GRAMMATICAL TONE NEUTRALIZATION IN KINYARWANDA*

Alexandre Kimenyi
California State University, Sacramento

1. Introduction

    The purpose of this paper is to show an area of grammar that the
existing model of generative grammar cannot account for without recourse
to complicated ad hoc rules. The surface phonetic form of the tones is
unpredictable, and furthermore an adequate representation of the under-
lying structure of these tones seems difficult to find. The unpredictabil-
ity of the output structure is due to the ambivalent nature of tone, which
in Kinyarwanda and in other Bantu languages as well, can be (a) a feature
on the syllable as well as (b) a syntactic morpheme.

    To illustrate this, I will limit the analysis to the verb morphology.
Kinyarwanda, like other Bantu languages, is agglutinative. For instance,
tense markers, subject pronouns (agreement), object pronouns (clitics),
case markers (benefactive, instrumental, locative...), voice (passive,
middle), and aspect are morphemes affixed to the verb as illustrated in (1):

1)   Baârabíkûbitirgwaga   < ba[1]-aara-bi-kubit-ir[2]- w-aga
        'They used to be beaten for that.'   they-past-it-beat -ben-pass-asp

    This language has two phonological tones, high (H) and low (L). Vowels
are either short (V) or long (VV). Phonetically, short vowels appear as
either H ($\acute{v}$), L ($\grave{v}$) or F (=falling)($\hat{v}$). Long vowels surface as either LL
($\grave{v}\grave{v}$); HH ($\acute{v}\acute{v}$); LH ($\grave{v}\acute{v}$); HL ($\acute{v}\grave{v}$) or LF ($\grave{v}\hat{v}$). Low tone will not be marked
again in this paper. For a detailed discussion, see Kimenyi [1976]. In
the penultimate position of the infinitival form, the sequence HH is not
attested because of the existence of a tone anticipation rule in this lan-

---

[1]The vowel a is always deleted if it precedes a morpheme beginning
with another vowel.

[2]A consonant is always inserted between a consonant and a glide: the
epenthetic consonant takes the articulatory features of the glide and agrees
in voicing, nasality and spirantization with the preceding consonant (for
detail, see Kimenyi [1977a]).

guage. The final vowel -a, which comes after the verb stem, always carries
L tone. The F tone is underlyingly H, and all Hs derive from the next syl-
lable on the right. A F does not surface on the onset of a long vowel, nor
in word-initial position. Anticipation is blocked if the H is on the coda
of a long vowel. These rules are formalized in (2) and illustrated in (3):

2)   a. $\acute{v} \rightarrow \hat{v}$ b. $\check{v} \rightarrow \acute{v} /$ __CV
         condition: $\acute{v}$ is not $\{\begin{smallmatrix}\#\acute{v}\\ v\acute{v}\end{smallmatrix}$——$\}$ condition: $\sim v\acute{v}$

3)   /umu + gabo/   umugabo   'man'
     /iki + gega/   ikigega   'storehouse'
     /umu + gore/   umugórê   'woman, wife'
     /aka + masú/   akamáʃû   'trap'
     / ú + no/   únô   'this one'
     / bá + no/   bâno   'these ones'
     /umu + áana/   úmŋáana[2]   'child'
     /uku + éezi/   úkwéezi   'moon, month'
     /umu + éendá/   úmŋéénda   'debt'
     /iki + áapá/   íkáápa[1]   'traffic signal'
     /umu + aámi/   umŋaâmi[2]   'king'
     /umu + eénge/   umŋeênge[2]   'hole'

In the remainder of the paper we will see instances in which the rules
given in (2) apply. But in many more cases, it will be shown that the
phonetic tones of the verb forms are not predictable, since the underlying
tones of the same morpheme seem to differ in some tenses. To make the
presentation clear and convincing, I will give examples of monosyllabic
verbs since in this language each infinitival verb form can have only one
lexical high tone, no matter how many syllables it happens to have--the
choice of monosyllabic examples does not mitigate the force of our argu-
ment. Since vowel length is contrastive, the monosyllabic verbs under in-
vestigation are either of the shape -CVC- or -CVVC-. Therefore we may ex-
pect two types of tones to occur in each: -CVC- stems will appear as either
-CVC- or -CV́C-, whereas the phonological tone of -CVVC- is -CVVC- or -CV́VC-.
The verb -kór- 'work, do', will be used for the -CVC- stem, -kin- 'play'
for -CV́C-, -kúund- 'like, love' for -CVVC- and -geend- 'go, leave' for
-CVVC-.

