

ON RECONSTRUCTING THE MODIFIED BASE OF BANTU VERBS¹

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1. Introduction

In many Bantu languages one finds a verb suffix, or modified form of the verb stem, often called the Modified Base. Its function varies somewhat from language to language, but it probably denoted the perfective or terminative aspect in Proto-Bantu. In Chibemba, for example, it is used in many past time divisions, denoting the aspectual feature [terminated] (see Givón [1970b, part IV]). In the languages of the interlacustrine region of East-Central Africa it is used mainly in the perfect and near past tenses. It has been demonstrated [Givón 1970a] that apparent irregularities in the modified bases of Chibemba verbs may be resolved when deeper, underlying forms of the verb stems are used and several phonological rules are applied in explicit order.

In this paper I show that in each of four languages the Proto-Bantu form of the modified base can be reconstructed largely on internal grounds--once the deeper, underlying verb forms and an explicit order of the rules of phonology (synchronic or diachronic) are posited. I shall begin with a brief recapitulation of Givón's [1970a] analysis for Chibemba and then proceed with my own analysis of three other, fairly closely related languages of the interlacustrine region: Runyankore, Kirundi and Luganda.² Of course the distinction between historical and synchronic description must be borne in mind. Givón's rules for Chibemba are intended as synchronic, but I am making no claims here for synchrony in all the rules for the other three languages.

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²It should be noted that for the sake of clarity and consistency /l/ has been used throughout the data, since Luganda has [r] only allophonically, and Kurundi and Runyankore have only /r/.

2. The modified base in Chibemba

Givón [1970a] has observed two ways of forming the modified base, one for monosyllabic, the other for polysyllabic verb stems. For the purposes of this paper, I shall call them MB1 and MB2, respectively. MB1 involves the suffixation of the morpheme $-Vle^3$ to the verb stem. The unspecified vowel is [+front], its height determined by rules of vowel harmony common to most verb suffixes, and illustrated as follows:

- (1) $[CV(C)]_{\text{stem}} \rightarrow [CV(C) + Vle]_{\text{MB1}}$
- (2) $v \rightarrow \left\{ \begin{array}{l} i / (i, u, a,) \\ e / (e, o,) \end{array} \right\} (C) \text{_____}$

Also, [l] becomes [n] if the final consonant of the stem is a nasal. Observe the following verbs and their MB's:

(3)	<u>stem</u>		<u>MB</u>
a)	-limb-	'plant'	-limbile
b)	-lomb-	'write'	-lombele
c)	-fum-	'come from'	-fumine
d)	-pon-	'fall'	-ponene

Using 'deeper' underlying forms and ordering rules of vowel harmony and gliding, apparent irregularities are seen as not irregular at all:

- (4) glide rule: $\begin{bmatrix} +\text{voc} \\ +\text{high} \end{bmatrix} \rightarrow [-\text{voc}] / \text{_____} \begin{bmatrix} +\text{voc} \\ -\text{high} \end{bmatrix}$
- (5) length rule: $\emptyset \rightarrow \begin{bmatrix} +\text{voc} \\ \alpha F \end{bmatrix} / \begin{bmatrix} -\text{cons} \\ -\text{voc} \end{bmatrix} \text{_____} \begin{bmatrix} +\text{voc} \\ \alpha F \end{bmatrix}$

((4) and (5) are coupled; vowel lengthening does not take place after glides which originated from a consonant.)

³It is not really necessary to use $-Vle$. Since V is [-low, -back], it is simpler, and historically correct, to have $-ile$ with a harmony rule (generalized to include other suffixes including those with u):

$$v \rightarrow [-\text{high}] / \begin{bmatrix} -\text{high} \\ -\text{low} \end{bmatrix} (C) \text{[_____]}_{\text{suffix}}$$

(6)	<u>surface form</u>		<u>underlying form</u>	<u>vowel harmony</u>	<u>gliding and vowel length</u>
a)	-shy-	'leave'	-shi-	-shi-ile	-shiile
b)	-sw-	'pluck'	-su-	-su-ile	-swiile
c)	-nw-	'drink'	-no-	-no-ene	-nweene
d)	-b-	'be'	-be- ⁴	-be-ele	-beelee
e)	-p-	'give'	-pe- ⁴	-pe-ele	-peelee

Polysyllabic stems, on the other hand, use MB2, which consists of preposing the incompletely specified vowel before the stem-final consonant and suffixing -e.

