



THOT THEORY OF TONE

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Babanki. Analytical report on the tonal system

On the basis of the Version 8b of the Questionnaire

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1. General information about the language

1.1. Language name

Babanki

Alternative names: Gaʔa Kejom, Kejom, Kedjom

ISO-639: bbk; Glottolog: baba1266

1.2. Genetic affiliation

Babanki is a Central Ring Grassfields Bantu language of the North-West Region of Cameroon (Hyman 1980; Akumbu & Chibaka 2012; Hammarström et al. 2023; Eberhard, Simons & Fennig 2023). Eberhard, Simons & Fennig (2023) report that Babanki is spoken by 39,000 people and that the number of speakers is increasing; however, the figure of 39,000 likely overestimates the number of fluent speakers globally.

1.3. Dialects

The language is spoken mainly in Babanki Tungoh and Big Babanki, also known as Kejom Ketinguh and Kejom Keku respectively, but also to some extent in diaspora communities outside of Cameroon. The two dialects differ from each other in only minor ways. There are only a few lexical differences, shown in (1).

| | | |
|-----------------|----------------|---------------|
| (1) Big Babanki | Babanki Tungoh | |
| <i>fāmváŋ</i> | <i>túbù</i> | ‘jigger’ |
| <i>kàbwín</i> | <i>dʒì</i> | ‘road’ |
| <i>wúŋ</i> | <i>fàlà̀m</i> | ‘fishing net’ |

Some sound differences exist, as in the following words.

| | | |
|------------------------|-------------------------|-------------|
| (2) Big Babanki | Babanki Tungoh | |
| <i>kàbònà</i> | <i>kàbòlè</i> | ‘calabash’ |
| <i>kàbwáʔ</i> | <i>kàbjáʔ</i> | ‘half’ |
| <i>kànʃìf</i> | <i>kànffìf</i> | ‘blindness’ |
| <i>wàn^o</i> | <i>wàjn^o</i> | ‘child’ |

This report is based on the Babanki Tungoh dialect. It takes into account a number of previous analyses of the tone system of the language (Hyman 1979, 1980; Chie 2002; Akumbu & Chibaka 2012; Akumbu 2011, 2015, 2019; Faytak & Akumbu 2021).

2. Segmental phonology

A detailed description of the segmental phonology of Babanki is found in Faytak & Akumbu (2021), and the material in this section is mostly drawn from that study.

2.1. Vowels

Babanki has eight vowel phonemes (Table 1) contrasting in height, backness, and rounding.

Table 1: Vowel phonemes

| | Front | Central | Back |
|-----------|-------|---------|------|
| Close | i | ɨ, ʉ | u |
| Close-Mid | e | ə | o |
| Open-Mid | (ɛ) | | (ɔ) |
| Open | | a | |

The mid vowels /e/ and /o/ exhibit higher or lower allophones depending on syllable shape and palatalization or labialization of the onset. The mid-high allophones are consistently observed in open syllables, e.g., *àbè* ‘liver’, *àkó* ‘money’, while their mid-low counterparts occur in closed syllables, e.g., *bè?* ‘snatch’, *kó?* ‘chop’. The mid-low allophones may also occur in some open syllables due to vowel coalescence, e.g., *kàzò: kóm* ‘my spear grass’ /*kà-zòn àkóm*/ (Akumbu 2016, Faytak & Akumbu 2021: 342), and may be marginally contrastive with [e] and [o] in a handful of words where the operation of coalescence cannot definitely be confirmed, e.g., *àmbé* ‘chisel’ vs. *àmbè* ‘address term for fon (traditional ruler)’.

Vowel coalescence can modify the surface vocalic and tonal representations, e.g., in *kàbē.ē kóm* ‘my dance’ /*kà-bén àkóm*/ where a M tone is created. Owing to vowel coalescence as well, lengthened vowels frequently occur in running speech, and length is not phonemic. Therefore, phonetically long vowels are not lexical; they only result from morphophonological processes.

2.2. Consonants

Babanki has 25 consonant phonemes in stem-onset position (Table 2). Fricatives, affricates, and plosives at all places of articulation are contrastively voiced, with the exception of /b/, which lacks a voiceless phoneme counterpart.

Table 2: Consonant Phonemes

| | Bilabial | Alveolar | Palatal | Velar |
|------------|----------|----------|---------|-------|
| Stops | b | t, d | | k, g |
| Nasal | m | n | ɲ | ŋ |
| Fricatives | f, v | s, z | ʃ, ʒ | ɣ |
| Affricates | pf, bv | ts, dz | tʃ, dʒ | |

| | | | | |
|---------------------|---|---|---|--|
| Liquids | | l | | |
| Approximants | w | | j | |

All consonants listed in Table 2 may occur in onset position in roots. Consonants in root-final coda are /f, s, k, m, n, ŋ/. In this position, /k/ is realized as a glottal stop [ʔ]. Apart from loanwords, onset position in non-root morphological material (prefixes, suffixes, and function words) contains only the consonants /t, k, f, v, s, ʃ, m, n, j, ɣ/.

2.3. Prosodic units

2.3.1. Syllable and mora

Babanki common syllable types are V, CV, NCV, CGV, NCGV, CVC, NCVC, CGVC, and NCGVC, where N stands for nasal and G for glide. There is no evidence that light and heavy syllables behave differently with respect to tone, revealing that Babanki is a syllabic not moraic language.

2.3.2. Foot

It doesn't appear to be necessary to postulate a prosodic foot in Babanki.

2.3.3. Word

The Babanki word is composed of a root plus an optional (C)V prefix or suffix. A majority of roots are monosyllabic, a lesser number are disyllabic, while very few are polysyllabic mostly due to compounding, reduplication, or borrowing.

