two’ (measure term), [dòː] ‘touch gently, poke’. The retroflex consonants in Drenjongke also have a four-way contrast as plosives do: [ʈǿ] ‘to kill (honorific)’, [ʈʰóm] ‘bazaar’, [ɖùʔ] ‘dragon’, [ɖù] ‘boat’. Just as in Dzongkha, the Drenjongke retroflexes upon release show slight affrication may impressionistically be described as having a ‘rhotic’ character. The historical derivation of this is, in fact, from a post-consonantal /r/, that is still clearly written in conservative Sikkimese orthography and is also clearly pronounced as a post-consonantal /r/ in cognate words in other related but phonologically more conservative Bodish languages (van Driem, 2001).

Aspirated consonants are realised with long voice onset time, voiceless consonants are realised with short lag voice onset time, voiced consonants are very often pre-voiced, and voiceless-low consonants show variable realisations, either with prevoicing or without, as in Figure 2. There is some inter-speaker variation with regard to this variable realisation: some speakers consistently produced voiceless-low consonants without prevoicing, while others show more variation. What is consistent across these speakers is that the vowel following voiceless-low consonants has a high F1 (Lee et al., 2019). Aspirated and voiceless consonants have higher F0 in the following vowel as compared to voiced and open consonants. Some but not all speakers show prenasalisation for voiced consonants.

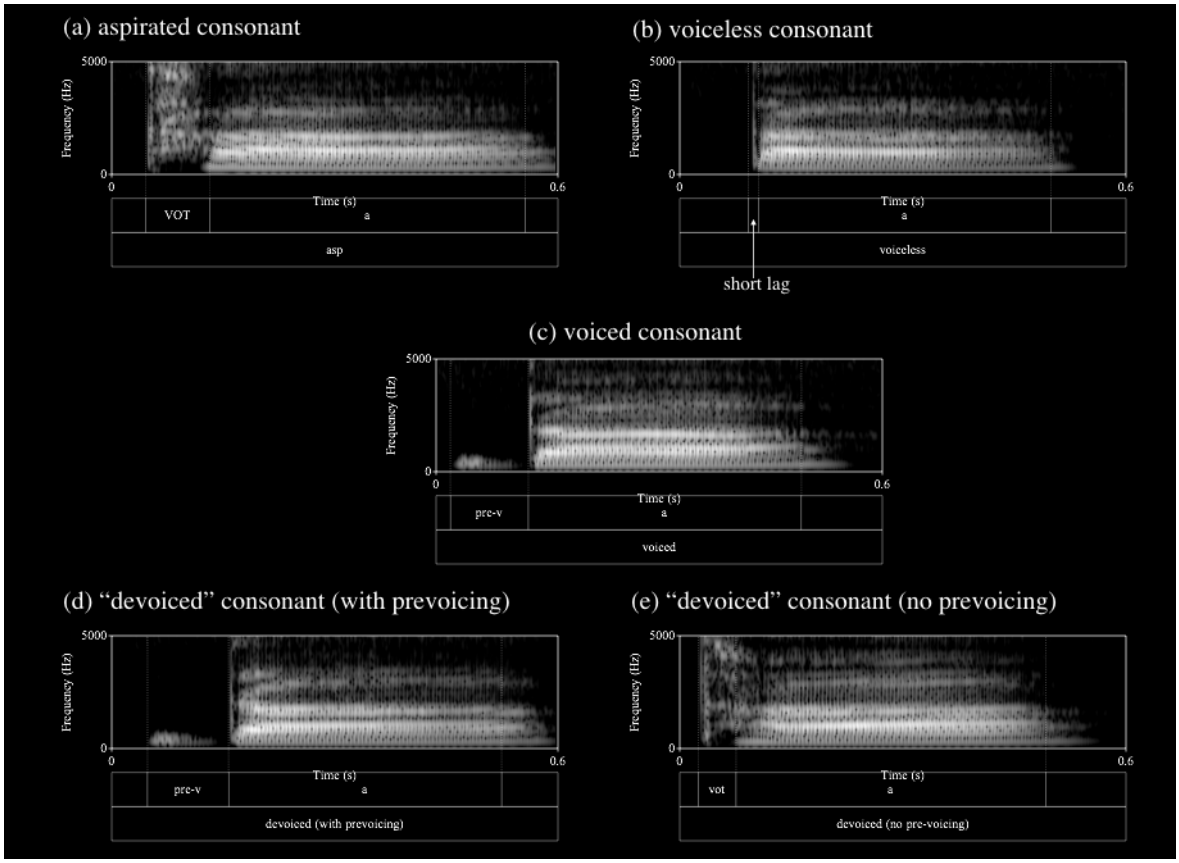


Figure 2: Illustration of the four-way laryngeal contrast recorded as a syllabary reading

Fricatives and affricates are contrastive in two places of articulation: alveolar and alveo-palatal: [só] ‘tooth’, [zò] ‘to make’, [z̥òrbo] ‘to sickle’, [ɛó] ‘dice’, [ʐù] ‘a bow’, [ʐ̥ò] ‘yogurt’. Lateral approximant and tap have voiced and voiceless counterparts: [là] ‘mountain pass’, [ɬáʔ] ‘god’, [ɾæ̀] ‘tear (intransitive)’, [ɾ̥ǽ] ‘tear (transitive)’. Drenjongke also has four voiceless nasal

phonemes, e.g. velar voiceless nasal [ŋ̊]: [ŋ̊ábø] ‘pillow’. Examples of words that illustrate the Drenjongke consonant inventory appear in (1).