(7) $[\text{__C}]_{\text{stem}} \rightarrow [\text{__VC} + e]_{\text{MB2}}^5$

which, with the correct rule order gives us:

(8)	<u>stem</u>		<u>vowel harmony</u>	<u>gliding and vowel length</u>
a)	-looleshi-	'gaze'	-loole-eshi-e	-looleeshye
b)	-kutuluk-	'remember'	-kutulu-ik-e	-kutulwiike
c)	-onon-	'remove from trap'	-ono-en-e	-onweene

Again, by positing 'deeper' underlying forms, underlying regularity is revealed. Two other rules, vowel fusion and vowel shortening (reducing three-vowel sequences to two), also need to be considered, ordered after the harmony and gliding rules:

(9)	<u>surface form</u>		<u>underlying form</u>	<u>harmony, gliding vowel length</u>	<u>fusion and shortening</u>
a)	-shyaal-	'remain'	-shial-	-shyaa-ile	-shyeele
b)	-twaal-	'escort'	-tual-	-twa-ile	-tweele
c)	-ikat-	'seize'	-ikat-	-ika-it-e	-ikeete

Givón [1971] has noted that normal palatalization of [k] (\rightarrow [c]) before [i] does not occur before the [i] of verb suffixes, including the

⁴Givón [1970a] originally chose -be-, -pe- as "least burdened". It seems, though, that considerations of markedness, borne out by comparative evidence, require -ba- and -pa- as the underlying forms.

⁵See footnote 3.

MB. This suggests the diachronic presence of a boundary, possibly caused by a historical rule deleting a consonant. This suggestion is important in light of the data from the other languages, see below, where it will appear necessary to posit such a consonant.

3. The modified base in Runyankore

In Runyankore both MB1 and MB2 are found, but under different conditions. MB2 is used only with polysyllabic verbs whose stems end in the voiced dental continuants [l,z], the dental nasal [n] and the [-ibw-] form of the passive. Elsewhere the MB1 is used. There is no vowel harmony or nasal harmony.

(10)	<u>surface form</u>		<u>underlying form</u>	<u>MB1</u>
a)	-gamb-	'say'	----	-gambile
b)	-taah-	'go home'	----	-taahile
c)	-shutam-	'squat'	----	-shutamile
d)	-gw-	'fall'	-gu-	-gwiile
e)	-ly-	'eat'	-li-	-liile
f)	-b-	'be'	-ba-	-baile
g)	-h-	'give'	-ha-	-haile
h)	-f-	'die'	-fu-	-f ^w iile

(11)	<u>surface form</u>		<u>underlying form</u>	<u>MB2</u>
a)	-twaal-	'take'	-tual-	-twaile
b)	-teel-	'hit'	----	-teile
c)	-tyootyooz-	'interrogate'	-tiotioz-	-tyootyoize
d)	-sheməzibw-	'be pleased'	----	-sheməzibwe
e)	-eshongol-	'sing'	----	-eshongoile

Note that, although gliding takes place (10d,h; 12d), vowel-fusion does not (10f,g; 11a-c,e). Also, there is vowel shortening (11a-c). Though my data are rather limited for this language, it seems that most cases of non-fusion occur when it is rather clear that a consonant has been lost:

- (12) oine - 'you have' (cf. Luganda: olina)
 aine - 'he has' (cf. Luganda: alina)
 eine - 'it (cl. 9) has' (cf. Luganda: elina)
 but: twiine - 'we have' (cf. Luganda: tulina)

It seems, then, that, like Chibemba, Runyankore shows evidence of a consonant being sometimes realized as a boundary. The fact that gliding takes place but not fusion indicates that relatively recently the boundary began to be lost, beginning with the gliding environment. The fact that in the modern, spoken language the sequence ai is often pronounced as ee (e.g. the town Rwashamaire, or verb forms like -twaile, etc. are often pronounced [rwashameere], [-tweere], etc.) supports this contention.