(3) Babanki root structure

| | | | | | |
|---------------|----------|----------------|------------|--------------------|-------------|
| <i>dʒì</i> | 'road' | <i>túbù</i> | 'jigger' | <i>à-záʔánàm</i> | 'scorpion' |
| <i>kà-kán</i> | 'dish' | <i>kà-bòlà</i> | 'calabash' | <i>fà-wùfàwùfà</i> | bat |
| <i>té</i> | 'insult' | <i>bíná</i> | 'sleep' | <i>tòlòkí</i> | 'tortoise' |
| <i>sám</i> | 'swim' | <i>bvìmà</i> | 'bury' | <i>kámándà</i> | 'carpenter' |

Roots can take only a single prefix or suffix. Affixes are all monosyllabic.

Nouns generally have a prefix followed by a root. Nouns in classes 3, 5, 6, and 8 have V prefixes, those in classes 2, 6a, 7, 13, and 19 have CV prefixes, whereas class 10 nouns have a CV suffix and a floating H tone as a prefix, see §3.3.2. Nouns in classes 1 and 9 have no affix. Verb roots can either be preceded by an infinitive marker or followed by various derivative suffixes. Both noun and verb roots always begin with a consonant, while the only vowels that can occur at the beginning of a word are the prefixes *a-* and *ə-*.

3. Tonal inventory

3.1. Character of tonal system

Babanki has four tonal levels. Low (L) and high (H) are basic levels. Before a pause, a falling (LxL) contour is contrastive to the L level tone. M tone results from two processes:

- Low tone raising rule (in a sequence of L tones before H, the final L is realized as M), see §6.1.4;
- HL simplification rule (the underlying HL on one syllable surfaces as M), see §6.1.2.

3.2. Inventory of tonemes

3.2.1. Tonemes L and H

The two tonemes, L and H are shown in the following noun roots which differ only in tone.

| | | | |
|----------------|--------------|----------------|-------------|
| (4) <i>tʃi</i> | 'medicine' | <i>tʃi</i> | 'fireplace' |
| <i>kà-bwìn</i> | 'witchcraft' | <i>kà-bwín</i> | 'ridge' |
| <i>à-sè</i> | 'grave' | <i>à-sé</i> | 'profit' |

Note that noun class prefixes come with their L tones. The tonemic character of L is justified by the following criteria:

1) The Floating Criterion: L can float and eventually have other effects, e.g., downstep of H (see examples in 3.3.1 and 3.4.2);

2)– The Activity Criterion: L is active: it can spread rightwards, as in the following example where the L tone of the tense marker spreads to the verb root and dislodges its underlying H tone, which docks onto the following noun prefix and creates a HL contour which eventually simplifies to a M tone.

| |
|-------------------------------|
| (5) <i>Bún t̃ l̃m k̃báj̃n</i> |
| Bún t̃ l̃m k̃báj̃n |
| Bung ɾ2 cook 7-fufu |
| 'Bung cooked fufu' |

3) The Shared TBU Criterion: /L/ and /H/ can be hosted by one TBU. The resulting contour /HL/ is simplified to M according to the HL simplification rule, see §6.1.2.

The L toneme has three allotones, level (L), falling (LxL) and rising (LM). The level low allotone appears

– in the non-final position

– before a pause (further on, L^o) in a few Babanki nouns (Hyman 1979: 160-161, Akumbu 2019: 4) where a floating high tone is postulated on the right edge prevents the L from falling (see also §3.3.2).

Otherwise, the default realization of /L/ in pre-pausal position is downglide, LxL See (6) for examples of nouns with and without final floating H which differ by their surface tonal realizations.

| | | | | |
|-------------|----------|-------------------------|------------|----------------|
| (6) L | | L ^o | | |
| <i>nàm</i> | 'animal' | <i>dzèm^o</i> | 'back' | <i>/dzèm'/</i> |
| <i>tàjn</i> | 'five' | <i>wàjn^o</i> | 'child' | <i>/wàjn'/</i> |
| <i>à-sè</i> | 'grave' | <i>dzè^o</i> | 'palm nut' | <i>/dzé'/</i> |

The rising allotone of /L/ appears in disyllabic or trisyllabic prefixed L-toned nouns before H, as a result of the Low Tone Rising rule, see §6.1.4.

The tonemic character of H is justified by the following criteria:

1) The Floating Criterion: H can float and eventually dock onto a neighboring TBU, as in imperatives where the final floating H tone docks leftwards onto a schwa that is inserted to bear the tone and avoid a contour tone on the verb root:

| |
|--------------------------|
| (7) Singular imperatives |
| <i>kùmá</i> |
| <i>kùm´</i> |

touch IMP
‘touch!’

Note that the floating imperative H tone behaves differently than the floating H tone of nouns shown to prevent a L tone from downgliding before a pause (see examples in 6). This raises the question why the floating H tone has two different effects. It could be that the imperative H is morphologically conditioned or that the imperative has two allomorphs, one with a segmental H schwa realized on L tone verb roots, and another with a zero marker realized on H tone verb roots. A detailed analysis of the imperative is required to clarify the issue.

2)The Tonal Morpheme Criterion: floating H marks the imperative and other command forms as illustrated by the following examples and elaborated in (3.3.2):

| | |
|-----------------|--------------|
| (8) H tone verb | L tone verb |
| <i>kám</i> | <i>kwòŋá</i> |
| kám ´ | kwòŋ ´ |
| squeeze IMP | harvest IMP |
| ‘squeeze!’ | ‘harvest!’ |

3)The Activity Criterion: H tone can spread, as illustrated in the following associative construction where the H tone of the associative marker (AM) spreads to the right and dislodges the L tone of the noun prefix, which eventually causes downstep of the root H tone and it is realized as [↓]H.

(9) *kàbájŋ ká vâ[↓]lím*
 kà-bájŋ kó vâ-lím
 7-fufu AM 2-husband
 ‘fufu of husbands’

4)The Shared TBU Criterion: /L/ and /H/ can be hosted by one TBU. The resulting contour /HL/ is simplified to M according to the HL simplification rule, see §6.1.2.

Therefore, the Babanki tonal system is omnitonal (rather than privative) and both tones are equally active.

