KINGA: A RESTRICTED TONE SYSTEM

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0. Introduction

In this paper I shall present a possible description of the tone system of Kinga.\(^1\) By doing this I hope to contribute to the discussion of a more general question: a language might clearly make use of a prosodic feature, e.g. high tone, in underlying structure, but the use of this distinction might be more or less heavily restricted. Languages of this kind present descriptive and typological problems (cf. Chapter 1 of Woo [1969]). Restricted tone systems also raise a historical-comparative question. Even closely related languages may display considerable differences as to the nature and extent of these restrictions. That means that historical linguistics must account for the possibility of a language to lose or acquire (some) tonal distinctions.

Both problems are eminently apparent in Eastern Bantu, as can be seen in the following statement about the Bantu languages of zone G (M. Guthrie [1965]): "Lexical tone on the radical occurs only in Groups 20 and 60, while nominal suffixes have a lexical tone only in Groups 10 and 20. There is grammatical tone in each of these three groups; e.g. in GOGO (11), where the fact that any given tense of a certain shape can only have one tone-pattern shows that there is no lexical tone on the radical, there are three tenses distinguished by tone-patterns alone...In Groups 30 and 40 there is neither lexical nor grammatical tone in most cases."\(^2\)

\(^1\)Kinga (\text{\textit{IkIKinga}}) is a Bantu language spoken in the Livingstone Mountains in the Southern Highlands of Tanzania. In Guthrie's classification it is identified as G. 65. Kinga has been described previously but without reference to tone by R. Wolff [1905]. There is also a short article by E. Kähler-Meyer [1969]. I myself stayed in Kingaland from January to May, 1967, and the results of my fieldwork were published privately [1971]. I have since had many opportunities to discuss the prosodic system of Kinga within the department of African languages at Leiden University, and what I shall present here is what I have learned from these discussions. I am especially grateful to Professor A. E. Meeussen and to Professor Jan Voorhoeve to both of whom I owe much more than just what might be good in this paper.

\(^2\)For further exemplification and theoretical treatment of the
1. Presentation of the data

1.0. A description of Kinga must have a stage at which every word will have one and only one syllable segment that bears a high tone. This high tone may occur in one out of three possible positions:

- (i) on the ante-penultimate (APU), or
- (ii) on the pre-stem initial (PSI), or
- (iii) on the penultimate (PU) syllabic segment.

These positions must be counted in moras, not in syllables. Long vowels will be regarded as two vowels (cf. 2.1). Those (non-canonical) words consisting of only one syllable to the right of the stem initial boundary (=) will not be dealt with here.

1.1. Nouns, including infinitives (cl. 15).

1.1.1. APU:

- /uku=háama/ → 'to migrate (from somewhere)'
- /uku=leeta/ → 'to bring'
- /uku=vónëka/ → 'to become visible'
- /uku=vónia/ → /uku=vónwa/ → 'to show' 'to be seen'
- /uku=válìla/ → 'to count'
- /uku=púlìka/ → 'to hear'
- /uku=púlìkìla/ → 'to wait'
- /uku=púlìhìla/ → /uku=púlìhìca/ → 'to listen'
- /uku=gúbiaka/ → 'to cover'
- /uku=gúbìkìla/ → 'to cover (appl.)'
- /uku=gubìfìjìna/ → 'to become covered'
- /uku=gubìfìjìnya/ → 'to cover'
- /uku=gubúkula/ → 'to uncover'

---

*Forms given between diagonal bars, eg. /uku=vónia/ are in some respect deeper than (systematic) phonetic, though not necessarily (systematic) phonemic. The ▷ sign is used ambiguously to indicate both synchronic and diachronic derivations, where "derived" could mean either by P-rule/sound change or by morphological derivation.*
The inclusion into this pattern of verbals with the causative and passive extensions $+i+$ and $+u+$, respectively, is possible if we count moras before applying the rule that does away with the syllable status of these segments.

