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**Languages and Peoples of the Eastern Himalayan Region (LPEHR)**

# *Thadou Morphophonemics*

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Abstract

This paper presents the morphophonemic alternations in Thadou, a Tibeto-Burman language of the Kuki-Chin subgroup spoken in Northeast India and Myanmar (Burma). Section 1 introduces the language in terms of its place within the Kuki-Chin subgroup and its phonological and morphosyntactic features. Section 2 presents the phonemic inventories of Thadou, the modifications of vowels and consonants, syllable structure, and length contrasts. The remainder of the paper is devoted to discussing the various morphophonemic changes in Thadou: Section 3.1 discusses the morphophonemics of progressive and regressive assimilations. Section 3.2 to 3.5 discusses morphophonemic changes that take place when two morphemes/syllables concatenate according to the morphosyntactic rules of the language. These include deletion glide insertion, vowel change, vowel reduction, cluster formation, and consonant deletion. Section 4 deals with the segmental changes that verb stems display. Section 5 shows the tonal changes that tones display when they are juxtaposed next to one another. Finally, the paper summarizes the main findings contained in the paper.

Keywords

Morphophonemic, Thadou, Kuki-Chin, Tibeto-Burman

This is a contribution from Himalayan Linguistics Vol 23(2) – Languages and Peoples of the Eastern Himalayan Region: 1-17.
ISSN 1544-7502
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# *Thadou Morphophonemics*

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## 1 Introduction

Thadou[1] (ISO 639-3: tcz) is a Tibeto-Burman language of the Kuki-Chin subgroup spoken in the Northeastern states of India Manipur, Assam, and Nagaland, and in the Chin Hills of Myanmar. According to *Census Report of India* 2011, Thadou is spoken by 313,308 speakers. Regarding the position of Thadou within the Kuki-Chin languages, this study adopts the classification of Grierson and Sten Konow (1904) as opposed to Van Bik's (2009) because of the wider appellation that 'Northern Kuki-Chin' enjoys in the literature on Kuki-Chin languages. The difference between Grierson and Van Bik classifications is that Van Bik posits a higher-up branch 'Peripheral' for the the Northern and Southern Kuki-Chin languages absent in Grierson and Sten Konow's classification. Other Kuki-Chin languages under the Northern subgroups include Siyin and Tedim in Myanmar, and half a dozen languages in the state of Manipur, namely, Paite, Simte, Gangte, Vaiphei, and Zou in Manipur, India. One of the most robust phonological criteria of Northern Kuki-Chin languages that distinguishes them from the Central group is the shift of Proto-Kuki-Chin **r* >*g* (Van Bik 2009). If the retention of the Proto-Kuki-Chin **r* is adopted as a phonological criterion for membership into the Central Kuki-Chin subgroup, the 'Old Kuki' languages of Barak Valley should be included under the Central Kuki-Chin on the ground that the Proto-Kuki-Chin **r* is retained in both initial and final positions (Haokip 2019). However, no classification on Kuki-Chin has ever attempted to include them under the Central-Chin due to a lack of data. Besides phonology, Thadou also shares the verbal agreement system (Haokip 2019) and the verbal stem alternations (Haokip 2012) widespread across the Kuki-Chin languages. Van Bik (2009) considers verbal stem alternation, and a phonological change of the PTB initials **s/sy* to PKC **th* as shared innovations that separate Kuki-Chin languages from the rest of the Tibeto-Burman family. Like most Tibeto-Burman languages of the region, Thadou displays a highly agglutinative and suffixing morphology. Most modifiers, such as adjectives, adpositions, numerals, and demonstratives tend to follow the governing nouns. Case marking of nouns and phrases (NPs) is also carried out through suffixes. Regarding the patterns of case marking, Thadou uses a uniformly ergative-absolutive alignment strategy in all clauses: case assignment of the core clausal arguments S and O are identical, whereas the A argument is coded differently. This syntactic marking of case on nouns and NPs according to transitivity is another feature which separates the Kuki-Chin languages from the other languages Tibeto-Burman of North East India (see Chelliah and Hyslop 2011). Last but not least, concerning how an event takes place in time, all actions, states or events which took place before the time of utterance are indicated

[1]The name of the language is sometimes referred to as 'Thadou' and sometimes as 'Thadou-Kuki' (see Haokip (2011) for issue surrounding the name of the language. Throughout my writings, I have been using both, but with a slight nuance in their usages. That is, I use 'Thadou' when referring to the language, and when the work concerns the grammar of the language, but 'Thadou-Kuki' when referring to the people as a social group and when the work concerns the socio-cultural and political aspects the people and their language.

by the perfective marker *-ta.* Ex. *bù kà-né tâi* (food 1SG-eat PERF.DECL) 'I ate/have eaten food'. Again, all actions, states or events which are yet to take place are marked with the future marker *ding* [dîŋ]. When neither the perfective *-ta* or the future *dîng* is present, time adverbials, such as yesterday, today or tomorrow decide the time of the action, state or event.

## 2 Phonemic inventories

### 2.1. Vowels

Thadou has five vowels that contrast in length in closed syllables as shown below.

| | front | central | back |
|---|---|---|---|
| high | i ii | | u uu |
| mid | e ee | | o oo |
| low | | a aa | |

**Table 1 – Thadou vowels**

The vowel inventory in Table 3 differs from Haokip (2008) where the higher mid-unrounded front vowel /e/ and the lower-mid vowel /ɛ/ and their counterparts, the higher mid-back rounded vowel /o/ and the lower mid-vowel /ɔ/ were posited as phonemes by providing /lè/ 'shadow' and /lɛ̀/ 'to throw up', and /óop/ 'to mourn', and /ɔ/ (high tone) 'voice' as contrasting pairs. Later, it was realized that the contrast between /e/ and /ɛ/ as in /lè/ and /lɛ̀/ above turned out to be [lìe] and [lɛ̀] respectively. Contrary to /e/ and /ɛ/, there are no contrasting pairs between the higher mid-back rounded vowel /o/ and the lower mid-rounded vowel /ɔ/. Instead, the higher mid-back rounded vowel /o/ is variously realised as a monophthong /o/ or a diphthong /uo/ in the speech of the native speakers. Because of this variation, /o/ and /ɔ/ are not treated as separate phonemes. The following pairs show the contrast between /o/ and /uo/ with the lower mid-rounded vowel /ɔ/.

| | | | |
|---|---|---|---|
| gòon~gùon | 'arrange' | gò~guo | 'rain' |
| gɔ̀ɔn | 'to be thin' | gɔ̀ | 'to burn' |
| kò~kùo | 'hole' | sò~sùo | 'to publish' |
| kɔ | 'to point' | sɔ̀ | 'to add (salt)' |

#### 2.1.1. Vowel modifications

Length: All vowels may be long or short. Vowel length is contrastive only in closed syllables. Monophthongal CV vowels in opened syllables are phonetically longer than their counterparts in VC or CVC syllables. Vowels before stops (VC) syllables are shorter than when they occur in open syllables.

Vowels that precede the glottal stop /ʔ/ (Vʔ) syllable are even shorter than those that come before other stops.

