

FLOATING TONES IN BANGWA

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The analysis of configurations with well motivated floating tones in the noun and verb paradigms of Bangwa leads to the realization that the language is characteristically different from other East Grassfield (Mbam-Nkam) languages in two significant respects. Firstly, no lexical floating tones are required to account for the facts of Bangwa. Secondly, the grounding of grammatical floating tone is a predictable unidirectional right-to-left movement. Bangwa thus appears innovative by way of a putative loss of floating lexical tones and apparent restructuring of underlying representations leading to a relative simplification of some of the complex tonal processes characteristic of Mbam-Nkam languages, although in the process, it introduces 'upstep' (or super high tone) not so common in the region.¹

L'analyse des paradigmes nominaux et verbaux en collocation et comportant des tons flottants bien motivés en langue bangwa nous amène à un constat: cette langue diffère sensiblement des autres langues 'Est Grassfields' (Mbam-Nkam) sur deux points importants. Premièrement, nul besoin de postuler des tons lexicaux flottants pour rendre compte des faits linguistiques de la langue bangwa. Deuxièmement, l'atterrissage du ton grammatical flottant est régi par un mouvement unidirectionnel prédictible (de droite à gauche). La langue bangwa apparaît ainsi comme plus innovatrice (par rapport aux autres langues Mbam-Nkam) vraisemblablement par la perte des tons lexicaux flottants et la restructuration des formes lexicales sous-jacentes. Il en résulte une simplification de certains processus tonaux complexes qui caractérisent le Mbam-Nkam, bien que ce faisant, il est introduit dans la langue le phénomène d'upstep (ou le ton super haut) attesté mais peu fréquent dans la région.

1.0 INTRODUCTION

Bangwa is an Eastern Grassfield language spoken in the Nde Division of the West Province of Cameroon i.e. within the 'Mbam-Nkam' group and corresponding to subgroup F, 'Southern Bamileke' of Hyman and Tadadjeu 1976.²

It is well known that the most pronounced characteristic of the languages of this area is their tonal complexity. As noted by Hyman and Tadadjeu (1976), 'although closely related to Narrow Bantu where the normal situation is a two tone system with H and L, these languages have developed as many as four distinct tone levels as well as a number of unexpected tonal phenomena not found elsewhere.'

Some of the unexpected tonal phenomena alluded to would include the more frequent phenomenon of downstep and the less common phenomenon of upstep ('super high' tone) among other tonal complexities.

Such is the great complexity of the tonal systems of these languages that they are recognized as constituting a formidable challenge to the evolution of a viable theory of tone analysis. Indeed, proponents of recent theories of phonology within the non-linear perspective, have sought to demonstrate the problem-solving efficiency of their paradigm by proposing to unravel the mystery of floating tones of the Mbam-Nkam unit or referring constantly to these, to show that their version of the theory provides a more satisfactory account of the tonal complexity. (See, for instance, Pulleyblank 1986, Hyman 1986, and Snider 1989 among others).³

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² For a more up-to-date classification, see ALCAM 1983 and Nguendjio 1989:18.

³ A non-linear analysis of the tone system of this language (Bangwa) is in process; but for the purpose of focusing on the striking difference between Bangwa and related Mbam-Nkam languages the same theoretical framework used in the literature on Mbam-Nkam is most appropriate here.

In this paper, the analysis of tone in Bangwa shows that the language differs from the over twenty Mbam-Nkam languages in the Hyman and Tadadjeu studies in two significant respects.

Firstly, whereas Hyman and Tadadjeu (1976) motivate and postulate floating lexical tones (for nouns) that interact with floating grammatical tones to explain the surface tonal complexity of the various 'Mbam-Nkam' languages in their study, we find that in Bangwa (a bona fide 'Mbam-Nkam' language), no underlying floating lexical tones are necessary. We motivate and postulate only grammatical floating tones whose interaction with attested lexical tones is sufficient to account for the complex tonal configurations in Bangwa.

Bangwa is not one of the languages in the Hyman and Tadadjeu study. So to the extent that our two studies are well motivated, Bangwa thus appears innovative with respect to the others in the group. In view of the evidence in Hyman and Tadadjeu 1976:70 that changes in the group have been from the West to the East with the Eastern languages being more innovative than the more conservative languages West of the spectrum, this is not surprising, Bangwa being one of the 'Eastern-most' languages of the group.