3.2.2. Contour tones: toneme or not?

1) Tonal contours in Babanki are realized on phonetically long vowels which are interpreted as sequences of identical vowels. That means they occur to host two lexical tonemes or those that result from morphophonological processes.

| | |
|------------------------------|-----------------------------|
| (10) H.L | L.H |
| <i>bí.ì.bì</i> ‘deaf person’ | <i>bà.á.làŋ</i> ‘groundnut’ |
| <i>bó.ò.bó</i> ‘God’ | <i>tʃò.ó.kwà?</i> ‘rat’ |
| <i>bjá.à</i> ‘avocado’ | <i>ndù.ú.ŋkì</i> ‘donkey’ |

Exceptionally, two diphthongs occur in onomatopoeia (Akumbu 2024), and one of them has a tonal contour on unidentical vowels, suggesting that each vowel comes with its tone:

(11) Diphthongs in onomatopoeia

| | | | | | | | |
|----|--------------------------------------|-----------|--------------|----------|-------------------------|-----------|-------------|
| a. | <i>yà</i> | <i>kù</i> | <i>kā-vú</i> | <i>á</i> | <i>wájŋ^o</i> | <i>lá</i> | <i>pái?</i> |
| | 3SG | give | 7-hand to | 1.child | | QUOT | ONOM |
| | ‘She slapped the child <i>pái?</i> ’ | | | | | | |

- b. *kə-mpfi ká wì? ká tù? ntsín lá gèin*
 7-fat 7.AM 1.person 7.SM smash 9-step QUOT ONOM
 'The fat person made a step *gèin*.'

2) If two different tonemes are hosted by one syllable (as a result of tonal processes), they are simplified to M tone (§6.1.2). Such cases do not comply with the Persistence Criterion, therefore, there is no reason to consider tonal contours as tonemes in Babanki.

3.3. Floating tones

3.3.1. Floating L tone

There are several instances of floating L tones.

1) The infinitive marker *é`* (12) and some nouns (13) have a floating L tone on the right edge of their lexical forms. The floating L causes downstep on the root of the subsequent H-toned word, and merges with the initial L tone of the subsequent word.

- | | |
|------------------|---------------|
| (12) H tone verb | L tone verb |
| <i>é`kwén</i> | <i>ákùm</i> |
| <i>é`-kwén</i> | <i>é`-kùm</i> |
| INF-enter | INF-touch |
| 'to enter' | 'to touch' |

- (13) *kəfó`ká wì?*
kə-fó` ká wìk
 7-thing 7.AM 1.person
 'thing of person'

2) Present/perfect tense marker *`lí* has a prefixed floating L tone. If this marker is preceded by a H-toned verb, the floating L triggers a downstep on the marker *lí* (14a). If the preceding verb is L-toned, the floating tone is erased (14b).

- (14) a. *Búnj é yén `lí wù.*
Bunj DJ see P0 2SG
 'Bung has seen you.'
- b. *Búnj é kùm `lí wù.*
Bunj DJ touch P0 2SG
 'Bung has touched you.'

3) The L tone can be set afloat as a consequence of H tone spread. If followed by a H tone, as in (15), the presence of the floating L tone will be seen in the downstep of the following H tone.

- (15) *kəbájn ká vè`lím*
kə-bájn ká vè-lím
 7-fufu AM 2-husband
 'fufu of husbands'

In this case, the H tone of *ká* ‘associative marker’ spreads to the prefix of N2 and dislodges its L tone which floats and causes downstep of the H tone of the final syllable.

3.3.2. Floating H tone

A floating H tone is present

– on the right edge in the lexical form of some L-toned nouns. When in the pre-pausal position, the floating H tone conditions the use of the level L allotone of the toneme /L/ (16); in the absence of the word-final floating H, toneme /L/ is realized as falling LxL (Hyman 1979: 165-166).

(16) *kàmbò ká káfù*^o

| | | |
|-------------------|------|------------|
| kà-mbò | ká | kà-fù´ |
| 7-bag | 7.AM | 7-medicine |
| ‘bag of medicine’ | | |

– on the left edge of L-toned nouns belonging to noun class 10, e.g. *´dzòmsá* ‘dreams’.¹ If such a word appears with a suffix, the prefixed floating H spreads onto the subsequent syllable (according to the High Tone Spread rule, see §6.1.3) and delinks the L tone of the root producing a downstep of the subsequent H: /´dzòmsá/ ‘dream’ → *dzóm´sá*. The High Tone Spread rule does not affect those class 10 nouns which have an initial prenasalization, e.g., /´ndzàm-sá/ ‘axes’ surfaces as *ndzàmsá* (rather than **ndzám´sá*).

– There is an instance of a floating grammatical H-tonal morpheme for the singular command mood (imperatives, subjunctives and hortatives) (Akumbu, Hyman & Kießling 2020: 3). If a verb root has a H tone, the final floating H:

– is docked onto the subsequent L-toned syllable (17). The resulting HL contour surfaces as M, according to the HL simplification rule, see §6.1.2.

(17) *wyé* *kāzwī* *tsú*
wyé ´ *kà-zwì* *tsú*
 insert IMP 7-air there
 ‘Inflate it!’

– before another H or a pause, merges with the root H, e.g., *kám* ‘squeeze!’ /*kám* ´/.

If a L-toned verb root is monosyllabic, a schwa is inserted to bear the floating H tone of the imperative, e.g., *kù má* ‘touch!’ /*kù m* ´/. The insertion of schwa is required as a means to avoid LH contour which is prohibited on one syllable. On the other hand, LH is possible on disyllabic verbs in the imperative, e.g., *tàŋká* ‘try!’ where the fH of the imperative replaces the L tone of the second syllable (i.e., *tàŋkà* ‘try’)

3.4. Downdrift and downstep

3.4.1 Downdrift (automatic downstep)

There is downdrift in Babanki, i.e., a spontaneous lowering of H tone after a L tone. In this

¹ The singular counterparts of these nouns belong to class 9 and have no prefixed floating H, e.g. *dzòm* ‘dream’. Therefore, it can be said that the marker of class 10 is a circumflex: a prefixed floating H and the suffix *sá*.

study, downdrift is equivalent to automatic downstep.