(1) Examples of Drenjongke consonants

| | | | | |
|---|---|---|---|---|
| [p] | pǿ | ‘incense’ | pú | ‘body hair’ |
| [b] | bæ̀ | ‘extract’ | bèn | ‘target’ |
| [pʰ] | pʰáko | ‘pig’ | pʰódʑɜ̃ | ‘palace’ |
| [b̥] | b̥æ̀ | ‘wool’ | b̥ùsim | ‘younger sister’ |
| [m̥] | m̥è | ‘lower’ | | |
| [m] | mà | ‘butter’ | mìŋ | ‘name’ |
| [w] | píwa | ‘Sikkimese lute’ | wɜ́ | ‘empowerment’ |
| [t] | tá | ‘horse’ | tó | ‘cooked rice’ |
| [d] | dàʔ | ‘fell’ | dìmí | ‘key’ |
| [tʰ] | tʰɵ́ | ‘to see’ | tʰápɕĩ | ‘firewood’ |
| [d̥] | d̥òm | ‘bear’ | d̥ɔ̃̀ | ‘hole’ |
| [ʦ] | ʦákʰa | ‘pasture’ | ʦóko | ‘dirty’ |
| [ʣ] | ʣàti | ‘nutmeg’ | ʣɛ̀ː | ‘nail’ |
| [ʦʰ] | ʦʰɜ́ | ‘nest’ | ʦʰó | ‘sister’s husband’ |
| [n̥] | n̥ábe | ‘pillow’ | n̥ó | ‘snot (in Lachen)’ |
| [n] | nàʦe | ‘jungle’ | nòzi | ‘cowherd’ |
| [ɾ] | ɾà | ‘goat’ | ɾùto | ‘bone’ |
| [ɾ̥] | ɾ̥ám | ‘to destroy’ | ɾ̥ǽ | ‘to tear (transitive)’ |
| [s] | sǽm | ‘daughter (hon.)’ | sé | ‘gold’ |
| [z] | zèm | ‘bamboo case’ | zò | ‘make’ |
| [z̥] | z̥è | ‘ray’ | z̥àkʰɜ̃ | ‘restaurant’ |
| [l] | làm | ‘way’ | lùʔ | ‘sheep’ |
| [ɬ] | ɬám | ‘shoes’ | ɬáʔ | ‘god’ |
| [ʈ] | ʈáɕi | ‘good fortune’ | ʈóʔ | ‘frighten’ |
| [ɖ] | ɖò | ‘feather’ | ɖùʔ | ‘dragon’ |
| [ʈʰ] | ʈʰóm | ‘bazaar’ | ʈʰúŋ | ‘be born (hon.)’ |
| [ɖ̥] | ɖ̥ɛ̀ː | ‘mule’ | ɖ̥ùʔ | ‘six’ |
| [ʨ] | ʨáŋʈa | ‘pretty’ | ʨé | ‘tongue’ |
| [ʥ] | ʥì | ‘weight’ | ʥìkʨɜ̃ | ‘heavy’ |
| [ʨʰ] | ʨʰá | ‘hand (hon.)’ | ʨʰú | ‘water’ |
| [ʥ̥] | ʥ̥àm | ‘mercy’ | ʥ̥ɵ̀n | ‘come (hon.)’ |
| [ɕ] | ɕá | ‘meet’ | ɕé | ‘to know’ |
| [ʑ] | ʑɵ̀nbo | ‘young’ | ʑè | ‘four’ |
| [ʑ̥] | ʑ̥àpɖo | ‘to dance’ | ʑ̥ìŋ | ‘field’ |
| [ɲ̊] | ɲ̊ápɕe | ‘to claim’ | ɲ̊ɛ́ː | ‘trap’ |
| [ɲ] | ɲàmtiʔ | ‘grasshopper’ | ɲó | ‘to buy’ |
| [j] | jùm | ‘mother (honorific)’ | jìgi | ‘letter’ |
| [k] | kàm | ‘dry’ | képo | ‘waist’ |
| [g] | gá | ‘ginger’ | gòm | ‘door’ |
| [kʰ] | kʰáu | ‘snow’ | kʰíː | ‘dog’ |
| [g̊] | g̊àn | ‘what’ | g̊ùː | ‘tent’ |
| [ŋ̊] | ŋ̊ábø | ‘pillow’ | ŋ̊álè | ‘early’ |
| [ŋ] | ŋú | ‘to weep’ | ŋènpo | ‘bad’ |
| [ʔ] | kíʔ | ‘peace’ | dàʔ | ‘fell’ |

## 2.1 Palatalised consonants

Labial and velars have palatalised versions. Palatalised consonants raise the F2 of the following vowels (Figure 3), and have burst spectra that have higher spectral peaks (Figure 4). Recordings of these figures are from the syllabary reading of a female Drenjongke speaker. Examples are listed in (2).