As indicated in (1), the finite verb has as obligatory morphemes the
subject agreement, the tense and the aspect markers. Optional morphemes
that appear on the finite verb are (i) ni- and the negative marker for
independent clauses, nti-; (ii) the negative marker for subordinate
clauses -ta-, which comes after the subject agreement; (iii) the object
clitics, of which there can be a maximum of four, appearing between the
tense marker and the verb stem; (iv) the morpheme -na- 'also', which
appears between the tense marker and the object clitics; (v) the extensions
which come after the verb stem; and (vi) the locative suffixes, just after
the aspect marker. The order of these morphemes is given below:

4)   ($\{\begin{smallmatrix}neg_1\\ ni\end{smallmatrix}\}$)-Subj.-(neg$_2$)-Tense-(na)-(Obj.)-Verb-(suff.)-asp-(loc.)
                Agr.   Cl.   Stem

Neg$_1$ and neg$_2$ are exclusive. The aspect markers are -a(ga) imperfective, and^1 -(V)ye·^{2} perfective. The locative morphemes are -mó and -hó. The morphemes that appear in the tense slot are the following:

5)
-ra-	present/near future	-raka-	hortative$_1$
-zaa-	future	-ooka-	hortative$_2$
-aa$_1$-	near past	-aa$_2$-	conditional$_1$
-aara-	remote past	-ii-	negative imperative
-rak^{y}aa-	still	-∅$_1$-	habitual
-ka-	narrative/consective	-∅$_2$-	participial
		-aa$_3$-	conditional$_2$

2. Tone Realization of Simple Tenses

In Table 1, the uses of these tenses with the four types of verbs are illustrated. Only one subject agreement marker, ba-, will be used in the paper for clarity of exposition. On the right are given the phonetic realizations.

These tenses will be grouped into different classes because of the effect they produce on the underlying tones of the verb stems. The tenses that keep the lexical tones of the verb and let the tone rules given in (2) apply, such as the -ra-, -aa-, -ka-, and -rak^{y}aa- tenses, will be called the lexical tone keeping tenses; the others will be labelled the lexical tone neutralizing tenses because they seem to give the same tone to all verbs, regardless of their underlying tones.

Group two tenses are in turn subclassified into 4 categories: (i) tenses that lower the verb stem tone (e.g. -zaa- , -raka-, and ·-∅-, the future, hortative and habitual formatives); (ii) tenses that lower the stem tone but put a H on the syllable preceding it (e.g. -∅- and -ooka-, the participial and hortative markers); (iii) tenses that put a H on the stem, namely remote past -aara-; and finally (iv) the tenses that put H on the last syllable of the finite verb: -aa- and -ii-, from the if clause of conditionals and negative imperatives respectively.

The imperative tones are classified in group 2(i) also, because they lower the whole verb:

6)
Imperative	Verb Stem	asp	Phonetic realization	Gloss
	-kór-	-a	kora	'work'
	-kin-	-a	kina	'play'
	-kúund-	-a	kuunda	'like'
	-geend-	-a	geenda	'go'

The infinitive is classified among the lexical tone keeping morphemes:

Table 1. <u>Tone realization of simple tenses</u>

a.	ba-ra	-work-a	H	barákôra	f.	ba-zaa[4]	-work- a	H	bazaakora
		-play-	L	barakina			-play-	L	bazaakina
		-like-	HL	barákúunda			-like-	HL	bazaakuunda
	they-present-go -imperf.		LL	barageenda		they-future -go -imperf.		LL	bazaageenda
b.	ba-aa[1]	-work-ye	H	baákôze	g.	ba-raka[3]	-work-a	H	baragakora
		-play-	L	baakinɲe			-play-	L	baragakina
		-like-	HL	baákûunze			-like-	HL	baragakuunda
	they-nr.past-go -perfect		LL	baageenze		they-hort.[1] -go -imperf.		LL	barakageenda
c.	ba-ka[3,4]	-work-a	H	bagákôra	h.	ba-∅[1]	-work-a	H	bakora
		-play-	L	bagakina			-play-	L	bakina
		-like-	HL	bagákúunda			-like-	HL	bakuunda
	they-consec.-go -imperf.		LL	bakageenda		they-habit. -go -imperf.		LL	bageenda
d.	ba-rakᵞaa	-work-a	H	barákᵞáákôra	i.	ba-∅[2]	-work-a	H	bâkora
		-play-	L	barákᵞáakina			-play-	L	bâkina
		-like-	HL	barákᵞáákúunda			-like-	HL	bâkuunda
	they-still -go -imperf.		LL	barákᵞáageenda		they-partic.-go -imperf.		LL	bâgeenda
e.	ba-aa[4][2]	-work-a	H	baákôra	j.	ba-ooka[3]	-work-a	H	boógâkora
		-play-	L	baakina			-play-	L	boógâkina
		-like-	HL	baákúunda			-like-	HL	boógâkuunda
	they-cond[1] -go -imperf.		LL	baageenda		they-hort.[2] -go -imperf.		LL	boókâgeenda

[3]The morphemes /ku-, -raka-, -ka-, -ki-,-ta-/ are voiced if they occur before a stem with a voiceless initial consonant (Dahl's law). For detailed discussion on this, see Kimenyi [1976b].

