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Title

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Journal

UC Berkeley PhonLab Annual Report, 12(1)

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Publication Date

2016

DOI

10.5070/P7121040730

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Nasals and Low Tone in Grassfields Noun Class Prefixes

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Abstract

As it is well known, noun class prefixes are low tone in Narrow Bantu and classes 1, 3, 4, 6(a), 9, and 10 have nasals (Meeussen 1967). However, just outside Narrow Bantu, noun class prefixes are usually high tone and the nasals are typically missing. A dichotomy is found in Grassfields Bantu where Eastern Grassfields resembles Narrow Bantu but the Ring and Momo sub-groups of Western Grassfields have high tone prefixes and lack nasals except sporadically. Drawing on data from Babanki and other Ring languages, we show that this relationship is not accidental. In a number of contexts where we expect a high tone prefix, a stem-initial NC cluster requires that it rather be low. We provide some speculations in this paper as to why nasals should be associated with low tone, an issue that has not been fully addressed in the literature on consonant types and tone.

1 Introduction

Over the past four decades, the study of noun classes in Grassfields Bantu languages has uncovered a number of issues concerning the tones of noun prefixes. As seen in Table 1 (next page), Proto (Narrow) Bantu, henceforth PB, is reconstructed with L tone noun prefixes, several of which also have a nasal consonant. The same *L tone reconstructions work for Eastern Grassfields Bantu (EGB), but not for Western Grassfields Bantu (WGB). In these latter languages, noun classes other than 1, 6a, and 9 have a H prefix, as seen in Aghem and Isu (West Ring):

(1)	Aghem		Isu	
	é-bóʔ	‘bundle’	á-sáŋ	‘corn’
	kí-ghó	‘bone’	fə-nyí	‘matchet’
	tí-dzím	‘backs’	í-bí	‘kolanut’

In Kom (Central Ring) the historically *H prefixes are realized M:

(2)	ātáʔ	‘snail’	/átàʔ/
	fēghâm	‘mat’	/fēghâm/
	əlóm	‘husband’	/əlóm/

Evidence for the H tone prefixes is provided by the L tone stems which are HL on the surface.

As analyzed by Hyman (2005: 318), “prefixal /H/ is realized mid on the surface—but not before it has been able to spread an H feature onto a following L tone stem.” However, there is a minority of nouns, many beginning with a stem-initial NC cluster, which show a ML falling tone on their prefix:

- (3) ǎ̀ntòin ‘pot’
 ǎ̀njám ‘axe’
 ǎ̀ḡgò? ‘stone’

Additional evidence that WGB noun class prefixes show a sensitivity to nasality that is absent in Narrow Bantu is provided in Section 3 below.

Even in Babanki (Central Ring) which has innovated to make all prefixes phonetically low, not all L tone prefixes act alike. As seen in (4a), the majority of L-L nouns become L-M when followed by a H tone. On the other hand, as seen in (4b), L-L nouns do not become L-M if a nasal is/or was present as part of a following stem-initial NC sequence.

- (4) a. kàkòs ká tsòḡ ‘slave of thief’ /kákòs ká tsòḡ/
 kǎbvǎ ká ndòḡ ‘skin of potato’ /kǎbvǎ ká ndòḡ/
 kǎkyǎ lá kǎmù? ‘just one basket’ /kǎkyǎ lá kǎmù?/
 b. kǎndòḡ ká tsòḡ ‘neck of thief’ /kǎndòḡ ká tsòḡ/
 kǎmbò ká wì? ‘bag of person’ /kǎmbò ká wì?/
 kǎmfòḡ ká wì? ‘foolish person’ /kǎmfòḡ ká wì?/

Based on their tonal behavior, Hyman (1979b: 168) reconstructs most noun class prefixes as *H in an earlier stage of Babanki, except for the nouns such as in (4b), where the nasal caused them to be *L. As shown to the right, one can even set up an underlying /H/ vs. /L/ contrast on such prefixes, mirroring the history described in Hyman (2005).

...in Babanki, ... all noun prefixes are L. Even though this is true phonetically, one not only can reconstruct *H prefixes, but even defend an analysis where the appropriate L tone prefixes are underlyingly /H/” (pp. 338-339).