3.4.2 Non-automatic downstep

Downstep occurs when an unassociated floating L tone is stranded between two H tones:

- (18) a. *kàfó* [↓]*ká* *nàm*
kà-fó` ká nàm
7-thing AM 9.animal
'thing of animal'
- b. *á*[↓]*kwén* *nà* *kà*[↓]*ní* *ká*
á`-kwén nà kà-ní ká
INF-enter with 7-run 7
'to dash in'

The H tone of the associative marker in (18a) is produced at a lower level than that of the preceding noun root because of the intervening floating L tone, and in (18b), the floating L tone of the infinitive marker causes the H tone of the verb root to be downstepped relative to the initial infinitive H tone.

3.5. Upstep

Upstep is not attested in Babanki

3.6. Other suprasegmental features of tonemes, apart from pitch

Babanki tonemes do not seem to be characterized by features other than pitch.

3.7. Registers

There are no registers of the South East Asian type in Babanki.

4. Tonotactics

4.1. Tonal span

4.1.1. Tonal span size

The tone span is zero for a floating L tone found between two H tones, e.g., in the infinitive (§3.3.1.). The maximal size of a tonal span is 3 syllables (a noun consisting of a disyllabic root and a noun class prefix; a verb consisting of a disyllabic root and a derivative suffix).

There is evidence that within a word a sequence of syllables with identical tones constitutes a single tonal span, e.g., [H *bínə*] 'sleep': if a L tone spreads from a preceding syllable onto the verb, the H tone shrinks to the second syllable, as in the following example.

- (19) *wàjn*^o *jì* *bíná*
wàjn` *jì* *bíná*
1.child P2 sleep
'The child slept.'

The L tone of the hodiernal past marker *jì* spreads to the tonal span of the H tone and the H tone shrinks to the second syllable, indicating that there is a single tonal span that extends over the two syllables of the verb.

If a noun has a noun class prefix, the prefix is also included into the tonal span (if its tone is identical to the tone of the root). This is proved by example (20), where H tone spreads on the prefix of the noun *kàkòs* 'slave', and the L toneme shrinks to the noun root (if the prefix would carry a separate toneme, one would expect a contour HL on the prefix, surfacing as M: **kākòs*).

(20) *kəkí ká kəkòs*
 kè-kí ká kè-kòs
 7-chair 7.AM 7-slave
 ‘chair of slave’

Therefore, the maximal size of a tonal span equals 3 syllables, e.g., *vələmə* ‘sibling’.

4.1.2. Modification of the tonal span boundaries

Tone rules such as H Tone Spread, L Tone Spread and HL Simplification are capable of modifying tonal span boundaries (see §6).

4.1.3. Tonal span with relation to other units

Prototypically the tonal span correlates with a word.

4.2. Combinations of tonemes within a word

Noun class prefixes are L toned while the lone nominal suffix (of class 10) is H toned. Verbal derivational suffixes are toneless (4.3) and adjective prefixes are L toned. Lexical tone of verbal stems can be H or L throughout. No combination of tonemes is possible.

There are no other restrictions on combinations of tonemes within a word.

4.3. Toneless syllables and morphemes

4.3.1 Toneless syllables

There are no toneless syllables.

4.3.2 Toneless morphemes

Derivational suffixes are toneless and take the same tone as the root, as in Table 3. This is a result of a spread of the root toneme to the right, i.e., the suffixes are integrated into the tonal span of the root.

Table 3: Derivative suffixes

| -sə ‘causative’ | -kə ‘repetitive’ | -tə ‘attenuative’ | -lə ‘iterative’ | -mə ‘associative’ ² |
|------------------------|-------------------------|--------------------------|------------------------|---------------------------------------|
| <i>vì-sə</i> | <i>bvì-kə</i> | <i>mjà-tə</i> | <i>kò-lə</i> | <i>kwò?-mə</i> |
| ‘bring near’ | ‘fail repeatedly’ | ‘complete’ | ‘scrape many times’ | ‘think together’ |
| <i>kùm-sə</i> | <i>tàn-kə</i> | <i>bà?-tə</i> | <i>dàŋ-lə</i> | <i>sù-mə</i> |
| ‘touch’ | ‘many things fly’ | ‘scrape’ | ‘spread’ | ‘insist continually’ |
| <i>bén-sə</i> | <i>ká?-kə</i> | <i>té-tə</i> | <i>té-lə</i> | <i>fáŋ-mə</i> |
| ‘make dance’ | ‘turn around’ | ‘select’ | ‘insult many times’ | ‘gather lots of things’ |
| <i>bwóm-sə</i> | <i>fwí-kə</i> | <i>níŋ-tə</i> | <i>fá?-lə</i> | <i>ló-mə</i> |
| ‘praise’ | ‘many things burn’ | ‘run hurriedly’ | ‘pin many times’ | ‘many people lick’ |

The only toneless inflectional morpheme identified so far is the progressive suffix whose tone is the same as that of the verb root to which it is suffixed: i.e., the root toneme spreads onto it.

(21) a. *kəfó* [↓]*ká* *kùmə* *nəm*.
 kə-fó` ká kùm-ə nəm
 7-thing AM touch-PROG 9.animal
 ‘Something is touching the animal.’

² Apart from *sə* that has a clear causative meaning, all the other extensions can have pluractional or multiplicity meaning, i.e., iterative, repetitive, frequentative (Hyman 2018: 180).

- b. *tsòŋ é kwéná nà kàŋíŋ ká.*
 tsòŋ é kwén-ə nà kà-ŋíŋ-ká
 1.thief 1.SM enter-PROG with 7-run-7
 ‘The thief is running inside swiftly.’