Mid vowels: /e/ and /o/ are phonetically pronounced as the mid-low front [ɛ] and mid-low back [ɔ] respectively.

Low vowel: The short low vowel /a/ is phonetically released as a short-central vowel shwa [ə].

Tone: High, falling, and low. Tones are marked with the help of diacritics placed above the relevant phone. Ex. [á] = high tone; [â] = falling tone; and [à] = low tone.

Nasalization: vowels are nasalized when surrounded by nasal consonants: *mãŋ* ‘dream’, *nũŋ* ‘windy’, *mĩn* ‘name’, *mõ*, ‘to be at fault’, *nĩ* ‘sun’, *ŋũi* ‘grief with sorrow’, *ŋõŋ* ‘neck’

### 2.1.2. Vowel contrasts

Minimal and near-minimal pairs for all the vowels with identical tone and length are somewhat difficult to get. However, minimal pairs of two vowels (suspicious pairs) are easily available as shown below.

| | initial | | medial | | final | |
|---|---|---|---|---|---|---|
| *i/ii* | ìit | ‘to value something’ | gíil | ‘intestine’ | lí | ‘four’ |
| *u/uu* | ùut | ‘to be jealous of’ | gúul | ‘snake’ | lú | ‘head’ |
| *e/ee* | éʔ | ‘dung’ | kèel | ‘goat’ | lè | ‘to throw upward’ |
| *o/oo* | óʔ | ‘to be trapped’ | kòol | ‘cliff’ | lò | ‘wages’ |
| *a/aa* | àp | ‘to rust’ | dáŋ | ‘palate’ | | |
| | àam | ‘flame’ | dáaŋ | ‘to be gloomy’ | | |

### 2.1.3. Length contrasts

As noted above length contrast is maintained only in closed syllables. When the contrast between short and long vowels is nouns, the short vowel carries a low tone and the long vowel a high tone. Conversely, when the contrast is with verbs, the short vowel retains a low tone, but the long vowel with either a high or low tone depending on whether the verb is $stem_1$ or $stem_2$. That is, a high tone occurs when the verb is in $stem_1$ form and a low tone if the verb is in $stem_2$ form. Note that $stem_1$ and $stem_2$ are indicated with the help of a subscript at the end of a gloss.

| | | | | |
|---|---|---|---|---|
| i/ii | dìp | ‘gunny bag’ | díip | ‘chest’ |
| e/ee | lhèp | ‘to fold’ | lhéep | ‘to disfigure1 (by heat)’ |
| o/oo | sòt | ‘to $push_2$’ | sóot | ‘long (in time)’ |
| u/uu | sùn | ‘to write’ | sùun | ‘noon’ |
| a/aa | kàp | ‘to $cry_1$’ | káap | ‘to $shoot_1$’ |
| | | | kàap | ‘to $shoot_2$’ |

### 2.1.4. Diphthongs

Besides monophthongs, Thadou has one opening diphthong *ie*, and three closing diphthongs *uo*, *io*, and *eo* as shown below.

| | open | | closed | |
|---|---|---|---|---|
| ie | gìe | ‘to stay overnight’ | gíet | ‘eight |
| uo | kúo | ‘nine’ | hùon | ‘garden’ |
| io | hjio | ‘needle’ | | |
| eo | hjeo | ‘anus worm’ | | |

Hyman treats the approximants /-w/ and /-y/ as codas that may freely occur after all vowels excluding *i* and *u* respectively. According to Button (2011: 16) phonetically there is no real distinction as "linguists have dwelled on the transcriptional distinction between the glide *–j* and *–u* and their vocalic counterparts *–i* and *–u* when the distinction is equally valid to all consonant coda which just happens to lack just transcriptional flexibility".

## 2.2. Consonants

Thadou has 21 consonants[2] in four places of articulation and six manners of articulation. Stops contrast in voicing and aspiration is maintained at three places of articulation: bilabial, alveolar, and velar. Nasals are voiced in Thadou and occur at three places of articulation: bilabial, alveolar, and velar. Four fricatives occur at three places of articulation: labiodental, alveolar, and glottal. Voicing contrast is maintained at only the alveolar place of articulation. The affricate, lateral, and rhotic occur at the alveolar place of articulation where only the lateral contrasts in voicing.

| | | bilabial | labio-dental | alveolar | velar | glottal |
|---|---|---|---|---|---|---|
| stop | vl<br>vl.asp<br>vd | p<br>ph<br>b | | t<br>th<br>d | k<br>kh<br>g | ʔ |
| nasals | | m | | n | ŋ | |
| affricates | | | | ts | | |
| fricative | vl<br>vd | | v | s<br>z | | h |
| lateral | vl<br>vd | | | l<br>l̥ | | |
| rhotic | | | | (r) | | |

**Table 2 – Thadou consonants**

The final consonants are restricted to voiceless unaspirated stops /p, t, k, ʔ/, the nasal /m, n, ŋ/, and the voiced /l/.

### 2.2.1. Consonant modifications

The consonants of Thadou undergo changes depending on the position of occurrence or due to social variation. First, the unaspirated voiceless stop /p, t/ are always unreleased when occurring in the word-final position. Ex. [kàp̚] 'cry', tàtˀ] 'hit'. But in the word-initial position, the unaspirated voiceless stops /p, t/ are always released. The aspirated voiceless stop /kh/ is most pronounced as [kh] among the younger speakers but [x] in the speech of the elderly speakers. Ex. [khà]~[xà] 'bitter', [khà]~[xà] 'lice', [khìt]~[xìt] 'to tie'. The voiceless alveolar fricative /s/ is palatalized as [ʃ] before high vowels /i/ and /u/: Ex. [ʃîl] 'to wear, wash', [ʃùl] 'uterus', [ʃìŋ] 'to cover'. But elsewhere as [s]: Ex. [sâ] 'animal', [sè] 'throw', [sèʔ] 'lemon'. Similarly, the voiceless alveolar affricate /ts/ is palatalized as [ʧ] before back vowels /u/ and

[2]The consonantal inventory of Thadou in Table 2 is produced from Haokip (2008) with a few minor modifications. That is, the velar fricative /x/ is now changed to voiceless aspirated velar stop /$k^h$/ and the name of the manner of articulation trill is now changed to rhotic with (r) within a parenthesis. Finally, the symbol for voiceless alveolar fricative /ɬ/ is now changed to /l̥/.

/o/: [ʧù:m] ‘to beat with hands’, [ʧòn] ‘custom’, [ʧúŋ]. But elsewhere it is realized as [ts]: [tsá] ‘offspring’, [ʧil] ‘saliva’, [tsém] ‘knife’. The voiced alveolar stop /z/ is pronounced in free variation with [dz] in the speech of Thadou speakers: [zà~dzà] ‘respect’, [zòl~dzòl] ‘friendship’, [zàŋ~dzàŋ] ‘to use’. The rhotic pronounced with a single tap at the alveolar region occurs only with words borrowed from Manipur. Finally, the voiceless /l̥/ is pronounced in free variation with the voiceless alveolar fricative [ɬ]: Ex. [l̥í]~[ɬí] ‘tear’, [l̥èŋ]~[ɬèŋ] ‘bawl’, [l̥ó]~[ɬó] ‘tiger’, [l̥à]~[ɬà] ‘moon’.