The second point of divergence is that the nasal consonants that are reconstructed for PB are typically missing in the prefixes of WGB. Noun class prefixes are not only all L in PB but also have nasals in classes 1, 3, 4, 6(a), 9, and 10 (Meusseen 1967; Hyman 1980a). Table 1, extracted from Hyman (2014), presents a comparison of the reconstructions of noun class prefixes for PB (Meusseen 1967), Proto-EGB, and Proto-WGB (Hyman 1980a):

<i>Class</i>	<i>Proto-Bantu</i>	<i>Proto-EGB</i>	<i>Proto-WGB</i>
1 (sg.)	*mò-	*Ḥ-	*ò(N)-
3 (sg.)	*mò-	*Ḥ-	*ú-
4 (pl.)	*mì-	---	*í-

6 (pl.)	*mà-	*mḁ-	*á-
9 (sg.)	*Ṃ-	*Ṃ-	*ì(N)-
10 (pl.)	*Ṃ-	*Ṃ-	*ì(N)-
6a (-)	*mà-	*mḁ-	*mḁ-

Table 1. Reconstruction of relevant Bantu noun class prefixes

Evident in the table is the fact that EGB languages (Bamileke, Ngemba, etc.) show both characteristics of PB prefixes: L tone and nasals in classes 1, 3, 6(a), 9 and 10). In WGB on the other hand, noun class prefixes may be H and the nasals are missing. For instance, in Ring and Momo sub-groups of WGB, noun class prefixes have H tone historically and the nasals are absent except in class 6a *mḁ-.

Drawing on data from Babanki and other Ring languages, we show that the relationship between nasals and L tone is not arbitrary. Perhaps the most striking situation is demonstrated by Babanki class 9/10 where approximately 3/4 of the noun roots begin with an NC as opposed to 1/4 which begin with a simple consonant.¹ Thus compare bú ‘dog’ and byí ‘goat’ with mbví ‘chicken’ and mbwón ‘maggot’. In addition to these differences, there are tonal alternations between class 9/10 singulars and plurals which interact with the presence vs. absence of the nasal. A full investigation of the relationship between nasals and L tone in WGB should address the following major questions:

- 1) Is the nasal in WGB part of the prefix or part of the root, e.g. should Babanki kèndòṅ ‘neck’ be analyzed as kḁ-ndòṅ, kḁn-dòṅ, or kḁ-n-dòṅ?
- 2) Why is there a relationship between nasals and L tone in WGB? Is this due to a general phonetic lowering effect of nasals on tone or is there some other historical explanation?
- 3) Why do tonal changes occur between singular and plural forms of nouns in class 9/10, e.g. dzém ‘back’ vs. dzém-⁺sá ‘backs’?

We address these issues below and end with some speculations as to why nasals are associated with low tone, a relation that has not been commonly attested in the literature on depressor consonants in Africa or consonant types and tone in general.

2 Status of the nasal

To understand the intricate relationship between nasals and L tone in the noun class system of WGB languages, we begin by asking whether the nasal is part of the prefix or part of the root. Past research on Ring and Momo languages has found this question difficult to resolve (Hombert

¹ The statistics are from a Filemaker Pro™ database of 2,005 lexical entries based on Akumbu (2008). Out of 748 simple noun roots. 126 are in class 9/10 and, of these, 92 of them begin with NC, i.e. 73%.

1976; Hyman 1980a; Möller 2012). There are several arguments against the nasal being a prefix. First, it is present in both singular and plural, as in the following Central Ring languages:

(5)	Babanki	Kom	Mmen	Gloss
	mbòʔ/mbòʔ-só	mbàʔ/mbàʔ-sí	mbàʔ/sé-mbàʔ	‘cloud/clouds’
	mbvĩ/mbvĩ-só	ŋgvĩ/ŋgvĩ-sĩ	mbvã/sé-mbvã	‘chicken/chickens’

If *sʔ* stands out clearly as the plural class (10) affix in these three languages then the remaining material must be part of the root. Hyman (1979a) illustrates a similar situation in Aghem: mbàʔ/tĩ-mbàʔ ‘cloud(s)’; mbvũ/tĩ-mbvũ^o ‘chicken(s) and states that

It is clear from the morphology of the language that they are not considered to be prefixes by Aghem speakers today. Thus, the plural prefix of class 10 does not replace the nasal the way the plural prefix replaces the singular prefix in other classes (p. 3).