4.4. Tonal phrases

Tonal phrases can be regarded as those syntactical constructions where tonal processes, i.e., Low Tone Spread, High Tone Spread, Low Tone Raising occur. They include verb + adverb; verb + preposition; verb + direct object; verb + adverb; verb+ preposition; verb + direct object; associative marker + noun.

5. Stress and tone; culminativity; prominence; obligatoriness

5.1. Culminativity

Babanki is not culminative.

5.2. Stress

There is no evidence that Babanki has stress, and there is no indication that some syllables show prominence.

5.3. Obligatoriness of tone

The obligatoriness of tone is seen in the fact that any word form bears at least one toneme.

6. Tonal rules, segmental rules which have incidence on tones

6.1 Tonal rules

6.1.1 Low tone rightward spread (LTS)

If an object follows the verb, LTS occurs from the immediate past and hodiernal past tense markers to the verb root and shifts the pre-linked H tone from the initial syllable of a H tone verb. If the verb is monosyllabic, its H tone is shifted to the subsequent word where it can form a falling contour eventually surfacing as a M tone (22a), according to the HL simplification rule (see 6.1.2). If the verb is disyllabic (22b), only the H tone of the first syllable of the verb *sàŋtá* is affected by LTS, and the H tone span shrinks to the limits of the second syllable of the verb, as discussed in 4.1. In both cases, the M tone is a combination of the H and L tonemes. The examples in (22c-d) show L tone verbs where no tone shift takes place.

(22) a. *Mà jì lám kàbáŋ.*

mà jì lám kà-báŋ
 1SG P1 cook 7-fufu
 ‘I cooked fufu.’

b. *Mà tẹ̀ sàŋtá kàbáŋ.*

mà tẹ̀ sàŋtá kà-báŋ
 1SG P2 sift 7-fufu
 ‘I sifted fufu.’

c. *Mà tẹ̀ kùm kàbáŋ.*

mà tẹ̀ kùm kà-báŋ
 1SG P2 touch 7-fufu
 ‘I touched fufu.’

d. *Mà jì lèmsè kàbájn.*
 mà jì lèmsè kà-bájn
 1SG P1 heat 7-fufu
 'I heated fufu.'

6.1.2. HL simplification

A derived HL contour tone on a single syllable simplifies to M:

(23) *Búη t̄ à lám kàbájn.*
 Búη t̄ lám kà-bájn
 Bung P2 cook 7-fufu
 'Bung cooked fufu'.

The L tone of the hodiernal past marker *t̄* spreads rightwards onto the verb root and dislodges its H tone. The dislodged H tone eventually docks onto the prefix of the following object noun to form a HL tone which then simplifies to M. The surface M tone is a combination of the H and L tonemes.

The rule also occurs when two vowels become contiguous following the deletion of the velar nasal between them.

(24) a. *àsō.ō γómá*
 à-sáη à-γómá
 5-corn 5-my
 'my corn'

b. *àkwā.ā γómá*
 à-kwáη à-γómá
 5-arm 5-my
 'my arm'

c. *àsū.ū γómá*
 à-sóη à-γómá
 6-tooth 6-my
 'my teeth'

As it can be seen in these examples, the underlying velar nasal /ŋ/ is deleted and in each case, the deletion is followed by a coalescence of vowels, resulting to a HL tone sequence which eventually simplifies to M (Akumbu 2016). This implies that the M tone is counted as two tonemes, i.e., H + L. This is confirmed by the fact that in slow speech, for example, the two tonemes are realized, e.g., *àsáη àγómá* 'my corn'.

6.1.3. High tone spread (HTS)

Within a tonal phrase, if the initial word ends on a H-toned syllable, and the subsequent word begins with a L-toned syllable, the H tone spreads over the word boundary, and the L toneme of the second word shrinks or is delinked. There are two contexts where the L toneme is delinked:

a) If the second word is disyllabic and originally carries two tonemes, L and H, the delinked L floats and causes downstep of the H tone of the final syllable (25).

(25) *kàbájn ká vá^ltí*

kə-bájn kó vè-tjí
 7-fufu 7.AM 2-in-law
 'fufu of in-laws'

b) If the target L-toned word is monosyllabic, an epenthetic -ə is inserted, and the delinked L is docked onto this vowel (26).

(26) *Búŋ ə yíə vɪ.*
 Búŋ ə yɪ vɪ
 Bung DJ p1 come
 'Bung came.'

The HTS rule also concerns prefixed floating H which represents the initial component of the noun class 10 marker³ (27a). However, HTS is blocked if the root has a prenasalized initial consonant (27b).

(27) a. dʒóm^hsé b. ndzàmsé
 'dʒòm-sé 'ndzàm-sé
 10\dream-10 10\axe-10
 'dreams' 'axes'

6.1.4. Low tone terracing (LTT)

The L tone of the final syllable in prefixed noun roots is raised to M if followed by a H tone. This happens when the noun in N1 position in an associative construction is followed by H-toned associative marker (28a), or in verb phrases (28b) where the noun is followed by a H-toned adverb or a H-toned preposition. The example in (28c) shows a context where LTR does not occur in the absence of a following H tone.

(28) a. *kək̄s kə wì?*
 kə-kòs kə wì?
 7-slave 7.AM 1.person
 'slave of person'

b. *wàjn yì fɪsə kəzwì fá tsú*
 wàjn' yɪ fɪsə kə-zwì fá tsú
 1.child p1 remove 7-air prep there
 'The child deflated it.'

c. *kək̄s kəmù?*
 kə-kòs kə-mù?
 7-slave 7-one
 'one slave'

This rule does not affect prefixed disyllabic L-toned nouns (29a) as well as those with a prenasalized onset, both with monosyllabic (29b) and disyllabic (29c) roots (Akumbu 2011: 5-13). It does not affect prefixless nouns (29d).