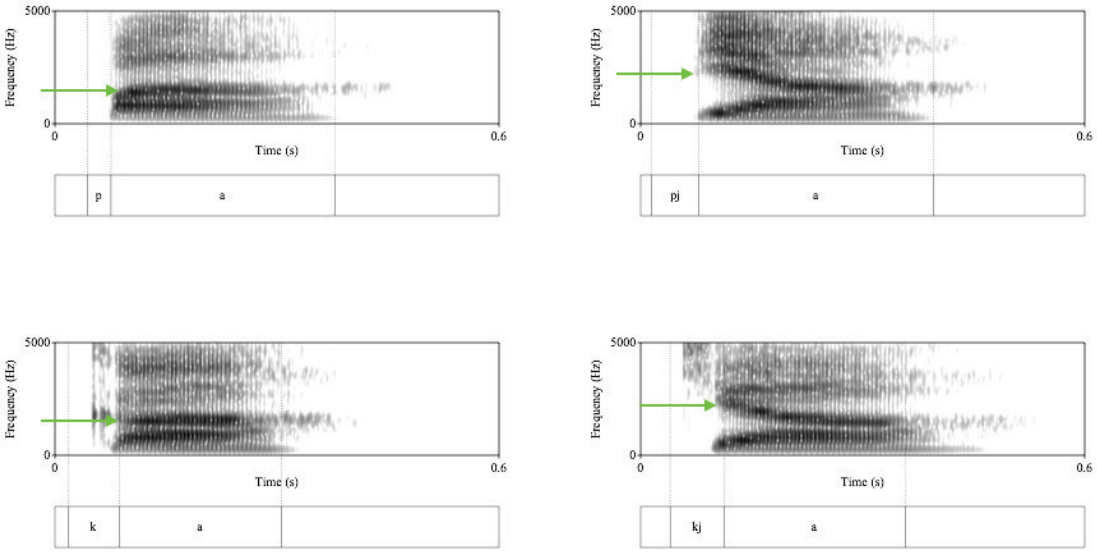


Figure 2: Raising of F2 after palatalised labials ([pá], [p$^{j}$á]) and velars ([ká], [k$^{j}$á]) recorded as a syllabary reading by a female speaker

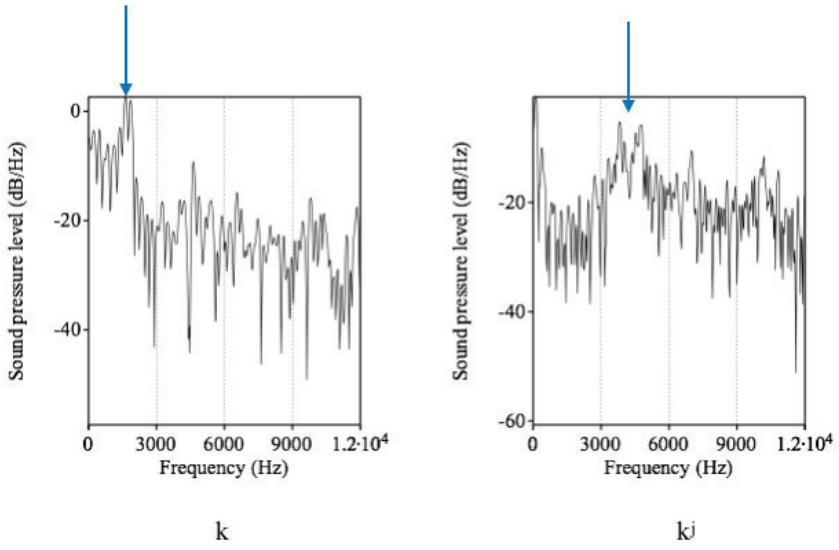


Figure 4: Comparison of burst spectra, [k] vs. [k$^{j}$]