Secondly, N can have a prefix before it, which would exceptionally mean that certain nouns carry two prefixes:

(6)	Babanki	Kom	Mmen	Gloss
	ə-ŋgòm	ĩ-ŋgòm	ē-ŋgòm	‘plantain’
	c5-plantain	c5-plantain	c5-plantain	
	kə-mpfĩŋ	ā-ŋgyēynĩ	ā-ŋgyēyn	‘owl’
	c7-owl	c7-owl	c7-owl	

It has been proposed that there might be ‘double prefixes’ on such nouns and Davis (1997: 6) and Hyman (1980b: 227) have suggested that these kinds of nouns once belonged to either class 1 or 9 and were reclassified at some point, acquiring the prefix of the new class but retaining that of the old class. This proposal has not been substantially supported by any data as there is no evidence that most of these nouns such as ‘plantain’ were in class 1 or 9.

Thirdly, in Aghem and closely related languages with prefix deletion, the nasal never deletes:

(7)	a.	fĩ-ghâm	‘mat’	ghâm fáŋá	‘my mat’
		fĩ-nwĩn	‘bird’	nwĩn †fáŋá	‘my bird’
	b.	ndzàm	‘axe’	ndzàm záŋá	‘my axe’
		mbòŋ	‘cow’	mbòŋ záŋá	‘my cow’

The forms in (7a) show that the noun class prefix is deleted when a noun is followed by the possessive pronoun. In (7b) with NC stems, however, the nasal is found on the noun in isolation as well in the possessive construction demonstrating conclusively that the N is not a prefix.

If taken to be part of the root, two questions arise: 1) Why does the nasal occur only on noun and not verb roots? and 2) Why does it have a tonal effect only when stem-initial such that NC clusters that result from the addition of suffixes do not show such an effect (see (8) below). Reflecting on the first question leads us to think that the nasal might have been part of the prefix historically. At different stages in its evolution, it became part of the root as the data in (5) show and can even allow prefixes before it as in (6). As to the second question, it is possible that initial NC nouns have a floating L before them since the nasals used to be prefixes with L tone. The floating L then influences the behavior of the noun root tone as in (4b). On the other hand, NC clusters that result from the suffixation of verbal extensions allow both L and H tone spread across the N:

(8)	L tone verbs		H tone verbs	
	bùmtà	‘meet several people’	béntá	‘dance a little’
	bvíkà	‘fail repeatedly’	fǎŋká	‘fall several times’
	tùʔlà	‘smash in many places’	télá	‘insult several people’

The data in (8) show that the extensions are toneless and receive tone from the verb root through spreading irrespective of the presence of a NC cluster.

It is therefore more acceptable, at least synchronically, to consider that the nasal in NC initial clusters is part of the root. Möller (2012: 11) has analyzed it as part of the root in Mmen arguing in line with Hyman (1979a) that it is “...never replaced by other prefixes when assigning nouns to other classes for formation of plural or diminutive e.g. fē-ndētà ‘small house’.” Babanki shows an identical pattern also employing prefix replacement for the formation of diminutives:

(9)	à-kú	‘forest’	fà-kú-tà	‘small forest’
	à-lyèŋ	‘bamboo’	fà-lyèŋ-tà	‘small bamboo’
	kà-shí	‘place’	fà-shí-nè	‘small place’
	kà-vú	‘hand’	fà-vú-nè	‘small hand’
	ŋgèŋ	‘house’	fà-ŋgèŋ-tà	‘small house’
	mbví	‘chicken’	fà-mbví-tà	‘small chicken’

Tunviken (2013: 25), following Casali (1995), analyzes the nasals in Moghamo as being part of the root syllable. He argues that “they have previously probably been prefixes but now have lost their syllabicity.” Anderson (2014: 7) recognizes that the nasals in Isu probably came from earlier class prefixes but treats them as part of the root.

3 Nasal prefixes and L tone in Grassfields Bantu

Furthermore, where there is no prefix on N2, one of two things happens: The H tone of N2 roots that lacks a nasal is not affected, as in (13a), whereas the H tone of those that have a N is downstepped, as in (13b).

