

Tone reduction vs. metrical attraction in the evolution
of Eastern Bantu tone systems

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1. The Common Bantu (CB) tonal system, as reconstructed by Guthrie, Meeussen and others, opposed, in nominal stems, H(igh) and L(ow) tones on all syllables, thus yielding a 4-way contrast on disyllabic stems : *-c̄v̄c̄v̄, *-c̄v̄c̄v̄, *-c̄v̄c̄v̄ and *-c̄v̄c̄v̄. Yet, among the 50+ Bantu languages spoken in East Africa (Kenya, Tanzania Uganda and neighbouring areas) for which we have adequate tonal information, only a bare dozen retain this 4-way contrast. If we look closely at the majority of languages which have lost it, we get the following picture :

- Nyankore (J¹ 13), Ganda (J 15), Haya (J 22), Jita/Ruri (J 25), Pokomo (E 71), Giryama (E 72), Sukuma (F 21), Nyamwezi (F 22), Nilyamba (F 31), Langi (F 33), Shambaa (G 23), Bondei (G 24), Zigula (G 31), Ngazija (G 44a), Ndzواني (G 44b), Bena (G 63), Bemba (M 42), Tonga (M 64), Matuumbi (P 13), and Makua (P 31), have all dropped the contrast *-c̄v̄c̄v̄/*-c̄v̄c̄v̄; the resulting pattern is sometimes -c̄v̄c̄v̄ like in Ganda, Haya or Nilyamba, sometimes -c̄v̄c̄v̄, like in Shambaa or Bemba and sometimes a different pattern altogether.

Examples² :

	*-k̄ú t̄ à "oil"	*-d̄ í m̄ ì "tongue"	*-k̄ ó k̄ ó, *-k̄ ú k̄ ú "chicken"	*-k̄ ú l̄ ú "big, old"
Ganda	ama f̄ ú t̄ a	o l u l í m i	e ŋ k̄ ó k̄ o	o m u k̄ ú l u
Haya	ama j̄ ú t̄ a	o l u l î m i	e ŋ k̄ ô k̄ o	o m u k̄ û l u
Nilyamba	ma k̄ ú t̄ a	l o l é m e	ŋ k̄ ó k̄ o	m o k̄ ó l o
Shambaa	ma v̄ ú t̄ á	u l í m í	ŋ ḡ ú k̄ ú	m k̄ ú ú
Bemba	á ma f̄ ú t̄ á	ú l u l í m í	í ŋ [!] k̄ ó k̄ ó	ú m u k̄ ú l ú
Nyamwezi	ma g u t̄ á	l o l e m í	ŋ ḡ ó k̄ ó	m k o l ó
Pokomo	m á f u h a	y ú l i m i	ŋ k̄ û k u	m ú k u y u

- Nyambo (J 21), Bukusu (J 31), Remi (F 32) and Digo (E 73) not only have dropped the contrast between *-c̄v̄c̄v̄/*-c̄v̄c̄v̄ but with *-c̄v̄c̄v̄ as well.

Examples :

Bukusu : kámafurá "oil", lúulimí "tongue", as éeηgoxó "chicken", ómuxulú "old" (cf. also éembokó "buffalo" < CB *-bògó)

Remi : makutá "oil", oremé "tongue", as ηkokó "chicken", mokoó "big" (cf. also mbogó "buffalo")

- Rwanda (J 61), Rundi (J 62) and Dawida (E 74a) have kept *-cvcv/*-cvcv̄ distinct but at the cost of neutralizing the contrast *-cvcv̄/*-cvcv̄. Examples :

Rwanda : amavúta "oil", ururími "tongue", vs. iηkokó "chicken", mukurú "big" (cf. imbogó "buffalo")

- Nyoro (J 11), Tooro (J 12), Kuria (E 43), Swahili (G 42), Pogolu (G 51), Nyakyusa (M 31), Tumbuka (N 21) and Sena (N 44), have lost all distinctiveness in disyllabic CB stems.