[4]The future -zaa- tense can also be combined with the consecutive -ka- tense, or the conditional -aa-, as shown below:

a.
bakazaa{kora / kina / kuunda / geenda} 'and then they will {work / play / like / go}'

b.
baázáákôra / baázáakina / baázáákúunda / baázáageenda 'if they will {work / play / like / go}'

Table 1. Tone realization of simple tenses, cont.

k.	ba-aara	-work-ye		H	baârákôze
		-play-		L	baârákînne
		-like-		HL	baârákúunze
	they-rm.past-go	-perfect		LL	baârágéenze
l.	ba-aa	-work-a		H	baakórâ
		-play-		L	baakínâ
		-like-		HL	baakuúndâ
	they-cond.	-go	-imperf.	LL	baageéndâ

m.	ba-ii	-work-a		H	biikórâ
		-play-		L	biikínâ
		-like-		HL	biikuúndâ
	they-neg.imp.-go	-imperf.		LL	biigeéndâ

Glosses:

a. 'they V'		f. 'they will V'	
b. 'they V-ed'		g. 'may they V'	
c. 'and then they V-ed'		h. 'they V habitually'	
d. 'they are still V-ing'		i. 'them V-ing'	
e. 'they would V'		j. 'may they V'	
k. =b. l. 'if they V-ed'		m. 'they shouldn't V'	

Table 2. Doubt

a.	– ba-ra[5]	-work-a		bâkora
		-play-		bâkina
		-like-		bâkuunda
	doubt-they-present-go	-imperf.		bâgeenda
b.	– ba-∅[1]	-work-a		bâkora
		-play-		bâkina
		-like-		bâkuunda
	doubt-they-habit.	-go	-imperf.	bâgeenda
c.	– ba-zaa[6]	-work-a		bâzaakora
		-play-		bâzaakina
		-like-		bâzaakuunda
	doubt-they-future	-go	-imperf.	bâzaageenda

d.	– ba-aa[1]	-work-ye		báákôze
		-play-		báákinne
		-like-		báákúunze
	doubt-they-nr.past-go	-perfect		báágeenze
e.	– ba-aara	-work-ye		báárákôze
		-play-		báárákînne
		-like-		báárákúunze
	doubt-they-rem.pst-go	-perfect		báárágéenze

Glosses:

a. 'are they V-ing?'	d. 'did they V?'	
b. 'do they V?'	e. 'did they V?'	
c. 'will they V?'		

[6] There is another way to express this, namely:

bázáá{$\begin{smallmatrix}\text{kôra}\\\text{kúunda}\end{smallmatrix}$} 'will they {$\begin{smallmatrix}\text{work}\\\text{like}\end{smallmatrix}$}?'   bázáa{$\begin{smallmatrix}\text{kina}\\\text{geenda}\end{smallmatrix}$} 'will they {$\begin{smallmatrix}\text{play}\\\text{go}\end{smallmatrix}$}?'

7)

Infinitive	Verb Stem	asp	Phonetic realization	
ku-	-kór-	-a	gúkòra	'to work'
	-kin-		gukina	'to play'
	-kúund		gúkúunda	'to like'
	-geend-		kugeenda	'to go'

How can we account for the tone rules of these tenses in a unified way? The best way to do this is to posit two types of tones, T_1 and T_2. T_1 is the feature on the syllable or the lexical tone, whereas T_2 is the morphological tone. As has been observed elsewhere [Kimenyi 1976[2]], lexical tones are characterized by a binary feature, $\pm$High, since L tones don't play any role in the tone rule formulation of lexical tones. Note, however, that in the case of morphological tones, low tones are very significant. For this reason, morphological tones, T_2, will be classified into two types of tones, αT_2 and βT_2. αT_2 tones are the ones that are toneless and therefore let the tone anticipation rule apply if its structural description is met. βT_2 tones are those morphological tones that neutralize the lexical tones. αT_2 are thus equivalent to lexical L tones, since they allow the tone anticipation rule to apply. βT_2 tones are also realized as either L or H. In order to distinguish them from lexical tones, they will be marked by a prime marker ($'$).