### 2.3. Syllable types in Thadou

The canonical syllable structure of Thadou is (C)V(C) where the only obligatory element is a vowel.

| | | |
|---|---|---|
| V | /ú/ | ‘elder brother, sister’ |
| CV | /há/ | ‘teeth’ |
| VC | /ín/ | ‘house’ |
| CVC | /mìt/ | ‘eyes’ |

Consonant clusters can occur when an unstressed central vowel *a* [ə] which occurs between a consonant and a liquid is deleted during fast, casual speech, but nowhere else (see section 3.4 for examples).

## 3 Thadou morphophonemics

Morphophonemic changes come about when bound morphemes concatenate with free morphemes during the application of morphological and syntactic rules of a language. In a few instances, morphophonemic changes are also brought about as a result of compound words. This section discusses the different types of morphophonemic operations in Thadou namely, assimilation, deletion, insertion, cluster formation, and contraction.

### 3.1. Assimilation

When two or more adjacent morphemes come together, one of the sounds causes the other sound to become more similar in its phonetic form. Depending on the sound or morpheme which causes the other sounds to change, assimilation can be progressive or regressive. In the case of the former, the following sound causes the preceding sound to become more similar in its phonetic form.

#### 3.1.1. Regressive assimilation

Regressive assimilation occurs when the voiceless stops /p, t/ become voiced [b, d] when followed by a voiced sound in the syllable as shown in (1a-e) below.

(1)

| | | | | | |
|---|---|---|---|---|---|
| (a) | kàap+dòʔ | (snap+out) | → | kàabdòʔ | 'to snap a photo' |
| (b) | kàp+dòʔ | (cry+out) | → | kàbdòʔ | 'to cry out' |
| (c) | thòt +dòʔ | (send+out) | → | thòddòʔ | 'to send out' |
| (d) | póot+dòʔ | (go+out) | → | póoddòʔ | 'to go out' |
| (e) | khùt+zìem | (hand+decoration) | → | khùdzìem | 'ring'(noun) |

(1a-d) are examples of voicing assimilation of free morphemes with a bound morpheme *dòʔ* 'out', while (1e) is an example of voicing assimilation by compounding of two free morphemes *xùt* 'hand' and *zìem* 'decoration'. Krishan (1980) describes the assimilation of the type in (1a-e) above, as free variation; meaning that either of the two forms is found in the speech of the Thadou speakers. This paper treats such phonological processes as phonologically motivated sound changes that speakers of Thadou are inclined to do.

(2) Sentence examples of the voicing of unaspirated voiceless /p, t/ to [b, d]

(a) boipu à=mâŋ-á â=kàpdòʔ-ê
boipu his=dream-loc 3sg=cry.out-decl
Boipu cries/cried out in his dream'

(b) boipu à=în-ná kôonnín a=póoddòʔ-ê
boipu his=house-loc from 3sg=go.out-decl
'Boipu went/goes out of his house'

### 3.1.2. Resyllabification triggered by progressive assimilation

Examples of progressive assimilation due to resyllabification come from the sentence-ending particle known as the declarative marker *-e*. Progressive assimilation in Thadou occurs when a final declarative marker which is spelt *e* is resyllabified under the influence of the preceding sound as shown below.

–e becomes –me if preceded by a bilabial nasal /m-/ or bilabial stop /p-/
–e becomes –ne if preceded by an alveolar stop /t-/ or alveolar nasal /n-/
–e becomes –ŋe if preceded by a velar nasal /ŋ-/
–e becomes –le if preceded by an alveolar lateral /l-/

Sentence examples of progressive assimilation are illustrated in (2a-g) below.[3]

| | | | | | |
|---|---|---|---|---|---|
| (3a) | â-nùom-ê | (3-nice-decl) | → | â-nùom-mê | 'it is nice/pleasant' |
| (b) | à-lúm-ê | (3-warm-decl) | → | à-lúm-mê | 'it is warm' |
| (c) | à-lôop-ê | (3-glut-decl) | → | à-lôop-mê | 'he/she gluts' |
| (d) | â-mìt-ê | (3-distinguish-decl) | → | â-mìt-nê | 'It (the fire) extinguishes' |
| (e) | à-tsûun-e | (3-stamp-decl) | → | à-tsûun-nê | 'he/she covers' (cloth, etc) |
| (f) | à-léŋ-e | (3-fly-decl) | → | à-léŋ-ŋê | 'it is flying' |
| (g) | â-làl-e | (3-tire-decl) | → | â-làl-lê | 'he/she is tired' |

[3]The 3rd person agreement marker is realized as *â* before a low tone, while it is realized as *à* before falling or rising tone (see section on grammatical tone). The declarative marker *–e* the end of the phrase, on the other hand, it almost always realized as a falling tone.

As seen in (3) above, the adjective/verb stem is flanked by the 3rd person proclitic *a-* to its left and the declarative marker *–e* to its right. The 3rd person proclitic *a-* and the declarative markers do not carry tones of their own. However, under the influence of the tone of the root tones, the 3rd person proclitic *a-* is realised as a high tone /á/ if the root tone is a low tone and falling if the root tone is either a falling or high tone. The declarative marker *–mê* which occurs at the of a clause or sentence, on the other hand, tends to carry a falling tone irrespective of the tones of the root words.

The declarative marker *–e* does not assimilate with the sound of the preceding word when it is preceded by another vowel or glottal stop as shown in (4) below.

(4) â-òʔ-è (3-trap.v-decl) → â-òʔ-êe 'it is trapped'

Examples of regressive assimilation due to resyllabification also come from *-in* which marks both imperative and instrumental. The imperative and instrumental marker *-in* is resyllabified under the influence of the preceding sounds in terms of place of articulation with certain exceptions as shown below.

(a) –in becomes –min if preceded by a bilabial nasal /m-/ or stop /p-/
(b) –in becomes –nin if preceded by an alveolar stop /t-/ or alveolar nasal /n-/
(c) –in becomes –lin if preceded by an alveolar lateral /l-/
(d) –in becomes –vin if preceded by a diphthong /ou/

Examples of regressive assimilaition are illustrated in (5a-f) below.

| | | | | |
|---|---|---|---|---|
| (5a) | tsùum-în | → | tsùummîn | 'beat' |
| (b) | káap-în | → | káapmîn | 'shoot' |
| (c) | ból-în | → | bóllîn | 'do' |
| (d) | tòu-în | → | tòuvîn | 'sit' |
| (e) | pàt-ín | → | pàtnín | 'with a thread' |
| (f) | póon-în | → | póonnîn | 'with a cloth' |

The imperative/agentive marker *-in* does not carry a tone of its own. However, it takes a falling tone (HL) when preceded by either a falling (HL) or rising tone (LH), but a high tone when preceded by a low tone (L). Note that in the examples (5a-e) above, the coda consonants of the first syllable *m,p,t,n,l* spread on at the onset of the second syllable. But in (5d) the imperative marker *-in* becomes *vin* if the preceding syllable ends in a vowel.

