BABANKI VERB TONE

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In Babanki[1], a Grassfields Bantu language of northwestern Cameroon, several tonal patterns can be found on a single verb root depending on the construction in which the verb is used. An underlying high tone may surface normally as high, but unexpectedly as low, or high-falling; while underlying low tones surface as high, high-falling, or normally as low. For this reason the low tone verb can have a L(L), HL, or even H(H) surface melody while the high tone verbs can be L(H), HL, or H(H). Accounting for these melodies in order to reconstruct the underlying forms is necessary for a proper understanding of the Babanki verb tone in particular and the tonal system of Centre Ring Grassfields Bantu languages in general. This paper demonstrates that five tone rules (Downstep, Tone Docking, High Tone Spread, Low Tone Spread, and Upstep) and one phonological rule (Schwa Insertion) are required to account for the complex tonal system of Babanki verbs.

Keywords: Babanki, Bantu, tone, morphology

1. Introduction

This paper[2] accounts for the numerous surface tonal melodies found on the verb in Babanki, a Grassfields Bantu language of northwestern Cameroon. An examination of the verb system reveals that, depending on the construction type, up to three tonal patterns may be found on both low and high tone verbs (See §3.3 where it is shown that Babanki verbs have two lexical tones: high and low). An underlying high tone may surface normally as high, but unexpectedly as low, or falling while underlying low tones surface as high, falling, but normally as low. For this reason the low tone verb can have a L(L), HL, or even H(H) surface melody while the high tone verbs can be L(H), HL, or H(H). Sometimes, a high tone can be downstepped while a low tone can undergo upstep. Accounting for these melodies in order to reconstruct the underlying forms is necessary for a proper understanding of Babanki verb tone in particular and the tonal system of Centre Ring Grassfields Bantu languages in general. This is so because most of the work on tone in Babanki has focused on the nominal system (Hyman 1979, 1980; Akumbu 2011). A treatment of verb tone will therefore provide a more complete picture of Babanki tone and also lay the groundwork for

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[1] Babanki (Kejom, as the native speakers call their language and villages), is spoken in Babanki Tungo (Kejom Ketinguh) and Big Babanki (Kejom Keku) in the North West Region of Cameroon by approximately 39,000 people (Ethnologue, 2015). As a Babanki native speaker I have provided the data used in this paper but also checked with two other native speakers, Nico Wukeh (41-year old male) and Regina Phubong (68-year old female), to confirm the phonetic level of each construction.

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analyzing the tone systems of the other languages in the group.   This paper demonstrates that five tone rules (Downstep, Tone Docking, High Tone Spread, Low Tone Spread, and Upstep) and one segmental rule (Schwa Insertion) are necessary to account for the apparently complex tonal system of Babanki verbs. The theoretical frameworks used in the analyses are Register Tier Theory (RTT) and Autosegmental Phonology (AP). This paper is structured as follows: An overview of RTT is given in §2 and the Babanki verb system is introduced in §3 while §4 contains a presentation of tense, aspect and mood. The phonological processes that are recurrent in the verb system are discussed in §5. An expansion of the discussion to verbal reduplication is found in §6, which is followed by a conclusion.

2. An overview of register tier theory

Register Tier Theory (RTT) (Inkelas 1987; Inkelas et al. 1987; Snider 1988, 1990, 1999; Akumbu 2011) recognizes the following autosegmental features and tiers: the register features h and l on a REGISTER TIER, the tonal features H and L on a TONAL TIER, a TONAL ROOT NODE TIER (TRN), and a TONE-BEARING UNIT TIER (TBU). These tiers are geometrically arranged according to the configuration in Figure 1 taken from Snider (1999: 23).

Figure 1: Geometry of tone
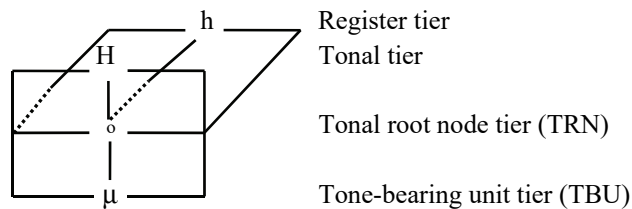
Features on the Register tier and the Tonal tier are linked to structural nodes on the TRN. Geometrically, these tiers form a separate plane with respect to the TRN. Nodes on the TRN are, in turn, linked to moras (μ) on the TBU tier (Snider 1999: 23).

The register features h and l are defined following Snider (1999: 25) as "effect a register shift h=higher, and l=lower relative to the preceding register setting", and the tonal features H and L are defined as realize the "TBU at H=high pitch, and L=low pitch relative to the current register." This is shown in Figure 2 (the dotted lines represent registers and the solid lines represent tones).

Figure 2: Register features and tonal features
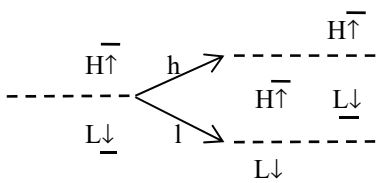
The geometry in Figure 1 and the features in Figure 2 make it possible to specify up to four logically possible tonal distinctions, namely, a high tone on a high register, a high tone on a low register, a low tone on a high register, and a low tone on a low register. The register feature of any given TBU is specified in relation to that of the preceding register. The register of the initial TBU for its part is construed to be higher than or lower than the reference point that native speakers usually have in mind when beginning an utterance. Secondly, the tonal feature associated to any given TBU specifies whether the tone is low or high in relation to the current register. RTT is used in this paper to insightfully explain the tonal processes, given that within this theoretical model features on each tier can behave independently of one another.

3. The verb

In this section the structure of the Babanki verb is shown. The section comprises a presentation of the verb root, verbal extensions, and tone groups, which are relevant to the discussion of verb tone in the language.

3.1. Verb root. According to Akumbu & Fogwe (2012) only one-syllable roots are attested in Babanki except when there is verbal reduplication. The verb roots that appear to have two syllables always have a CV ending, which can be interpreted as an extension (see §3.2). Nevertheless, there are formal extensions that can be considered part of the root. Examples of the two verb root types are given below.

(1) Verb root types

One-syllable		Two-syllable	
sàŋ	'dry'	*djìsə̀*	'make a fire'
tʃò	'pass'	*bàŋlə̀*	'dodge'
vì	'come'	*ʃìsə̀*	'remove'
dì	'cry'	*ɲàŋlə̀*	'tickle'
kám	'squeeze'	*báŋkə́*	'show pride'
búm	'hunt'	*tɔ́ŋtə́*	'sift'
fə́ŋ	'fall'	*fáʔtə́*	'hurry up'
kwén	'enter'	*bʉ́ʔsə́*	'ignore'

The one-syllable roots can have either a CV or CVC structure whereas the two-syllable roots have a CV(C)CV structure. It can also be seen in the data above that the second of the two-syllable roots is always of the CV type, and that the V is always schwa. There are a good number of such roots that cannot stand alone without the second CV syllable, which is referred to in this paper as a "formal extension".

In addition to these, there are two-syllable roots with a different structure. In this set, the second syllable begins with a glottal stop, followed by a vowel identical to that of the first syllable. This vowel has been referred to as an echo vowel (Akumbu & Fogwe, 2012).

(2) Echo Vowels

Echo Vowel Stem	Gloss
màʔà	'throw'
tàʔà	'become stiff'
bjèʔè	'carry'
ʃíʔí	'descend'
mjɘ̀ʔɘ̀	'blink'
bjíʔí	'fold'

3.2. Extensions. The majority of what looks like two-syllable verbs results from the addition of a verbal suffix or extension[3] to the root. At least five kinds of extensions are commonly found on verb roots, as illustrated below. A more extensive discussion of Babanki extensions can be found in Hyman (2013).

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3 Verbal extensions in Babanki fall short of what is typical of Narrow Bantu in that there are no affixes for all extensions such as 'applicative', 'passive', 'middle' (impositive), etc., and most of these functions, where present at all, are based on combinations of autonomous lexical items. The common extensions are morphemes for 'attenuative', 'intensity', and 'repetitive', with different forms for the latter based on whether the verb is transitive or not.

(3) Verb extensions

-sə	**-kə**	**-tə**	**-lə**	**-mə**
vì-sə̀	*bvì-kə̀*	*mjə̀-tə̀*	*kò-lə̀*	*kwò?-mə̀*
'bring near'	'fail repeatedly'	'complete'	'scrape many times'	'think together'
kùm-sə̀	*djàn-kə̀*	*bà?-tə̀*	*dàŋ-lə̀*	*sù-mə̀*
'touch'	'protrude'	'scrape'	'spread'	'persist continually'
fì-sə̀	*tfò-kə̀*	*bùm-tə̀*	*sì-lə̀*	*tfò-mə̀*
'remove'	'pass repeatedly'	'meet someone'	'caress many times'	'pass again and again'
kwén-sə́	*fə̃ŋ-kə̀*	*bá?-tə́*	*káŋ-lə́*	*pfwó-mə́*
'send inside'	'fall repeatedly'	'arrange/plan'	'fry in part'	'return'
bén-sə́	*ká?-kə́*	*té-tə́*	*té-lə́*	*fáŋ-mə́*
'make dance'	'turn around'	'select'	'insult many times'	'gather several things'
bwɔ́m-sə́	*bwí-kə́*	*ɲíŋ-tə́*	*fá?-lə́*	*kjé-mə́*
'praise'	'give birth a lot'	'run hurriedly'	'pin many times'	'allow to fall'

3.3. Tone groups. It is necessary to examine the infinitive or imperative verb forms of Babanki in order to determine which tone group a verb belongs to. Consider the following forms for illustration.

Table 1: Infinitive and imperative verb forms

Infinitive		Imperative		Infinitive		Imperative	
ə́-fù?	'to bubble'	*fù?ə́*	'bubble'	*ə́-↓fú?*	'to tune'	*fú?*	'tune'
ə́-də̀m	'to grunt'	*də̀mə́*	'grunt'	*ə́-↓də́m*	'to play'	*də́m*	'play'
ə́-mò	'to narrate'	*mòə́*	'narrate'	*ə́-↓mó*	'to deny'	*mó*	'deny'

In the infinitive form, all verb roots surface with a low tone or a downstepped high tone while in the imperative, they are either low-high or high. An account of downstep is given in §5.1. Therefore the two verb groups that can be identified in Babanki based on their tones are Low and High as illustrated in (4).