Secondly, the analysis of Bangwa shows that the directionality of tone grounding (i.e. the docking of floating tones on to syllables) in Bangwa is a simple, straightforward, unidirectional right-to-left movement, whereas the directionality of grounding (or docking) in other Mbam-Nkam languages was found by Hyman and Tadadjeu (1976) to be bi-directional and determined by a complex set of constraints or principles (some of which have numerous exceptions). This relative simplification of the tonal processes would appear to be a direct consequence of the loss of the lexical floating tones (apparently in an innovative process of restructuring or reanalysis of underlying representations).

It will be necessary to return to these issues, but first the behavior of floating tones in Bangwa will be examined in some detail in terms of various constructions of the Noun phrase and the Verb phrase.

2.0 FLOATING TONES WITHIN THE NOUN PHRASE

The most obvious evidence of grammatical floating tone is the associative construction which for the purpose of this paper and as determined by the facts of the language under consideration, includes not only the well known $N_1 + N_2$ constructions (Genitive constructions) but also all noun phrases involving a noun and a determiner or qualifier of any type i.e. adjectival constructions, possessive constructions etc.

2.1 GENITIVE CONSTRUCTIONS ($N_1 + N_2$)

In $N_1 + N_2$ constructions (where N_1 is the possessed noun and N_2 the possessor), the two nouns are related by an associative marker (AM) which in this language is a floating Low tone (\underline{L}) or a floating High tone (\underline{H}). The AM is \underline{L} when N_1 is of classes 1 and 7 and \underline{H} in all other cases (classes 2, 3, 4, 5, 6).⁴

⁴ This is basically what Hyman and Tadadjeu (1976) find to be the case for most of the languages of this group. In some other languages however, particularly those West of the group, the associative markers (AM) are not just floating tones but toned morphemes. Thus, in Mankon, Leroy (1977) shows that the AM is a toned morpheme of the shape (C(V)). In Dschang, Tadadjeu (1974) finds that the AM is either a or e with a low or high tone depending on the class of N_2 .

Sample derivations are given below.

UR ⁶	(1a) sú + AM̂ + ɣwá	(1c) pwó + AM̂ + sák	(1d) mfɔ̃ + AM̂ + lá'
R1	sú`ɣwə	pwó'sák	mfɔ̃'lá'
R2	_____	_____	mfɔ̃lá'
R3	_____	pwósák	_____
SR	sú`ɣwə	pwósák	mfɔ̃lá'

Note that in all these cases, the tone of N₁ varies while the tone of N₂ does not. This underscores the fact that the floating associative tone docks leftwards on N₁ provoking tonal processes leading to possible variations and modifications of the original tone of N₁.

The rules postulated so far are independently motivated as evidenced in their application to other constructions below.

2.2 ADJECTIVAL CONSTRUCTIONS

Adjectival constructions (adjectival noun phrases) are of two types: Prenominal Adjectives (Adj + N) and Postnominal Adjectives (N + Adj). Both types exhibit floating associative tones Ḷ and Ḥ which relate the noun to the adjective as illustrated in 2 below.

2 (i) Prenominal Adjectives	2 (ii) Postnominal Adjectives
(a) myá + ` + kwɔ̀k → myá`kwɔ̀k big AM cow	(d) kwɔ̀k + ' + swá → kwókswá cow AM new
(b) vyə + ` + kwɔ̀k → vyə kwɔ̀k old AM Cow	(e) nyí + ` + pàk → nyí`pàk weapon AM red
(c) mvyə + ' nsún → mvyənsún old AM friends	

The derivation of the above examples in terms of the three processes already discussed is presented below:

UR	(2a) myá + ` + kwɔ̀k	(2b) vyə + ` + kwɔ̀k	(2c) mvyə + ' + nsún
R1	myá`kwɔ̀k	vyə`kwɔ̀k	mvyə'nsún
R2	_____	_____	mvyənsún
R3	_____	vyəkwɔ̀k	_____
SR	myá`kwɔ̀k	vyəkwɔ̀k	mvyənsún
UR	(2d) kwɔ̀k + ' + swá	(2e) nyí + ` + pàk	
R1	kwɔ̀'k swá	nyí`pàk	
R2	kwókswá	_____	
R3	_____	_____	
SR	kwókswá	nyí`pàk	

Notice that in the prenominal adjective constructions it is the tone of the adjective that varies (2a and 2c), whereas in the postnominal adjective constructions it is the tone of the noun (which precedes the adjective) that varies (2d and 2e). In other words, rather than variation in the tone affecting a specific grammatical category (Noun or Adjective) it always affects the element to the left no matter what its grammatical category. This is a direct consequence of and a strong motivation for the principle of right-to-left docking of floating tones in the language.