8) $\beta T_2 \rightarrow \{{L' \atop H'}\}$

Since a lexical H tone is neutralized before a βT_2 tone whether it is L´ or H´, and since as will be shown, the tone anticipation applies among βT_2 tones, we can propose the following tone hierarchy (TH):

9) TH: $\{{L \atop \alpha T_2}\} < H < \{{L' \atop H'}\}$ where the sign $<$ means greater than or takes precedence

The tone anticipation rule has to be reformulated as follows:

10) a. $\{{L \atop \alpha T_2}\} \rightarrow H/\underline{\quad}\{{H \atop H'}\}$ b. $H \rightarrow L/ \{{L' \atop H'}\}$

In other words, the tone anticipation applies the way it was formulated in (2) if the morphological tone before a lexical H is toneless. The lexical tones are lowered before or after morphological tones, L´ or H´. The rules given in (10) are indeed responsible for the 4 types of tone realization observed in Table 1. The -ra-, -rakᵞaa-, -ka-, and the -aa- forms are derived by rule 10a. The f, g and h tenses in Table 1 are derived by R.10b, in which case these tenses are supposed to have in the underlying representation a L. The remaining 3 types of tone realization in Table 1--types i-j; k; and l-m--are derived by both R.10a and R.10b. Lexical tone in i-j is neutralized after the H morphological tone. Participial tone can be reconstructed as H in the syllable preceding the verb stem and the under-lying representation of the hortative is -ooká-. The remote past is represented by -aára- plus a H on the verb stem. In the case of the l and m forms, the H is on the last syllable but realized on the stem per R10a and R10b.

3. <u>Complex tenses</u>

The tenses given in (5) can be combined with some other tense morphemes such as subjunctive, doubt mood, conditional, relative and negative, and thus result in more complex tenses. It is precisely in these instances that it will be illustrated that their tonal output structure is not derived but memorized, since there doesn't seem to be any general way their surface forms can be accounted for in the present generative framework. Tenses that appear in the subjunctive are given first, then come doubt tenses, relative and conditional tenses. The section concludes with negatives.

3.1 <u>Subjunctive</u>. Only three tenses, present, near future and distant future, (-ra-[5],-ra-, -zaa-) can appear in this mood.

11) a.   ba-ra[5]   -work-e   H   bakórê   'they should V'
         they-present-play-subj.   L   bakínê
                 -like-   HL   bakuúndê
                 -go -   LL   bageéndê

    b.   -ra   -work-e   H   barakore   'they should V'
           -nr.fut.-play-subj.   L   barakine
                 -like-   HL   barakuunde
                 -go -   LL   barageende

    c.   -zaa   -work-e   H   bázáakórê   'they should V'
           -rm.fut.-play-subj.   L   bázáakínê
                 -like-   HL   bázáakuúndê
                 -go -   LL   bázáageéndê

How can we derive the tones in the tenses above? If we posit the subjunctive tone as a final H, we will get the phonetic realization by applying the tone neutralization rule in (10) and the tone anticipation rule in (2). Note, however, that this rule, even if it gives the right result for (11b), is not general, since the data in (11b) and (11c) are not obviously derived by these rules. Each tense seems to have its own subjunctive tone, thus the near future (11b) would have a final L in order to get the right results The distant future would have two Hs, namely the final H and the H on the tense marker. Clearly, some generalization is being missed here.

3.2 <u>Doubt</u>. As the name indicates, doubt mood is used to show uncertainty. The tenses that appear in this mood are present, habitual, future, and both recent and remote pasts (-ra-[5], Ø, -zaa-, -aa-, -aara-). Since this mood is solely indicated by tone, it will be placed before the subject agreement. Table 2, which follows Table 1, p.   , shows the Doubt mood forms.

---

[5]Note that in all these cases, the morpheme -ra- is deleted: but this shows that positing such underlying representation is already the incorrect approach.

The underlying doubt tone can be posited as H on the first vowel of the finite verb. The rules that we have formulated earlier give us the right phonetic output for at least the first three tenses. The lexical tones are neutralized as predicted by rule (10) and the doubt tone falls, as dictated by rule (2a). The neutralization rule doesn't apply to the recent past (Table 2, form d), however, since the lexical tones are retained. Note also that in the remote past (form e) an extra H is added on the verb stem. It is clear that the phonetic output of many tenses cannot be predicted all the time.