(4) Verb tone groups

Low tone verbs   High tone verbs

fùʔ   'bubble'   *fúʔ*   'tune'
də̀m   'grunt'   *də́m*   'play'
fàs   'break'   *fás*   'threaten'
ʒwì   'pant'   *ʒwí*   'kill'
mò   'narrate'   *mó*   'deny'
kjè   'scrape'   *kjé*   'allow'
sɔ̀ʔ   'seize'   *sɔ́ʔ*   'judge'
mjə̀tə̀ 'complete'   *bínsə́* 'lure to sleep'
ʃìsə̀   'remove'   *ŋɔ́ʔsə́* 'open a little'

One-syllable verb roots are more common than those with two syllables.

4. Overview of tense, aspect, and mood

Babanki has an eight-way temporal distinction with four past tenses (immediate (P1), hordienal (P2), distant (P3), and remote (P4)), a present tense (P0), and three future tenses (immediate (F1), hordienal (F2), and remote (F3)).

A distinction can be made between perfective and imperfective aspect in Babanki. The imperfective aspect markers commonly used in the language are the progressive and habitual. When there is no explicit reference to the internal temporal constituency of a situation, it is understood as being perfective. In other words a construction with perfective aspect presents an event as a time-bounded whole, without regard to the internal constituency of that event. This aspect is marked by a floating low tone found before the verb root.

The Babanki verb system employs several moods to indicate the speaker's attitude toward the factuality or likelihood of the action or condition expressed. The declarative, imperative, and potential are among the mood distinctions made in the language. A detailed discussion of Babanki tense, aspect, and mood can be found in Akumbu & Fogwe (2012). In the table that follows the affirmative, negative, progressive, and imperative forms are given for all tenses. The glosses have all been given only in the affirmative for clarity of presentation. Each gloss could be rendered in the negative, progressive and imperative form as needed.

Table 2: Tense, mood, aspect distinctions in Babanki

	Affirmative	Negative	Progressive	Imperative	Gloss (affirmative)
P4	Búŋə́ nʒɨ̀ lí kə̀bájn	Búŋə́ kó nʒɨ̀ kə́↓bájn (bwɛ́n)	Búŋ ə̀ nʒɨ́ə̀ kə̀bájn		Bung ate fufu
	Búŋə́ nlám lí kə̀bájn	Búŋə́ kó nlám kə́↓bájn (bwɛ́n)	Búŋ ə̀ nlámə̀ kə̀bájn		Bung cooked fufu
	Búŋə́ nsə́ŋtə́ lí kə̀bájn	Búŋə́ kó nsə́ŋtə́ kə̀bájn (bwɛ́n)	Búŋ ə̀ nsə́ŋtə̀ kə̀bájn		Bung sifted fufu
	Búŋə́ nlêə̀ lí kə̀bájn	Búŋə́ kó nlêə̀ kə̀bájn (bwɛ́n)	Búŋ ə̀ nlêə̀ kə̀bájn		Bung lost fufu
	Búŋə́ ŋkúmə̀ lí kə̀bájn	Búŋə́ kó ŋkúmə̀ kə̀bájn (bwɛ́n)	Búŋ ə̀ ŋkúmə̀ kə̀bájn		Bung touched fufu
	Búŋə́ nlɨmsə̀ lí kə̀bájn	Búŋə́ kó nlɨmsə̀ kə̀bájn (bwɛ́n)	Búŋ ə̀ nlɨmsə̀ kə̀bájn		Bung heated fufu
P3	Búŋə́ tə̀ ʒɨ̀ kə́↓bájn	Búŋə́ kó tə̀ ʒɨ̀ kə́↓bájn (bwɛ́n)	Búŋ tə̀ nʒɨ́ə̀ kə̀bájn		Bung ate fufu
	Búŋə́ tə̀ lám kə́↓bájn	Búŋə́ kó tə̀ lám kə́↓bájn (bwɛ́n)	Búŋ tə̀ nlámə̀ kə̀bájn		Bung cooked fufu
	Búŋə́ tə̀ sə́ŋtə́ kə̀bájn	Búŋə́ kó tə̀ sə́ŋtə́ kə̀bájn (bwɛ́n)	Búŋ tə̀ nsə́ŋtə̀ kə̀bájn		Bung sifted fufu
	Búŋə́ tə̀ lè kə̀bájn	Búŋə́ kó tə̀ lè kə̀bájn (bwɛ́n)	Búŋ tə̀ nlêə̀ kə̀bájn		Bung lost fufu
	Búŋə́ tə̀ kum kə̀bájn	Búŋə́ kó tə̀ kum kə̀bájn (bwɛ́n)	Búŋ tə̀ ŋkúmə̀ kə̀bájn		Bung touched fufu
	Búŋə́ tə̀ lɨmsə̀ kə̀bájn	Búŋə́ kó tə̀ lɨmsə̀ kə̀bájn (bwɛ́n)	Búŋ tə̀ nlɨmsə̀ kə̀bájn		Bung heated fufu
P2	Búŋə́ jì ʒɨ̀ kə́↓bájn	Búŋə́ kó jì ʒɨ̀ kə́↓bájn (bwɛ́n)	Búŋ jì nʒɨ́ə̀ kə̀bájn		Bung ate fufu
	Búŋə́ jì lám kə́↓bájn	Búŋə́ kó jì lám kə́↓bájn (bwɛ́n)	Búŋ jì nlámə̀ kə̀bájn		Bung cooked fufu
	Búŋə́ jì sə́ŋtə́ kə̀bájn	Búŋə́ kó jì sə́ŋtə́ kə̀bájn (bwɛ́n)	Búŋ jì nsə́ŋtə̀ kə̀bájn		Bung sifted fufu
	Búŋə́ jì lè kə̀bájn	Búŋə́ kó jì lè kə̀bájn (bwɛ́n)	Búŋ jì nlêə̀ kə̀bájn		Bung lost fufu
	Búŋə́ jì kum kə̀bájn	Búŋə́ kó jì kùm kə̀bájn (bwɛ́n)	Búŋ jì ŋkúmə̀ kə̀bájn		Bung touched fufu
	Búŋə́ jì lɨmsə̀ kə̀bájn	Búŋə́ kó jì lɨmsə̀ kə̀bájn (bwɛ́n)	Búŋ jì nlɨmsə̀ kə̀bájn		Bung heated fufu
P1	Búŋə́ ʒɨ̀ lí kə̀bájn	Búŋə́ kó ʒɨ̀ kə́↓bájn (bwɛ́n)			Bung ate fufu
	Búŋə́ lám lí kə̀bájn	Búŋə́ kó lám kə́↓bájn (bwɛ́n)			Bung cooked fufu
	Búŋə́ sə́ŋtə́ lí kə̀bájn	Búŋə́ kó sə́ŋtə́ kə̀bájn (bwɛ́n)			Bung sifted fufu
	Búŋə́ lêə̀ lí kə̀bájn	Búŋə́ kó lè kə̀bájn (bwɛ́n)			Bung lost fufu
	Búŋə́ kúmə̀ lí kə̀bájn	Búŋə́ kó kùm kə̀bájn (bwɛ́n)			Bung touched fufu
	Búŋə́ lɨmsə̀ lí kə̀bájn	Búŋə́ kó lɨmsə̀ kə̀bájn (bwɛ́n)			Bung heated fufu