Sentence examples of regressive assimilation are provided in (6a-f) below.

(6a) không-tsú tsùum-mîn
drum-DET beat-IMP
'Beat the drum.'

(b) vâtsà-khú káap-mîn
bird-DIST.DET shoot-IMP
'Shoot that bird.'

(c) nâtòʔ dîŋ kâ=péʔ-tsú bóol-lîn
work FUT 1SG=give-DET do-IMP
'Do the work I gave you.'

(d) tòunâ tsúŋ-âʔ tòu-vîn
work on-LOC sit-IMP
'Sit on the chair.'

(e) pûon-tsú pàt-nín khûi-yîn
cloth-DET thread-INST stitch-IMP
'Stitch the cloth with a thread.'

(f) nôo-tsú pûon-nín tûom-mîn
baby-DET cloth-INST wrap-IMP
'Wrap the baby with a cloth.'

### 3.2. Morphophonemics between two vowels

Whenever two vowels from adjacent syllables come together to form a phrase or sentence, either one of the vowels is deleted (in 7), a glide is inserted (in 11), or a vowel is changed (in 13) below.

#### 3.2.1. Vowel deletion

When verbs in $stem_1$ form (which ends in an open vowel) and the imperative marker *-ìn* (which begins with a high front unrounded vowel /ì/ are juxtaposed one after another to form an imperative clause[4] in Thadou, the two adjacent vowels coalesce as a result of the deletion of /ì/ of the imperative *-ìn*. The low tone of the deleted segment /ì/ is then transferred onto the nasal [*ǹ*] resulting in a rising-falling tone in the coalesced form as shown in (7a-g) below.

| (7) | | **isolated form** | | **coalesced form** | |
|---|---|---|---|---|---|
| | (a) | vé-ìn | → | [vé:ǹ] | 'look' |
| | (b) | hé-ìn | → | [hé:ǹ] | 'learn' |
| | (c) | né-ìn | → | [né:ǹ] | 'eat' |
| | (c) | tsì-ìn | → | [tsì:ǹ] | 'go' |
| | (d) | sùu-ìn | → | [sù:ǹ] | 'grind' |
| | (e) | bòo-ìn | → | [bò:ǹ] | 'attack' |
| | (f) | khù-ìn | → | [khù:ǹ] | 'cover' |
| | (g) | tsù-ìn | → | [tsù:ǹ] | 'grasp' |

Sentence examples of the use of verb $stem_1$ and the imperative marker *-ìn* are shown below in (8).

[4]As noted by Hyman, the above examples show that, the vowel length of the CVV syllable is maintained, and the low tone of *ìn* is realized on the nasal.

| | | | |
|---|---|---|---|
| (8a) | nâ=tsì-ná-díŋ vé:ǹ | (2=go1-loc-fut look1.imp) | ‘Look where you will be going’ |
| (b) | kà=thú hìl-hî hé:ǹ | (1=word teach1-det know1.imp) | ‘Remember my word/teaching’ |
| (c) | bù-hî né:ǹ | (food-det eat1.imp) | ‘Eat this food’ |

The tones on $stem_1$ verbs and the imperative marker remain the same irrespective of whether they are high or low. But what has changed is the transfer of the tone on /ì/ onto the final segment /ǹ/ and the lengthening of the vowel of the verbal root. Note that vowel coalescence does not apply when the root verb ends with a diphthong. Rather a glide *y* or *w* is insertion between the two constituents (see section 3.2.2).

However, vowel coalescence fails to apply when a noun root (which ends in a vowel) is followed by the instrumental morpheme *–ín* (high tone) or its variant form *-á* in the same environment as shown in (9) below.

| (9) | Noun-Instrumental *-ín* | | | Noun-Instrumental *-á* | | | |
|---|---|---|---|---|---|---|---|
| (a) | bùu-ín | → | bù-ín | bùu-á | → | bùu-á | ‘with food’ |
| (b) | mèe-ín | → | mèe-ín | mèe-á | → | mèe-á | ‘with curry’ |
| (c) | nàa-ín | → | nàa-ín | nàa-á | → | nàa-á | ‘with a leaf’ |
| (e) | thû-ín | → | thû-ín | thû-á | → | thû- á | ‘with word’ |

Sentence examples of the use of instrumental markers –ín and -á where the rule of coalescence does not apply are shown below in (10).

| | | | |
|---|---|---|---|
| (10a) | bù-ín né-ìn | (food-inst eat1-imp) | ‘Have/eat it as (your) food.’ |
| (b) | bù-á nèh dîŋ à-hî | (food-inst eat2 fut 3-be) | ‘It is to be taken/eaten as food.’<br>Lit: ‘It is (that) it has to be taken as food.’ |
| (c) | mè-ín húon-nìn | (curry-inst cook-imp) | ‘Cook it as a curry.’ |
| (d) | mè-á hùon dîŋ à-hî | (curry-inst cook2 fut 3-be) | ‘It is to be cooked as a curry’<br>Lit: ‘It is (that) it has to be cooked as a curry.’ |
| (e) | nà-ín tsún-nìn | (leaf-inst wrap-imp) | ‘Cover it with a leaf.’ |
| (f) | nà-á tsún dîŋ à-hî | (leaf-inst cover fut-3-be) | ‘It is to be covered with a leaf’<br>Lit: ‘It is (that) it has to be covered with a leaf.’ |
| (g) | thû-ín séi-yìn | (word-inst tell-imp) | ‘Say it with a word.’ |
| (h) | thû- á sèi dîŋ à-hî | (word-inst tell fut-3-be) | ‘It should be said in words’<br>Lit: ‘It is (that) it has to be said by word.’ |

The difference between the instrumental *–ín* and *-á* is that the former is used in imperative clauses and the latter in *à-hî* ‘3-be’ clauses. The *â-hî* clause in Thadou consists of a copular main clause and a complement clause containing the lexical verb and the future marker *dîŋ*.

### 3.2.2. Glide insertion

Unlike the coalescence of CVV verbs and the imperative *–ìn* that results in the deletion of one of the vowels, the coalescence of CVV diphthongs with VC function words, results in the insertion of a glide [y] or [w~v] to break up the vowel sequence.

ø → [w, y]/ v#_____v#

| (11) | isolated form | | | coalesced form | |
|---|---|---|---|---|---|
| (a) | nôi-á | (under-loc) | → | nôiyá(ʔ) | ‘under’ |
| (b) | méi-ín | (fire-inst) | → | méiyín | ‘with the fire’ |
| (c) | kòu-ìn | (call-imp.sg) | → | kòuyìn | ‘call him/her’ |
| (d) | kòu-ùn | (call-imp.pl) | → | kòu(u)vìn∼kòu-wùn | ‘call them’ |
| (e) | kêi-á | (1-poss) | → | kêiyá | ‘mine’ |
| (f) | â=núi-ê | (3-laugh-decl.sg) | → | anúiyê | ‘he/she laughs’ |
| (g) | â=núi-(û)-vê | (3-laugh-(pl)-decl.pl) | → | â=núi-(û)-vê | ‘they laugh’ |

In (d), the plural is realised as *(u)vìn* or *wùn*, where the optional plural marker (*u)* occurs with *v* and not with *w*. On the other hand, the declarative marker in the plural form is realised as *vê* in (g) with the optional plural marker *(u)* in parenthesis. Also, note that the tones in the coalesced forms are realised exactly as they are in the isolated forms.