(2) Examples of palatalised consonants

| | | | | |
|---|---|---|---|---|
| [p$^{j}$] | p$^{j}$átsi | 'glue' | p$^{j}$ú | 'monkey' |
| [b$^{j}$] | b$^{j}$ù | 'snake' | b$^{j}$ɜ̀ | 'honey' |
| [p$^{hj}$] | p$^{hj}$ákɕe | 'to sweep' | p$^{hj}$í | 'to meet' |

| | | | | |
|---|---|---|---|---|
| [b̥ʲ] | b̥ʲà | ‘bird’ | b̥ʲàm | ‘hen’ |
| [kʲ] | kʲá | ‘hair’ | kʲáp | ‘to protect’ |
| [gʲ] | gʲà | ‘hundred’ | gʲù | ‘to walk’ |
| [kʰʲ] | kʰʲáʔ | ‘blood’ | kʰʲú | ‘to wash’ |
| [g̊ʲ] | g̊ʲõ̀ | ‘village, hamlet’ | g̊ʲùŋʈa | ‘clever’ |

## 2.2 Devoiced consonants

Drenjongke has low tone initial consonants, which are termed ‘devoiced’ in recognition of their diachronic provenance in the South Bodish language Dzongkha and Drenjongke (van Driem, 1998; 2016; Karma Tshering & van Driem, 2019). Yliniemi (2019, pp. 43-45) has described these consonants ‘lightly aspirated “breathy” consonants’. Here we adopt a descriptive term ‘voiceless-low’ based on our results because the breathy phonation was not distinct in the speech of the speaker in this paper, but an extra low realisation of low register tone in syllables sporting such initials has been measured.

The voice onset time values of these consonants are highly variable across and within speakers, whereas the F0 measurements of the onset of a vowel following these consonants are lower and the F1 measurements are higher than when following voiced plosives (Lee et al., 2019a, b). In this paper, we call this group of consonants ‘voiceless-low’ in order to avoid confusion with the term ‘devoiced’ that imply the presence of phonological devoicing.

(3) Examples of devoiced consonants

| | | | | |
|---|---|---|---|---|
| [b̥] | b̥ìm | ‘sand’ | b̥ìn | ‘to give’ |
| [d̥] | d̥òm | ‘bear’ | d̥õ̀ | ‘hole’ |
| [d̥] | d̥ø̀ | ‘warmth’ | d̥ù | ‘boat’ |
| [ʐ̥] | ʐ̥à | ‘to eat’ | ʐ̥è | ‘ray’ |
| [dʐ̥] | dʐ̥à | ‘tea’ | dʐ̥àm | ‘mercy’ |
| [ʑ̥] | ʑ̥æ̀ | ‘face (honorific)’ | ʑ̥ìŋ | ‘field’ |
| [g̊] | g̊ò | ‘Sikkimese robe’ | g̊ù: | ‘tent’ |

## 2.3 Voiceless nasals

Drenjongke has four voiced nasal and four voiceless nasal consonants. In phonetic terms, the latter are produced with voiceless frication followed by a nasal component (cf. Bhaskararao & Ladefoged, 1991).

(4) Examples of voiceless nasals

| | | | | |
|---|---|---|---|---|
| [m̥] | m̥é | ‘lower’ | | |
| [n̥] | n̥ó | ‘snot (in Lachen)’ | | |
| [ɲ̊] | ɲ̊áp | ‘to claim’ | ɲ̊é: | ‘trap’ |
| [ŋ̊] | ŋ̊á:lè | ‘early’ | ŋ̊ábø | ‘pillow’ |

## 3. Vowels

Drenjongke has five short vowels and eight long vowels as illustrated in (5) and shown in Figure 6. The historically umlauted vowels have no short counterparts but are treated as long vowels in the phonology.

(5) Vowels in Drenjongke

| | | | | |
|---|---|---|---|---|
| [i] | kíʔ | 'peace' | ɕí | 'to die' |
| [e] | kén | 'reason' | ɕéʔ | 'to explain' |
| [a] | kám | 'dry' | ɕáʔ | 'meat' |
| [o] | dò | 'stone' | ɕó | 'dice' |
| [u] | gù | 'nine' | lúʔ | 'song' |

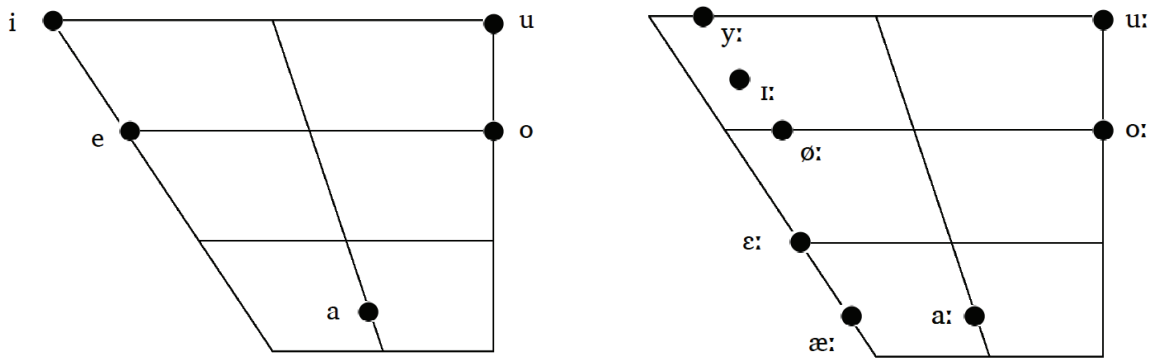


Figure 3: Quadrilateral of Drenjongke short and long vowels

Illustrative spectrograms of the five short vowels and the historically umlauted vowels appear in Figure 6:

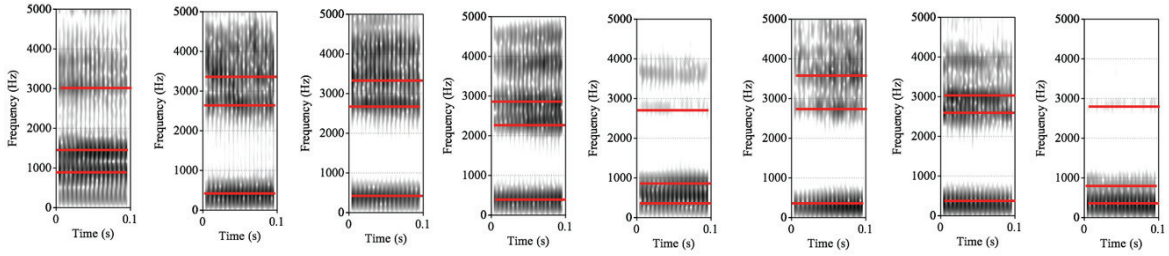


Figure 6: Spectrograms of the eight short vowels and the historically umlauted vowels produced in isolation from a single speaker

The vowel phoneme inventory of Drenjongke is congruent to the set of vowels distinguished by the phonology of its closely related sister language, Dzongkha, spoken in adjacent portions of western Bhutan. However, the phonetics of the vowel phonemes differ between the two sister languages.

In particular, the distribution and the articulation of the vowel phonemes romanised in Roman Drenjongke as *ê, e* and *ä,* differs between Drenjongke and Dzongkha. The vowel which, in keeping with Tibetological convention, is written in Roman Drenjongke as <ä> [ɛː] does not exhibit as open an articulation in Sikkim as the corresponding Dzongkha vowel does in Bhutan, i.e. [ɛː] ~ [æː].

The patterns of F1 are as expected, with lower vowels having a higher F1. The patterns of F2 are also as expected, with front vowels having a higher F2, whereas back vowels have a lower F2. The high front rounded vowels [øː] and [yː] have a slightly lower F2 and a substantially lower F3 as compared to the corresponding non-rounded vowels. Vowels can be nasalised. Whilst velar nasals appear in words such as [z̥iŋ] ‘field’, in connected speech the words that are described as having a velar nasal final tend to be pronounced instead with a nasalised vowel.

(6) Nasalised vowels in Drenjongke

| | | | | |
|---|---|---|---|---|
| [õ] | tʰő | ‘to see’ | ʈő | ‘to kill (honorific)’ |
| [ĩ] | tʰápɕĩ | ‘firewood’ | | |
| [ã] | z̥àkʰã | ‘restaurant’ | | |

Drenjongke also has eight vowels that are qualitatively different from the vowels described above (van Driem, 2016). Both duration and the vowel quality distinguish these two groups of vowels.

(7) Two types of vowels

| | long vowels | | short vowels | |
|---|---|---|---|---|
| [ɪː] | gìːr | ‘to turn a prayer wheel’ | zíʔ | ‘leopard’ |
| | zìː | ‘onyx’ | ɕí | ‘to die’ |
| [ɛː] | ʣèː | ‘nail’ | ɕéʔ | ‘to explain’ |
| | ɕéː | ‘to know’ | | |
| [aː] | bʲàːm | ‘flying insects’ | dàʔ | ‘to lick’ |
| | kā́ːpo | ‘leg’ | kám | ‘dry’ |
| [uː] | gʲùːm | ‘mother-in-law’ | gʲùm | ‘honest’ |
| | | | ɖùʔ | ‘dragon’ |
| [oː] | ɖòː | ‘afraid’ | dò | ‘stone’ |
| | ɖ̥òːm | ‘trousers’ | ɖ̥òm | ‘bear’ |
| [yː] | ŋýː | ‘silver’ | lỳːʔ | ‘overflow’ |
| [øː] | dø̀ːʔ | ‘to sit’ | ʨʰǿːʔ | ‘you’ |
| [ɛː] | kʰɛ́ː | ‘tax’ | ɕɛ́ː | ‘to wander’ |