|	Affirmative	Negative	Progressive	Imperative	Gloss (affirmative)
P0	Búŋɔ́ ʒɨ́ɛ̀ kɘ̀bájn	Búŋɔ́ kó ↓ʒɨ́ kɘ̀bájn (bwɛ̀n)	Búŋɔ́ ʒɨ́ɛ̀ kɘ̀bájn	ʒɨ́ kɘ̀↓bájn	Bung eats fufu
	Búŋɔ́ lámɘ̀ kɘ̀bájn	Búŋɔ́ kó ↓lámɘ̀ kɘ̀bájn (bwɛ̀n)	Búŋɔ́ lámɘ̀ kɘ̀bájn	lám kɘ̀↓bájn	Bung cooks fufu
	Búŋɔ́ sɘ́ŋtɘ̀ kɘ̀bájn	Búŋɔ́ kó ↓sɘ́ŋtɘ̀ kɘ̀bájn (bwɛ̀n)	Búŋɔ́ sɘ́ŋtɘ̀ kɘ̀bájn	sɘ́ŋtɘ̀ kɘ̀↓bájn	Bung sifts fufu
	Búŋɔ́ lɛ̀ɛ̀ kɘ̀bájn	Búŋɔ́ kó lɛ̀ kɘ̀bájn (bwɛ̀n)	Búŋɔ́ lɛ̀ɛ̀ kɘ̀bájn	lɛ̀ɛ̀ kɘ̀↓bájn	Bung loses fufu
	Búŋɔ́ kùmɘ̀ kɘ̀bájn	Búŋɔ́ kó kùmɘ̀ kɘ̀bájn (bwɛ̀n)	Búŋɔ́ kùmɘ̀ kɘ̀bájn	kùmɘ̀ kɘ̀↓bájn	Bung touches fufu
	Búŋɔ́ lɨ̀msɘ̀ kɘ̀bájn	Búŋɔ́ kó lɨ̀msɘ̀ kɘ̀bájn (bwɛ̀n)	Búŋɔ́ lɨ̀msɘ̀ kɘ̀bájn	lɨ̀msɘ̀ kɘ̀↓bájn	Bung heats fufu
F1	Búŋɔ́ á ↓ʒɨ́ kɘ̀↓bájn	Búŋɔ́ kó ↓á ↓ʒɨ́ kɘ̀bájn (bwɛ̀n)	Búŋɔ́ á ↓nʒɨ́ɛ̀ kɘ̀bájn	ʒɨ́ kɘ̀↓bájn	Bung will eat fufu
	Búŋɔ́ á ↓lám kɘ̀↓bájn	Búŋɔ́ kó ↓á ↓lám kɘ̀↓bájn (bwɛ̀n)	Búŋɔ́ á ↓nlámɘ̀ kɘ̀bájn	lám kɘ̀↓bájn	Bung will cook fufu
	Búŋɔ́ á ↓sɘ́ŋtɘ̀ kɘ̀↓bájn	Búŋɔ́ kó ↓á ↓sɘ́ŋtɘ̀ kɘ̀↓bájn (bwɛ̀n)	Búŋɔ́ á ↓nsɘ́ŋtɘ̀ kɘ̀bájn	sɘ́ŋtɘ̀ kɘ̀↓bájn	Bung will sift fufu
	Búŋɔ́ á lɛ̀ kɘ̀↓bájn	Búŋɔ́ kó ↓á lɛ̀ kɘ̀↓bájn (bwɛ̀n)	Búŋɔ́ á nlɛ̀ɛ̀ kɘ̀bájn	lɛ̀ɛ̀ kɘ̀↓bájn	Bung will lose fufu
	Búŋɔ́ á kùm kɘ̀↓bájn	Búŋɔ́ kó ↓á kùm kɘ̀↓bájn (bwɛ̀n)	Búŋɔ́ á ŋkùmɘ̀ kɘ̀bájn	kùmɘ̀ kɘ̀↓bájn	Bung will touch fufu
	Búŋɔ́ á lɨ̀msɘ̀ kɘ̀↓bájn	Búŋɔ́ kó ↓á lɨ̀msɘ̀ kɘ̀↓bájn (bwɛ̀n)	Búŋɔ́ á nlɨ̀msɘ̀ kɘ̀bájn	lɨ̀msɘ̀ kɘ̀↓bájn	Bung will heat fufu
F2	Búŋɔ́ né ↓ʒɨ́ kɘ̀↓bájn	Búŋɔ́ kó ↓né ↓ʒɨ́ kɘ̀↓bájn	Búŋɔ́ né ↓nʒɨ́ɛ̀ kɘ̀bájn	nè ʒɨ́ kɘ̀↓bájn	Bung will eat fufu
	Búŋɔ́ né ↓lám kɘ̀↓bájn	Búŋɔ́ kó ↓né ↓lám kɘ̀↓bájn	Búŋɔ́ né ↓nlámɘ̀ kɘ̀bájn	nè lám kɘ̀↓bájn	Bung will cook fufu
	Búŋɔ́ né ↓sɘ́ŋtɘ̀ kɘ̀bájn	Búŋɔ́ kó ↓né ↓sɘ́ŋtɘ̀ kɘ̀↓bájn	Búŋɔ́ né ↓nsɘ́ŋtɘ̀ kɘ̀bájn	nè sɘ́ŋtɘ̀ kɘ̀bájn	Bung will sift fufu
	Búŋɔ́ né lɛ̀ kɘ̀↓bájn	Búŋɔ́ kó ↓né lɛ̀ kɘ̀↓bájn	Búŋɔ́ né nlɛ̀ɛ̀ kɘ̀bájn	nè lɛ̀ kɘ̀bájn	Bung will lose fufu
	Búŋɔ́ né kùm kɘ̀↓bájn	Búŋɔ́ kó ↓né kùm kɘ̀↓bájn	Búŋɔ́ né ŋkùmɘ̀ kɘ̀bájn	nè kùm kɘ̀bájn	Bung will touch fufu
	Búŋɔ́ né lɨ̀msɘ̀ kɘ̀↓bájn	Búŋɔ́ kó ↓né lɨ̀msɘ̀ kɘ̀↓bájn	Búŋɔ́ né nlɨ̀msɘ̀ kɘ̀bájn	nè lɨ̀msɘ̀ kɘ̀bájn	Bung will heat fufu
F3	Búŋɔ́ lú ↓ʒɨ́ kɘ̀↓bájn	Búŋɔ́ kó ↓lú ↓ʒɨ́ kɘ̀↓bájn	Búŋɔ́ lú ↓nʒɨ́ɛ̀ kɘ̀bájn	lù ʒɨ́ kɘ̀↓bájn	Bung will eat fufu
	Búŋɔ́ lú ↓lám kɘ̀↓bájn	Búŋɔ́ kó ↓lú ↓lám kɘ̀↓bájn	Búŋɔ́ lú ↓nlámɘ̀ kɘ̀bájn	lù lám kɘ̀↓bájn	Bung will cook fufu
	Búŋɔ́ lú ↓sɘ́ŋtɘ̀ kɘ̀↓bájn	Búŋɔ́ kó ↓lú ↓sɘ́ŋtɘ̀ kɘ̀↓bájn	Búŋɔ́ lú ↓nsɘ́ŋtɘ̀ kɘ̀bájn	lù sɘ́ŋtɘ̀ kɘ̀bájn	Bung will sift fufu
	Búŋɔ́ lú lɛ̀ kɘ̀↓bájn	Búŋɔ́ kó ↓lú lɛ̀ kɘ̀↓bájn	Búŋɔ́ lú nlɛ̀ɛ̀ kɘ̀bájn	lù lɛ̀ kɘ̀bájn	Bung will lose fufu
	Búŋɔ́ lú kùm kɘ̀↓bájn	Búŋɔ́ kó ↓lú kùm kɘ̀↓bájn	Búŋɔ́ lú ŋkùmɘ̀ kɘ̀bájn	lù kùm kɘ̀bájn	Bung will touch fufu
	Búŋɔ́ lú lɨ̀msɘ̀ kɘ̀↓bájn	Búŋɔ́ kó ↓lú lɨ̀msɘ̀ kɘ̀↓bájn	Búŋɔ́ lú nlɨ̀msɘ̀ kɘ̀bájn	lù lɨ̀msɘ̀ kɘ̀bájn	Bung will heat fufu

5. Verb tone

5.1. Downstep. Downstep is commonly used to describe the overall 'downtrend' of pitch in tone languages. Scholars have referred to the phenomenon using different terminologies and Connell (2001) distinguishes between *downdrift, downstep*, and *declination*. In this paper downstep is used to refer only to the situation where the second of two high tones in a sequence is realized at a lower level than the first.

In Table 2, one instance where downstep occurs is between the high tone of future tense markers and the immediately following high tone of the verb root (see F1, F2, and F3). In this case, downstep is motivated by the fact that the future tense markers consist of a high tone morpheme plus a final floating low tone as follows: *á* ˋ 'F1', *né* ˋ 'F2', and *lú* ˋ 'F3'. In these constructions, the low tone remains floating and rather spreads its low register feature to the following high tone. This is followed by the delinking of that tone's high register such that the high tone of the verb root is realized on a lower register than the preceding high tone of the tense marker.

The same process also occurs in present and future tense negative forms (P0, F1, F2, F3, F4). The floating low tone of the discontinuous negation marker *kó* ˋ *... bwɛn* behaves in a similar manner, causing downstep of the following high tone. The indication of repeated downstep in the negative future forms shows that the high tones of the tense marker and verb root are downstepped relative to that of the negation marker.

This kind of downstep caused by a floating low tone is commonly known in the literature as non-automatic downstep (Snider 1999) and formalized here in RTT terms as follows.

(5) Downstep
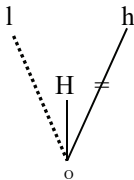
According to this rule, a floating low register feature spreads rightward, and, in a subsequent process, delinks the following high register feature, causing the high tone to be realized on a lower register (downstep), illustrated in the following derivation. In this and other derivations in this paper, the arrows next to the register features illustrate the shift in register, l↘= downward and h↗= upward.

Figure 3: Downstep
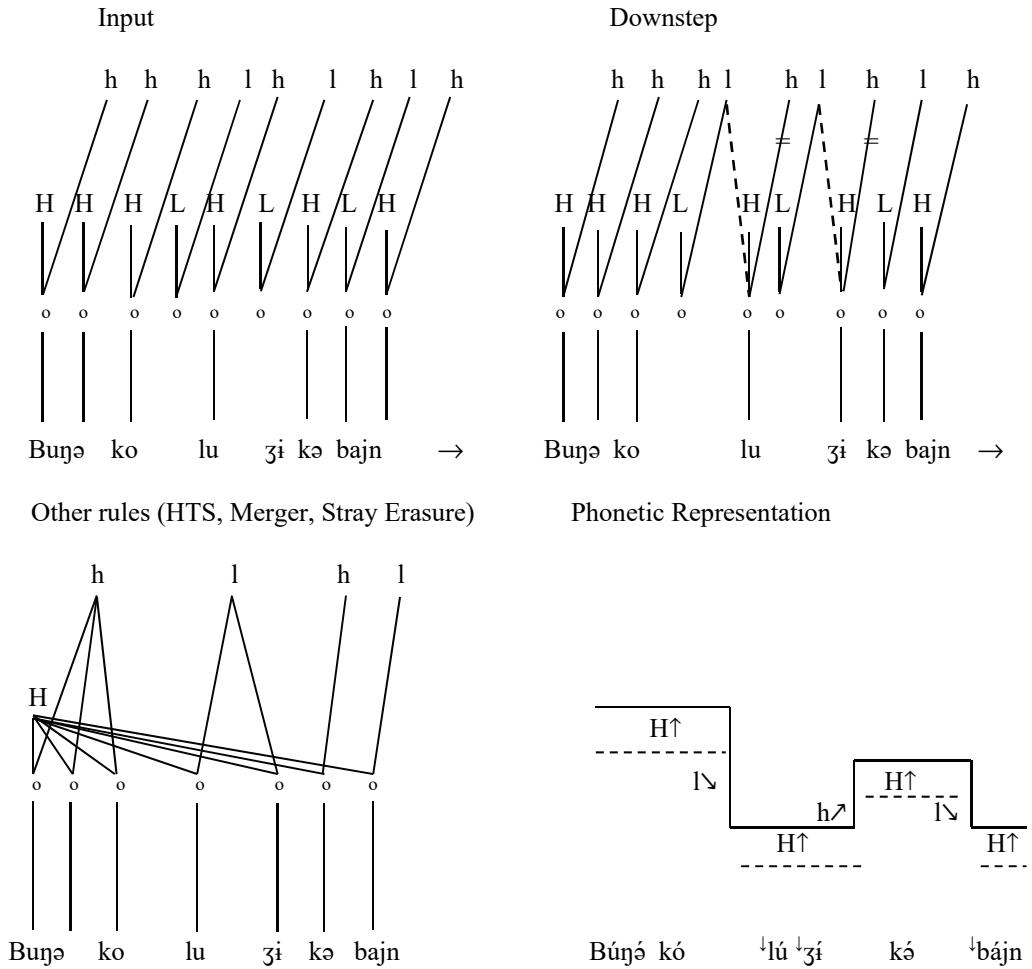
After *l* spread and *h* delink that result in a downstep, *HTS* (discussed in §5.3) causes the high tone of the verb [ʒɨ] to spread to the prefix of the following noun such that the prefix which has a low tone underlyingly surfaces on a high tone. *Merger* then coalesces identical adjacent features and *stray erasure* deletes all unassociated (i.e., floating) elements. The last diagram in the derivation shows that the first three high tones are realized on a high register after which there is a register shift downwards such that the fourth and fifth high tones are realized on a low register. The register again moves upward and the sixth high tone is realized on a high register. Finally, the register is lowered and the last high tone is realized on a low register.