Sentence examples of glide insertion between two vowels are given in (12) below.

(12a) Boinu-tê kà=ín nòi-yá à=tsêŋ-ùvê
aoinu-pl my=house under-loc 3=live-pl.decl
‘The family members of Boinu live below my house.’

(b) Boinu-tê ín mêi-yín â=kà-ê
Boinu-pl house fire-inst 3=burn-decl
‘The house of Boinu family members was burnt by a fire.’

(c) mîpí-tê-tsú kîpàʔ thànûom-mín à=núi-ùvê
crowd-pl-det happy interest-inst 3=laugh-pl.decl
‘The crowd laugh/laughed with joy and happiness’

### 3.2.3. Vowel change

Coalescence also applies when the negative *poo* coalesces with the declarative marker *-e* and the future marker *-iŋ* or *-in*. That is, the negative *poo* is variously realized as:

*pòoi* when it coalesces with the declarative marker *-e*
*póoŋ* when it coalesces with the future marker *-iŋ*
*póon* when it coalesces with the future *-in*

(13) ka chi poo e
*kâ=tsì* *pòo* *-è*
1=go NEG -DECL
*kâtsì* *pòoi* coalesced form
1=go NEG.DECL
‘I do/did not go.’

(14) chi po íng nge
*tsì* *pòo* *=íŋ* *-ŋèe*
go NEG =1.FUT -DECL
*tsì* *póoŋ* *ŋê* *coalesced form*
go NEG.1.FUT -DECL
'I will not go.'

(15) chi po ín nate
*tsì* *pòo* *-in* *nà=* *têe*
go NEG -FUT 2SG= DECL
*tsì* *póon* *nà=* *tê* *coalesced form*
go NEG.FUT 2SG= DECL
'You (sg) will not go/be going.'

(16) chi po in te
*tsì* *pòo* *-ín* *=têe*
go NEG -FUT 3SG=DECL
*tsì* *póon* *-tê* *coalesced form*
go NEG.FUT -DECL
'He/she will not go/be going.'

The coalesced forms from (13) to (16) are as follows:

*pò* and *-è* becomes *pòoi* in (13)
*pò* and *=íŋ* becomes *póoŋ* in (14)
*pò* and *-ín* becomes *póon* in (15 and 16)

Notice that the tones of the final segments have a bearing on the tones of the coalesced forms. That is when the tone of the last segment is low (-èe), the low tone of the coalesced form remains low (*pòoi*) in (13). But when the tone of the second segment is high (*=íŋ)*, the tone of the coalesced form becomes a high tone (*póoŋ*) in (14) and (15-16) respectively.

The distribution of the future marker depends on the person of the subject. That is, the future marker becomes - *íŋ* when the subject is first person singular and *–ín* when the subject is second and 3person singular. When the subject is plural, the plural marker *–u* is inserted between the negative particle *-pòo* and the respective future markers.

### 3.3. Vowel reduction

Vowel reduction takes place when a long vowel in an open stressed syllable is reduced to a short unstressed syllable when juxtaposed to form a compound word. Vowels are phonetically pronounced longer in the final position than when they occur in the first syllable of a compound. The duration of vowels in the final position and as the first syllable of a compound is never contrastive, and hence not phonemic in the language.

| | CVV | | + | CVV | | → | CV/—CVV | |
|---|---|---|---|---|---|---|---|---|
| (17) | Isolated form | | | | | | coalesced form | |
| (a) | máa | ‘ancient’ | + | láai | ‘time’ | → | [māláai] | ‘long time’ |
| (b) | níi | ‘sun’ | + | sáa | ‘hot’ | → | [nīsáa] | ‘sun’ |
| (c) | páa | ‘father’ | + | góŋ | ‘skinny’ | → | [pāgóŋ] haokip2011languages | ‘widower’ |
| (d) | sáa | ‘animal’ | + | sán | ‘red’ | → | [sāsán] | ‘red deer’ |
| (e) | khóo | ‘village’ | + | pîi | ‘large’ | → | [khôpîi] | ‘city’ |
| (f) | váa | ‘bird’ | + | tsâa | ‘diminutive’ | → | [vâtsâa] | ‘bird’ |
| (g) | zíi | ‘spouse’ | + | pâa | ‘male’ | → | [zîpâa] | ‘husband’ |

As shown above, two patterns of a tonal shift are noticed. First, the high tone in the isolated form becomes a level tone when followed by a high tone in the coalesced form in (17a-d). Second, the high tone in the isolated form becomes a falling tone when followed by a falling tone in the coalesced form in (17e-g).

Sentence examples of vowel reduction and tonal change are given in (18) below.

(18a) kà=pú-tsú māláai mìháat-pâ à=hê
my=grandfather-det ancient man.strong-nmz 3=be
‘My grandfather was an ancient strong man.’

(b) tûní nīsá à=sá-ê à=hê
today sun 3=hot-decl 3=be haokip2011languages
‘The sun is hot today.’

(c) âmà-pâ-hí khôsúŋ-â pāgóŋ-pâ-tsú à=hê
3-nmz-det village-loc widower-nmz-det 3=be
‘He is the widower of the village.’

(d) kà=pú=ìn sāsán khàt â=hìn káap-mê
my=grandfather=erg deer one 3=cis shoot-decl
‘My grandfather killed (shot) a deer.’

(e) kà=pâ=ìn vātsà nôu khàt êi=hìn màt pìʔ-ê
my=father=erg bird baby one 3→1 catch ben-decl
‘My father caught a bird for me.’

However, vowel reduction fails to apply if the tone in the isolated form is low. In (19) below, the vowels and tone in the first syllable of the coalesced form remain the same as they are in the isolated form.

| (19) | Isolated form | | | | | | coalesced form | |
|---|---|---|---|---|---|---|---|---|
| (a) | sùo | ‘east’ | + | làm | ‘direction’ | → | sùolàm | ‘east’ |
| (b) | zàa | ‘respect’ | + | pîi | ‘large’ | → | zàapîi | ‘feeling shy’ |
| (c) | bèe | ‘relatives’ | + | tsàa | ‘offspring’ | → | bèetsàa | ‘relatives’ |
| (d) | hàa | ‘more’ | + | gìn | ‘sound’ | → | hàagìn | ‘to sound louder’ |

Sentences in (20) below show how vowel reduction fails to apply.

(20a) nìsá sùolàm àkôon-nín à=sûoʔ-ê
sun east from-LOC 3=appear-DECL
'The sun rises from the east.'

(b) tsàpâŋ-pâ ùmtsàn-khú zàapì à=ûm-mê
child-MAS behaviour-DET odd 3=EXIST-DECL
'The behaviour of the boy is odd'

(c) mêithâl à=hàgìn-nê
gun 3=more.sound-DECL
'The gun (shot) sounds louder.'

(d) nà=pâ lê kà=pâ-tsú bèetsà â=hì-lhón-nê
your=father and my=father-DET relative 3=be-DUAL-DECL
'Your father and my father were/are relatives.'