3.3 <u>Relative</u>. Verbs in relative clauses are marked by a H. The same tone is shared by verbs in "that" clauses. Tenses that appear in relative clauses are: present, habitual, future, recent and remote pasts, conditional and "still" (-ra-, -$\emptyset_1$-, -zaa-, -aa-$_1$,-aara-, -aa-$_2$, -rak^{y}aa-). These forms are tabulated in Table 3.

In the the a, b, d, f & g forms, the relative morpheme is a H marked on the last syllable of the finite verb. The phonetic tones in these tenses are derived by the rules that we have posited. Note, however, that the relative marker in the future and remote past is marked differently. In the future tense, this tone is marked on the onset of the tense marker. We observe also that in this instance, the lexical tones are not neutralized. In the remote past, the relative tone is marked on the coda of the tense marker. This is a problem for a theory that would posit the same underlying tone to all relative tenses.

3.4 <u>Realis conditional</u>. This mood is marked by the morpheme ni- (probably from the copula ni) which, like the negative marker nti-, precedes subject agreement. It is used in two tenses, present and future (-ra- , -zaa-).

12) a. ni- ba-ra[5]   -work-a | H   ni᷄bakórâ   'if they V'
                       -play- | L   ni᷄bakínâ
                       -like- | HL ni᷄bakuúndâ
          rc-3pp-present-go -imp. | LL ni᷄bageéndâ

    b. ni- ba-zaa   -work-a | H   nibázáákôra   'if they will V'
                     -play- | L   nibázáakina
                     -like- | HL nibázáákúunda
          rc-3pp-future -go -imp. | LL nibázáageenda

As we can see, this mood neutralizes the lexical tones and bears different tones in the two tenses. In the <u>a</u> form, the first and last syllables of the verb have a H; whereas in the <u>b</u> form, the morphological tone is marked as a H on the tense morpheme. In the latter tense, tone neutralization doesn't take place as in the former.

3.5 <u>Tenses that take the negative nti-</u>. In the independent clause the negative morpheme is nti-. In Table 4 we find the allowable tenses after this negator: present, recent and remote pasts, future, conditional:then

clause, consecutive, subjunctive and "not yet" forms (-ra-, -aa-$_1$,-aara-, -zaa-, -aa-$_{2,3}$, -ka-, -e, -raa-).

As we can see, the negative tone is marked differently depending on the tense. In some tenses, it is marked by a complete lowering of the finite verb, as in the Table 5 d & g forms. In the present, the negative tone is marked as H on the last syllable of the verb. In the future, i, it is marked by a H on the tense marker. The same tone is marked on the "not yet", or j form. Notice that in both i and j the tense markers behave like toneless morphemes (αT_2) since tone neutralization does not take place, the lexical tones remain and the tone anticipation rule is not blocked. In the h form, negation is tonally marked on the H subject agreement. In g, negation is realized as H on the negating morpheme. In the remote past, e, negation is tonally marked on the coda of the tense marker. Obviously, the same negative morpheme cannot be posited for all tenses.

3.6 <u>Tenses that take the -ta- negator</u>. As mentioned earlier, the negator -ta- is used in subordinate clauses: doubt mood, "that" clauses, relative clauses, conditionals, participials, gerunds and relatives. We see these forms displayed in Table 5.

The gerund is always preceded by the copula -ri. It takes the noun class marker bu- (14). It ends with the subjunctive marker -e and has future reference. Gerunds and infinitives negated are demonstrated in Table 6.

In many tenses, the negative marker can be reconstructed as a toneless morpheme, since the verbs that have it are identical to their positive counterparts. Compare the conditional forms in Table 1, <u>l</u>, with Table 5 <u>b</u> and <u>d</u>/7. Note that in Table 6, the main verb in the gerundive also has the same tone pattern; other, non-conditional, forms in Table 5 with this tone pattern are: <u>d</u>/1,2, and 4. The affirmative gerund is part of this pattern: bukórê, bukínê, bukuúndê, bugeéndê. In Table 5 <u>a</u> and <u>c</u>/1, negation is marked on the last syllable of the verb stem. We note also that the tones of the tense marker also appear in 5 <u>a</u> and <u>c</u>/1--compare Table 1, <u>i</u>, and Table 2, <u>a</u>. In <u>d</u>/6 of Table 5, the negative marker produces a lowering on the verb. If the negative infinitive's tones are derived by the tone neutralization rule, the anticipation and the falling rules, then the underlying tones would be three Hs, one on the aspect marker, another on the verb stem and the third on the negator.