Downstep of the noun root high tone is explained in §5.4. Further evidence for downstep is provided by infinitive forms in the language. Akumbu & Fogwe (2012) argue that the infinitive is marked by a high tone schwa but downstep provides evidence for the modification of that claim. It shows that in addition to the high tone schwa there is a floating low tone at the end of infinitive forms (ə́ˋ). When the high tone schwa and the floating low tone combine with low tone roots (6a), the floating tone merges with the low tone of the root but if they are attached to high tone verb

roots (6b), the floating low tone causes the high tone of the verb to be realized at a lower level than the infinitive high tone.

(6) a. ɘ̀ˋ-kù   [ɘ́-kù]   'to snore'   b. ɘ̀ˋ-kú   [ɘ́-ꜜkú]   'to give'
    ɘ̀ˋ-mò   [ɘ́-mò]   'to narrate'   ɘ̀ˋ-mó   [ɘ́-ꜜmó]   'to deny'
    ɘ̀ˋ-sàm   [ɘ́-sàm]   'to swim'   ɘ̀ˋ-sám   [ɘ́-ꜜsám]   'to migrate'
    ɘ̀ˋ-bɔ̀ʔtɘ̀ [ɘ́-bɔ̀ʔtɘ̀]   'to open'   ɘ̀ˋ-bɔ́ʔsɘ́ [ɘ́-ꜜbɔ́ʔsɘ́]   'to join'
    ɘ̀ˋ-ʃìsɘ̀ [ɘ́-ʃìsɘ̀]   'to remove'   ɘ̀ˋ-ʃǐʔsɘ́ [ɘ́-ꜜʃǐʔsɘ́]   'to put down'
    ɘ̀ˋ-bàŋlɘ̀ [ɘ́-bàŋlɘ̀]   'to pretend'   ɘ̀ˋ-láŋtɘ́ [ɘ́-ꜜláŋtɘ́]   'to bend down'

Wherever a verb is used in the infinitive form, downstep occurs as shown in (7).

(7) a. ɘ́tʃò fá ŋgɘ̀ŋ   'to pass through the residence'
        ɘ́ꜜkúʔ á fɘ̀kɔ̀ʔ   'to climb on a tree'

    b. wù jì tʃɘ̀n ɘ́tʃò   'you refused to pass'
        wù jì tʃɘ̀n ɘ́ꜜkúʔ   'you refused to climb'

    c. wǔ tɘ̂ tʃò   'you passed'
        wǔ tɘ̂ kúʔ   'you climbed'

The data in (7a and b) show that there is always downstep of the high tone of the root when the infinitive form of the verb is used. This is confirmed by the forms in (7c) where there is no infinitive marker and no downstep. High tone infinitive verbs can be derived as in Figure 4.

Figure 4: Downstep in infinitives

Phonetic Representation
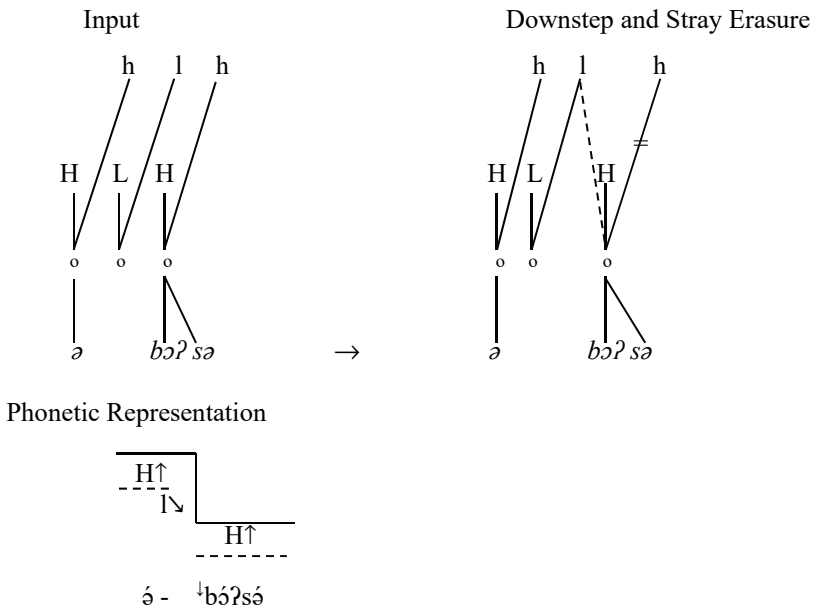
The derivation shows that the floating low register feature of the infinitive spreads to and delinks the following high register feature of the root high tone causing it to be realized on a low register.

5.2. Tone docking (TD). Underlying floating tones dock leftward in at least the negative, imperative and imperfective forms, while tone docking to the right occurs in the imperative and imperfective. It has been mentioned above that the floating low negation tone causes downstep of the following high tone. This happens only when the low tone fails to dock leftward in future tense constructions. Generally, the floating negation tone docks leftward onto the first negation morpheme, as shown in the following data.

(8) a.   *Búŋə́ kô ʒì ká↓bájn* (bwɛ́n)
     Búŋ ə́   kó ˋ   ʒɨ́ kə̀.bájn   bwɛn[4]
     Bung SM   NEG   eat C7.fufu   NEG
     'Bung has not eaten fufu.'

   b.   *Búŋə́ kô jì ʒì ká↓bájn* (bwɛ́n)
     Búŋ ə́   kó ˋ   jì ʒɨ́ kə̀.bájn   bwɛn
     Bung SM   NEG   P2 sift C7.fufu   NEG
     'Bung did not eat fufu.'

   c.   *Búŋə́ kô tə̀ ʒì ká↓bájn* (bwɛ́n)
     Búŋ ə́   kó ˋ   tə̀ ʒɨ́ kə̀.bájn   bwɛn
     Bung SM   NEG   P3 sift C7.fufu   NEG
     'Bung did not eat fufu.'

   d.   *Búŋə́ kô nʒì ká↓bájn* (bwɛ́n)
     Búŋ ə́   kó ˋ   N[5]-ʒɨ́ kə̀.bájn   bwɛn
     Bung SM   NEG   N-eat C7.fufu   NEG
     'Bung did not eat fufu.'

The examples illustrate that in all past tenses, the first negation morpheme is high-falling due to the leftward docking of the floating low tone. Tone docking is formalised in autosegmental terms as follows:

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[4]   *bwɛn* 'NEG' has been represented underlyingly without a tone mark because it seems that it can be realized on either a high or a low tone. What determines the choice is not clear yet and remains a point to be investigated.

[5]   The nasal has simply been glossed 'N' because its origin and function remain unclear not only in Babanki but also in Kom (Shultz, 1997) and Bafut (Tamanji, 2009) where it has been analysed as induced by the verb or as an aspect marker respectively.