- | | | | | |
|------|----|------------------------------|--------------------|---------|
| (13) | a. | kèshí ká byí | ‘place of goat’ | /byí/ |
| | | kèshí ká bú | ‘place of dog’ | /bú/ |
| | b. | kèshí ká m ⁺ bví | ‘place of chicken’ | /mbví/ |
| | | kèshí ká n ⁺ dzóŋ | ‘place of thorn’ | /ndzóŋ/ |
| | | kèshí ká m ⁺ pfi | ‘place of mother’ | /mpfi/ |

The downstep on m⁺bví ‘chicken’ but not on byí ‘goat’ for example, suggests that there is a L tone preceding the nasal (which is non-syllabic, hence not a tone-bearing unit itself).

In addition, the nasal in class 6a m̀- also blocks HTS from a preceding associative marker in Babanki:

- | | | | | |
|------|----|-----------------|------------------|----------------------|
| (14) | a. | kèshí ká f̀nyìn | ‘place of bird’ | /kè-shí ká f̀-nyín’/ |
| | | kèshí ká f̀dzìŋ | ‘place of star’ | /kè-shí ká f̀-dzìŋ/ |
| | b. | kèshí ká m̀nyìn | ‘place of birds’ | /kè-shí ká m̀-nyín’/ |
| | | kèshí ká m̀dzìŋ | ‘place of stars’ | /kè-shí ká m̀-dzìŋ/ |

Since all N2 prefixes become L in the associative construction, it is either the nasality of /m/ that is responsible for blocking HTS or, more likely, that the prefix was originally m̀N-, where N stands for a homorganic nasal.

Finally, as shown in (15) and elaborated in the next section, this mysterious relationship between the nasal and L tone is also manifested in noun class 10 where L roots become H in the plural if there is no NC, as in (15a).

- | | | | | |
|------|----|-------|---------|------------|
| (15) | a. | zhù | zhúsó | ‘snake(s)’ |
| | | shì | shísó | ‘hoe(s)’ |
| | b. | ndzàm | ndzàmsó | ‘axe(s)’ |
| | | mbàŋ | mbàŋsó | ‘sticks’ |

Assuming that class 10 is marked by a H tone prefix, the NC-initial nouns in (15b) do not become H-H because the L tone effect of the nasal blocks the class 10 H from linking to the following root. While probably correct from an historical point of view, a synchronic alternative is that NC-initial nouns simply do not take a /H-/ prefix in class 10.

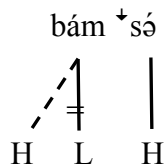
4 Babanki class 9/10 tone

The tonal changes that occur between singular and plural forms of nouns in class 9/10 in Babanki can enhance the understanding of the relationship between nasals and L tone in WGB. The question to be answered is why tonal alternations occur between singular and plural forms in this class in particular? Class 9 nouns do not have a segmental class marker whereas class 10 nouns take the -sá suffix found in several other WGB languages of the Ring subgroup. First, observe the changes that /L/ nouns undergo:

(16)	bám	‘stiff hill’	bám ⁺ sá	‘stiff hills’
	jòm	‘dream’	jòm ⁺ sá	‘dreams’
	dzàŋ	‘palm nut’	dzáŋ ⁺ sá	‘palm nuts’
	jìŋ	‘hunger’	jìŋ ⁺ sá	‘hunger’
	dzèm	‘back’	dzém ⁺ sá	‘backs’

The change from root L tone in class 9 to H tone in class 10 as well as downstep of the suffix H are clearly predictable from Proto-WGB. Class 9 was originally marked by a L tone prefix, while class 10 still shows the effects of an original H tone prefix. Synchronically, we can posit corresponding floating tones. As shown in (17), when the class 10 /H/ prefix associates to the /L/ root, the L delinks, conditioning the downstep on the suffix /-sá/:

(17) H tone grounding (HTG)

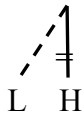


A second set of L° (level L) tone roots also have H tone in class 10 but no downstep of the suffix H:

(18)	shì°	‘hoe’	shísá	‘hoes’
	zhù°	‘bee’	zhúsá	‘bees’
	ni°	‘machete’	nísá	‘machetes’
	kò°	‘group of trees’	kósá	‘groups of trees’
	zhù°	‘snake’	zhúsá	‘snakes’

Historically these nouns were *H. Synchronically they can be analyzed as /L-H/ in class 9 and /H-H/ in class 10. The floating L- prefix then links, converting LH to L°.