2. According to Clements and Goldsmith (1984), the neutralisation of the *HH/*HL contrast is to be expected, since it would constitute the decisive step towards the simplification of a tone system (such as the CB system outlined above) into an accentual one, where three tone patterns at most are present in disyllabic stems, i.e. *-cvcv̄, *-cvcv̄, and *-cvcv̄, or in other terms : accented on the first or the second stem syllable respectively or non-accented. Clements and Goldsmith also venture that "...what we have termed Meeussen's rule, which turns a HH sequence into a HL one... may be a necessary precondition for accentual reanalysis." (1984, p. 7).

2.1. In East African languages as delimited above, Meeussen's rule is to be found operating more or less across the board in Rwanda/Rundi, Nyankore, Haya, Ganda, Jita/Ruri, Tonga, Yao, Makonde and -it would seem - in at least some Makua dialects. In Ndzuaní, Shambaa, Digo and Giryama it applies between verbal prefixes and the verb stem only.

Examples : Rundi

- in verb forms

narázi báriira : I was sewing them (cl. 10)

narábariira : I was sewing

In the first example there is no contiguity between the H located on the TAM prefix /a r a / and the first stem H so no application of Meeussen's rule takes place; contrariwise, in the last example these two H tones are in immediate succession and the second one (the radical H) is disassociated.

- in noun forms : compare the following two examples showing the derivation from place names of nouns with the meaning : "a person originating from..." :

bukéeye > umujábukéeye
mwáaro > umujámwáaro

In the second example, but not in the first, the two H's are immediately contiguous and Meeussen's rule applies.

2.2. In languages other than those listed under 2.1., the tonal system (mostly of a pitch-accent type) would not offer synchronic configurations allowing Meeussen's rule to operate. The only exceptions are the following :

2.2.1. Konzo/Nande (J 41/J 42), Shi (J 53), Kikuyu (E 51) and Kamba (E 55) where the non-application of the rule is attested by the fact that the four tone patterns of CB are preserved

2.2.2. Sukuma (F 21), Nyamwezi (F 22) and Bemba (M 42), that have merged *HH and *HL, but introduced new tone patterns

2.2.3. Dawida (E 74a), where *HH and *LH have merged

2.3. Category 2.2.2. above is particularly interesting since it offers examples of languages seeming to contradict Clements and Goldsmith's hypothesis that Meeussen's rule is the clue to the disappearance of the *HH/ *HL contrast. Let us take a closer look at the situation in Bemba. In spite of the fact that the contrast has disappeared in nominal stems, it would seem to still be present in verb inflexion. First of all, we need to consider a few facts about Bemba tonology : a particularly striking one is that H tones tend to disappear when followed by an all-L word before pause; compare :

tulééfíka kúmujíma# : we are arriving to the well ≠ tuleefika
kumufi# : we are arriving to the village
tukapítá mulúku:ngu# : we'll pass in the dust ≠ tukapita
mumusebo# : we'll pass on the road

Nevertheless there are exceptions :

twa:fikílé kúmujíma# : we arrived (remote past) to the well =
twa:fikílé kumuji# : we arrived to the village
tatwa:kapíté mulúku:ngu# : we won't pass in the dust =
tatwa:kapíté mumusebo# : we won't pass on the road

If we compare the two forms tukapítá and tatwa:kapíté, we see that they both end with a similar tone pattern. Why then do they behave differently before an all-L word followed by pause ? The answer can be found in their underlying tones :

tukapita
|
H

tatwa:kapite
| |
H H

The underlying forms are different : in the first case, the final stem vowel is associated with the H of the radical syllable; in the second there are two H's : one from the radical syllable and the other one from the final vowel. This can easily be demonstrated by looking at a L tone radical

tukalima : we'll cultivate
tatwa:kalimé : we won't cultivate

Here we can verify that in the first example no H is associated to the final vowel when the radical is itself low; on the other hand the negative form does have a final H.

But what this means then is that Meeussen's rule cannot be operating in verb stems, otherwise such a contrast could not possibly emerge !