All infinitives with three or more moras to the right of the pre-stem initial boundary can be assigned to this pattern. This leaves us with infinitives of the shape $\text{ukû}=\text{CVCa}$ which are ambiguous because the ante-penultimate is here identical with the pre-stem initial mora; eg.:

\begin{tabular}{ll}
ukû=vala & 'to count' \\
ukû=heka & 'to laugh' \\
ukû=vone & 'to see' \\
ukû=pala & 'to scratch' \\
\end{tabular}

Nouns from other classes are also common with this pattern:

\begin{tabular}{ll}
\text{ili}=\text{déede} & 5/6 'bee (spec.)' \\
\text{iki}=\text{gânza} & 7/8 'palm (of hand)' \\
\text{iki}=\text{gélelo} & 7/8 'measure' \\
\text{iki}=\text{géendo} & 7/8 'hind leg' \\
\text{un}=\text{gôngo} & 3/4 'back' \\
\text{ili}=\text{gûlîlo} & 5/6 'market' \\
\text{iki}=\text{gubfîlo} & 7/8 'cover, lid' \\
\text{înìvata} & 9/10 'bug' \\
\text{ili}=\text{kuválîlo} & 5/6 '(big) road' \\
\text{iki}=\text{págato} & 7/8 'roof (of granary)' \\
\text{unì}=\text{válîlo} & 12/13 'hour' \\
\text{um}=\text{boombili} & 1/2 'worker' \\
\end{tabular}

There is no rising tone in surface forms. A rule has to specify $\text{vû}$
1.1.2. **PSI:**

Nouns of all classes (except infinitives) are common with this pattern too.

<table>
<thead>
<tr>
<th>Noun</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>266</td>
<td>'liar, cunning person'</td>
</tr>
<tr>
<td>3/4</td>
<td>'lie'</td>
</tr>
<tr>
<td>268</td>
<td>'stone'</td>
</tr>
<tr>
<td>266</td>
<td>'slope'</td>
</tr>
<tr>
<td>14</td>
<td>'beer'</td>
</tr>
<tr>
<td>1/2</td>
<td>'old person'</td>
</tr>
<tr>
<td>adj.</td>
<td>'bent'</td>
</tr>
<tr>
<td>11</td>
<td>'rainbow'</td>
</tr>
<tr>
<td>5/6</td>
<td>'hoe'</td>
</tr>
<tr>
<td>11/10</td>
<td>'roof'</td>
</tr>
<tr>
<td>7/8</td>
<td>'flute'</td>
</tr>
<tr>
<td>1/2</td>
<td>'enemy'</td>
</tr>
<tr>
<td>adj.</td>
<td>'white'</td>
</tr>
</tbody>
</table>

1.1.3. There is also a large group of "ambiguous" nouns, all having the shape 'CVCV.'

<table>
<thead>
<tr>
<th>Noun</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>266</td>
<td>'leg (of animal)'</td>
</tr>
<tr>
<td>5/6</td>
<td>'feather'</td>
</tr>
<tr>
<td>1/2</td>
<td>'someone being loved'</td>
</tr>
<tr>
<td>6</td>
<td>'water'</td>
</tr>
<tr>
<td>9/10</td>
<td>'spear'</td>
</tr>
<tr>
<td>14</td>
<td>'sleep'</td>
</tr>
<tr>
<td>14</td>
<td>'something being bought'</td>
</tr>
<tr>
<td>6</td>
<td>'charcoal'</td>
</tr>
<tr>
<td>3/4</td>
<td>'tail'</td>
</tr>
<tr>
<td>14</td>
<td>'crippledness'</td>
</tr>
<tr>
<td>14</td>
<td>'shoulder'</td>
</tr>
<tr>
<td>9</td>
<td>'hunger'</td>
</tr>
</tbody>
</table>

1.1.4. **PU:**

This pattern is so rare (with nouns; for verbal forms see below) that I have some doubts about my own data. On the other hand, the
high frequency of animal names in this group might not be chance. Some words might also be loans from Nyakyusa (eg. 'bed') where the penultimate regularly receives high tone.