(29) a. *fəkwòlè fə wì?*

³ This is a circumfix marker composed of the prefixed floating H and a suffix -sə.

fə-kwòlè fǎ wìʔ
 19-pin 19.AM 1.person
 'pin of person'

b. *kàmbò kǎ wìʔ*
 kə-mbò kǎ wìʔ
 7-bag 19.AM 1.person
 'bag of person'

c. *fəmpfíʔnə fǎ fǒjn*
 fə-mpfíʔnə fǎ fǒjn
 7-dwarf 19.AM 1.fon
 'dwarf of the fon'

d. *Búŋ yì tǒ lǐmà tsú*
 Búŋ yì tǒ lǐmà tsú
 Bung P1 pass 1.saucer there
 'Bung passed the saucer there.'

This phonetic rule does not affect the TDI; the LM contour being an allotone of the phoneme /L/.

6.1.5. Root tone spread (RTS)

As mentioned in (4.3.2), derivational suffixes are toneless and take the same tone as the root as a result of spreading of the root toneme to the right.

(30) a. *bàʔ-tà*
bàʔ-tà
 scrape- ITER
 'take off (things)'

b. *báʔ-tá*
báʔ-tà
 pile-ITER
 'pile (things)'

6.1.6. Low tone leftward spread

When in the initial position in the associative construction, H-toned monosyllabic nouns belonging to classes 1 and 9 and ending in a vowel or $-ŋ^4$ lose their lexical tone which is replaced by the L tone spreading leftwards from the associative marker à (31a). This rule is blocked if a noun ends in a glottal stop or $-m$ (31b).

(31) a. *mpfí à kàkòs*
 mpfí à kə-kòs
 1.mother 1.AM 7-slave
 'mother of slave'

b. *mbjéʔ à kàkòs*

⁴ The syllable-final $-ŋ$ is elided if the following syllable begins with a vowel. Therefore, in the context where the Low tone leftward spread rule is applied, the words with the final $-ŋ$ appear as open syllable words.

mbéʔ ə kə-kòs
 9.shoulder 9.AM 7-slave
 'shoulder of slave'

6.2 Segmental rules

6.2.1. Syllable-final -ŋ elision

As pointed out in (6.1.2), the coda velar nasal /ŋ/ is deleted when it is followed by a vowel across morpheme boundary. The deletion allows the root vowel and the following vowel to occur next to each other and eventually assimilate to an identical vowel (Hyman 1979, Akumbu 2016). If the coalescence results to a H+L tone it is simplified to M, as in (32a). L tones remain unchanged as in (32b-c).

(32) a. əs̄.ō ɣómá

ə-sáŋ ə-ɣómá
 5-corn 5-my
 'my corn'

b. tsù.ù àkó

tsòŋ ə ə-kó
 1.thief 5.am 5-one
 'thief of money'

c. əl̄.ə mùʔ

ə-l̄əŋ ə-mùk
 5-bamboo 5-one
 'one bamboo'

This process does not change the number of syllables or tonemes and thus has no impact on the TDI.

6.2.2. Epenthetic ə insertion

There are three contexts where an epenthetic ə is inserted:

a) In the singular command mood marked by a floating H, ə is inserted at the right edge of a monosyllabic L-toned verb. The floating H spreads onto the root syllable, and the delinked L is docked onto the epenthetic ə (see §3.3.2).

b) If a H tone spreads (according to the High tone spread rule) onto a monosyllabic L-toned word, an epenthetic ə appears at the right edge of the latter word and hosts the delinked L toneme, as in (26).

7. Grammatical tones

7.1. Plural command mood marker

Verbs in the plural command mood have a replacive H tone morpheme which maps onto the entire verbal word form, causing L tone verb roots such as l̄ms̄ə 'heat' to surface with a H tone.

(33) a. Plural imperative

ɣəŋ l̄ms̄ə kəbájŋ!
 ɣəŋ l̄ms̄ə kə-bájŋ
 2PL heat\PL.IMP 7-fufu
 'You (pl) heat the fufu'

b. Plural Hortative

yúwù lɛ́msá kǎbájɲ!

yúwù *lɛ́msá* *kǎ-bájɲ*

1PL.DUAL heat\PL.IMP 7-fufu

‘Let’s heat the fufu’

c. Plural Subjunctive

... la yúwù lɛ́msá kǎbájɲ!

... la *yúwù* *lɛ́msá* *kǎ-bájɲ*

COMP 1PL.DUAL heat\PL.IMP 7-fufu

‘...that we should heat the fufu’

7.2. Command mode singular marker

The singular command mode (imperative, subjunctives and hortatives) is marked by a post-verbal floating H tone. See details in §3.3.2.

7.3. Noun class 10 marker

Noun class 10 marker consists of a prefixed floating H and a suffix *sá*. The floating H spreads on the L-toned root thus delinking its L toneme. If the root-initial consonant is prenasalized, this spread is blocked. See in more detail §3.3.2, §6.1.3.

8. Tonal classes of words

8.1. Differentiation of parts of speech by tone

A verbal stem can carry only one toneme, H or L. To the contrary, there is no restriction on tonemic combinations for noun stems.

All segmental noun class prefixes are L-toned.

8.2. Tonal classes of words

8.2.1. Two classes of L-toned nouns

L-toned nouns constitute two groups: those which undergo the H tone spread rule, as in (34a), and those which do not (34b).

(34) a. *àntám* *á* *fákò?*
 èn-tám *á* *fè-kò?*
 3-branch 3.AM 19-tree
 ‘branch of a tree’

b. *kàkí* *ká* *vàdìm*
 kà-kí *ká* *và-dìm*
 7-chair 7.AM 2-barren person
 ‘chair of barren people’

As for the nouns which have H tone on the root, they all are subject to the High tone spread rule.

8.2.2. Two types of H-toned nouns

Monosyllabic H-toned nouns belonging to noun classes 1 and 9 (both are prefixless) form two tonal groups, depending on the type of the syllable coda:⁵

⁵ In the nouns classes 1 and 9, there are no words with *-f*, *-s*, *-n* codas.