The same goes for prefix + stem; compare :

tupúswíké : we have escaped

bápúswíké : they have escaped

In the second example the H subject prefix does not disassociate the radical H (contrast with the situation in Rundi above). So Meeussen's rule does not operate synchronically in Bemba. And yet CB *HL and *HH have merged in disyllabic nominal stems.

2.4. A look at Nyamwezi can help us towards a solution. In this language, we find a complete merger of CB *HL and *HH patterns in disyllabic stems. But Meeussen's rule cannot have applied across the board. If it had, trisyllabic patterns *-cvcvcv̄ and *-cvc̄vc̄v̄ would logically have merged. But they haven't. Compare :

Nyamwezi η^hõ:ηgóní "bed-bug" <CB *-kúηgúnì⁴

Nyamwezi izugélo "kitchen implement" <CB *-dũg- + derivative suffixes

So in Nyamwezi *-cvcvcv̄ > -c̄vc̄vc̄v̄⁵, but *-cvc̄vc̄v̄ > -c̄vc̄vc̄v̄, and no merger takes place. Notice, however, that tonal displacement which always associates a H with the vowel immediately to its left, would cause a merger of *HH and *HL *on the last two syllables of any word*. Indeed, it is impossible to distinguish word-finally between underlying HH and HL sequences in Nyamwezi due to the effect of tone-shift. Hence, we are led to the conclusion that tonal displacement, rather than Meeussen's rule, is the cause of the loss of the contrast in disyllabic stems.

The same process has probably been at work in Bemba, where we find tone doubling rather than tone displacement - but it is easy to see that the latter derives from the former by disassociating the H from the first syllable after doubling :

Example :

x x
|
H

tone doubling :



disassociation (= tone shift)



The explanation would thus seem to be that, in Bemba too, tone doubling has got rid of the *HH/*HL contrast in disyllabic stems, without Meeussen's rule playing any role - which explains its absence from the synchronic phonology of the language.

In other words, for all those East African Bantu languages where a process of either tone doubling or tone shift is to be found, and where no significant trace of Meeussen's rule is in evidence, it is unlikely that the latter would be responsible for the disappearance of the *HH / *HL contrast.

2.5. Indeed, Meeussen's rule would appear to be the conditioning factor of the *HH/ *HL contrast loss in only a few East African Bantu languages. These are Nyankore and Haya (of the Rutara branch⁶ of Lacustrine), Ganda (of the North Lake branch), and Jita-Ruri (of the Suguti branch). In all those languages, Meeussen's rule plays a very active role in the synchronic tonology and since the Rutara and North Lake branches are obviously very closely related, the rule might be inherited from an ancestral stage. The Suguti branch is not as close genetically, but the tone-system of Jita and Ruri might very well derive from the Rutara one, with the adjunction of tone shift. It must be pointed out however that other branches of Lacustrine, in some cases as closely related to Rutara and North Lake as Suguti is (sometimes indeed, more so) do not exhibit Meeussen's rule : this is the situation in Nande and Shi (Western Highlands branch) which haven't merged *HH and *HL anyway. In Rwanda and Rundi (Western Highlands), Meeussen's rule is operative, but *HH and *HL haven't merged either; instead the merger concerns *HH and *LH, which is contradictory with the early presence of the rule, so perhaps Meeussen's rule is of recent appearance here. Thus if a case can be made for Clements and Goldsmith's claim, its only unequivocal support in East Africa comes from part of the Lacustrine group.

2.6. In other languages, as we saw above, the merger would seem to have been brought about not by dissimilation of *HH > *HL (Meeussen's rule), but by assimilation *HL > *HH. Assimilation of this type is found in four varieties :

2.6.1. either the H associated to a syllable (sometimes mora) doubles onto the next, as in Kuria, Langi, Bemba, Yao, Gweno (E 65)

2.6.2. or it shifts entirely to the next syllable or mora (so the surface result is LH instead of HL), as in Nyambo, Jita/Ruri, Bukusu, Nyamwezi, Remi, Dawida, Chaga (E 60), Kikuyu

2.6.3. or the H associates to several successive syllables, as in Shambaa; cf. the two following examples :

mawe magana mane na milongo mine : four hundred and forty
stones
magí mágána matátú ná mílóngo mine: four hundred and forty
eggs

where it can be seen that the replacement of mawe "stones" and mane "four" with magí "eggs" and matátú "three" respectively causes whole strings of H tones to appear.