(19) shí [shí⁰]



The reason why other apparent L-H nouns with segmental prefixes such as àsáj ‘corn’ don’t become L-L⁰ is either (i) they had a *H prefix and/or (ii) they have a floating L after them, which blocks L tone spreading in other Grassfields languages as well. Nothing need be said about the plurals since they would be H-H-H. Initial NC roots do not undergo these changes either. Synchronically this can be accounted for either by positing a Ø- allomorph in class 10 or by direct reference to the presence of the nasal.

(20)	mbàyn	‘fence’	mbàynsá	‘fences’
	mfəm	‘mold’	mfəmsá	‘mold’
	ŋkwə̀ŋ	‘hole’	ŋkwə̀ŋsá	‘holes’
	ntsìŋ	‘guards’	ntsìŋsá	‘guards’
	ntiʔ	‘louse’	ntiʔsá	‘lice’

High tone roots, on their part, cause downstep of suffix H regardless of whether they have a NC cluster or not:

(21)	a.	chí	‘fire place’	chí ⁺ sá	‘fire places’
		byí	‘goat’	byí ⁺ sá	‘goats’
		bú	‘dog’	bú ⁺ sá	‘dogs’
		gyégyé	‘beard’	gyégyé ⁺ sá	‘beards’
	b.	ŋkám	‘thousand’	ŋkám ⁺ sá	‘thousands’
		mbém	‘loaf’	mbém ⁺ sá	‘loaves’
		ndzóŋ	‘thorn’	ndzóŋ ⁺ sá	‘thorns’
		ntsín	‘footstep’	ntsín ⁺ sá	‘footsteps’

The downstep is directly due to the fact that class 10 H tone roots were *HL historically. This can be modeled synchronically as a linked H followed by a floating L which triggers downstep of -sá:

(22)	a.	chí	⁺ sá	b.	ŋkám	⁺ sá
		HL	H		HL	H

A case can be made that the H prefix of class 10 has actually become part of the root. This interpretation is supported by its presence when relevant class 10 nouns are in N2 position where other classes have a /L/ prefix. As seen in (23), this stability of the surface H root in class 10 is manifested whether the associative marker is /H/ or /L/.

- | | | | |
|------|----|--------------------------------|--------------------|
| (23) | a. | kàshí ká nyám ⁺ só | ‘place of animals’ |
| | | kàshí ká jóm ⁺ só | ‘place of dreams’ |
| | b. | mànyín mè nyám ⁺ só | ‘birds of animals’ |
| | | mèntsí mè jóm ⁺ só | ‘days of dreams’ |
| | c. | kàshí ká ndzàmsó | ‘place of axes’ |
| | | mànzhí? mè ndzàmsó | ‘oil of axes’ |

Evidently, the H tone that has nowhere to go becomes part of the root. With the presence of a nasal in class 10, there is no such H tone linking, thus producing stable plurals such as ndzàmsó ‘axes’ in (23c), instead of *ndzám⁺só.

5 Concluding remarks

The interaction between consonants and tone has been widely studied cross linguistically. Many of the investigations have pointed to the fact that voiced obstruents show an affinity for L tone. Hyman and Schuh (1974), Hyman (1973, 1975) and Maddieson (1979) acknowledge that voiced obstruents can block H tone spreading while voiceless obstruents can block L tone spread. Bradshaw (1999: 1) notes that consonant-tone interaction most commonly “...involves voiced oral obstruents which show an affinity for L tone and an incompatibility with H tone. In a few languages, it includes voiced sonorants in addition to obstruents”. She further states that NC sequences “...vary from language to language in terms of their participation in consonant tone interaction” (p. 5). In African languages voiced obstruents are depressors, while sonorants are neutral. Voiced prenasalized or NC clusters such mb, nd, ng are ambivalent, functioning as depressors in some languages, but as neutral in others (Hyman 2013: 11-16).

Despite the clear situation in WGB, the literature has not firmly established that nasals (or NC clusters) have a preference for L tone. Drawing on Chichewa data, Trithart (1976) argues that it is possible that NC clusters can have a more important depressor effect on tone than N or C taken separately. Following Trithart, Hombert (1976: 15): suggests “The NC cluster might have had a depressing effect on the fundamental frequency of neighboring vowels which resulted in keeping a L tone on the vowel.” The present study has shown that L tone is closely associated with nasals in some ways, at least in WGB. Recall that Proto-Bantu has been reconstructed with L tone noun prefixes independent of whether they had a nasal consonant. Eastern Grassfields Bantu also show similar reconstructions. It is thus only in Western Grassfields Bantu, where most prefixes have H tone, that a L tone can be shown to correlate with NC clusters. Rather than

treating NC as “depressor consonants” from a phonetic point of view, we have shown that there is good evidence for positing an underlying phonological /L/ in most if not all cases.