(9) Tone Docking

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        ┌───┐
        │ T │
        └───┘
          ┊
          ┊
          V
```
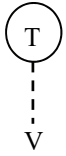
   According to this rule a floating tone docks onto a TBU which may be either to the left or right. In (8), docking is leftward and results in a contour tone, as shown in the following derivation.

(10)	*Búŋə́ kô jì ʒì ká↓bájn (bwɛ́n)*	*Búŋə́ kô nʒì ká↓bájn (bwɛ́n)*
Input	/Búŋ ə́ kó ˋ jì ʒí kə̀bájn bwɛn	Búŋ ə́ kó ˋ N-ʒí kə̀bájn bwɛn/
TD	Búŋ ə́ kô jì ʒí kə̀bájn bwɛn	Búŋ ə́ kô N-ʒí kə̀bájn bwɛn
Other rules	Búŋə́ kô jì ʒì ká↓bájn bwɛ́n	Búŋə́ kô nʒì ká↓bájn bwɛ́n
PR	*[Búŋə́ kô jì ʒì ká↓bájn (bwɛ́n)*	*Búŋə́ kô nʒì ká↓bájn (bwɛ́n)]*

   Imperative (IMP) forms also undergo tone docking albeit bidirectionally. IMP is marked by a floating high tone found immediately after the verb root. It docks leftward to form a LH melody when the verb tone is low or merges with the high tone if the verb tone is high.[6] At the same time, docking occurs to the right on condition that the following noun has a class marker (prefix). The following data show TD in the imperative when the subject is singular.

(11) a. *ʒí ká↓bájn*
  ʒí   ´   kə̀.bájn
  eat   IMP   C7.fufu
  'Eat fufu!'

b. *lám ká↓bájn*
  lám   ´   kə̀.bájn
  cook   IMP   C7.fufu
  'Cook fufu!'

c. *lèə́ ká↓bájn*
  lè   ´   kə̀.bájn
  lose   IMP   C7.fufu
  'Lose fufu!'

d. *kùmə́ ká↓bájn*
  kùm   ´   kə̀.bájn
  touch   IMP   C7.fufu
  'Touch fufu!'

e. *lìmsə́ ká↓bájn*
  lìmsə̀   ´   kə̀.bájn
  heat   IMP   C7.fufu
  'Heat fufu!'

f. *lám wùwì*
  lám   ´   wùwì
  marry   IMP   C1.woman
  'Marry a woman!'

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[6] A similar situation is reported in another Northwestern Grassfields language, Moghamo, where the imperative marker is also a floating high tone that associates in various ways depending on the verb stem (Achiri-Taboh, 2013).

g. *ʃìsɔ́ ɲàm*
    ʃìsɔ̀   ´   ɲàm
    remove   IMP   C9.meat
    'Remove meat!'

The IMP high tone consistently docks leftward onto the verb but docks rightward only onto noun class prefixes. The examples in (11c and d) show that when low tone verb roots have only one syllable a schwa is inserted to bear the imperative tone (discussed in §5.5) and avoid a rising tone on a single TBU. (11e and g) show that the floating imperative high tone replaces the low tone of the second syllable of two-syllable low tone roots. In (11f and g) the IMP tone does not dock rightward because the nouns do not have prefixes. Imperative forms are derived as follows:

(12)   *lám kɔ́[↓]bájn*   *lìmsɔ́ kɔ́[↓]bájn*

Input	/lám ´ kɔ̀bájn	lìmsɔ̀ ´ kɔ̀bájn/
TD	lám kɔ̂bájn	lìmsɔ̌ kɔ̂bájn
Other rules	lám kɔ́↓bájn	lìmsɔ́ kɔ́↓bájn
PR	[*lám kɔ́↓bájn*	*lìmsɔ́ kɔ́↓bájn*]

Future affirmative and negative (imperfective) constructions also undergo TD, as illustrated by the following F2 forms. Notice that there is a floating high tone after the verb root that marks imperfective[7] (IPF) aspect.

(13) a. *Búŋɔ́ né [↓]lám kɔ́[↓]bájn*
     Búŋ ɔ́ néˋlám   ´   kɔ̀.bájn
     Bung SM F2 cook   IPF C7.fufu
     'Bung will cook fufu.'

b. *Búŋɔ́ né [↓]sɔ́ŋtɔ́ kɔ́[↓]bájn*
     Búŋ ɔ́ néˋsɔ́ŋtɔ́   ´   kɔ̀.bájn
     Bung   SM F2 sift   IPF C7.fufu
     'Bung will sift fufu.'

c. *Búŋɔ́ né kùm kɔ́[↓]bájn*
     Búŋ ɔ́ néˋkùm   ´   kɔ̀.bájn
     Bung SM F2 touch   IPF C7.fufu
     'Bung will touch fufu.'

d. *Búŋɔ́ né kùmsɔ̌ kɔ́[↓]bájn*
     Búŋ ɔ́ néˋkùm-sɔ̀   ´   kɔ̀.bájn
     Bung   SM F2 touch-EXT IPF C7.fufu
     'Bung will touch fufu.'

e. *Búŋɔ́ né lìmsɔ̌ kɔ́[↓]bájn*
     Búŋ ɔ́ néˋlìmsɔ̀   ´   kɔ̀.bájn
     Bung SM F2 heat   IPF C7.fufu
     'Bung will heat fufu.'

f. *Búŋɔ́ kó [↓]né kùm kɔ́[↓]bájn*
     Búŋ ɔ́ kóˋ néˋkùm   ´   kɔ̀.bájn
     Bung   SM NEG F2 touch IPF C7.fufu
     'Bung will not touch fufu.'

g. *Búŋɔ́ kó [↓]né kùmsɔ̌ kɔ́[↓]bájn*
     Búŋ ɔ́ kóˋ néˋkùm-sɔ̀   ´   kɔ̀.bájn
     Bung SM NEG   F2 touch-EXT IPF C7.fufu
     'Bung will not touch fufu.'

h. *Búŋɔ́ kó [↓]né lìmsɔ̌ kɔ́[↓]bájn*
     Búŋ ɔ́ kóˋ néˋlìmsɔ̀   ´   kɔ̀.bájn
     Bung SM NEG   F2 heat   IPF C7.fufu
     'Bung will not heat fufu.'

---

[7] *Imperfective aspect* is used in Babanki to represent events as occurring "over a longer or undefined period" (Nurse, 2003).

The floating IPF high tone, like the imperative high tone, also docks both leftward and rightward. Two-syllable low tone verbs surface with LH on the second syllable (13d, e, g and h), providing support for leftward docking whereas one-syllable low tone verbs show no trace of the floating high tone on the verb (13c and f) suggesting that the IPF tone docks only if the preceding verb has an extension attached to it. A comparison of (13f and g) in particular reveals that leftward docking of the IPF tone occurs only if the verb takes an extension. The fact that the following noun prefix also surfaces on a high tone shows that the floating IPF tone also docks rightward. The way the verb root and the following object relate is discussed briefly in §6.4.

5.3. High tone spread (HTS). High tone spread is also common in the Babanki verb system and accounts for the underlying L(L) roots that surface as HL in some constructions. A close look at Table 2 reveals that HTS occurs in all the tenses in at least one type of construction. Consider the following data with their underlying forms for illustration.

(14) a. *Búŋɔ́ jî ʒì kɔ́↓bájn*
    Búŋ ɔ́ jì ʒí kɔ̀.bájn
    Bung SM P2 eat C7.fufu
    'Bung ate fufu.'

  b. *Búŋɔ́ kúmɔ̀ lí kɔ̀bájn*
    Búŋ ɔ́ kùm lí ˋ kɔ̀.bájn
    Bung SM touch P1 C7.fuf
    'Bung has touched fufu.'

  c. *Búŋɔ́ nlímsɔ̀ lí kɔ̀bájn*
    Búŋ ɔ́ n-lìmsɔ̀ lí ˋ kɔ̀.bájn
    Bung SM N-heat P4 C7.fufu
    'Bung heated fufu.'

  d. *ʒí kɔ́↓bájn*
    ʒí ´ kɔ̀.bájn
    eat IMP C7.fufu
    'Eat fufu!'

HTS occurs from the SM to the tense marker in (14a), from the SM to the verb root in (14b and c), and from the verb root to the noun prefix in (a). HTS creates a contour tone on the tense marker in (a) but not in the rest of the contexts. In (b and c) it is followed by the delinking of the root low tone. The delinked tone merges with the schwa of the second syllable roots (c) while in (b), a schwa is inserted to bear the delinked root tone, as discussed in section (4.5). HTS to the noun prefix is blocked in (b and c) by the floating low tone of P1 and P4. In (a) the underlying high tone of the verb root is delinked, following Low Tone Spread discussed below in section 4.4. Due to schwa insertion in (b) both one-syllable and two-syllable low tone roots surface with an identical HL melody on two syllables, thereby neutralising the distinction between the two syllable types of verbs in this context. High Tone Spread is formalized as follows:

(15)   High Tone Spread