These ‘long’ vowels are slightly longer in duration than the ‘short’ vowels, and when these vowels are low-toned, they are lower than low-toned vowels; high-toned vowels do not show this type of correlation. In the phonological notation developed in Gangtok, known as Roman Drenjongke, the ‘long’ vowels are indicated with a circumflex diacritic above the vowel symbol. But our findings already indicate that the phonetic nature of the contrast between long and short vowels in Drenjongke cannot be described solely in terms of the relative duration of the vowels, but also involves vowel quality and what may be described as a tense versus lax distinction (cf. Karma Tshering & van Driem, 2019, Guillemot et al., 2019). The latter statement, worded as it is, would hold equally true for Dzongkha, but we have observed that the actual phonetics of the vowel phonemes and the long vs. short distinction differs between Drenjongke and Dzongkha. Qualitative vowel differences in short versus long vowels are also found in other languages such as Arapaho in which long vowels are more peripheral than short vowels (DiCanio & Whalen, 2015), and Japanese that shows a slightly larger vowel space in long (Hirata & Tsukada, 2009). In Drenjongke, the pattern is opposite: The front long vowels appear to be a trifle more centralised than the short vowels. Accounting for this reverse pattern requires a larger scale study in the future.

## 4. Tone

In Drenjongke, tone is contrastive. In disyllables, tone is borne on the first syllable of the word or by both syllables, depending on the morphemic structure of the word. In other words, tone in Drenjongke can be described as trochaic, just as it appears to be in many other Bodish languages. In the phonetic transcription used here, an acute accent indicates a high register tone, and a grave accent mark a low register tone.

Tone can be predicted in syllables with a plosive, affricate or voiced sibilant onset. Tone is, therefore, indicated in the phonological transcription known as Roman Drenjongke with a diacritic apostrophe only in syllables beginning with a sonorant onset, i.e. vowel, nasal, liquid or approximant, or a voiceless nasal. Relatively few words occur with a vocalic onset.

Syllables beginning with voiceless and aspirated consonants are invariably in high register tone, and syllables beginning with voiced and devoiced consonants in low tone. As in Dzongkha, because of the information contained in the segmental phonology of such words, non-native speakers pronouncing such syllables in the incorrect register tone are understood. Contrary to this, native speakers perceive their mispronunciations as a non-native accent.

When an onset is either a voiced nasal or voiced lateral approximant, no segmental information distinguishes the pronunciation of such syllables in the two register tones other than the tone itself. We have established that no pitch difference could be measured between the vowels of such syllables. Rather, the difference in tone lay in a pitch difference during the articulation of the voiced nasal and voiced lateral onsets themselves. In other words, the tonal contrast in syllables of this type was restricted to the first, consonantal portion of such syllables. This astonishing finding dovetails beautifully with what is known about the historical provenance of the register tone in the South Bodish languages Dzongkha and Drenjongke. The high register tone results from historical 'prefixed' consonants known as *sn̂on-ḥjug* [ɲóndʑu], which has left a still palpable residue in the modern language as pre-glottalisation. The tone is therefore borne by the surviving nucleus of the historical consonant cluster.

Yliniemi (2019, p. 57) claims that the acoustic correlates of tone in Drenjongke are phonation and pitch. Some high-toned tokens with creaky voice, but breathy voice were not directly observable. The actual relationship will be elaborated clearly in a forthcoming study on Drenjongke phonology.

(8) Tonal minimal pairs

| | high tone | | low tone | |
|---|---|---|---|---|
| [m] | mą́ | 'wound' | mà | 'not' |
| [n] | nąm | 'sister-in-law' | nàm | 'when' |
| [ɲ] | ɲą́ | 'neck' | ɲà | 'fish' |
| [ŋ] | ŋą́ | 'five' | ŋà | 'I' |
| [l] | lám | 'lama' | làm | 'way' |
| [a] | ám | 'mother' | | |
| [y] | ý | 'community of villages' | | |
| [o] | óm | 'milk' | òŋ | 'to come' |
| [ø] | øku | 'chin' | | |

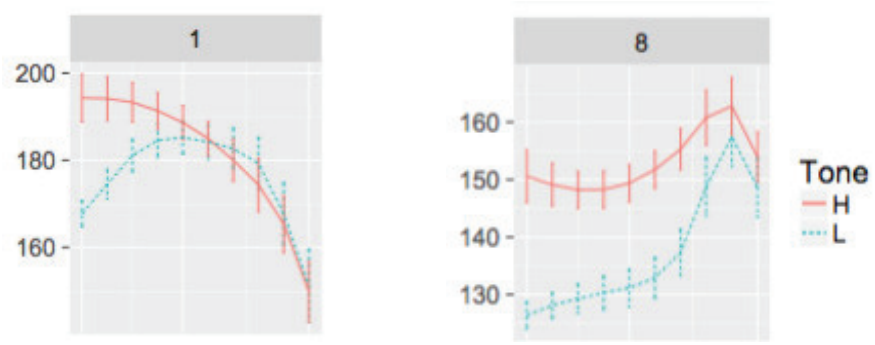


Figure 4: F0 differences due to high vs. low tones in vowel-only syllables. High-tone syllables are shown with solid lines and low-tone syllables are shown with dotted lines. The intonation patterns for the syllabary reading are falling in speaker 1 (female) and rising in speaker 2 (male) (Lee et al., 2018, p. 218)

While voiced sonorants display tonal contrast in Drenjongke, voiceless sonorants only occur with a high tone (9).