4. <u>Conclusion</u>

This paper has shown that in order to capture what is going on in the tones of the simple tenses, one has to recognize the following:

i. Some grammatical tones are considered <u>toneless</u>, which means that phonologically, they behav- like lexical Ls and thus allow application of the tone anticipation rule.

ii. Lexical tones are neutralized before grammatical tones so that a high tone verb stem and a low tone verb stem are realized in the same way.

iii. There exists a tone hierarchy; lexical tones neutralize before grammatical tones and some grammatical tones neutralize before other grammatical tones.

Although the phonetic tones of simple tenses can be predicted, it has been observed that they cannot be generated in the usual way. This is due to the fact that we cannot tell how the underlying representations of these tenses should be formulated. The same morpheme (relative, negative, doubt ...) has different underlying tones depending on tense. Even where the underlying tone representation is straightforward, it is not easy to generate the tones since one would have to tell beforehand which tones were going to neutralize before the others. This observation makes it unlikely that these tones are derived.

I conclude, therefore, that all these complex tenses are memorized by native speakers rather than generated. The grammar that I am proposing is of course very complex and misses some important generalizations; but then there is no proof that simpler grammars are the psychologically real ones. The phenomenon that we are facing is indeed not unnatural. We are dealing with morphological rules, thus some parts of the grammar, namely morphology and the lexicon, have to be memorized, whereas phonological and syntactic rules are generated.

The irregularity of tone behaviour in this language would have the same explanation as that of rule morphologization in general. Usually phonological rules apply mechanically if their structural descriptions are met. Phonological rules become morphologized, however, if they destroy the paradigm or render opaque the grammatical function of the morpheme [Kimenyi, in preparation]. That is, languages have strategies for keeping the semantic information unaffected. We have noted that lexical tones are neutralized before morphological tones. This is so because morphology is very crucial in communicating both semantic and grammatical information.

There is a possibility also that some types of information might be more important than other types. This would explain the neutralization, in certain complex tenses, of some grammatical tones before others. The combination of tenses, in this instance, have been <u>lexicalized</u>, so to speak, and constitute for the native speaker one "psychological" tense. There is in fact some morphological evidence to support this hypothesis. First, have observed that not only tones, but also segmental morphemes, neutralize. Thus the present and the habitual come out the same in relative and negative forms (Tables 3 & 4, forms <u>a</u> & <u>b</u>).

In some cases the tense markers of negative verbs are different from their affirmative counterparts. For instance, the present marker is -ra- in the affirmative but -∅- in the negative; the "still" tense is realized as -rakʸaa- in the affirmative but -ki- in the negative. The hortative morpheme is -raka- in the affirmative, but -ka- + subjunctive ending

Table 3. Relative

a.			b.		
- ba-ra[5] -work-a	bakórâ	H	- ba-$\emptyset_1$ -work-a	bakórâ	H
-play-	bakínâ	L	-play-	bakínâ	L
-like-	bakuúndâ	HL	-like-	bakuúndâ	HL
rel-3pp-present-go -imperf.	bageéndâ	LL	rel-3pp-habit. -go -imperf.	bageéndâ	LL

e.		f.	
- ba-aara[5] -work-ye	baâkoze	- ba-rak^{v}aa[5] -work-a	bagikórâ[3]
-play-	baâkinɲe	-play-	bagikínâ
-like-	baâkuunze	-like-	bagikuúndâ
rel-3pp-rm.past-go -perfect	baâgeenze	rel-3pp-still -go -imperf.	bakigeéndâ

c.			g.		
- ba-zaa -work-a	bázáákôra	H	- ba-aa$_2$ -work-a	baakórâ	
-play-	bázáakina	L	-play-	baakínâ	
-like-	bázáákúunda	HL	-like-	baakuúndâ	
rel-3pp-future -go -imperf.	bázáageenda	LL	rel-3pp-cond. -go -imperf.	baageéndâ	

Glosses: a. 'who V' b.(=a) c. 'who will V' d. 'who V-ed' e.(= d) f. 'who are still V-ing' g. 'who would V'

d.		
- ba-aa$_1$ -work-ye	baakózê	H
-play-	baakíɲɲê	L
-like-	baakuúnzê	HL
rel-3pp-nr.past-go -perfect	baageénzê	LL