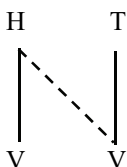
According to this rule an associated high tone spreads to the tone bearing unit to its right. HTS can be followed by other rules as described above and illustrated in the following derivation.

(16)   Búŋɔ́ nlímsɔ̀ lí kɔ̀bájn   Búŋɔ́ jî ʒì kɔ́↓bájn
     Input   /Búŋ ɔ́ N-lìmsɔ̀ lí ˋ kɔ̀bájn   Búŋ ɔ́ jì ʒí kɔ̀bájn/
     TD   ‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾   ‾‾‾‾‾‾‾‾‾‾‾‾‾
     HTS   Búŋ ɔ́ N-lí ˋmsɔ̀ lí ˋ kɔ̀bájn   Búŋ ɔ́ jí ˋ ʒí kɔ́ ˋbájn
     Other rules Búŋ ɔ́ n-límsɔ̀ lí kɔ̀bájn   Búŋ ɔ́ jî ʒì kɔ̀bájn
     PR   [*Búŋɔ́ nlímsɔ̀ lí kɔ̀bájn*   *Búŋɔ́   jî ʒì kɔ́↓bájn*]

    Notice in Table 2 that past progressive forms do not undergo HTS, mainly because the SM
from where HTS originates is not present[8] (P2, and P3) or rather has a low tone (P4). In P2 and
P3, the SM does not occur when the subject is from classes 1, 6a, and 9. In P4, the schwa is
retained but surprisingly it carries a low tone. This is probably due to the fact that classes 1, 6a,
and 9 typically utilize low tones to mark agreement in Babanki, as in the associative construction
(Akumbu 2011). How this is related to past progressive constructions remains unclear and requires
further investigation.

5.4. Low tone spread (LTS). Low tone spread occurs in P2 and P3 affirmative constructions as
well as in all past tense negative forms where the low tone that precedes the verb root spreads to
and delinks the high tone of the verb or merges with the verb low tone. In P4 negative forms in
Table 2, LTS originates from the floating low tone of the negation marker while in the rest of the
constructions it is from the tense marker. The following data illustrate this process.

(17) a. *Búŋɔ́ jî ʒì kɔ́↓bájn*
         Búŋ ɔ́ jì   ʒí kɔ̀.bájn
         Bung SM P2 eat C7.fufu
         ‘Bung ate fufu.’

     b. *Búŋɔ́ tɔ̂ làm kɔ́↓bájn*
         Búŋ ɔ́ tɔ̀ lám   kɔ̀.bájn
         Bung SM P3 cook   C7.fufu
         ‘Bung cooked fufu?’

     c. *Búŋɔ́ kô ʒì kɔ́↓bájn (bwɛ́n)*
         Búŋ ɔ́ kó ˋ   ʒí kɔ̀.bájn   bwɛn
         Bung SM NEG   eat C7.fufu   NEG
         ‘Bung has not eaten fufu.’

     d. *Búŋɔ́ kô jì sɔ̀ŋtɔ́ kɔ̀bájn (bwɛ́n)*
         Búŋ ɔ́ kó ˋ   jì sɔ̀ŋtɔ́ kɔ̀.bájn   bwɛn
         Bung SM NEG   P2 sift   C7.fufu   NEG
         ‘Bung didn’t sift fufu’

---

[8] The subject marker (SM) changes depending on the noun class of the noun it represents. It is the same (ɔ́)
     for classes 1, 2, 3, 5, 6, 6a, 8, and 9 but kɔ́ ‘C7’, sɔ́ ‘C10’, tɔ́ ‘ C13’, and fɔ́ ‘C19’.

e. *Búŋə́ kô tə̀ làm kə́↓bájn (bwɛ́n)*

Búŋ	ə́	kó`	tə̀	lám	kə̀.bájn	bwɛn
Bung	SM	NEG	P3	cook	C7.fufu	NEG

'Bung didn't cook fufu.'

f. *Búŋə́ kô nʒì kə́↓bájn (bwɛ́n)*

Búŋ	ə́	kó`	N-ʒí	kə̀.bájn	bwɛn
Bung	SM	NEG	N-eat	C7.fufu	NEG

'Bung didn't eat fufu.'

The data show that underlying H(H) tone verb roots surface as L(H) due to LTS formalized as follows.

(18) Low Tone Spread
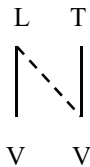
According to this rule an associated low tone spreads to the tone bearing unit to its right. LTS can be followed by other rules as illustrated in the following derivation.

(19)

	Búŋə́ jî ʒì kə́↓bájn	*Búŋə́ kô nʒì kə́↓bájn (bwɛ́n)*
Input	/Búŋ ə́ jì ʒí kə̀.bájn	Búŋ ə́ kó ` N-ʒí kə̀.bájn bwɛn/
TD	_____	Búŋ ə́ kô N-ʒí kə̀.bájn bwɛn
LTS and delinking	Búŋ ə́ jì ʒì ´ kə̀bájn	Búŋ ə́ kô N-ʒì ´ kə̀bájn bwɛn
HTS/docking & delinking	Búŋ ə́ jî ʒì kə́ `bájn	Búŋ ə́ kô N-ʒì kə́ `bájn bwɛn
Other rules	Búŋ ə́ jî ʒì kə́↓bájn	Búŋ ə́ kô n-ʒì kə́↓bájn bwɛ́n
PR	[*Búŋə́ jî ʒì kə́↓bájn*	*Búŋə́ kô nʒì kə́↓bájn bwɛ́n*]

One wonders why rising tones sometimes survive in the language and sometimes do not. Recall that a Low root followed by a High floating tone gives LH (e.g. *kùmə́ kə́↓bájn* 'touch fufu') but a verb like *ʒí* 'eat' undergoes LTS and instead of keeping the LH, it rather simplifies to L, with the H being realized on the prefix of the following noun when an object follows. In addition, the way the tone of the object is affected depends on the underlying tone pattern of the noun (Hyman 1979:162).

(20) a. *Búŋə́ jî ɣàʔ kə́kɔ̀s*

Búŋ	ə́	jì	ɣáʔ	kə̀.kɔ̀s
Bung	SM	P2	catch	C7.slave

'Bung caught a slave.'

b. *Búŋə́ jî ɣàʔ kə́↓bájn*

Búŋ	ə́	jì	ɣáʔ	kə̀.bájn
Bung	SM	P2	catch	C7.fufu

'Bung caught fufu.'

c. *Búŋə́ jî ɣàʔ dzêm*
   Búŋ ə́ jì ɣáʔ   dzɛ̀m^o
   Bung SM P2 catch C9.back
   'Bung caught a back.'

d. *Búŋə́ jî ɣàʔ kə̀mbò^o*
   Búŋ   ə́ jì ɣáʔ   kə̀.mbò^o
   Bung   SM P2 catch   C7.bag
   'Bung caught a bag.'

e. *Búŋə́ jî ɣàʔ ɲàm*
   Búŋ ə́ jì ɣáʔ   ɲàm
   Bung SM P2 catch   C9.animal
   'Bung caught an animal.'

f. *Búŋə́ jî ɣàʔ bɨ́*
   Búŋ   ə́ jì ɣáʔ   bɨ́
   Bung   SM P2 catch   C9.dog
   'Bung caught a dog.'

g. *Búŋə́ jî ɣàʔ mú^↓ú*
   Búŋ ə́ jì ɣáʔ   mú^↓ú
   Bung SM P2 catch   C6a.water
   'Bung caught water.'

The data show that after LTS the high tone from the verb affects the tone of the object in different ways as follows: underlying L-L nouns are realized as H-L (a), L-H as H$^↓$H (b), and L^{o9} as HL (c), while the rest do not change.

It should also be mentioned that pronouns and prepositional phrases that follow the verb can also be affected in various ways, as shown in the data below.

(21) a. *Búŋə́ jî ɣàʔ wù*
   Búŋ ə́ jì ɣáʔ   wù
   Bung SM P2 catch   2s
   'Bung caught you.'

b. *Búŋə́ jî ɣàʔ və̀wé*
   Búŋ   ə́ jì ɣáʔ   və̀wé
   Bung   SM P2 catch   3p
   'Bung caught them.'

c. *Búŋə́ jî ɣàʔ jés*
   Búŋ ə́ jì ɣáʔ   jès
   Bung SM P2 catch   1p
   'Bung caught us.'

d. *Búŋə́ jî ɣàʔ á ŋgə̀ŋ*
   Búŋ   ə́ jì ɣáʔ   á   ŋgə̀ŋ
   Bung   SM P2 catch   PREP c9.house
   'Bung caught in the house.'

e. *Búŋə́ jî ɣàʔ nə̀ kə̀vú kə́ wén*
   Búŋ ə́ jì ɣáʔ   nə̀   kə̀.vú   kə́   wén
   Bung SM P2 catch   PREP   c7.hand   AM   3s
   'Bung caught with his hand.'

The delinked high tone of the verb surfaces on the first syllable of two-syllable pronouns (b and c) but not on one-syllable low tone pronouns (a) or preposition (e). Interestingly, LTS fails to apply if nothing follows the verb.

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[9] The small 'o' after 'L' indicates that the low tone is floating.

(22) a. *Búŋə́ jî ʒɨ́*   b. *Búŋə́ tə̂ lám*

    Búŋ ə́ jì ʒɨ́   Búŋ ə́ tə̀ lám

    Bung SM P2 eat   Bung SM P3 cook

    'Bung ate.'   'Bung cooked.'

    c. *Búŋə́ kô ʒɨ́*

    Búŋ ə́ kó ˋ ʒɨ́

    Bung SM NEG eat

    'Bung has not eaten.'

5.5 Schwa Insertion (SI). It has already been mentioned that a schwa can be inserted to bear certain tones such as the floating imperative tone (sections 4.2 and 4.3). The insertion of this mid-central low vowel whenever the need for a vowel arises is possible evidence that the schwa is the default vowel in Babanki. The following examples show schwa insertion.

(23) a. *lèə́ kə́↓bájn*   b. *Búŋə́ kúmə̀ lí kə̀báj*

    lè ˊ kə̀.bájn   Búŋ ə́ kùm lí kə̀.bájn