### 3.4. Cluster formation

As stated in section (2.3) above. Thadou permits consonant clusters of a consonant and a liquid during fast, casual speech, but nowhere else. This cluster formation occurs when an unstressed central vowel, *a* [ə] which occurs between a consonant and a liquid is deleted during fast, casual speech.

v → ø/_____ (lateral consonant)

(21a) bàaibàlêʔ → bàaiblêʔ 'bubul'
(b) bèeŋsalàp → bè:ŋslàp 'to give a slap'
(c) dalàplàp → dlàplàplàp 'to turn around'
(d) mālàp → mlàp 'to reach before time'
(e) ùmbàlàa → ùmblàa 'expression of agreement'
(f) pāláŋ → pláŋ 'completive expression'

Sentence examples of clusters with a consonant and liquid are as follows in (22)[5].

(22a) thîŋtsûŋ-á bàaiblêʔ khàt à=tóu-vê
tree-loc bulbul one 3=sit-ve
'A bulbul sits on a tree.'

(b) ka=òzâ-pú=ìn êi=bèeŋslàp-mê
my=teacher-mas=erg 3→1=slap-decl
'My teacher slaps me.'

[5] *dlàplàplàp* in (22c) literally mean to turn one's head here and there in confusion or fear.

(c) kîpî-khú â=dlàplàplàp-mê
parrot-det 3=look.around-decl
'The parrot is looking here and there.'

(d) gúo lóŋ sûŋ-á zûtsà à=thóol -pláŋ-ŋê
bamboo hole inside-loc rat 3=fit-complete.decl
'A rat fit (well) inside a bamboo hole.'

### 3.5. Consonant deletion

The last examples of coalescence of adjacent segments come from the intonational pattern of interrogative marker *–àm* which gets deleted along with the final glottal stop /ʔ/ of the perfective marker *-táʔ* in the coalesced form.

m → ø/_____# {q particle}

Sentence examples of coalescence due to the deletion of glottal stop and interrogative particles are as follows in (23).

| | | | | | |
|---|---|---|---|---|---|
| (23a) | nà=néʔ-táʔ-àm | (2sg=eat$_2$-perf-q) | → | nà=néʔ-tá | 'have you eaten (food)?' |
| (b) | nâ=tsì-táʔ-àm | (2sg=go-perf-q) | → | nâ=tsìi-tá | 'have you gone?' |
| (c) | nà=hûŋ-táʔ-àm | (2sg=come-perf-q) | → | nà=hûŋ-tá | 'have you come?' |
| (d) | nâ=bòol-táʔ-àm | (2sg=do$_2$-perf-q) | → | nâ=bòol-tá | 'have you done?' |
| (e) | à=néʔ-táʔ-àm | (3sg=eat$_2$-perf-q) | → | à=néʔ-tá | 'has he/she eaten?' |

Unlike in the examples in section (3.2.1.) where the tone is transferred to the following nasal /n/ after the deletion of the vowel /i/ of *in*, in the examples in (23), the tone of *–àm* has no host segment to transfer after the entire syllable is deleted.

## 4 Stem alternation

Verbs in Thadou like in many other Kuki-Chin languages have two forms referred to as stem$_1$ and stem$_2$ in the literature on Kuki-Chin languages. Stem$_1$ and stem$_2$ differ either in their final segment or tone. That is stem$_1$ occurs with a high tone and stem$_2$ with a low tone. Syntactically, stem$_1$ occurs in declarative and main clauses, whereas stem$_2$ occurs in interrogative, causative and subordinate clauses. It is beyond the scope of this paper to discuss the distribution of stem$_1$ and stem$_2$ hence readers may refer to Haokip (2012) for stem distribution in Thadou). In what follows, we will present the tonal and segmental changes between stem$_1$ and stem$_2$ as shown in (24) below.

(24)

| | stem$_1$ | stem$_2$ | |
|---|---|---|---|
| (a) | tóot | tòot | 'joke' |
| (b) | óot | òot | 'envy' |
| (c) | póot | pòot | 'go out' |
| (d) | góot | gòot | 'verbal abuse' |
| (e) | mú | mù | 'see' |
| (f) | pét | pè | 'bite' |

In examples 24 (a-e), the two stems differ only in tone, but in (f), the two stems differ in their final and tone.

Sentence examples in (25) below show the occurrence of stem1 in a declarative clause, and stem2 in interrogative, causative and subordinate clauses.

(25a) nà= tóot-nê — nà=tòot-hám
2SG=joke$_1$-DECL — 2SG=joke$_2$-be.Q
'You (sg) are/were joking — 'Do/did you joke?'

(b) mî=ìn nà=óot-nê — mî kî= òot sà?-hì?-în
people=ERG 2SG=jeleous$_1$-DECL — people REF=jeleous$_2$ CAUS-NEG-IMP
'People are jealous of you (sg)' — 'Don't allow people to be jealous of you (sg)'

(c) kà=póot-dò?-ê — kâ=pòot-dò? núŋ-în
1SG=go$_1$-out-DECL — 1SG=go$_2$-out after-NF
'I go/went out' — 'After I went out...'

### 4.1. Stem alternation with reflexive verbs

Reflexive verbs are formed by prefixing the reflexive marker *ki*= before a verb stem. The reflexive *ki*= does not carry tone on its own. However, when it is prefixed before a verbal stem to form a reflexive verb, it is realized as a falling tone (HL) both in stem$_1$ and stem$_2$ forms as shown in (26) below.

(26)

| | stem$_1$ | stem$_2$ | |
|---|---|---|---|
| (a) | kîcháai | kîchèi | 'to get over' |
| (b) | kîdáai | kîdèi | 'to play with' |
| (c) | kînàa | kînà? | 'to fight with' |

A spectrographic image of the reflexive verb stem 'to play a game' in stem1 and stem2 forms is provided in Figures 1 and 2 below.

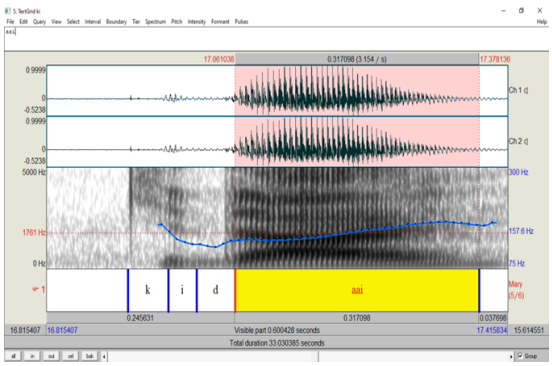


**Figure 1 – Tone realization of *kìdáai***

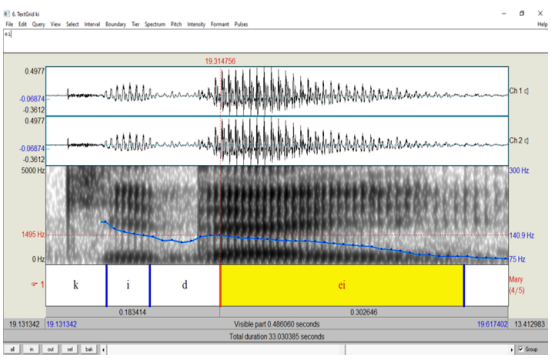


**Figure 2 – Tone realization of *kìdèi***

Figures 1 and 2 above show the reflexive marker *ki*= realised as a falling tone when combined with the verbal stem. The tone of the reflexive marker *ki*= falls from mid to low in both the stem forms. As noted above, stem$_1$ carries a high tone and stem$_2$ has a low tone.