Table 4. Tenses that take the negative nti-

a.			d.	
nti- ba-ra[5] -work-a	H	nhibakórâ	nti- ba-aa$_1$ -work-ye	nhibaakoze
-play-	L	nhibakínâ	-play-	nhibaakinɲe
-like-	HL	nhibakuúndâ	-like-	nhibaakuunze
neg-3pp-present-go -imperf.	LL	nhibageéndâ	neg-3pp-nr.past-go -perf.	nhibaageenze

b.			e.	
nti- ba-$\emptyset_1$ -work-a	H	nhibakórâ	nti- ba-aara[5] -work-ye	nhibaâkoze
-play-	L	nhibakínâ	-play-	nhibaâkinɲe
-like-	HL	nhibakuúndâ	-like-	nhibaâkuunze
neg-3pp-habit. -go -imperf.	LL	nhibageéndâ	neg-3pp-rm.past-go -perf.	nhibaâgeenze

c.			f.	
nti- ba-zaa -work-a	H	nhibázáákôra	nti- ba-raka[5] -work-a	nhíbâgakore[3]
-play-	L	nhibázáakina	-play-	nhíbâgakine
-like-	HL	nhibázáákúunda	-like-	nhíbâgakuunde
neg-3pp-future -go -imperf.	LL	nhibázáageenda	neg-3pp-hort.$_1$ -go -imp.	nhíbâkageende

Table 4. Tenses that take the negative nti-, cont.

```
g. nti- ba-rakᵞaa⁵-work-a        H  nhibagikora³      i. nti- ba-zaa      -work-e        H  nhíbâzaakore
               -play-            L  nhibagikina                           -play-         L  nhíbâzaakine
               -like-           HL  nhibagikuunda                         -like-        HL  nhíbâzaakuunde
   neg-3pp-still -go -imp.       LL  nhibakigeenda       neg-3pp-future -go -subj.       LL  nhíbâzaageende

h. nti- ba-ra⁵      -work-e      H  nhíbâkore         j. nti- ba-raa      -work-a        H  nhibáráákora
                    -play-       L  nhíbâkine                             -play-         L  nhibáráákina
                    -like-      HL  nhíbâkuunde                           -like-        HL  nhibáráákúunda
   neg-3pp-nr.fut.-go -subj.     LL  nhíbâgeende        neg-3pp-not yet-go -imp.         LL  nhibáráageenda
```

Glosses: a = b 'they don't V'   c. 'they won't V' | g. 'they don't V anymore' | j. 'they haven't
          d = e 'they didn't V' f. 'may they not V' | h = i. 'they shouldn't V' | V-ed yet'

Table 5. Tenses that take the -ta- morpheme

```
a.     - ba-ta -∅₂   -work-a        H  bâdakórâ³         c/3    - ba- ta-aa₁    -work-ye    bâtaakoze
                     -play-         L  bâdakínâ                                 -play-      bâtaakinne
                     -like-        HL  bâdakuúndâ                               -like-      bâtaakuunze
   (part)-3pp-neg-partic.-go -imp.  LL  bâtageéndâ          (dbt)-3pp-neg-nr.past-go -perf. bâtaageenze

b.     - ba- ta-aa   -work-a        H  bataakórâ         c/4    - ba- ta-aara   -work-ye    bâtaarákôze
                     -play-         L  bataakínâ                                 -play-      bâtaarákînne
                     -like-        HL  bataakuúndâ                               -like-      bâtaarákúunze
   (cond)-3pp-neg-cond. -go -imp.   LL  bataageéndâ         (dbt)-3pp-neg-rm.past-go -perf. bâtaarágéenze

c/1    - ba- ta-ra⁵  -work-a        H  bâdakórâ³         d/1    - ba- ta-ra⁵    -work-a     badakórâ³
                     -play-         L  bâdakínâ                                 -play-      badakínâ
                     -like-        HL  bâdakuúndâ                               -like-      badakuúndâ
   doubt-3pp-neg-present-go -imp.   LL  bâtageéndâ          (rel)-3pp-neg-present-go -imp.  batageéndâ

c/2    - ba- ta-zaa  -work-a        H  bâtázáákôra       d/2    - ba- ta-∅₁     -work-a     badakórâ³
                     -play-         L  bâtázáakina                              -play-      badakínâ
                     -like-        HL  bâtázáákúunda                            -like-      badakuúndâ
   doubt-3pp-neg-future -go -imp.   LL  bâtázáageenda      (rel)-3pp-neg-habit. -go -imp.  batageéndâ
```

Table 5. Tenses that take the -ta- morpheme, cont.

d/3	- ba- ta-zaa	-work-a	H	batázáákŏra		d/6	- ba- ta-rakᵞaa⁵	-work-a	batagikora
		-play-	L	batázáakina				-play-	batagikina
		-like-	HL	batázáákúunda				-like-	batagikuunda
	(rel)-3pp-neg-future -go	-imp.	LL	batázáageenda			(rel)-3pp-neg-still -go	-imp.	batakigeenda

d/4	- ba- ta-aa₁	-work-ye	H	bataakózê		d/7	- ba- ta-aa	-work-a	bataakórâ
		-play-	L	bataakínnê				-play-	bataakínâ
		-like-	HL	bataakuúnzê				-like-	bataakuúndâ
	(rel)-3pp-neg-nr.past-go	-perf.	LL	bataageénzê			(rel)-3pp-neg-cond. -go	-imp.	bataageéndâ

d/5	- ba- ta-aara⁵	-work-ye	H	bataâkoze
		-play-	L	bataâkinne
		-like-	HL	bataâkuunze
	(rel)-3pp-neg-rm.past-go	-perf.	LL	bataâgeenze