References

Akumbu, Pius W. 2008.

Kejom (Babanki)-English lexicon (Kay Williamson Educational Foundation). Bamenda: Ga’a Kejom Development Committee.

Anderson, Stephen C. 2014.

A phonological sketch of Isu. Yaounde: SIL.

Bradshaw, Mary. 1999.

A Crosslinguistic Study of Consonant-Tone Interaction, Ph. D. Dissertation, Department of Linguistics, Ohio State University.

Casali, Roderic F. 1995.

NCs in Moghamo: Prenasalized Onsets or Heterosyllabic Clusters? **Studies in African Linguistics** 24:2: 151-65.

Davis, Leslie. 1997.

Tone in the Oku noun and verb. Yaounde: SIL.

Hombert, Jean-Marie. 1976.

Noun classes and tone in Ngie. In: *Studies in Bantu tonology*, Larry M. Hyman (ed.), pp. 1-21. SCOPIL 3, Los Angeles: University of Southern California.

Hyman, Larry M. 1973.

The role of consonant types in natural tonal assimilations. In: *Consonant types and tone*, Larry Hyman (ed.), **SCOPIL** 1:149-79.

Hyman, Larry M. 1975.

Phonology: Theory and Analysis. New York: Holt, Reinhart and Winston.

Hyman, Larry M. 1976.

On some controversial questions in the study of consonant types and tone. **UCLA Working Papers in Linguistics** 33:90-98.

Hyman, Larry M. 1979a.

Aghem grammatical structure. **SCOPIL** 7. University of Southern California.

Hyman, Larry M. 1979b.

Tonology of the Babanki noun. **Studies in African Linguistics** 10.2:159-179.

Hyman, Larry M. 1980a.

Reflections on the nasal classes in Bantu. In: *Noun classes in the Grassfields Bantu*

borderland, Larry M. Hyman (ed.), **SCOPIL 8**. Los Angeles: University of Southern California.

Hyman, Larry M. 1980b.

Babanki and the Ring group. In: *Noun classes in Grassfields Bantu*. Larry M. Hyman & J. Voorhoeve (eds.), pp. 225-258. Paris: SELAF.

Hyman, Larry M. 2005.

Initial vowel and prefix tone in Kom: Related to the Bantu augment? In: *Studies in African comparative linguistics with special focus on Bantu and Mande: Essays in honour of Y. Bastin and C. Grégoire*, Koen Bostoen & Jacky Maniacky (eds.), pp. 313-341. Köln: Rüdiger Köppe Verlag.

Hyman, Larry M. 2013.

Enlarging the scope of phonologization. In: *Origins of sound change: Approaches to phonologization*, Alan C. L. Yu (ed.), pp. 3-28. Oxford University Press.

Hyman, Larry M. 2014.

More Reflections on the nasal classes in Bantu. Paper presented at the Bantu5 Workshop, June 12, 2013.

Hyman, Larry, and Schuh, Russell. 1974.

Universals of tone rules: Evidence from West Africa. **Linguistic Inquiry** 5:81-115.

Maddieson, Ian. 1979.

Universals of tone. In: *Universals of language: Phonology*, Joseph Greenberg (ed.), pp. 335-67. Stanford University Press.

Möller, Mirjam. 2012.

The noun and verb in Mmen a Center Ring Grassfields Bantu language. Yaounde: SIL.

Odden, David. 1995.

Tone: African languages. In: *The Handbook of Phonological Theory*, John Goldsmith (ed.), pp. 444-75. Oxford: Blackwell.

Trithart, Lee. 1976.

Desyllabified noun class prefixes and depressor consonants in Chichewa. In: *Studies in Bantu tonology*, Larry M. Hyman (ed.), pp. 1-21. SCOPIL 3. Los Angeles: University of Southern California.

Tunviken, Jonas. 2013.

A phonological sketch of Moghamo, a Narrow Grassfields Bantu language. Yaounde: SIL.