As for vowel shortening, it always occurs at a word-final boundary in Bantu languages:

- (13) a) -li-a --> -lyaa --> -lya
 b) -ba-a --> -baa --> -ba
 c) -fu-a --> -f^waa --> -f^wa

The examples of shortening in (11a-c) could be part of a general constraint in Bantu against having three-vowel sequences, or it could be, as Meussen [personal communication] has suggested, an attempt to limit the number of moras in a given word, in this case to an increase of one instead of two. It now appears that the presence of a boundary is a third, and equally valid possibility as an explanation (see also discussion of this in Givón [1970a]).

Observe now the following:

- | (14) | <u>stem</u> | | <u>MB</u> |
|------|-------------|--------|-----------|
| a) | -end- | 'go' | -enzile |
| b) | -kol- | 'do' | -kozile |
| c) | -ij- | 'come' | -izile |
| d) | -it- | 'kill' | -itsile |

There is ample evidence throughout the Bantu family that such consonant changes as:

- (15) / d, l, j / --> [z]
 /t/ --> [ts] or [s]⁶

were caused by a super-closed, high, front vowel [j] (see Meinhoff [1932]) which often affected labial and velar consonants as well. It seems that in Runyankore [j] became [i] before the change was generalized to the other, non-central consonants. We may say, then, that the pre-Runyankore forms of the modified base were:

- (16) a) MB1: -∅j|e
 b) MB2: [... ∅j-C-e] (where ∅ = boundary caused by deletion of a consonant)

Let us now turn to two other languages where the MB appears to be, on the surface, completely irregular and chaotic.

4. The modified base in Kirundi

In Kirundi the MB appears to be -ye (synchronically we probably ought to say that it is), accompanied by a wide variety of consonant changes which strongly indicate that the vowel of the MB was originally the super-closed [j] of Proto-Bantu. Note how the consonants are drawn towards the central (dental or palatal) region, and also opened (or closed) to become spirants.

- (17) $\left. \begin{array}{c} d, g, l \\ z \\ k \\ c, h \end{array} \right\} \rightarrow \left. \begin{array}{c} z \\ \text{ʒ} \\ ts \\ \text{ʃ} \end{array} \right\} / \text{---} j$

- | (18) | <u>stem</u> | | <u>MB</u> |
|------|-------------|--------|---------------------|
| a) | -bon- | 'see' | -booñe ⁷ |
| b) | -som- | 'read' | -somye |
| c) | -gend- | 'go' | -genze |

⁶t --> ts in Runyankore; t --> s in its sister dialect, Rukiga.

⁷The lengthened vowel, seemingly inexplicable, may, as Givón suggests, arise from MB2 (cf. -mona in Chibemba, through -mweene <-- -mo-ene). But this would not account for the palatalization of the nasal. Taking a cue from Meussen's suggestion on vowel shortening, I would suggest that lengthening here may be compensation for a lost mora arising from the change ny --> ñ.

	<u>stem</u>		<u>MB</u>
d)	-laab-	'look'	-laavye
e)	-tweng-	'laugh'	-twenze
f)	-andik-	'write'	-anditse
g)	-kol-	'do'	-koze
h)	-baaz-	'saw'	-baaže
i)	-ic-	'kill'	-iše
j)	-šuuh-	'be warm'	-šuuše

Evidently /l/ was lost in the MB, as it often has been in Bantu languages when intervocalic and in an ultimate syllable (e.g. Swahili), thus allowing the [j] to glide. It is also common in Bantu for the palatal glide to be "swallowed" by (i.e. deleted after) the central spirants [s,š,z,ž,(and [t])], while [l,n] become palatalized, as in, e.g.:

(19)	$\left. \begin{array}{c} zi \\ si \\ ši \\ ži \\ li \\ ni \\ ti \end{array} \right\} \rightarrow \left. \begin{array}{c} za \\ sa \\ ša \\ ža \\ la \\ ña \\ ta \end{array} \right\}$	but not:	$\left. \begin{array}{c} zya \\ sya \\ šya \\ žya \\ lya \\ nya \\ tya \end{array} \right\} *$
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Thus note the presence of the glide only after [m,v].