<table>
<thead>
<tr>
<th>Word</th>
<th>Tone</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>vlu=gósu</td>
<td>11/10</td>
<td>'tree (spec.)'</td>
</tr>
<tr>
<td>lngóba</td>
<td>9/10</td>
<td>'pig (wild or domestic)'</td>
</tr>
<tr>
<td>lngwáhe</td>
<td>9/10</td>
<td>'wild hog (spec.)'</td>
</tr>
<tr>
<td>lli=hóve</td>
<td>5/6</td>
<td>'crow'</td>
</tr>
<tr>
<td>lli=hóve</td>
<td>5/6</td>
<td>'foam'</td>
</tr>
<tr>
<td>Indáma</td>
<td>9/10</td>
<td>'heifer'</td>
</tr>
<tr>
<td>isi=lulíma</td>
<td>5/6, 7/8</td>
<td>'beans'</td>
</tr>
<tr>
<td>indómu</td>
<td>9/10</td>
<td>'liana (spec.)'</td>
</tr>
<tr>
<td>iki=lvváka</td>
<td>7/8</td>
<td>'bird of prey (spec.)'</td>
</tr>
<tr>
<td>Iméne</td>
<td>9/10</td>
<td>'goat'</td>
</tr>
<tr>
<td>iñávu</td>
<td>9/10</td>
<td>'cat'</td>
</tr>
<tr>
<td>vlu=péti</td>
<td>11</td>
<td>'slipperiness'</td>
</tr>
<tr>
<td>isaanázangu</td>
<td>9/10</td>
<td>'cheetah'</td>
</tr>
<tr>
<td>lli=sáku</td>
<td>5/6</td>
<td>'duck'</td>
</tr>
<tr>
<td>iki=síki</td>
<td>7/8</td>
<td>'half-burnt piece of wood'</td>
</tr>
<tr>
<td>lli=sukulúnu</td>
<td>5/6</td>
<td>'elbow'</td>
</tr>
<tr>
<td>iki=tála</td>
<td>7/8</td>
<td>'bed'</td>
</tr>
<tr>
<td>vnu=tónu</td>
<td>14</td>
<td>'fruits of a tree (spec.)'</td>
</tr>
</tbody>
</table>

This list contains all my examples of short penultimate with high tone. In some words I might have missed noting down length in this position as it receives some automatic lengthening (with high tone becoming falling) before a pause. I have however written down length without falling tone in some words, eg. vlu=bó:ge (cl. 11/10) 'feather'; these may or may not be instances of the pattern PU.

1.1.5. Three kinds of words present particular problems. First, just as verbs may be built from roots with vocalic extensions, nouns too may end (on the surface) in the sequence semivowel-vowel. In these cases, the semivowel is to be counted as a mora, though it is not syllabic
in the surface forms, eg.:

\[ \begin{align*}
\text{\(\text{vlu}\)} &= \text{g11}\text{\(\text{mwa}\)} 11 & \text{'grass (spec.)'} \\
\text{\(\text{vlu}\)} &= \text{haas1hfco} 11 & \text{'first installment of bride wealth',} \\
\text{ama} &= \text{h\(\text{aaswa}\)} 6 & \text{'lungs'} \\
\text{\(\text{i\(\text{i}\)}} &= \text{neg\(\text{esi}\)} 5/6 & \text{'caterpillar (spec.)'}<\text{\(\text{\(\text{i}\)}}=\text{neg\(\text{eli}\)}\text{\(\text{i}\)}; \\
\text{cf.} &= \text{n\(\text{egela}\)} 'to itch' \\
&<\text{\(\text{\(\text{i}\)}}=\text{neg\(\text{elia}\)}/ 'to make itch' \\
\text{\(\text{vlu}\)} &= \text{saag\(\text{anyo}\)} 11 & \text{'thought'} \\
\text{\(\text{vlu}\)} &= \text{sav\(\text{ufwa}\)} 11 & \text{'thread'} \\
\text{\(\text{i\(\text{ki}\)}} &= \text{top\(\text{oci}\)} 7/8 & \text{'hiccup', cf.} =\text{topola} 'to have hiccups' \\
\text{\(\text{vlu}\)} &= \text{vuj\(\text{fco}\)} 11 & \text{'revenge', cf.} /=\text{vuj\(\text{fia}\)}/> =\text{vuj\(\text{fca}\)} 'to revenge'; \\
&=\text{vuja} 'to return'
\end{align*} \]