(9) Voiceless sonorant and tone

| | | |
|---|---|---|
| [m̥] | m̥é | 'lower' |
| [n̥] | n̥ó | 'snot' |
| [ɾ̥] | ɾ̥ám | 'to destroy' |
| [ɬ] | ɬám | 'shoes' |
| [ɲ̊] | ɲ̊áp | 'to claim' |
| [ŋ̊] | ŋ̊ábø | 'pillow' |

## 5. Syllable structure

Syllables in Drenjongke have the shape of V, CV, VC, CVC. There are very few words that begin with a vowel: V or VC. The labial or velar onset can have palatalisation as secondary articulation. Seven types of codas are allowed: [p, k, m, n, ɾ, ʔ]. The [l] coda is only found in loanwords from Tibetan.

(10) Syllables in Drenjongke

| | | | | |
|---|---|---|---|---|
| [p] | kʰáp | 'needle' | pʰáp | 'to put down' |
| [k] | ʤìkʧẽ | 'heavy' | | |
| [m] | ɲím | 'sun' | | |
| [n] | g̊àn | 'what' | pón | 'official' |
| [ŋ] | z̥ìŋ ~ z̥ĭ | 'field' | | |
| [ɾ] | sóɾ | 'thumb's breadth' | gʲùɾ | 'to change' |
| [ʔ] | kʰʲáʔ | 'blood' | sɛ́ʔ | 'to kill' |
| | Tibetan loanwords | | | |
| [l] | kýnsal | 'total clarity' | | |

## 6. Story

The last part of this paper is a story in Drenjongke. Each paragraph consists of four parts: a) IPA, b) Drenjongke text in Sikkimese orthography in Tibetan script, c) Roman transliteration of native Sikkimese orthography following European Tibetological convention (van Driem, 2001), with the addition of an apostrophe representing the innovative embellishment known as a *tshala* used uniquely in Sikkimese vernacular orthography, and d) English translation. Slips of the tongue in the recorded text, subsequently corrected by the narrator, are indicated between parentheses.

a. **dʑ̊àŋlúŋ dɜ̃ ɲìmè ɖɛ̀ndùr**
b. རྫ་བྱང་ཀླུང་ དང་ ཉི་མའི་ འགྲན་སྡུར།
c. Byaṅ-rluṅ daṅ ñi-maḥi ḥgran-sdur
d. The North Wind and the Sun

**a. ɲìmtɕí dʑ̊àŋlúŋ dɜ̃ ɲìmè ɓàrlò kʰɔ́̃ ɲí kálè ɡ̊àdì tópɛ́u tɕʰéɖ̊à ímɓ̀ò láptí tsǿ́nó tʰónʑ̊ì jʊ̀pé káplò ɖ̀ypótɕíkí zùlò dàɡ̊àm kíktí ònʑ̊ì jʊ̀pó tʰɔ́̃pó bè.**
b. ཉིམ་ཅིག་ བྱང་ཀླུང་ དང་ ཉི་མའི་ བར་ལོ་ ཁོང་ གཉིས་ཀ་ལས་ ཀ་འདི་ སྐྱབས་ཤུགས་ ཆེ་དགས་ ཚིན་ངོ་ ལབ་སྐྱི་ ཚོད་རྟོགས་ ཐོན་བཞིན་ ཡོད་པའི་ སྐབས་ལོ་ འགྲུལ་ངོ་ ཅིག་གི་ གཟུགས་ལོ་ རླ་གམ་ དཀྱིགས་སྐྱེ་ འོང་བཞིན་ ཡོད་ངོ་ ཅིག་ ཐོང་ངོ་ སྦད།
c. Ñim-cig byaṅ-rluṅ daṅ ñi-maḥi bar-lo khoṅ gñis-las ga-ḥdi stobs-śug che-drags in-bo lab-sti rtsod-rñog thon-bźin yod-paḥi skabs-lo ḥgrul-po-cig gzugs-lo zla-gam dkyigs-sti ḥoṅ-bźin yod-po cig thoṅ-po sbad.
d. The North Wind and the Sun were disputing which was the stronger, when a traveller came along wrapped in a warm cloak.