2.6.4. or the H only surfaces several syllables to the left, as in Makonde, Bondei, Zigula, Comorian and Mijikenda; cf in Giryama (Mijikenda) :

kut sola kirevu : to choose a beard
kuona kirévu : to see a beard

In the second sentence a H appears on the second syllable of the object kirevu, "beard", whereas the initial association must be to the radical -on- "see", since all the other morphemes are identical in both cases.

It is in fact very likely that cases 2.6.1. and 2.6.2 can be considered as variants of each other since 2.6.2. (tone shift) can be derived from 2.6.1. (tone doubling) by a simple disassociation rule as seen above⁷; the same also applies to 2.6.3. and 2.6.4. where the latter case can be derived from the former by a rule disassociating a H from all syllables to which it has been associated at the point where the rule operates save the last one :

initial tone association

kuona kirevu
 |
 H

spreading :

kuona kirevu
 \
 H

disassociation:

kuona kirevu
 / \ / \
 H

2.7. So there are really only two cases : a H associates immediately to the right of the syllable to which it was initially associated (and may then disassociate itself from the previous syllable) or it associates to a sequence of following syllables. What is interesting is that between "proximal" (1 syllable) and "maximal" (several syllables) assimilation, intermediate stages seem to be lacking : one would expect tone systems to allow the possibility of associating H's $n + 1$, $n + 2$, $n + 3$ etc. syllables to the right of the original association. This does not appear to be the case, Sukuma (which associates $n + 2$) being the only exception in East Africa; all the other languages with doubling associate either $n + 1$ or $n + \infty$, where ∞ must be taken as representing a syllable separated from the original association not by a given number of syllables but by a boundary of some sort. To be more precise, most of the languages listed under 2.6.3. and 2.6.4. above present a variety of the following rule : a H associates - within a tone group - as far as either the next H or else the penultimate syllable of the group (the final in Digo). A few examples will make this clear :

Shambaa :

want u waz i t o : heavy people
 wáná wáz í t o : heavy children

want u wa t á t ú : three people
 wáná wá!t á t ú : three children

want u w a i l í : two people
wáná wá í!l í : two children

From these examples it can be seen that a word ending in a L does not influence a following word, whereas a previous H spreads into the following word as far as the next H (from which it is then separated by a downstep) or else to the penult, if there is no other H.

2.8. This $n + 1 / n + \infty$ duality is strongly reminiscent of metrical feet which can be either binary or unbounded. Indeed this similarity cannot be fortuitous. The tendency to rearrange tone sequences into feet will sooner or later lead to the reinterpretation of the system in an accentual manner⁸. So, this is a plausible development for the disappearance of the *HH / *HL contrast which owes nothing to Meeussen's rule.

But what is the *cause* of this rightward movement of H's ? We will assume that the tendency for a H to spread to the next L syllable is explainable in terms of *horizontal* assimilation (Hyman, 1975, 1978) resulting from "a nonsynchrony between the tones and the segments over which they have domain" (Hyman, 1975, p. 222) by which *H L > *H HL > H H.

In autosegmental terms, this is easiest to explain if we postulate that only H's are present in the derivation at the point where assimilation takes place : the process can then be explained by the necessity for skeletal segments to be associated to tones, thus

a) x x x > b) x x x
 | |
 H H

Following an interesting suggestion made by J. Goldsmith (1984), one might hypothesize that the equilibrium state of autosegments is to be found when each skeletal position is associated to one - and only one - tonal autosegment and vice-versa. Other configurations are more marked and thus less favoured. The general tendency for horizontal assimilation to apply would then mean that configuration "a" where one tone is associated to one skeletal position, but where two other skeletal positions are left entirely toneless is more marked than configuration "b" where one tone associates to two skeletal positions; the fact