A look at the CV stems introduces some difficulty. Thus note the lengthened vowels:

(20)	<u>surface form</u>		<u>underlying form</u>	<u>MB2</u>
a)	-b-	'be'	-ba-	-baaye
b)	-ñw-	'drink'	-ño- (or -nio-)	-ñooye
c)	-ly-	'eat'	-li-	-liiye
d)	-pf-	'die'	-pfu-	-pfuuye

On the basis of previous discussion we should posit intermediate forms:

- (21) a) -ba-jle
 b) -ño-jle
 c) -li-jle
 d) -pfu-jle

There seem to be three possible explanations. The first is that [l] was lost and then [j] glided. This leaves unexplained, however, the fact that, prior to the rule of l-loss, there was no vowel fusion or gliding (Kirundi has both) to give forms like:

- (22) a) *-beele or *-beeye
 b) *-pfiile or *-pfwiye

A second explanation is that [l] became [y] while a regressive assimilation rule took place, thus:

- (23) -ba-ile --> baale --> baaye

But the normal assimilation rules in Kirundi are progressive and would yield *-biye.

I would like to suggest that a consonant or boundary prevented such gliding and fusion (as in Runyankore) and that the sequence of events must have been:

(24)	<u>+MB1</u>	<u>l-loss, gliding and shortening</u>	<u>boundary loss</u>
a)	-baɸjle	-baɸye	*-baye
b)	-ñoɸjle (-nio-)	-ñoɸye (-ñoɸye)	*-ñoeye (-ñooye)
c)	-liɸjle	-liɸye	*-liye
d)	-pfuɸjle	-pfuɸye	*-pfuye

The problem now is how to account for the long vowels. It might be suggested that the boundary loss caused the stem vowels to lengthen, but that seems never to have occurred elsewhere in Kirundi. The only explanation that appears plausible is to posit a lengthening rule (in CV verbs, at least) in compensation for the lost mora (cf. footnote 7) resulting from the l-loss and gliding rules.

A similar problem is seen in polysyllabic stems ending in /l/, where /l/ apparently inexplicably changes to [y]:

(25)	<u>stem</u>		<u>MB</u>
	a) -ugal-	'close'	-ugaye
	b) -ugulul-	'open'	-uguluye
	c) -subil-	'go back'	-subiye
	d) -sibilil-	'repeat'	-subiliye

We know that /l/ becomes [z] before the super-closed /j/. But using examples (24) as a clue we see that in reality the forms in (25) are the result of MB2. The following derivations are then posited:

(26)	<u>stem</u>	<u>+MB2</u>	<u>l-loss</u> <u>gliding</u>	<u>∅-loss</u>
	a) -ugal-	-uga-∅jle	-uga∅ye	-ugaye
	b) -ugulul-	-ugulu-∅jle	-ugulu∅ye	-uguluye
	c) -subil-	-subi-∅jle	-subi∅ye	-subiye
	d) -sibilil-	-subili-∅jle	-subili∅ye	-subiliye

Here too, we need the boundary in column 2 to prevent gliding and fusion before l-loss which would give us incorrect forms, such as:

- (27) a) *-ugeele or *-ugeeye
 b) *-ugulwiile or *-ugulwiiye

Note there is no vowel lengthening after ∅-loss. This indicates that we must indeed restrict our rule for vowel length to the CV verbs 'short stems'. At any rate, it is clear that l-loss in (25) is simply a generalization on the rule of l-loss in MB1.

5. The modified base in Luganda.

We turn now to Luganda where the data are similar to those of Kirundi, yet a bit more complicated. Note that the geminate consonants are affected in the same way as the single ones:⁸

⁸There are in Luganda two verbs that remain irregular:

-kwaata --- -kutte 'catch'; -twaala --- -tutte 'carry'

My guess is that they are relics from a time when -afa and -ala were productive suffixes. But -twaala cannot have come from a no-longer existent *-tu-, for our rules would incorrectly derive *-tudde. Positing for -kwaata -ku- would give us the wrong *-kudde. At any rate, I am