- those which lose their lexical H tone in the initial position of the associative construction (they acquire instead a L tone which spreads leftwards from the associative marker ə), see §6.1.6. Here are some other nouns in this category include: *bú* ‘dog’, *mbvú* ‘chicken’, *ɲkó* ‘toilet’, *ndón* ‘horn’, *ndzón* ‘thorn’ (class 9), *nkán* ‘cornbeer’ (class 1);
- those which keep their lexical H tone in the same context, e.g., *kyé?* ‘tray’, *kí?* ‘piece’, *mbém* ‘loaf’, *mbwá?* ‘valley’, *ngá?* ‘trouble’ (class 9).

The difference between the two tonal groups can be explained phonotactically. The nouns belonging to the first group are represented by open syllables (those with the velar nasal -ŋ lose it as soon as the velar nasal is followed by a vowel across morpheme boundary, see §6.2.1.), while the words of the second group are represented by closed syllables with coda -m or -ʔ.

9. Diachrony of tones

No tonal reconstruction of Babanki is available.

10. Tonal notation in the writing

In the Babanki orthography guide (Akumbu 2008) only low tones are marked by the grave accent. An exception to this is that noun prefixes are not marked since they are always low-toned when the noun is spoken in isolation. All other tones are not marked. This can be seen by comparing the orthography and IPA forms of the following sentences.

(35) a. *tsòŋ ə lu kùm kəmbò*. ‘A thief will touch a bag’ [tsòŋ ə lú kùm kəmbò]

b. *Buŋ ə lu pfi? fəses*. ‘Bung will eat pepper’ [búŋ ə lú pfi? fəsés]

11. Calculation of the Tonal Density Index

The TDI has been calculated on two texts. The first, ‘Tortoise and Pig’ is a story (myth) that seeks to explain why pigs are always rummaging the ground with their mouths. The second is a message from the Babanki fon, delivered by a palace messenger to people in a market (reported discourse). Each text is represented in three lines (with a free translation as the fourth line): a surface representation (tonal realizations are indicated on each syllable) in the first line, an underlying representation (tonal diacritics on the initial syllables of tonemes only; floating L and floating H are represented respectively with a gravis and acute accent without support; segmental morphemes within a word form are separated with dashes) is given in the second line, and glosses are in the third lines.

Tortoise and Pig story

Narrator

ntí

[L ntí][H .í]

INTER

story

Audience

mbò

[L mbò][H .ò]

INTER

narrate

tòlòkjí

wénè

ŋkùúnàm

ən-dí?

ndóòŋ

ló

[L tò.lò][H .kjí] [H wé][L .nè] [L ηkù][H.ú][L .nàm] [L .n-dí?] [H ndó][L .òη] [H ló]
 CL1.tortoise and CL1.pig P3-COP CL1.friendship such
 Tortoise and Pig were friends, ok!

è-tfú? èn-lájn tòlòkjí èn-tfó? è-kó fà
 [L è][H -.tfú?] [L è][H .n-lájn] [L tò.lò][H .kjí] [L è][H .n-tfó?] [L è][H -.kó] [L fà]
 CL3-day P3-clean CL1.tortoise P3-borrow CL3-money from

ηkùúpàm ló
 [L ηkù][H.ú][L .nàm] [H ló]
 CL1.pig such

One day, Tortoise borrowed money from Pig, ok

ηkùúpàm é né sá vì bəm-ə è-kó
 [L ηkù][H.ú][L .nàm] [H é] [H né] [H sá] [L vì] [L bəm.m-ə] [L è][H -.kó]
 CL1.pig CL1.DJ F2 ADV come ask-PROG CL3-money

jí tòlòkjí gá?-à lá γά κό dí?
 [H jí] [L tò.lò][H .kjí] [L gá.?-a] [H lá] [H γά] [H κό] [L dí?]
 CL3.DEM CL1.tortoise say-PROG that CL3.SM NEG COP

Each time Pig will come to recover his money Tortoise will say he does not have it.

è-tfú? èn-lájn kə-tsí kə-tsén γə é mbé
 [L è][H -.tfú?] [L è][H .n-lájn] [L kə][H -.tsí] [L kə][H -.tsén] [L γə] [H é] [H mbé]
 CL3-day P3-clean CL7-day CL7-certain 3SG CL1.DJ again

sá èn-vì-lì tòlòkjí èη-ká?-ká á ηγù?
 [H sá] [L è][L .n-vì -lì] [L tò.lò][H .kjí] [L è][H .η-ká?.kə] [H á] [L ηγù?]
 ADV P3-come-PROG CL1.tortoise P3-turn-PLUR into CL9.stone

èη-gá? à wì è-wén lá γə é èm-bvù-ù
 [L è.η-gá?] [L à] [L wì] [L è][H -.wén] [H lá] [L γə] [H é] [L è.m-bvù-.u]
 P3-say to CL1.wife CL1.AM-3SG QUOT 3SG CL1.DJ P3-grind-PROG

è-fó tsú
 [L è][H -.fó][L `] [H tsú]
 CL8-thing with

One day as Pig was coming again, Tortoise turned into a grinding stone and asked his wife to use the stone for grinding her spices.

ηkùúpàm vì kwèté wì è tòlòkjí
 [L ηkù][H.ú][L .nàm] [L vì] [L kwé][H -.tə] [L wì] [L è] [L tò.lò][H .kjí]
 CL1.pig come meet-PLUR CL1.wife CL1.AM CL1.tortoise

è bəm á wén lá lím è-wén yé ló
 [L è] [L bəm] [H á] [H -.wén] [H lá] [H lím] [L è][H -.wén] [H yé] [H ló]
 and ask to 3SG COMP CL1.husband CL1.AM-3SG where such

Pig got to Tortoise's house, met Tortoise's wife and asked her where her husband was.

wì è tòlòkjí èm-bvù-tə tà kə-fó? ká wén
 [L wì] [L è] [L tò.lò][H .kjí] [L è.m][L -bvù-tə] [L tà] [L kə][H -.fó] [L `] [H ká] [H wén]
 CL1.wife CL1.AM CL1.tortoise P3-grind-PLUR only CL7-thing CL7.AM 3SG

Tortoise's wife focused on grinding her things and didn't respond.

tjín è ηkùúpàm fwí γə lji ηγù? náyi

[H tʃín] [L .ə] [L ɲkù][H.á][L .nàm] [H fwí] [L ɣə] [L lɪ̀] [L ɲgùʔ] [H ná][L .yì]
 CL1.inside CL1.AM CL1.pig burm 3SG take CL9.stone CL9.DEF

ə màʔà
 [L ə] [L mà.ʔà]
 and throw.away

Pig got annoyed, seized the stone and threw it away.