that, as shown above, the H tone does not generally associate any further (i.e. n + 2) would then mean that a configuration such as "c" below is in its turn more marked than "b" :

c) x x x
 | . . .
 H

2.9. On the other hand the $n + \infty$ assimilation cannot be explained in this way, since intermediate stages ($n + 2$, $n + 3$, etc.) are obviously lacking¹⁰. It is surely no coincidence that many of the languages cited under 2.6.3. and 2.6.4. above are also characterized by the presence of a strong demarcative stress on the penult syllable, often marked by lengthening before pause (this is definitely the case for Shambaa, Bondei, Mijikenda and Makonde; it is rather less audible in Comorian). This lengthening can operate all the more easily, since these languages have lost the length contrast inherited from Proto-Eastern Bantu. This suggests that in these languages we are faced with the emergence of metrical structures based on the prominence of the penult : an H associated to a pre-penult syllable is attracted to the penult within an incipient unbounded foot; of course if another H intervenes, it will mark the right-end boundary of the previous foot.

Examples : Comorian (Ndzواني)¹¹

2.9.1. pumbá : house

2.9.2. ndr í bwá vu : big (cl. 9)

2.9.3. pumba ndr í bwavu : a big house

2.9.4. tsi ó no púmba : I saw a house

2.9.5. tsi ó no i pumbá : I saw the house

2.9.6. tsi ó no púmba ndr í bwavu : I saw a big house

2.9.7. tsi ó no i pumba ndr í bwavu : I saw *the* big house

Metrical representation (all the items have lexical line 1 asterisks) :

*
 *
 pumba

*
 * * *
 ndr í bwá vu

*
* * * *
t s i o n o

It can be seen from examples 2.9.3. and 2.9.4. that when two items enter into certain phrases the original accents disappear and a new one emerges. This new accent can be symbolised by a line 2¹² asterisk :

*
* * * *
* * * *
pumba ndr i b w a v u

*
* * * *
* * * *
t s i o n o pumba

In both cases - and they are fully representative of accentual processes in this language - the rule can be informally stated as follows : the line 3 asterisk must be placed on the syllable immediately *before* the *second* line 2 asterisk¹³. Since this doesn't make much sense in formal terms, one can attempt two possible lines of explanation :

a) either, as in Philippson (1988, 1993) following a suggestion by Halle and Vergnaud (1987, p. 66), line 0 asterisks are first grouped into unbounded left-headed feet, then copied as *right*-headed feet onto a different metrical plane

b) else as proposed by Cassimjee and Kisseberth (1989)¹⁴, a H pitch (exponent of accent) might be directly attributed to the rightmost syllable of each foot, in spite of its being left-headed.

In both cases, only the H associated to the first foot of a phrase is realised, either by a rule of tonal deletion or, as proposed by Philippson (1988) by constructing an unbounded left-headed line 2 constituent, whose head will then appear on a line 3, as in :

*
(* * * (* * *) (* * *) (* * *)
t s i o n o pumba ndr i b w a v u

It will be noted that not all phrases are subject to this grouping of feet as evidenced by examples 2.9.5. and 2.9.6. above, where the definite pre-prefix /i-/ blocks it¹⁵

If we now turn to examples such as the following :

2.9.8. rakohulíndra : we were waiting for you

2.9.9. rakówalíndra : we were waiting for them

it will be immediately obvious that example 2.9.9. must have a metrical representation of the form :

$$\begin{array}{c} * \\ (* \quad *) \\ (* \quad *) (* \quad *) \quad * \\ \text{r a k o w a l i n d r a} \end{array}$$

If this is the correct analysis, then the metrical representation of 2.9.8. must be :

$$\begin{array}{c} * \\ (* \quad * \quad *) \quad * \\ \text{r a k o h u l i n d r a} \end{array} > \begin{array}{c} * \\ (* \quad * \quad * \quad *) \quad * \\ \text{r a k o h u l i n d r a} \end{array}$$

Here there is only one marked syllable and hence only one foot in the word¹⁶; nevertheless the accent appears on the penult syllable, showing that the final is extra-metrical or, in other words, that the penult constitutes the rightmost limit of foot construction (N.B. the possibility that the final syllable might also be marked, which would also explain the accentual pattern - as in *tsiono pumba* above - is excluded since the presence of a complement shifts the accent to the right, as in *rakohulindra ndziáni* : "we were waiting for you on a path", which shows that the first word includes only one marked syllable, namely - ko-).