(28)	<u>stem</u>		<u>MB</u>		<u>stem</u>		<u>MB</u>
	a) -som-	'read'	-somye		h) -yig-	'learn'	-yize
	b) -gaan-	'refuse'	-gaañe		i) -yigg-	'hunt'	-yizze
	c) -loop-	'accuse'	-loopye		j) -tuuk-	'arrive'	-tuuse
	d) -lab-	'see'	-labye		k) -bikk-	'come down'	-bisse
	e) -bb-	'steal'	-bbye		l) -leet-	'bring'	-leese
	f) -kul-	'grow'	-kuze		m) -tt-	'kill'	-sse
	g) -gend-	'go'	-genze		n) -jj-	'come'	-zze

The rules of consonant changes before /j/ in Luganda are, informally:

(29)	$\left\{ \begin{array}{l} /l,d,j,g/ \rightarrow z \\ /t,k/ \rightarrow s \end{array} \right\} / \text{---} j$
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There are a few verbs whose stems end in [w]. Evidently the [w] (possibly from a consonantal source to begin with, possibly inserted intervocally) acts like a consonant, except that it gets deleted after the gliding of [j]:

(30)	a) -koow-	'tire'	-->	-kooye
	b) -fuuw-	'blow'	-->	-fuuye

Consider now the CV ('short stem') verbs, whose MB, though different from those of Kirundi, seem just as strange:

(31)	<u>surface form</u>		<u>underlying form</u>		<u>MB</u>
	a) -b-	'be'	-ba-		-badde
	b) -s-	'grind'	-se-		-sedde
	c) -w-	'give'	-wa-		-wadde
	d) -ly-	'eat'	-li-		-lidde
	e) -ky-	'clear up'	-ke-		-kedde
	f) -ñw-	'drink'	-ño-		-ñwedde ⁹

happy to report that two dialects of Luganda, Lunnamasaka and Lunnabuddu, have evidently re-analyzed these two verbs using MB forms -kwase and -twadde, respectively, which are perfectly regular.

⁹Evidently -ñwedde is from -ñweel- (by MB2, see below) which is the 'applied' verb form (with the suffix -el-). Otherwise we should expect the unattested *-ñodde, which may or may not have existed in the past.

It is known that [dd] in Luganda has two sources. In class 5 nouns the class prefix is C-, completely identical to the following consonant, if there is one; or it is li- when the stem is either monosyllabic or vowel commencing (it was *li- or *li- in Proto-Bantu):

- (32) a) eli-ñña 'name'
 b) eli-envu 'banana'
 but: c) ef-fumbe (from *eli-fumbe) pl. ama-fumbe 'civet'
 d) eddungu (from *eli-lungu) pl. ama-lungu 'good'

The other case appears in verbs whose stems begin with a -CC... geminate consonant when the preceding prefix is of the form (C)V. In these verbs, the sequence -zi pops out and replaces the first consonant when the subject prefix N- (1st sg.) precedes:

- (33) a) -tta 'kill'¹⁰
 b) otta 'you kill'
 c) nzita 'I kill'
 d) -ddugala 'become black'
 e) oddugala 'you become black'
 f) nzilugala 'I become black'

There is no other clearly reconstructible source for [dd]. Therefore we must conclude that [-dde] in the MB arose from - \emptyset je, and since [z] is shown in (33) above and we know that [z] before /j/ came from either /l/ or /g/ (Proto-Bantu */ γ /), we conclude that [\emptyset] was one of those two consonants (probably / γ /, since it was a more stable segment, especially in Luganda where it often still exists on the surface as [g]¹¹).

Like Kirundi, Luganda has a MB form for polysyllabic stems ending in /l/ similar to that of CV stems, and paralleling Runyankore in the MB of passives in [-ibw-]:

¹⁰Compare -tta, -jja, -bba, with other languages, like Runyankore, -ita, -ija, -iba.

¹¹Givón [1971] cites Polomé [in private communication] to the effect that in Kichagga, spoken in Tanzania, the surface form of the MB is -gil-e.