⁶ UR = Underlying Representation. SR = Surface Representation.

3.2 NON-PAST TENSE MARKER AND IMPERFECTIVE MARKER

The language has four past tenses, four future tenses and a present tense, all lexicalized. However, the present tense and the four future tenses are characterized by a floating high tone ($\overset{H}{\cdot}$) prefixed to the lexicalized tense morpheme which subsequently docks leftwards on the subject noun or pronoun. Since this characteristic of an additional floating high tone realized this way occurs in sentences of all tenses except those in the past tense, it is assumed to be a non-past tense marker. Also the imperfective is found to correlate with a floating high tone $\overset{H}{\cdot}$ verbal suffix as in the perfective plus a nasal verbal prefix (N-). These possibilities are illustrated in 6.

- 6(a) $zhí \overset{H}{\cdot} \eta gwí \text{ N- } kwé \text{ H } mbè \rightarrow zhí \eta gwí \eta kwé mbè$
 he np Pr Imp eat Imp meat 'he eats meat'
- (b) $p\grave{d} \overset{H}{\cdot} \eta gwí \text{ N- } yà' \text{ H } mbè \rightarrow p\grave{d}' \eta gwí \uparrow njá' mbè$
 we np Pr. Imp cut Imp meat 'we eat meat'
- (c) $f\acute{o} \overset{H}{\cdot} shí \text{ N- } l\grave{a}s\grave{e} \text{ H } mbè \rightarrow f\acute{o} shí \uparrow ndá \uparrow s\acute{o} mbè$
 chief np Fl Imp show Imp meat 'the chief will show the meat
 (later today)'

The non-past tense-marker (np) is assumed to be a floating $\overset{H}{\cdot}$. But why is it placed where it is? It is placed at the beginning of the verb unit in all sentences of 6 above i.e. the verb as a phonological word (the verb stem and its dependent affixes) because it is clearly associated with tense. It is sensitive to certain tenses but not to others. Its place is therefore within the verb unit at the phonological level. However, since it surfaces on the preceding (subject) noun or pronoun it must be placed at the beginning of the verb unit as a prefix to the tense markers with which it occurs.

The non-past $\overset{H}{\cdot}$ explains why for instance $p\grave{d}$ in sentence 6(b) surfaces as $p\grave{d}'$. It can be seen that the floating $\overset{H}{\cdot}$ docks leftwards in accordance with the general principle of directionality in this language to create a tonal glide. The nasal prefix explains in part why the verb $yà'$ in sentence 6(b) surfaces as $\uparrow njá'$.⁷ Another phonological rule applies to convert y (IPA [j]) to j (IPA [dʒ]).

Before continuing with other floating tones within the verb phrase, it is important to indicate the order of tense and aspect within the verb unit. Besides the tonal aspectual markers, there are lexicalized aspect markers like the progressive. Generally tense markers precede aspect markers (when both are lexicalized). The floating tone morphemes (usually of aspect) occur either as suffixes or prefixes to either the tense or verb root depending on where they are destined to show up in the grammar. Their occurrence in these environments is, however, predictable. As we have seen already, the floating $\overset{H}{\cdot}$ of the perfective and (the part marker of) the imperfective occur after the verb stem (presumably) as a suffix, while the $\overset{H}{\cdot}$ marker of non-past tenses occurs before the tense marker which in turn is a prefix to the verb stem. The place of lexicalized aspect in relation to tense is illustrated in 7.

- 7(a) $zhí \text{ H } \eta gwí \text{ m\acute{o} } \text{ N- } kwé \text{ H } \rightarrow zhí \eta gwí \text{ m\acute{o} } \eta kwé'$
 he np Pr. PROG Imp eat Imp 'he is eating'

⁷ There are a few apparent exceptions. Note that the LH tone on $p\grave{d}'$ does not simplify as expected by R2. But then $p\grave{d}'$ is a pronoun and a floating tone on the pronoun is from a verb paradigm with a special function. That is why the simplification rule (R2) is constrained. Secondly, the imperfective nasal prefix (N-) does not occur with distant future tenses (F3 and F4). These details are not crucial here. (See Njuendio 1989.)