3. So we could visualise the following evolution for such languages :

3.1. The length contrast is lost; penult is demarcatively lengthened due to stress¹⁷

3.2. H's spread into contiguous L's. In the process *HL sequences become assimilated to *HH - starting with disyllabic stems - and an accentual system emerges.

3.3. Pre-penult H's are attracted to the next prominent syllable (penult or other H) within the same word and spread towards it.

3.4. Penult and final H's are attracted to the next prominent syllable (penult or other H) of the following word within prosodic phrases (noun + adj., verb + object, etc.)¹⁸.

If this analysis is correct, the evolution of tone towards accent systems in the majority of Bantu languages in East Africa east of the Rift Valley will have followed a rather different course from those of the Lacustrine area. The wider application of this to the rest of the Bantu field should now be tested.

APPENDIX I

Ganda excursus

According to Meeussen (1976), Ganda, which has neutralized the *HL/*HH contrast in -CVCV stems, retains it in -VCV stems. I made a rapid but nevertheless conscientious search of Snoxall's Ganda dictionary. The results are as follows :

a) 8 stems are of the underlying shape $-\tilde{v}\tilde{v}nc\acute{v}$ (realised $-\tilde{v}\tilde{v}nc\hat{v}$ or $-\acute{v}\acute{v}nc\tilde{v}$ respectively according as to whether their prefix is preceded by the augment or not -cf. Hyman and Katamba, 1990/91, and Philippson, 1992) : $mw\grave{e}\grave{e}nd\hat{a}$ < CB $*-y\grave{e}\grave{e}nd\acute{a}$ "nine", and $bw\grave{o}\grave{o}\eta g\hat{o}$ < CB $*-y\grave{o}\eta g\acute{o}$ "brain" clearly reflect the CB *LH pattern; $ky\grave{a}\grave{a}nd\hat{a}$ "drought" $ky\grave{e}\grave{e}nv\hat{u}$ "yellow colour" and $ky\grave{e}\grave{e}\eta ky\hat{a}$ "breakfast" have equivalent items in Nyankore, i.e. $eky\acute{a}\acute{a}nda$ "summer (sic)" $ky\acute{e}\acute{e}\eta ju$ "yellow colour" and $ky\acute{e}\acute{e}nt sya$ "breakfast" which exhibit underlying LH; the same is probably true for $mw\grave{a}\grave{a}mb\hat{a}$ "file" which has an anomalous Nyankore equivalent $m\grave{u}y\grave{a}mb\grave{a}$ (perhaps a loan but the all L tone pattern before pause could still reflect underlying LH, at least with some speakers). Finally the two words $mw\grave{a}\grave{a}nd\hat{u}$ "plunder" and $ky\grave{o}\grave{o}nd\hat{o}$ "gulf" do not appear to have cognates in neighbouring languages.

b) 4 stems are of the underlying shape $-(\tilde{v})\tilde{v}c\acute{v}$ (the vowel length is due to resyllabification of the prefix - same tonal realisations as above) : $bw\grave{o}\grave{o}y\hat{a}$ "feather" is from CB $*-y\grave{o}y\acute{a}$; $ky\grave{a}\grave{a}\eta\hat{a}$ "space" has a Rwanda cognate $umwa\acute{a}\eta a$

with underlying LH but also Nyankore *omwáaŋa*, which is HL ! *kyòòvû* "foam" which has no cognate in neighbouring languages reminds one of CB **-pódû*, but the tones obviously don't correspond. A final case *kyùùkyû* "kind of tall grass" is unattested elsewhere.

c) 10 stems are of the shape $-(\acute{v})\acute{v}c\grave{v}$:

- *mwáávu* "poor person", *mwééne* "edible cane rat", *mwóóme* "rich person", *mwááli* "unbaked cooking -pot", *bwáávu* "scar on bark" and *kyáági* "small granary", none of which seem to have cognates elsewhere, to the best of my knowledge;

- *mwááte* "girl no longer a virgin" is an apparently irregular derivative of *-áta* "to deflorate" (the expected result would be *mwáate*)

- *bwéémi* "trouble" might possibly be related to Rwanda *ubuhemú* "ingratitude" which can stand either for a *HH or *LH inherited pattern, but since the cognate verb *-hemuka* "be ungrateful" is L toned, the *HH origin of the noun is unlikely (cf. also Nyankore *ubuhemu* "shame" and the verb *-hemuka* "to disgrace", L-toned as well)

- *mwáámi* "chief", Meeussen's example can be confidently reconstructed as *HH for languages such as Shi; Rwanda has *umwaámi* which again can correspond either to *HH or *LH; Nyankore, on the other hand has *omwáámi*, which would rather correspond to LH.

- finally *bwóógi* "sharpness" is the clearest case since there is a convincing (and geographically remote) Kikuyu HH cognate *-óyé* "sharp" as well as Rwanda *ubuúgi* (*HH or *LH) and Nyankore *obwóogi* (*HH or *HL).

It is noteworthy that there are 8 stems in group (a) against only twice as few for group (b) but 10 in group (c). In other words, a split in tone patterns after resyllabification might have occurred according to whether the second consonant is pre-nasalized or not. The matter should certainly be explored further (cf. note 3).

¹ Tervuren (rather than Guthrie's) referential classification numbers are given after the language name. Following a well-established practice among European Bantuists, I also refrain from using class prefixes with language names, in contrast to the usage of some scholars (I will thus speak of Matuumbi, Ganda, etc. (instead of Kimatuumbi, Luganda...)).

² Sources for the data are given in an Appendix.

³ A H tone which should appear on the prefix is replaced by a HL fall on the first stem syllable if the prefix happens not to be syllabic.

⁴ According to Guthrie (1971), the CB form should be *-kùŋgúnì, i.e. LHL. That it is not so, at least on the basis of East African data, can be seen, apart from the Sukuma/Nyamwezi examples, in Asu ŋkúŋgwí n í, Shambaa ŋkúŋgún í and Kikuyu ŋgǔ:ŋg on í, that all point to a H first syllable.

⁵ The rising tone on the first syllable of the first example is automatic in this context (L vowel followed by a nasal cluster and a H).

⁶ Following Nurse and Philippson's classification (in Polomé and Hill, 1980)

⁷ The point had already been made - though not phrased in precisely those terms - by P.R. Bennett as early as 1970 (Bennett, 1970).

⁸ As noted by Clements and Goldsmith (1984, pp. 15-16) in apparent oblivion of their "Meeussen's Rule" principle.

⁹ In a few East African Bantu languages (Nande, Shi, Tonga) tone-spreading seems to operate systematically from right to left. I assume this to be a synchronic reinterpretation of a diachronic process which actually operated from left to right - as in other East African Bantu languages. I won't pursue the matter here; a discussion can be found in my unpublished *Doctorat d'Etat* dissertation (Philippson 1992).

¹⁰ As regards the lone exception of Sukuma, closer examination of the data shows it to be no exception at all, since a comparison with the closely related Nyamwezi brings to light the fact that the apparent n + 2 movement is in fact n + 1 applied iteratively at two different post-lexical strata (cf. Philippson 1992, for a lengthy discussion of Nyamwezi and Sukuma tonology).

¹¹ Cf. Philippson (1988 and 1992), Ahmed-Chamanga (1987 and 1992), Jaffar (1992,); cf. also Cassimjee and Kisseberth (1989) on the related but slightly different Ngazija dialect.

¹² It will be recalled that in Halle and Vergnaud's framework, the bottom line is counted as line 0.

¹³ In accordance with Halle and Vergnaud's formalism, an asterisk is also attributed to line 1 under the one situated on line 2.