### 4.2. Tone plus segmental change

In (27) below, we demonstrate the segmental change between $stem_1$ and $stem_2$ forms. In (a-b) $stem_1$ forms that end in nasals become stops in $stem_2$, in (c) the $stem_2$ form differs from the $stem_1$ form by the addition of the consonant /t/. Examples (d&e) are the opposite of (c), in that, it is the $stem_1$ forms that end in a consonant. The stem forms in (f-g) differ only in the quality of the vowel. That is, the $stem_1$ form has a CVVG (where G is a glide coda) structure and the $stem_2$ CVG structure. Finally, the example in (h) shows the difference between the two stems in which the $stem_1$ form ends with a glide coda CVG whereas $stem_2$ ends is an open syllable.

| (27) | | stem1 | stem2 | gloss |
|---|---|---|---|---|
| (a) | m→p | lhém | lhèp | ‘console’ |
| (b) | ŋ→n/ʔ | háŋ | hàn | ‘very bold’ |
| | | khàaŋ | khàʔ | ‘wake‘ |
| (c) | V→Vt | ná | nàt | ‘pain’ |
| (d) | Vp→VV | kàp | kà | ‘cry’ |
| (e) | Vt→VV | pèt | pè | ‘bite’ |
| (f) | VVy→Vy | hòoy | hòy | ‘beautiful’ |
| (g) | VVw→Vw | dòow | dòw | ‘oppose’ |
| (h) | Vw→VV | lów | lò | ‘resemble’ |

## 5 Tones

Thadou has three underlying tones in isolation: high (H), falling (HL) and low (L). Tonal minimal triplets with the same tone and from the same grammatical category are rare. Examples of tonal minimal triplets are provided in two sets in (28) below.

| | | | |
|---|---|---|---|
| (28a) | sá ‘hot’ | ŋá ‘five’ | mú ‘eagle’ |
| (b) | sâ ‘animal’ | ŋâ ‘fish’ | mû ‘seed’ |
| (c) | sà ‘thick’ | ŋà ‘wait’ | mù ‘see’ |
| (d) | léi ‘tongue’ | túi ‘tasty’ | méi ‘cloud’ |
| (e) | lêi ‘earth’ | tûi ‘water’ | mêi ‘fire’ |
| (f) | lèi ‘bridge’ | tùi ‘soak’ | mèi ‘to search with hands’ |

Figure 3 below is a spectrographic image of a tonal minimal triplet *sa* pronounced one after the other with three different pitches: H, HL, and L. As shown in (28a-c) above, when the word *sa* is pronounced with a high tone, it means ‘hot’, with a falling tone, ‘animal’, and with a low tone ‘thick’.

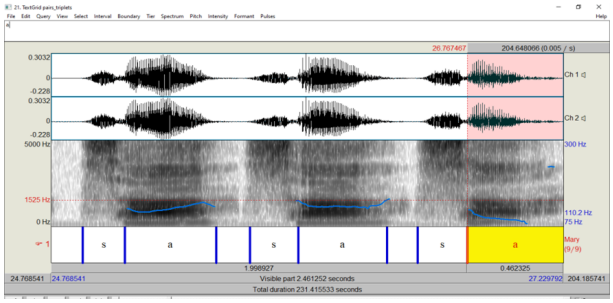


**Figure 3 – Pitch realization of tones in a sequence.**

As shown in Figure 3 above, the high tone in Thadou rises gradually and falls at the end, the falling tone starts with a slight fall and falls gradually where it rises at the end, and the low tone has a steady fall.

In Figures 4 to 6 below, we present three spectrographic images of H, HL, and L tones in the words for *teeth*, *animal*, and *leaf* in isolation and check their tonal changes when followed by three different modifier tones H, HL, and L.

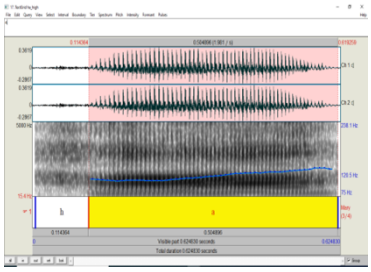

**Figure 4 – *há* 'teeth'**

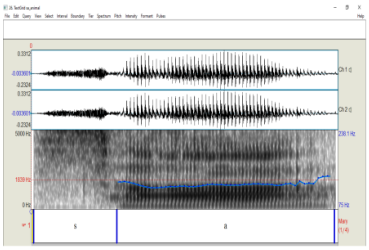

**Figure 5 – *sâ* 'animal'**

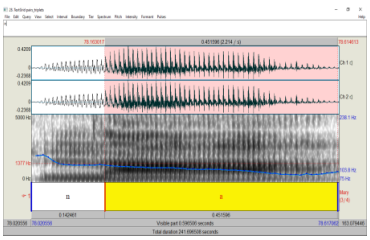

**Figure 6 – *nàa* 'leaf'**

As the tonal rule below and the examples that follow in (29) show, the high tone noun *há* 'teeth' is lowered to level tone (indicated here as L) when followed by three modifier tones H, HL, and L, but the tones of the modifiers remain unchanged.

H+H → L+H
H+HL → L+HL
H+L → L+L

| | | | | | |
|---|---|---|---|---|---|
| (29a) | háa+ŋá | (teeth+five) | → | hāŋá | 'five teeth' |
| (b) | háa+gîet | (teeth+eight) | → | hāgîet | 'eight teeth' |
| (c) | háa+nì | (teeth+two) | → | hānì | 'two teeth' |

Figures 7 to 9 below show the spectrographic images of the tonal change of the high-tone noun *há* to a level tone when followed by three modifiers tone H, HL, and L.

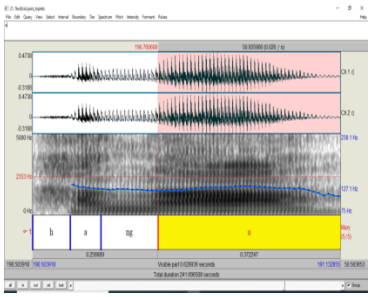

**Figure 7 – Five teeth**

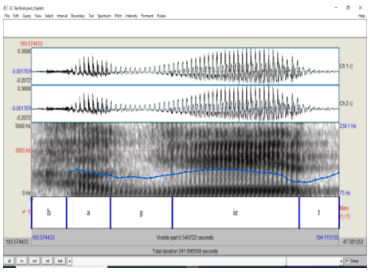

**Figure 8 – Eight teeth**

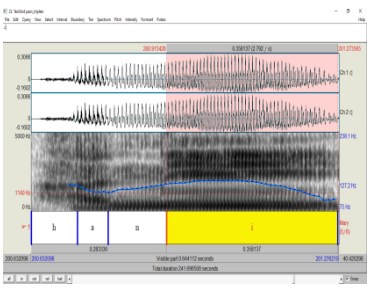

**Figure 9 – Two teeth**

Again, as the tonal rule below and the examples that follow in (30) show, the lowering of tone also applies when a HL noun /sâa/ is followed by modifiers whose underlying tones are H, HL, and L.