(34)	<u>stem</u>		<u>MB</u>
a)	-yagal-	'love, want'	-yagadde
b)	-gendelel-	'intend'	-gendeledde
c)	-labibw-	'be seen'	-labibbwa
d)	-sibibw-	'be tied'	-sibibbwa

(Note that the MB of the passive has the neutral suffix vowel -a instead of -e. I defer discussion of this to the section on causatives.)

With what we know of Kirundi and the Luganda CV stems, it is reasonably clear that in these two environments Luganda, too, has the MB2, and so intermediate forms of (34) are those of (35):

(35)	a)	-yaga-ɣj l-e
	b)	-gendele-ɣj l-e
	c)	-labi-ɣj bw-a
	d)	-sibi-ɣj bw-a

6. Brief recapitulation

We conclude, then, that the Proto-Bantu form of the MB was /*-ɣj|l-e/, and we may sum up for each language in turn what must be or have been the correct orders of rules. We may assume that Chibemba originally had both /ɣ/ and /j/ in the MB morpheme, and that the loss and laxing, respectively, preceded the relevant rules which are ordered and illustrated as follows:

- | | | |
|------|----|--|
| (36) | a) | vowel harmony |
| | b) | nasal assimilation |
| | c) | gliding and compensatory vowel lengthening |
| | d) | vowel fusion |
| | e) | vowel shortening |

Applied to the various stem types, the rules yield:

(37)	stem:	-lemb-	-no-	-ba-	-onon-	-shial-
	+MB:	lemb-ile	no-ile	ba-ile	ono-in-e	shia-il-e
	a)	lembele	noele	---	onoene	---
	b)	---	noene	---	---	---
	c)	---	nweene	---	onweene	shyaaile
	d)	---	---	beele	---	shyeeele
	e)	---	---	---	---	shyeele

For Runyankore we need the following order of rules:

- (38) a) $\gamma \rightarrow \left\{ \begin{array}{l} \emptyset / C _ \\ \emptyset / V _ \end{array} \right\}$
- b) spirantization of dentals before /j/
- c) laxing of /j/
- d) loss of boundary (in gliding environment)
- e) gliding and compensatory lengthening
- f) vowel fusion due to generalized boundary loss (just beginning to take place)

Applied to the different stem types the rules yield:

(39)	stem:	-gamb-	-ba-	-it-	-gu-	-teelan-
	+MB:	gamb-ɣjle	ba-ɣjle	it-ɣjle	gu-ɣjle	teela-ɣjn-e
	a)	gambjle	baʃjle	itjle	guʃjle	teelaʃjne
	b)	---	---	itsjle	---	---
	c)	gambile	baʃile	itsile	guʃile	teelaʃine
	d)	---	---	---	guile	---
	e)	---	---	---	gwiiile	---
	(f)	---	(beeile)	---	---	(teeleene)

In Kirundi the rules are ordered as follows:

- (40) a) $\gamma \rightarrow \left\{ \begin{array}{l} \emptyset / C _ \\ \emptyset / V _ \end{array} \right\}$
- b) centralization and spirantization
- c) l-loss
- d) laxing of /j/
- e) gliding and compensatory lengthening
- f) vowel shortening

- g) boundary loss
- h) vowel lengthening in CV stems
- i) glide absorption (after central spirants)

When applied to the various stem types, the rules yield:

(41)	stem:	-som-	-gend-	-pfu-	-subil
	+MB:	som-ɣjle	gend-ɣjle	pfu-ɣjle	subi-ɣjl-e
	a)	som-jle	gend-jle	pfu-∅jle	subi-∅jle
	b)	---	genzjle	---	---
	c)	somje	genzje	pfu∅je	subi∅je
	d)	somie	genzie	pfu∅ie	subi∅ie
	e)	somyee	genzyee	pfu∅yee	subi∅yee
	f)	somye	genzye	pfu∅ye	subi∅ye
	g)	---	---	pfuye	subiye
	h)	---	---	pfuuye	---
	i)	---	genze	---	---

Finally, in Luganda the rules are ordered:

- (42) a) $\gamma \rightarrow \emptyset / C _$
- b) centralization and spirantization
- c) gemination
- d) l-loss
- e) laxing of /i/
- f) gliding and lengthening
- g) vowel shortening
- h) w-loss
- i) glide absorption

and they yield, when applied to the different stem types:

(43)	stem:	-yit-	-lab-	-fu-	-yagal-	-koow-
	+MB:	yit-ɣjle	lab-ɣjle	fu-ɣjle	yaga-ɣjl-e	koow-ɣjle
	a)	yit-jle	lab-jle	---	---	koow-jle
	b)	yisjle	---	fuzjle	yagazjle	---
	c)	---	---	fudde	yagadde	---
	d)	yisje	labje	---	---	koowje

e)	yisie	labie	---	---	koowie
f)	yisyee	labyee	---	---	koowyee
g)	yisy	labye	---	---	koowy
h)	---	---	---	---	kooye
i)	yise	---	---	---	---

7. Some problems with the causative

Givón [1970a] makes no mention of the causative as posing any problem for the MB in Chibemba. But in the other three languages problems arise, so some remarks about them are in order. Observe the following in Runyankore monosyllabic stems:

(44)	<u>stem</u>		<u>MB</u>
	a) -kol-	'do'	-kozile
	b) -gul-	'close'	-guzile

Their causatives are:

(45)	<u>stem</u>		<u>MB</u>
	a) -koz-	'make do'	-kolize
	b) -gul-	'make close'	-gulize

At first glance, comparing the MB's in (44) and (45), we appear to have a kind of metathesis. But it should be pointed out that the causative suffix is *-i-* (**-j-* in PB) which, like its counterpart in the MB changes /i/ to [z] (among other consonant changes). It is now clear that to form the MB of causatives we must order the sequences of suffixes so that the causative is attached to the MB and not vice-versa:

(46)	a)	kol-il-j-e	---	kolizye	---	kolize
	b)	gul-il-j-e	---	gulizye	---	gulize

Note that at the point in history when (46) took place the vowel of the MB must have already been lowered to /i/ but that of the causative had not yet undergone the same change; otherwise we should get the unattested forms:

(47)	a)	*kozize
	b)	*guzize

In Kirundi the problem is quite similar when the stem vowel is short (with long vowels the palatalization of /z/ to [ž] is regular):

(48)	<u>causative</u>		<u>MB</u>
a)	-baaz-	'saw'	-baaže
b)	-vuz-	'play music'	-vugiže (cf. vug- --> vuz-)
c)	-oz-	'wash'	-ogeže (cf. og- --> oz-)
d)	-baz-	'ask'	-bažiže (cf. baj- --> baz-)

In addition to the parallel with Runyankore, a few other phenomena in Kirundi may be noted. (48c) shows that after lowering of the super-closed vowel of the MB, vowel harmony applies. Next, it seems that palatalization has applied a second time, though only in the MB-cum-causative environment:

(49) vug-il-j-e --> vugizj-e --> vugizye --> vugiže

Finally we observe the regressive assimilation in (48d) similar to that in (50):

(50) -saaz- --> -šaaže 'grow old'

Luganda presents a much more complicated picture:

(51)	<u>stem</u>		<u>causative</u>	<u>MB of causative</u>
a)	-yingil-	'enter'	-yingiz-	-yingizizz-a
b)	-bal-	'count'	-baz-	-bazizz-a
c)	-lim-	'farm'	-limj-	-limizz-a
d)	-limik-	'be arable'	-limis(i)-	-limisizz-a

The geminate clusters can be readily explained by ordering the causative after the MB, as in the other two languages. But this will give us the incorrect forms in (52):

(52) a) -yingil-jl-j --> -yingiz-jz-j --> *-yingizz-
 b) -bal-jl-j- --> -bazjz-j --> *-bazz-
 c) -lim-jl-j --> -lim-jz-j --> *-limiz-
 d) -limik-jj-j --> -limis-jz-j --> *-limisiz- or *-limizz-

The only explanation seems to be that, whereas in Runyankore and Kirundi the causative suffix is after the MB, in Luganda the causative is added

both to the stem and to the MB. In other words instead of being shifted around to the right the causative must be copied on the right, with deletion of the first in Runyankore and Kirundi but not in Luganda:¹²

- (53) a) -bal-i-ɣj|l-j- --> -baz-izz-i --> -bazizz-
b) -limik-j-ɣj|l-j- --> -limis-izz-i --> -limisizz-