Fon's message (delivered by the palace messenger)

Wàjn' gàʔ lá yì dzù-ə á ə-dzèʔ á tə-wónɲ
 [L wàjn] [L gàʔ] [H lá] [L yì] [L dzù-ə] [H á] [L ə-dzèʔ] [H á] [L tə][H -wónɲ]
 CL1.child⁶ say QUOT LOG go-PROG for CL5-journey in CL13.market

tá táʔ
 [L tá] [H táʔ]
 CL13.AM three

The Fon says he_i (LOG) is going on a trip that will last for three weeks.

ɣə gàʔ lá yì sá pfwó dzí-sé mbán-ə tá wónɲ
 [L ɣə] [L gàʔ] [H lá] [L yì] [H sá] [H pfwó] [L dzí][H -sé] [H mbán.n-ə] [H tá] [H wónɲ]
 3SG say QUOT LOG ADV return road-CL10 shine-PROG only IDEO

He_i says that before he_i (LOG) returns all roads should have been cleaned.

ɣə gàʔ lá vó fū nə wàjn' á ə-kwónɲ
 [L ɣə] [L gàʔ] [H lá] [H vó] [L fū] [L nə] [L wàjn] [H á] [L ə][H -kwónɲ]
 3SG say QUOT 3PL assemble with CL1.child in CL5-arm

He_i says everyone, including babies should avail themselves.

sátsɛn wíʔ fán ké fū mú ɣə á dì-kə
 [H sá][L .tsɛn] [L wíʔ] [H fán] [H ké] [L fū] [H mú] [L ɣə] [H á] [L dì-kə]
 if CL1.person remain NEG assemble then 3SG F1 cry-PLUR

If anyone does not comply, they will regret it.

ɣə gàʔ lá vó á fèʔ à yì ə-sím á ɲgàm
 [L ɣə] [L gàʔ] [H lá] [H vó] [H á] [L fèʔ] [L à] [L yì] [L ə][H -sím] [H á] [L ɲgàm]
 3SG say QUOT 3PL F1 work at LOG CL3-farm on CL9.week

He_i says they will work on his farm next week.

Wàjn' mjètə fā tsú ɲ-gàʔ lá yì dzū vī nə
 [L wàjn] [L mjè-tə] [L fā] [H tsú] [L ɲ-gàʔ] [H lá] [L yì] [L dzū] [H vī] [L nə]
 CL1.child finish-PLUR from there PST-say QUOT LOG go come with

ɲgwàʔ à-sàn á vó á wjé à yì ə-sím
 [L ɲgwàʔ] [L à][H -sàn] [H á] [H vó] [H á] [H wjé] [L à] [L yì] [L ə][H -sím]
 CL9.seed CL5-maize REL 3PL F1 plant in LOG CL3-farm

After that the Fon said he_i (LOG) will return with maize seeds to be planted in his_i (LOG) farm.

ɣə sénsə nóʔə sénsə lá kó wíʔ lù fán
 [L ɣə] [H sɛn.sə] [H nó][L .ʔə] [H sɛn.sə] [H lá] [H kó] [L wíʔ] [L lù] [H fán]
 3SG plead really plead QUOT NEG CL1.person F3 remain

He_i really pleads that no one should stay behind.

⁶ Babanki men (not women and children) can refer to their Fon, i.e., their traditional ruler, as *wàjn* 'child'.

| | | | | | | | | | |
|--------|-------------|--------|-----------|-------|--------|------------|--------|---------|--------|
| yè | mjètə | lá | ɣəŋ | á | kó | láʔtá | ká | yén | yī |
| [L yè] | [L mjè-.tə] | [H lá] | [L . ɣəŋ] | [H á] | [H kó] | [H láʔ.tá] | [H ká] | [H yén] | [L yī] |
| 3SG | finish-PLUR | QUOT | 2PL | DJ | NEG | wait | NEG | see | LOG |

He_i finally says that it will not be long before you see him_i (LOG).

Abbreviations and Symbols

| | |
|----------|------------------------|
| ↓ | downstep, |
| CL1...19 | noun classes, |
| 1PL | first person plural |
| 1SG | first person singular |
| 2PL | second Person Plural |
| 3SG | third person singular |
| ADV | adverb |
| AM | associative marker |
| C | consonant |
| COMP | complementizer |
| DEF | definite |
| DJ | disjoint |
| DIM | diminutive |
| DUAL | dual |
| F1 | immediate future tense |
| F2 | hodiernal future tense |
| F3 | distant future tense |
| G | glide |
| H | high tone |
| HORT | hortative |
| HTS | high tone spread |
| IDEO | ideophone |
| INF | infinitive |
| INTER | interjection |
| IMP | imperative |
| ITER | iterative |
| L | low tone |
| LOG | logophoric |
| LTS | low tone spread |
| M | mid tone |
| N | nasal |
| ONOM | onomatopoeia |
| P0 | present/perfect tense |
| P1 | immediate past tense |
| P2 | hodiernal past tense |
| P3 | distant past tense |
| PL | plural |
| PLUR | pluractional |
| PROG | progressive |

| | |
|------|-------------------|
| PST | past |
| QUOT | quotative |
| REL | relativiser |
| SM | subject marker |
| TBU | tone bearing unit |
| V | vowel |

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