HL+H → L+H
HL+HL → L+HF
HL+L → L+L

| | | | | |
|---|---|---|---|---|
| (30a) | sâa+ŋá | (animal+five) | sàŋá | ‘five animals’ |
| (b) | sâa +gîet | (animal+eight) | sàgîet | ‘eight animals’ |
| (c) | sâa+nìi | (animal+two) | sànìi | ‘two animals’ |

As the examples in (30) show the HL tone noun becomes L when followed by modifier tones H, HL, and L.

Figures 10 to 12 below show the spectrographic images of the lowering of the Falling (HL) tone noun *sâa* to a low (L) tone.

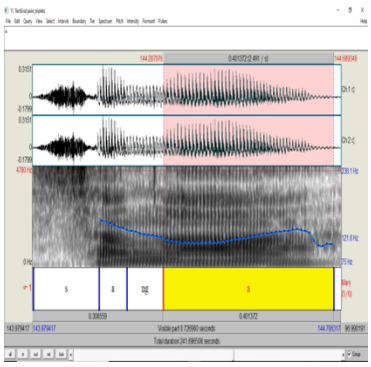

**Figure 10 – Five animals**

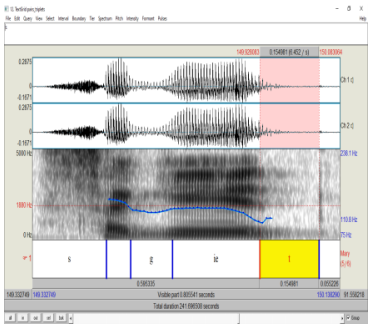

**Figure 11 – Eight animals**

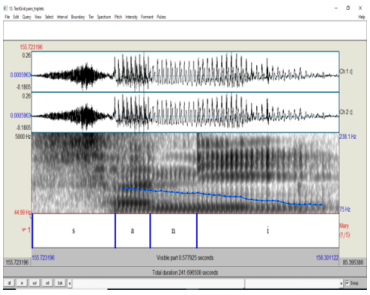

**Figure 12 – Two animals**

Furthermore, as the tonal rule below and the examples that follow (31) show, a low-tone noun *nàa* ‘leaf’ remains low when followed by modifier tones H, HL, and L.

L+H → L+H
L+HL → L+HL
L+L → L+L

| | | | | |
|---|---|---|---|---|
| (31a) | nàa+ŋá | (leaf+five) | → nàaŋá | ‘five leaves’ |
| (b) | nàa+gîet | (leaf+eight) | → nàagîet | ‘eight leaves’ |
| (c) | nàa+nìi | (leaf+two) | → nàanìi | ‘two leaves’ |

Figures 13 to 15 below show the spectrographic images of the low tone nàa when followed by three modifying tones H. HL, and L.

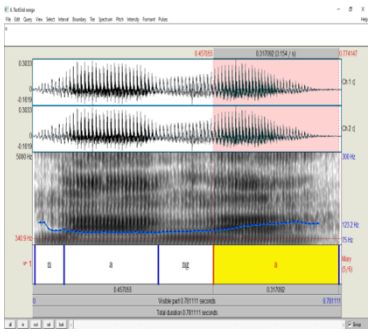

**Figure 13 – Five leaves**

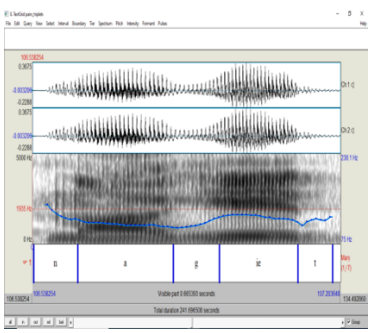

**Figure 14 – Eight leaves**

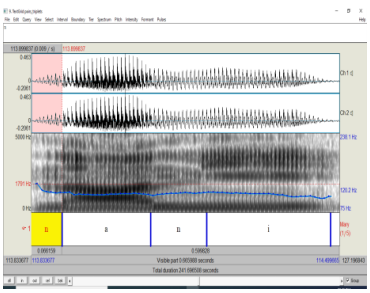

**Figure 15 – Two leaves**

The tones of the proclitic pronouns which occur as possessive makers before a possessed noun and as agreement markers before a verb vary between L and HL according to the tone of

the following word (Larry M. Hyman and T. Haokip 2004, Larry M Hyman 2007) as shown below.

| **before /HL, H/** | **before /L/** | |
|---|---|---|
| /kà/ | /kâ/ | first person (excl) |
| /ì/ | /î/ | first person (incl) |
| /nà/ | /nâ/ | second person |
| /à/ | /â/ | third person |

These proclitic pronouns, which are used with both nouns and verbs are realized as a L tone when followed by HL or H tones, but a HL tone when followed by a /L/ tone as shown below.

| | **'my'** | **'your'** | **'his/her'** | **'our (dual incl)'** | |
|---|---|---|---|---|---|
| /L/: | kà=ûy | nà=ûy | à=ûy | ì=ûy | 'dog' |
| /L/: | kà=zóong | nà=zóong | à=zóong | ì=zóong | 'monkey' |
| /HL/: | kâ=kèel | nâ=kèel | â=kèel | î=kèel | 'goat' |

## 6 Conclusion

This paper discusses the different types of morphophonemic operation in Thadou, a Tibeto-Burman language of the Kuki-Chin subgroup. Morphophonemic changes occur when free morphemes concatenate with bound morphemes under certain morphosyntactic operations. The first example of morphophonemic changes in Thadou is assimilation in which either the preceding sound influences the following sound or the following sound influences the preceding sound. The second example of morphophonemic changes is brought about due to the concatenation of two vowels from adjacent syllables. That is, whenever two vowels come together in Thadou, either one of the vowels is deleted, a glide is inserted, or one of the vowels will undergo a change. The third type of morphophonemic change includes the reduction of a long vowel when occurring as the first syllable of a compound word, cluster formation due to the deletion of the unstressed syllable, and the deletion of the interrogative marker as a result of the change in intonation. The last two sections discuss the segmental and suprasegmental changes that verb stems undergo, and the tonal changes that occur when different tones are juxtaposed next to each other.

## Abbreviations

| | |
|---|---|
| 3→1 | Third person acting on first person |
| BEN | Benefactive |
| CAUS | Causative |
| DECL | Declarative |
| DET | Determiner |
| DIST | Distal |
| FUT | Future |
| H | High tone |
| HL | Falling tone |
| IMP | Imperative |
| INST | Instrumental |
| L | Low tone |
| LOC | Locative |
| NEG | Negative |
| NMZ | Nominalizer |
| PERF | Perfective |
| PL | Plural |
| Q | Interrogative |
| REF | Reflexive |
| SG | Singular |

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