It is most interesting to note that (52a,b) are precisely what one hears in informal, contemporary Luganda, in addition to (51a,b). Moreover, in a verb like -yigiriza 'teach (make learn)' one obtains:

- (54) -yigirizza but not *-yigirizza

as one would expect. The starred form in (54) is unacceptable. "It's too long" is the native speaker's explanation. Evidently, speakers have re-analyzed forms such as (54) and deleted the first causative suffix. They are in the process of extending that deletion to forms like (51a,b) to produce those like (52a,b), and one may predict that it will eventually be extended to forms such as (52c,d).

As for the occurrence of the neutral suffix -a in place of -e in the MB forms -ibbwa and -izza, the only reason I can see at the moment is that there must be some constraint against -e following a geminate cluster which results from the combination of the MB and another suffix. This explanation admittedly sounds ad hoc and requires further study.

8. Conclusion

We have seen in the foregoing discussion that it was possible to find regularities in the formation of the modified base of several types of verb stems in four different languages. We have also seen that, through largely internal reconstruction, it was necessary to posit very similar underlying forms and phonological rules (many of them still productive) in much the same order and with relatively few language-specific (mainly historical) rules. One final question remains; why are there two ways to form the MB in each language, depending on the verb stem? Or in other words, what is the origin of MB2?

¹²I am grateful to T. Givón for this suggestion. Notice, moreover, how this relates to Givón's [1971] contention that Bantu verb suffixes arose originally from separate verbs.

Recall that in Chibemba MB2 is used with polysyllabic stems generally, but in Runyankore it is used only with those polysyllabic stems ending in /l,z,n/ and the [-ibw-] form of the passive; in Kirundi it is used only with those ending in /l/; in Luganda it is used only with those ending in /l/ and the [-ibw-] passive suffix. We must assume that the development of MB2 originated in Proto-Bantu with those polysyllabic stems ending in /l/, first because /l/ is the one segment common to all four languages, and second because with MB1 there would have been a sequence -il-jl-, one quite likely to be reduced or modified in some way.

Once this change took place it was possible for individual languages later to generalize it to include additional environments. It cannot be mere coincidence that (a) simple PB verb stems are mainly monosyllabic (CVC), (b) polysyllabic stems are mostly CVC stems with derivational suffixes, and (c) in the VC suffixes the consonants are often /l/, /z/ (itself derived from [l + j]), /n/. /b/ intervocally is phonetically [β], a continuant, like the others. Chibemba, then, extended the change to all the other consonants, including stops like /t,k/. Kirundi did not extend it at all, and the other two languages extended the change to a greater or lesser degree.

Finally, it is worth mentioning, since it illustrates a possible first stage in the development of MB2, that in Kihujan, a language of Southwestern Zaire, verbs whose stem vowel is /u/ form the MB by copying the /i/ of the MB (-ir) in front of the stem final consonant, as illustrated below (note that there is nasal harmony but no vowel harmony):

- (55) a) -buk- --> -bu-i-k-ir --> -bwikir 'cure'
 b) -fut- --> -fu-i-t-ir --> -f^witir 'pay'
 c) -tuun- --> -tuu-i-ŋ-in --> -twiiŋin 'build'

as against:

- (55) d) -kot- --> -kotir 'enter'
 e) -tek- --> -tekir 'sell'
 f) -bik- --> -bikir 'sing'

I do not pretend to know much about Kihujan, and my data are very limited. Furthermore, the copying environment in (55a-c) is quite different from the environments of MB2 in the other languages. But the point I wish to make is that it may well have been the case that MB2 in Proto-Bantu began as a copying of /j/ (or rather, /ɣj/) across the final stem consonant, followed in most languages by deletion of the original /(\ɣ)j/. Recall the copying in section 7, where Luganda did not have accompanying deletion of the first occurrence of the causative suffix. Leaving aside the question of the motivation for the copying in Kihujan, we have now reason to suppose that what appears to have been a movement rule was really a copying rule followed by deletion. These add to the growing body of evidence that there may be, in fact, no movement rules in grammars, only copying and deletion rules.

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