- (b) pò H shí mḗ N- yà' H -> pò' shí mḗ njá'
 we np F1 PROG Imp cut Imp 'we shall be cutting (tomorrow)'

3.3 HABITUAL ASPECT

Curiously the habitual aspect correlates with a polar tone on the subject NP (Noun or pronoun) i.e. in habitual actions the subject pronoun takes an additional tone opposite to its inherent lexical tone. We therefore postulate a zero floating tone or an unspecified floating tone (T̄) for the habitual marker as a prefix to the verb unit as shown in 8. This T̄ takes on the opposite value of the tone of the subject NP. Bearing in mind that there are only two lexical tones (H and L), the required rule is R7.

$$R7 \quad \bar{T} \quad -> \left\{ \begin{array}{l} H // \\ L // \\ \bar{L}_{NP} \end{array} \quad L \text{---} \quad \right\} \begin{array}{l} \\ \\ H \end{array}$$

Although the rule is similar in effect to R4, the two are different with respect to the context and the grammatical categories to which they are designed to apply.

- 8(a) zhí T̄ N- kwé H -> zhí` ηkwé
 he Hab. Imp eat Imp 'he usually eats'
- (b) zhí T̄ N- yà' H -> zhí` ↑njá'
 he Hab. Imp cut Imp 'he usually cuts'
- (c) pò T̄ N- kwé H -> pò' ηkwé
 we Hab. Imp eat Imp 'we usually eat'
- (d) pò T̄ N- yà' H -> pò' ↑njá'
 we Hab. Imp cut Imp 'we usually cut'

3.4 CONDITIONAL

Not all floating tones are H̄; the conditional is signaled by a floating low tone (L̄) that shows up on tense morphemes (sometimes creating a LH tonal glide).

- 9(a) zhí H̄ ηgwí L̄ N- kwé H̄ -> zhí ηgwí` ηkwé
 he np Pr. Cond. Imp eat Imp 'if he eats'
- (b) pò H̄ shí L̄ N- yà' H̄ -> pò' shí` ↑njá'
 we np F1 Cond. Imp cut Imp 'if we shall cut'
- (c) fḍ H̄ cḗ L̄ lāsè mbè -> fḍ' cḗ` lāsè mbè
 chief np F4 Cond. show meat 'if the chief would show
 the meat (distant future)'

4.0 IMPLICATIONS

4.1 LEXICAL FLOATING TONE IN MBAM-NKAM

Voorhoeve (1971), Hyman (1972) and Hyman and Tadadjeu (1976), among others, have demonstrated the psychological reality of lexical floating tones in the grassfield languages. These are tones assumed to accompany lexical items (particularly nouns and verbs) in the underlying representation, even though they have no syllables to which they are attached. Quite often some of the dialects with monosyllabic or bisyllabic nouns are assumed to have one or two other tones.

These assumed floating tones correlate with the reconstructed proto tones for Mbam-Nkam with forms attested in more conservative dialects of the Mbam-Nkam unit (the Ngemba dialects). The situation is illustrated below in 10.

10.	(a)	(b)	(c)	(d)	(e)
	Language	Surface form	Underlying Representation	Proto System	Attested Cognate
1.	Bangante	yú 'thing'	`yú`	*L H L	àyúmà (Mendankwe)
2.	Bangante	mén 'child'	`mén`	*L H L	(ə)mónà (Akum)
3.	Bandjun	pè 'bag'	`pè`	*L H L	àbàmà (Akum)
4.	Bangou	sòŋ 'tooth'	`sòŋ`	*L H L	nìsòŋó (Mankon)

Comparing the forms in 10(b) with those in 10(e) it is clear that the languages in 10(a) (unlike those in 10(e)) have lost two syllables, the first of which is a noun class prefix.

Note that the underlying synchronic forms with floating lexical tones postulated in 10(c) assume the same tones as those of 10(d) and 10(e). The assumption here is that although these languages have lost some syllables of their words, the tones of the lost syllables are still part of the underlying representation of the word and input to phonological processes. This assumption is justified by the fact that in collocation, the words behave as if the tones whose syllables were lost historically are still there. Indeed synchronically they provoke or condition tonal processes in the phonological systems of these languages. Thus, it has been shown that most of the languages of Eastern Grassfield in particular have processes of downstep, double downstep, occasionally upstep and all sorts of unusual tonal modifications that can only be satisfactorily accounted for if these lexical floating tones are assumed to be part of the phonological word in its synchronic existence. One example from Hyman and Tadadjeu 1976:76 illustrates this.

11. Proto Mbam-Nkam:	à	-	júmà	+	á	+	mù	-	ánà
			class thing		AM		class		child
			morpheme				morpheme		
			L H L		H		L H L		
Bangante:	UR	/`	yú`	+	´	+	`		mén` /
	SR	(a)	[yú↓↓mén]	or	(b)		[yú↓↓mén]		
			'the thing of the child'						

The possible surface forms exhibit downstep (a) and double downstepped tone (b); the H tone of 'men' is realized two steps lower than the tone of the previous syllable. These downsteps are conditioned and provoked by the intervening low tones between the high tones because generally H_LH sequences surface as H_↓H. The low tones responsible for these processes are precisely the floating low tones.