Glosses:
- a. 'them without V-ing'
- b. 'if they don't V'
- c. 1. 'aren't they V-ing?'
  2. 'will they V?'
  3 = 4. 'didn't they V?'
- d. 1 = 2 = 3 'who don't V'
  4 = 5 'who didn't V'
  6. 'who don't V anymore'
  7. 'who wouldn't V'

Table 6. More forms that take the -ta- morpheme

a.	ba- ri # bu- ta-work-e	H	bárî budakórê³,⁷		b.	ku- ta-work-a	H	kúdákórâ
	-play-	L	bárî budakínê			-play-	L	kúdákínâ
	-like-	HL	bárî budakuúndê			-like-	HL	kúdákuúndâ
	3pp-cop # 14-neg-go -subj.	LL	bárî butageéndê			inf.-neg-go -imp.	LL	kútágeéndâ

Gloss: 'they won't V'   Gloss: 'not to V'

---

⁷If the main verb has an auxiliary, the negative marker can be marked either on the auxiliary or on the main verb. The other way to negate would be as follows:

nhibári bu{kórê / kínê / kuúndê / geéndê} 'they don't V'

on the verb in the negative. The remote past morpheme in the affirmative
is -aara- but -aa- in the negative. This suggests, I believe, that
affirmative and negative tenses are independent of each other, not derived
from the same sources.

It seems also that the tenses in independent clauses are independent
of those in subordinate clauses. They are, as in the case of affirmative
versus negative, marked differently in some cases. We have noted already
that they have different negative markers, for instance, -ta- for subor-
dinate, but ⁿti- for independent, clauses. As in negative verbs, the
morpheme -ra- is always deleted, the "still" tense is realized as -ki-
instead of -rakʸaa-, and the remote past morpheme is -aa- instead of
-aara-. A grammar that would posit the same underlying structures, to
both affirmative and negative tenses, on the one hand, subordinate and
independent forms on the other hand, would not only be unmotivated but
also unnatural.

If I am correct in the explanation given here for grammatical tone
neutralization and its lexicalization, future research should be devoted
to grammatical tone hierarchies in order to predict the direction of tone
change in the Bantu verb system.

REFERENCES

Coupez, A. and A.E. Meeussen. 1961. "Notation pratique de la quantité
vocalique et de la tonalité en Rundi et Rwanda." Orbis 10:428-433.

Elimelech, B. 1976. "Tonology of Etsako." Doctoral dissertation, UCLA.

Hyman, L.(ed.) 1976. Studies in Bantu Tonology. Southern California Oc-
casional Papers in Linguistics, no. 3. Los Angeles: University of
Southern California.

Hyman, L. and R. Schuh. 1974. "Universals of tone rules: evidence from
West Africa." Linguistic Inquiry 5:81-115

Kagame, A. 1962. "Introduction à la conjugaison du verbe rwandais."
Mimeo. Astrida.

Kimenyi, A. 1976. "Tone anticipation in Kinyarwanda." In L. Hyman (ed.),
SCOPIL no. 3:169-181.

Kimenyi, A. 1977a. "Surface structure constraints and extrinsic rule or-
dering: evidence from glide formation and consonant insertion in Kinya-
rwanda." MS. Sacramento: California State University at Sacramento.

Kimenyi, A. 1977b. "A note on Dahl's law in Kinyarwanda." MS. Sacramento:
Calfornia State University at Sacramento.

Meeussen, A. E. 1959. Essai de Grammaire Rundi. Tervuren.

Schadeburg, T. C. 1976. "Anticipation of tone: evidence from Bantu."
    Paper presented, 7th Conference on African Linguistics. Gainesville,
    Florida

Sibomana, L. 1974. Descriptive Tonologie das Kinyarwanda. Hamburg: Helmut
    Buske Verlag.

Spaandonck, M. van. 1971. L'analyse morphotonologique dans les langues
    Bantoues. (Trans. by Luc Bouquiaux) Paris: Sociétés d'études lin-
    quistiques et anthrophologiques de France.

Stevick, E. 1969. "Pitch and duration in Ganda." JAL 8:1-28.