    lose IMP C7.fufu   Bung SM touch P1 C7.fufu

    'Lose fufu!'   'Bung has touched fufu.'

    c. *Búŋə́ lámə̀ kə̀bájn*   d. *Búŋə́ kùmə̀ kə̀bájn*

    Búŋ ə́ lám ˋ kə̀.bájn   Búŋ ə́ kùm ˋ kə̀.bájn

    Bung SM cook PROG C7.fufu   Bung SM touch PROG C7.fufu

    'Bung is cooking fufu.'   'Bung is touching fufu.'

    e. *Búŋə́ sə́ŋtə̀ kə̀bájn*

    Búŋ ə́ sə́ŋtə́ ˋ kə̀.bájn

    Bung SM sift PROG C7.fufu

    'Bung is sifting fufu.'

The schwa is inserted in (a) to bear the high tone of the imperative. In (b) it is inserted to bear the delinked low tone that results from HTS from the SM to the verb root and subsequent deletion of that verb tone. In (c and d) schwa insertion is required so that it can bear the low tone of the progressive (PROG) marker. PROG is marked by a floating low tone which is found after the verb root. This is contrary to Akumbu & Fogwe (2012) who claim that PROG is marked by a toneless schwa. Instead, the schwa bears a high tone in (c), due to HTS from the verb root that results in the delinking of the progressive low tone. Interestingly two-syllable high tone roots that end in a schwa (e) are affected differently as the second high tone is replaced by the low tone of the progressive. For this reason some HH verb roots surface as HL.

    Schwa insertion could suggest that historically Babanki verb roots were disyllablic and the final syllable has been lost over time. The schwa is therefore a trace of that final vowel which is realized only under some conditions. Further evidence for disyllablic roots in Babanki comes from plural subject pronouns where traces of two or three syllables still survive in such alternations as:

(24) vɔ́ɣɔ̀ŋɔ́ ~vɔ́ɣɔ̀ŋ ~vɔ́ɣɔ́   '1p (inclusive)'
     jèsɔ́ ~jès ~jě   '1p (inclusive)'
     ɣɔ̀ŋɔ́ ~ɣɔ̀ŋ ~ɣɔ̌   '2p'
     vɔ̀wénɔ́ ~vɔ̀wé~vɔ́   '3p'

Each of the pronouns can be used in any of the three ways with the general tendency being to use the most simplified version except where there are restrictions. The presence of the schwa on the second or third syllable provides justification for schwa insertion.

6. Verb reduplication tone

The way tones behave when verbs are reduplicated depends on the verb group. Sometimes within the same group, reduplication patterns differently depending on the syllable structure of the verb.

6.1. High tone verbs. High tone verbs exhibit both total (morphological completeness) and partial (tonal difference) reduplication. In the following table one-syllable high tone verbs are shown in their base and reduplicated forms.

Table 3: One-syllable high tone root reduplication

Infinitive	Reduplicated Infinitive	Imperative	Reduplicated Imperative	Reduplicated progressive	gloss
ɔ́-ꜜté	ɔ́-ꜜtété	té	tétéɔ́	téɔ́ꜜtéɔ́	'insult'
ɔ́-ꜜbwí	ɔ́-ꜜbwíbwí	bwí	bwíbwíɔ́	bwíɔ́ꜜbwíɔ́	'give birth'
ɔ́-ꜜzáf	ɔ́-ꜜzáfzáfɔ́	záf	záfzáfɔ́	záfɔ́ꜜzáfɔ́	'ache'
ɔ́-ꜜʒím	ɔ́-ꜜʒímʒímɔ́	ʒím	ʒímʒímɔ́	ʒímɔ́ꜜʒímɔ́	'sing'
ɔ́-ꜜbwɔ́m	ɔ́-ꜜbwɔ́mbwɔ́mɔ́	bwɔ́m	bwɔ́mbwɔ́mɔ́	bwɔ́mɔ́ꜜbwɔ́mɔ́	'build'

Downstepping of the high tone in the infinitive forms results in the second high tone being lower than the first (see §5.1). Reduplication of the imperative forms shows that there is a high tone reduplicant (RED)[10] morpheme (ɔ́) that is added at the end of the reduplicated form (see especially the reduplicated CVC roots). It also shows that the tones and segments of the base are identical to those of the RED. In the reduplicated progressive forms the RED morpheme surfaces on the RED and a schwa is inserted after the base to bear the progressive low tone. The progressive tone is eventually replaced by the high tone of the root as described in §5.5. Downstep of the RED tone is caused by the progressive low tone that floats after the application of HTS as illustrated in the following RTT derivation.

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[10] The *reduplicant* is an affix onto which features or segments of the morphological base are copied while the *base* refers to the verb or part of it that is to be copied.

Figure 5: Downstep in reduplicated forms
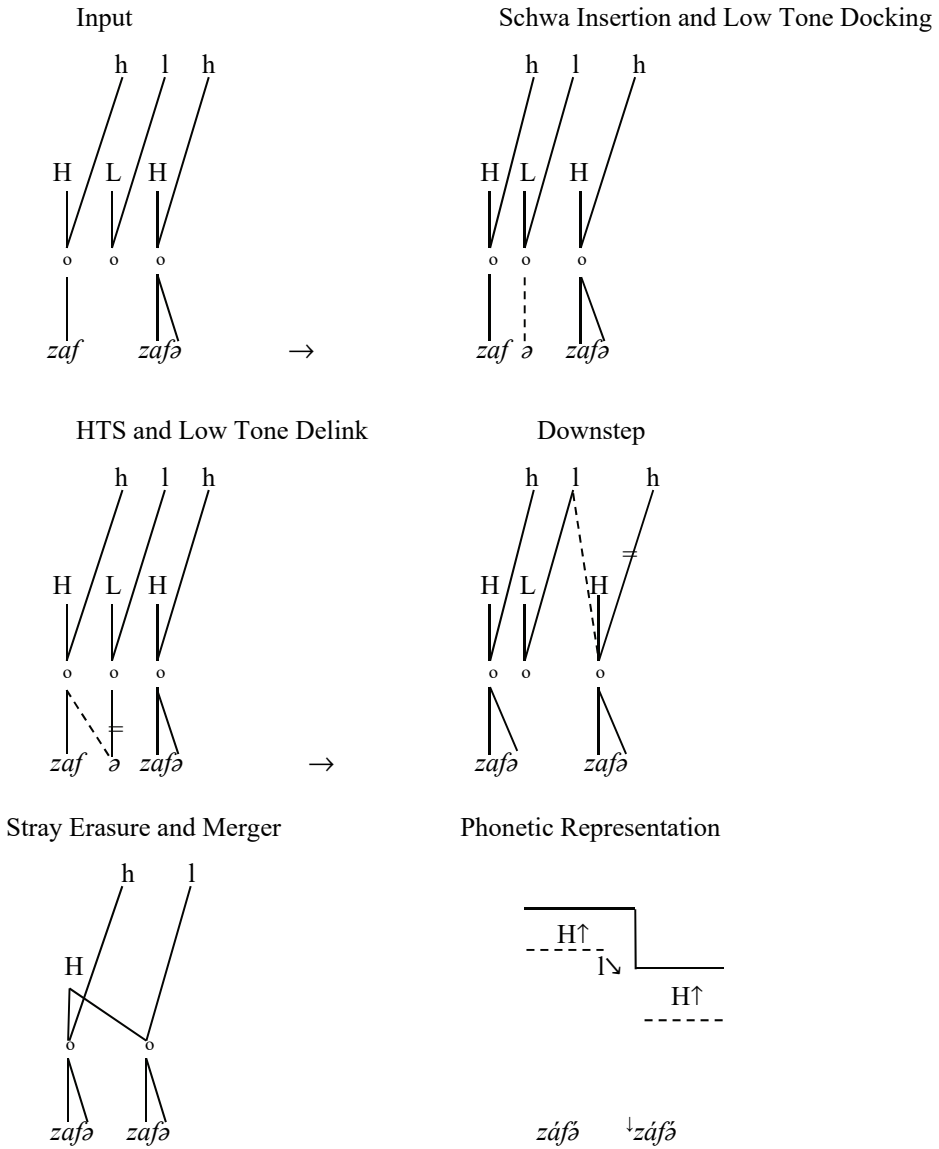
The derivation shows that the first high tone is realized on a high register and the second on a low register. Next, consider the two-syllable high tone verbs in Table 4.

Table 4: Two-syllable high tone root reduplication

| Infinitive	Reduplicated Infinitive	Imperative	Reduplicated Imperative	Reduplicated progressive	gloss
ɔ́-ˉsáŋlɔ́	ɔ́-ˉsáŋlɔ́sáŋlɔ́	sáŋlɔ́	sáŋlɔ́sáŋlɔ́	sáŋlɔ̀sàŋlɔ́	'rejoice'
ɔ́-ˉbáʔtɔ́	ɔ́-ˉbáʔtɔ́báʔtɔ́	báʔtɔ́	báʔtɔ́báʔtɔ́	báʔtɔ̀bàʔtɔ́	'gather'
ɔ́-ˉtímɔ́	ɔ́-ˉtímɔ́tímɔ́	tímɔ́	tímɔ́tímɔ́	tímɔ̀tìmɔ́	'stand'
ɔ́-ˉbúŋkɔ́	ɔ́-ˉbúŋkɔ́búŋkɔ́	búŋkɔ́	búŋkɔ́búŋkɔ́	búŋkɔ̀bùŋkɔ́	'roll'
ɔ́-ˉsɔ́ŋtɔ́	ɔ́-ˉsɔ́ŋtɔ́sɔ́ŋtɔ́	sɔ́ŋtɔ́	sɔ́ŋtɔ́sɔ́ŋtɔ́	sɔ́ŋtɔ̀sɔ̀ŋtɔ́	'sift'

These data further illustrate what happens with one-syllable high tone verbs in forms other than the reduplicated progressive. In these progressive forms, the last tone of the base is low as expected after progressive low tone docking and high tone delinking apply (§5.5). However, the first syllable of the RED unpredictably surfaces as *low* instead of *high*. To explain this it has been assumed that the derived low tone of the base spreads rightward and delinks the first high tone of the RED[11], as shown in the following derivation.

Figure 6: Low Tone Spread in reduplicated forms

_____
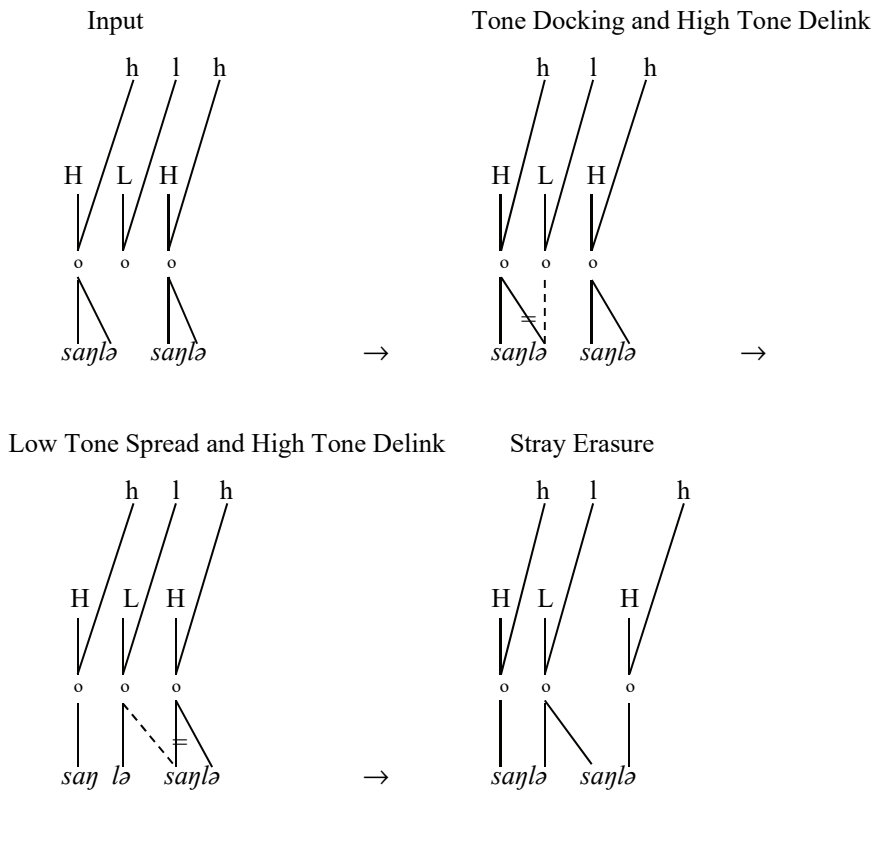
[11] This isolated process requires further investigation as it has been found to occur only in the context of the reduplication of two syllable high tone verbs in the progressive.

(Figure 6 cont.)
Phonetic Representation

sáŋ lə̀ sàŋ lə́
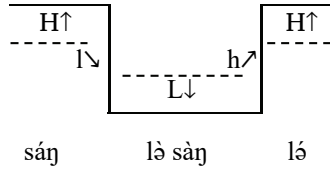
The first syllable has a high tone realized on a high register while the second and third syllables have a low tone realized on a low register. The register is again shifted upward for the last syllable and the high tone is realized on a high register.

6.2. Low tone verbs. Low tone verbs exhibit only partial reduplication such that segments in the base and reduplicant manifest tonal differences. The reduplication pattern on both one- and two-syllable low tone verbs is shown in the next table. They are put together because tone behaves in a similar manner regardless of the syllable type.

Table 5: Low tone root reduplication

| Infinitive	Reduplicated Infinitive	Imperative	Reduplicated Imperative	Reduplicated progressive	gloss
ə́-tʃò	ə́-tʃò↑tʃòə̀	tʃòə́	tʃòə́↑tʃòə̀	tʃòə́↑tʃòə̀	'pass'
ə́-vì	ə́-vì↑vìə̀	vìə́	vìə́↑vìə̀	vìə́↑vìə̀	'come'
ə́-swè	ə́-swè↑swèə̀	swèə́	swèə́↑swèə̀	swèə́↑swèə̀	'miss'
ə́-kùm	ə́-kùm↑kùmə̀	kùmə́	kùmə́↑kùmə̀	kùmə̀↑kùmə̀	'touch'
ə́-mwɔ̀m	ə́-mwɔ̀m↑mwɔ̀mə̀	mwɔ̀mə́	mwɔ̀mə́↑mwɔ̀mə̀	mwɔ̀mə̀↑mwɔ̀mə̀	'taste'
ə́-kùmtə̀	ə́-kùmtə̀↑kùmtə̀	kùmtə́	kùmtə́↑kùmtə̀	kùmtə̀↑kùmtə̀	'reiterate'