Note that there are seven syllables and seven tones in proto Mbam-Nkam for this associative construction while there are only two syllables and seven tones in Bangante for the same construction.⁸ As noted by Hyman and Tadadjeu, five of these tones are crucially relevant in the derivation. The first and the last floating tones would, however, be needed if something preceded or followed this construction. It is worth noting that

⁸ 'Bangante' as a language, is currently known as 'Mədumba'.

three floating tones in a row (interacting with the two non-floating tones) are crucially relevant to determining the process of downstep in this construction.⁹

We cannot account for the surface forms of this construction in Bangangte without the lexical floating tones as we have done for Bangwa, as seen in the derivation below:

12. UR yú + ' + mén
 thing AM child
 R1 yú ' mén (Grounding)
 R3 yúmén
 SR *[yúmén]

The attempt to account for this construction without the lexical floating tones results in a deviant, unattested form. Thus, the fact that Bangwa tonal processes can be accounted for without recourse to the arsenal of lexical floating tones (crucially determinant in other Mbam-Nkam languages) is quite significant. It suggests a relative simplification of the tonal processes in Bangwa in relation to other languages of the group. One possible interpretation is that there has been restructuring or reanalysis of the underlying representations by a generation of Bangwa speakers following the loss, in this dialect, of the floating lexical tones (which are still palpable and psychologically real in other dialects). Consequently, the input (underlying) forms of words available to present day speakers of the language have no lexical floating tones.

It has been established that the changes affecting the word structure of Mbam-Nkam are from West to East with the Ngemba languages of the West being most conservative. Thus, final vowels of nouns attested in Ngemba are lost progressively as one moves to the East. Also the loss of the noun prefixes begins with the loss of some consonants in the West and ends with a complete loss of the prefix in the East, such that for the initial three-syllable nouns, dialects of the east are now monosyllabic (Hyman and Tadadjeu 1976:69). Since Bangwa is an Eastern dialect, it will be useful to study other dialects of the area to see how widespread the loss of lexical floating tones is.¹⁰

4.2 DIRECTION OF TONE GROUNDING

Tadadjeu and Hyman (1976) find that in Mbam-Nkam languages, the grounding of floating tones in general (lexical and grammatical floating tones) is bi-directional and determined by a number of constraints summarized (p.62) as follows:

- (i) A $\underset{\cdot}{T}$ (floating tone) tends to be assigned in the direction in which it will have the greatest tonal effect. Thus, if a L occurs between a L and a H, chances are that it will be grounded to the right. If it occurs between a H and a L, it may instead be grounded to the left.
- (ii) A $\underset{\cdot}{T}$ tends to be assigned in the direction which creates the natural tonal contour. Thus, if a H occurs between a HL and a L tone, it may be grounded to the right to create a HL contour, rather than to the left to create a complex HLH contour.
- (iii) Syllabic structure may determine the direction of tone grounding. Thus, if a $\underset{\cdot}{T}$ occurs between a CV and another CV, it may be grounded to the left

⁹ The rules envisaged by Hyman and Tadadjeu for deriving the surface forms here are similar to the ones we have postulated for Bangwa: grounding, simplification, absorption (reduction) etc.

¹⁰ Bangangte (Medumba), a dialect of East Mbam-Nkam has not lost the lexical floating tones; one must therefore look elsewhere in the zone for more evidence of the innovation.

14. The floating tone is normally grounded to the left (all things being equal), but if there is a complex environment to the left, then it is grounded to the right, if the right is less complex.

Complex environment is a cover term for all the specifics enumerated by Hyman and Tadadjeu and listed above, viz. complex contour, complex syllable structure and strong grammatical boundary etc.

This general principle (14) explains not only the assignment of associative H̄ to the right in 13b (to avoid a complex contour on the left), but also the assignment of associative H̄ to the left in 13a. In fact, the H̄ in 13a could go either way and create contours of equal degrees of complexity (LH or LH); but principle 14 predicts that in such a situation it goes to the left. This is not a unique case; it is recurrent throughout the data examined for Mbam-Nkam languages, thus motivating principle 14 as a general principle and the right-to-left direction as a general direction of grounding, with the left-to-right direction as exceptional.

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