**a. dìlè kʰóŋ̊gì ɓàrlò ɡ̊ʲʊ̀tʰíl démtɕí ʑ̀akkó ɪ́́ kaki mì ódì**: **zù**:**lè dàɡ̊àm pí**: **tsʰúpó ódì tópɛ́u tɕʰéɖ̊à (ɪ́́) íɓ̀ò kʰélē ɓʲàɕá ɪ́́sé gʲò**: **tɕʰámpó bè.**
b. འདི་ལས་ ཁོང་གི་ བར་ལོ་ སྐྱོན་མཐུན་ འདེམ་ཅིག་ བཞག་ཀོ་ ཨིན་ ཀཀ་ཀིས་ མི་ཨོ་འདིའི་ གཟུགས་ལས་ རླ་གམ་ དབྱིག་ ཚུགས་པོ་ ཨོ་འདི་ སྐྱོབས་ ཤུག་ ཆེ་དགས་ ཨིན་པོ་ མཁས་ལེན་ བྱས་ཤད་ ཨིན་ས་ སྐྱོན་ཆམ་པོ་ སྦད།
c. ḥDi-las khoṅ-gi bar-lo gyos-mthun ḥdem-cig bźag-ko in kag-kis mi o-ḥdiḥi gzugs-las zla-gam dp’yig tshugs-po o-ḥdi stobs-śug che-drags in-bo mkhas-len b’yas-śad in-se gyos-cham-po sbad.
d. They agreed that the one who first succeeded in making the traveller take his cloak off should be considered stronger than the other.

**a. dìlè dʑ̊àŋlúŋ ɕúktɕʰɛ́̃ kʲáptí mí ódì**: **dàɡ̊àm ɡ̊àtsʰó píktʰá ɓʲàrùŋ pí màtsʰúpí tɛ́̃lò ódì**: **kʰʲá**:**tí dàɡ̊àm ɲámàlè łáktsʰó dàmɖ̀à pʲá ràŋɡ̊ì zùklò kíɖ̀ỳ**: **dʑ̊àŋlúŋ pʰámkʰá lèndì dʊ̀pó bè.**
b. འདི་ལས་ བྱང་ཀླུང་ ཤུག་ཆེན་ རྐྱབས་སྟི་ མི་ ཨོ་འདིའི་ རླ་གམ་ གཅོད་ དབྱིག་ཐབས་ བྱས་རྟང་ དབྱིག་ མ་ཚུགས་པའི་ སྟེང་ལོ་ ཨོ་འདིའི་ འཁྱུས་སྐྱེ་ རླ་གམ་ སྔོན་མ་ལས་ ལྷག་ཚོད་ དམ་དྲགས་བྱས་ རན་གི་ གཟུགས་ལོ་ དགྱིགས་དུས་ བྱང་ཀླུང་ ཕམ་ཁ་ ལེན་སྡེ་ སྡོད་ངོ་ སྦད།
c. ḥDi-las byaṅ-rluṅ śug-chen rkyabs-sti mi o-ḥdiḥi zla-gam ga-tshod dp’yig-thabs b’yas-ruṅ dp’yig ma-tshugs-paḥi steṅ-lo mi o-ḥdi ḥkhyas-sti zla-gam sṅon-ma-las lhag-tshod dam-drags-byas raṅ-gi gzugs-lo dkyigs-dus byaṅ-rluṅ pham-kha len-sdi sdod-po sbad;
d. Then the North Wind blew as hard as he could, but the more he blew the more closely did the traveller fold his cloak around him.

**a. (dìlè khím lèp)dìlè ɲìm lèp ɖ̊ø tsʰaɖ̀àɓʲà ɕá**:**ɖ̀ỳ**: **ɖ̀ypó dìkí làmsɜ̃́ ràŋɡ̊ì zù**:**lè dàɡ̊àm píkó bè.**
b. འདི་ལས་ ཉིམ་ ལེབ་ དྲོད་ ཚ་དྲགས་བྱས་ ཤར་དུས་ འགྲུལ་པོ་ འདི་ཀིས་ ལམ་སང་ རང་གི་ གཟུགས་ལས་ རླ་གམ་ དབྱིག་ཀོ་ སྦད།
c. ḥDi-las ñim leb drod tsha-drags-byas śar-dus ḥgrul-po ḥdi-kis lam-saṅ raṅ-gi gzugs-las zla-gam dp’yig-ko sbad.
d. And at last the North Wind gave up the attempt. Then the Sun shined out warmly, and immediately the traveller took off his cloak.

**a. dìlò ta:ti dz̥ànŋlúŋ pʰámkʰá lèndì kʰőrálè (ɲìŋ) ɲìm tópɛúk tɛʰéɖà dùk làptí kʰélɛ̀ b̥ò ínnò.**

b. འདི་ལོ་ བཟླ་སྟི་ བྱན་རླུན་ ཕམ་ཁ་ ལེན་སྡི་ ཁོན་རན་ལས་ ཉིམ་ སྟོབས་ཤུག་ ཆེ་དྲགས་ འདུག་ ལབ་སྟི་ ཁས་ལེན་ བྱས་བོ་ ཨིན་ནོ།།

c. ḶDi-lo blta-sti byaṅ-rluṅ pham-kha len-sdi khoṅ-raṅ-las ñim stobs-śug che-drags ḍug lab-sti khas-len b'yas-bo in-no.

d. And so the North Wind was obliged to confess that the Sun was the stronger of the two.

## COLOPHON

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