ə́-bìlə̀	ə́-bìlə̀↑bìlə̀	bìlə́	bìlə́↑bìlə̀	bìlə̀↑bìlə̀	'alter'
ə́-sìsə̀	ə́-sìsə̀↑sìsə̀	sìsə́	sìsə́↑sìsə̀	sìsə́↑sìsə̀	'refund'
ə́-kàŋlə̀	ə́-kàŋlə̀↑kàŋlə̀	kàŋlə́	kàŋlə́↑kàŋlə̀	kàŋlə̀↑kàŋlə̀	'stagger'
ə́-tàŋkə̀	ə́-tàŋkə̀↑tàŋkə̀	tàŋkə́	tàŋkə́↑tàŋkə̀	tàŋkə̀↑tàŋkə̀	'try'
ə́-nàʔsə̀	ə́-nàʔsə̀↑nàʔsə̀	nàʔsə́	nàʔsə́↑nàʔsə̀	nàʔsə́↑nàʔsə̀	'stretch'

An observation to be made from the table is that the low tone on the RED is upstepped in all instances of reduplication involving low tone roots. The upstepped low tone is like a mid tone, higher than a low tone but lower than a high tone and both low tones following the point of upstep are realized at that same mid level. Upstep is the effect of the RED high tone that fails to surface in the context of low tones. Recall that when high tone roots are reduplicated, a high tone schwa is found at the end of the RED. In the case of low tone roots the presence of that high tone is only realized through the upstepping of the low tones of the RED. This is certainly a phonetic effect of anticipating the presence of the high tone and realizing the low tone on a high register. For this to happen the high register feature of the RED high tone spreads leftward and delinks the low register feature of the RED low tone. Upstep is formalized in RTT terms as follows.
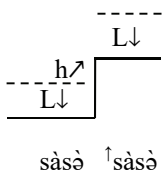
(25) Upstep (in low tone reduplicants)
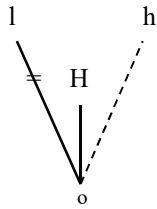
An application of this rule leads to the upstep of low tones of the reduplicant, as shown in the derivation that follows.

Figure 7: Upstep
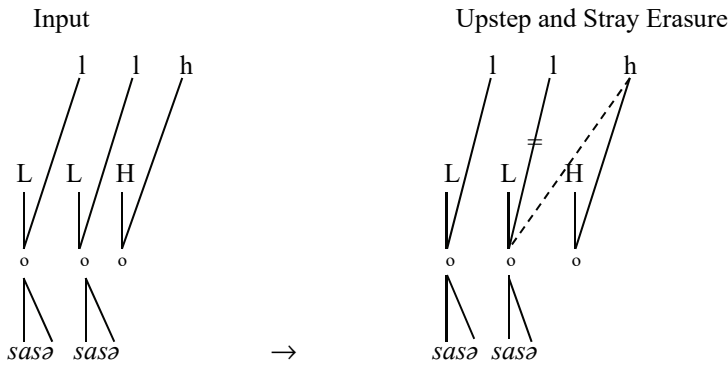
The first low tone is realized on a low register and the second on a high register due to the upward shift in register caused by leftward *h* register spreading and *l* register delinking.

The imperative forms in Table 5 are regular in that the imperative high tone surfaces on an inserted schwa on one-syllable roots and replaces the low tone of the second syllable in two-syllable roots, as described in §5.2.

7. Conclusion

This paper set out to account for the different surface tonal melodies found on Babanki verbs. In order to accomplish this task, each phonological process that affects the verb system has been discussed. In this regard it has been shown that tone spread is frequent in the language. HTS can be to the verb root or from it and has been used to explain why underlying low tone roots surface with HL and H(H) melodies. LTS can also be from a preceding tense marker to the verb root or

from the verb root, followed by the delinking of the underlying high tone. This process has been used to account for the occurrence of L(H) melodies on underlying high tone verb roots. It has also been observed that a schwa is inserted in many instances to bear a floating tone. It is due to schwa insertion and tone docking that the HH melody is realized as HL. Verbal reduplication is common in the language and equally undergoes the processes described above in addition to low tone upstep that low tone reduplicants undergo.

The use of floating tones to account for tone in the Babanki verb system is in no way surprising in that previous researchers have shown that both lexical and grammatical floating tones are central to the analysis of Grassfields Bantu languages. In this regard Hyman notes,

> To account for tone in other Grassfields Bantu languages, it has been proposed that each stem consists of an underlying segmental tone (H or L), followed by a nonsegmental or floating tone (also either H or L) (Hyman 1979: 159).

Although their conditions and manner of application may differ, the rules proposed in this paper to account for the verb tone relate to previous rules that apply in the noun system. Both Hyman (1979) and Akumbu (2011) recognize and use HTS, LTS, Downstep, and Upstep, among others to account for tone in the associative construction. It can therefore be concluded that the rules proposed in this paper are plausible and frequently attested in Babanki.

This study complements work on tone in the noun system of Babanki and together they offer a full picture of the tone system of the language. This study also shows that Register Tier Theory allows for an insightful account of assimilation processes, downstep, and upstep which occur in Babanki. Similar studies on the other Centre Ring languages are necessary to provide a complete understanding of their tonal systems and facilitate the reconstruction of Proto-Bantoid tone.

References

Achiri-Taboh, Blasius. 2013. Verb imperatives and vowel harmony in Moghamo. Ms, University of Buea.

Akumbu, Pius. 2011. Tone in Kejom (Babanki) associative construction. *Journal of West African Languages.* Volume 38, No 1: 69-88.

Akumbu, Pius & Fogwe, Evelyn. 2012. *A pedagogic grammar of Babanki.* Köln: Rüdiger Köppe Verlag.

Connell, Bruce. 2001. Downdrift, downstep, and declination. Paper presented at the Typology of African Prosodic Systems Workshop. Bielefeld University, Germany, May 18-20, 2001.

Hyman, Larry. 2013. Proto-Bantoid verb extensions. Paper presented at the Workshop on Bantu and its Closest Relatives, Berlin Bantu Conference (B4ntu), April 6-9, 2011.

Hyman, Larry. 1980. Babanki and the Ring group. In L. Hyman and J. Voorhoeve, (eds.), *Noun Classes in Grassfields* (225-258). Paris: SELAF.

Hyman, Larry. 1979. Tonology of the Babanki noun. *Studies in African Linguistics* 10.159-178.

Inkelas, Sharon. 1987. Tone feature geometry. In J. Blevins and J. Carter (eds.). Proceedings of North Eastern Linguistics Society 18, 223-37. Amherst, Mass: GLSA.

Inkelas, Sharon, W. Leben and M. Cobler. 1987. The phonology of intonation in Hausa. In J. Blevins and J. Carter (eds.). *Proceedings of North Eastern Linguistics Society* 17, 327-42. Amherst, Mass: GLSA.

Lewis, M. Paul, Gary F. Simons, and Charles D. Fennig (eds.). 2015. *Ethnologue: Languages of the World, Eighteenth edition.* Dallas, Texas: SIL International. Online version: http://www.ethnologue.com.

Nurse, Derek. 2003. Aspect and tense in Bantu languages. In D. Nurse, and G. Philippson, (eds.), *The Bantu languages.* New York: Routledge, 90-102.

Shultz, George. 1997. Kom language grammar sketch, Part 1. Yaounde: SIL.

Snider, Keith L. 1988. Towards the representation of tone: a three-dimensional approach. In Harry Van de Hulst and Norval Smith (eds.). *Features, segmental structure and harmony processes (Part 1),* 237-65. Dordrecht: Foris Publications.

Snider, Keith L. 1990. Tonal upstep in Krachi: Evidence for a register tier. *Language* 66.3, 453-74.

Snider, Keith L. 1999. *The geometry and features of tone*. Dallas: The Summer Institute of Linguistics and The University of Texas at Arlington.

Tamanji, Pius. 2009. *A descriptive grammar of Bafut*. Cologne: Rüdiger Köppe Verlag.

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