¹⁴ But in his 1993 Leiden presentation on Ngazija tone (unpublished, as far as I know), Chuck Kisseberth seemed to have adopted solution "a" above.

¹⁵ There is good evidence that "definiteness", not a particular morpheme, is the blocking factor.

¹⁶ In accordance with Hayes and Vergnaud's formalism, we assume the initial unmarked syllable to be included in the domain of the following foot.

¹⁷ The penult enjoys a special status in many East African Bantu languages, even in the absence of audible demarcative stress. In fact the only languages in East Africa where the penult is affected by no tonal or accentual rule whatsoever are Ganda, Bukusu, Nyamwezi and Kikuyu. Cf. Philippson (1992) and compare Hyman (1989).

¹⁸ It is of decisive importance that more work on the phonology-syntax interface be conducted in Bantu languages (cf. Inkelas and Zec (eds.) 1990, and a very tentative survey in Eastern Bantu by Philippson, 1992).

APPENDIX II

Source of the language data

Bemba :

GUTHRIE, M., 1945, *The tonal structure of Bemba*, Ph. D., University of London, 83 pp.

SHARMAN, J.C. and MEEUSSEN, A.E., 1955, "The representation of structural tones, with special reference to the tonal behaviour of the verb, in Bemba, Northern Rhodesia", *Africa*, 25, 393-404

and own data (G.P.)

Bukusu :

DE BLOIS, K.F., 1975, *Bukusu : Generative phonology and aspects of Bantu structure*, Tervuren, MRAC, 232 pp.

Ganda :

SNOXALL, R.A. et al., 1967, *Luganda-English Dictionary*, Oxford, Clarendon Press, 357 pp.

Giryama :

FORD, K.W., n.d., *Giryama and Chonyi notes*, ms., University of Nairobi

Haya :

BYARUSHENGO, E.R. et al. (eds.), 1977, *Haya grammatical structure*, Los Angeles, SCOPIL, 213 pp.

Ndzuani:

cf. note 11

Nilyamba :

YUKAWA, Y., 1989, *A classified vocabulary of the Nilamba language* Tokyo ILCAA, 85 pp

Nyamwezi :

MAGANGA, C. and SCHADEBERG, T.C., 1992, *Kinyamwezi. Grammar, texts, vocabulary*, Köln, Rüdiger Köppe Verlag, 325 pp.

Pokomo :

own data (G.P.)

Remi :

OLSON, H.S., 1964, *The phonology and morphology of Rimi*, Ph. D., Hartford, Conn.

Rundi :

MEEUSSEN, A.E., 1959, *Essai de grammaire rundi*, Tervuren, MRAC, 236 pp.

Rwanda :

SCHUMACHER, P., n.d., *Dictionnaire phonétique français-runyarwanda, runyarwanda-français*, Kigali, Imprimerie scolaire, 364 pp.

Shambaa :

ROEHL, R., 1911, *Versuch einer systematischen Grammatik der Shambalasprache*, Hamburg, AHK, 214 pp.

and own data (G.P.)

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- INKELAS, SH. and ZEC, D. (eds.), 1990, *The phonology-syntax connection*, Chicago, The University of Chicago Press, 428 pp.
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- NURSE, D. and PHILIPPSON, G., 1980, "The Bantu languages of East Africa : a lexicostatistical survey", in POLOME, E. C. and C.P. HILL (eds.), 1980, *Language in Tanzania*, London, OUP
- PHILIPPSON, G., 1988, "L'accentuation du comorien : essai d'analyse métrique", *Etudes Océan Indien*, 9, 35-79

PHILIPPSON, G., 1992, *Tons et accent dans les langues bantu d'Afrique Orientale : étude comparative typologique et diachronique*, Doctorat d'Etat diss., Paris, Université René Descartes, 536 pp.

PHILIPPSON, G., 1993, "Tone (and stress) in Sabaki", addendum to chapter 2 of NURSE, D. and HINNEBUSCH, T.J., *Swahili and Sabaki. A linguistic history*, Berkeley, etc., University of California Press, pp. 248-65