The normal agentive noun, however, (though the last consonant undergoes the same sound changes that can be observed in causative verbs) does not have an extra mora, eg.:

\[ \begin{align*}
\text{\(\text{un}\)} &= \text{tele\(\text{esi}\)} 1/2 & \text{'cook',} <\text{\(\text{\(\text{un}\)}}=\text{tele\(\text{ki}\)}, \text{cf.} =\text{teleka} 'to cook'
\end{align*} \]

Secondly, there is the group of compound nouns in which we find some words which seem to have aberrant placement of high tone. The process of forming compound nouns is unproductive today, and it is not clear which rules it once followed. The full list of my examples of "irregular" (?) compound nouns is given below:

\[ \begin{align*}
\text{\(\text{iky\(\text{ameembe}\)}\)} &= 7/8 & \text{'end of breastbone'} \\
\text{\(\text{i\(\text{li\(\text{kaangal\(\text{aambwa}\)}\)}\)}\)} &= 5/6 & \text{'tick'} \\
\text{\(\text{igug\(\text{\(\text{swava}\)}\)}\)} &= 9a/10a & \text{'grass (spec.)'} \\
\text{\(\text{ing\(\text{\(\text{alaape}\)}\)}\)} &= 9/10 (?) & \text{'war-born'} \\
\text{\(\text{amak\(\text{\(\text{akaala}\)}\)}\)} &= 6 & \text{'rubbish' (compound?)} \\
\text{\(\text{in\(\text{ahibalama}\)}\)} &= 9a/10a & \text{'skin of animal, dry and hard'} \\
\text{\(\text{un\(\text{am\(\text{igugulu}\)}\)}\)} &= 1a/2 & \text{'dirty person'} \\
\text{\(\text{un\(\text{agaani}\)}\)} &= 1a/2 & \text{'quarrelsome person'} \\
\text{\(\text{ikip\(\text{nawuge}\)}\)} &= 7/8 & \text{'something sharp and pointed'} \\
\text{\(\text{un\(\text{amb\(\text{uda}\)}\)}\)} &= 1a/2 & \text{'robber'} \\
\text{\(\text{un\(\text{unant\(\text{fivu}\)}\)}\)} &= 11/10a & \text{'runner of a pumpkin (spec.); a kind of plaited rope'} \\
\text{\(\text{un\(\text{akulol\(\text{ela}\)}\)}\)} &= 1a/2 & \text{'overseer'}
\end{align*} \]
Thirdly, vowel-initial stems undergo special rules of vowel contraction, but these shall not be treated in this paper. Finally, some very few words seem to be aberrant without any apparent reason. These are:

\[
\begin{align*}
\text{Im}=\text{dógooda} & \quad \text{4} & \text{'}secrete from eye or ear' \\
\nu\nu=\text{dúaadwa} & \quad \text{14} & \text{'}fear' \\
\text{Il}=\text{góodoovwe} & \quad \text{5/6} & \text{'}ass',^5 \\
\end{align*}
\]

1.2. Verbal forms

Inflected verbal forms show clear occurrences of all three patterns set up above. The choice of a particular pattern is mainly dependent on the "tense", not on the shape of the (extended) root.

1.2.1. Tenses following pattern APu

(1) Present.

\[
\begin{align*}
/tu+f=lola/ & \rightarrow \text{tw}=\text{lola} & \text{'}we are looking' \\
tu+ku+v=\text{lola} & & \text{'}we are looking at them (cl. 2)' \\
\text{nd}=\text{púlkâ} & & \text{'}I am hearing' \\
\text{nd}=\text{púlfkaga} & & \text{'}I am continuously hearing' \\
\text{nd}=\text{bēe'a} & & \text{'}I am refusing' \\
i+ku+va=\text{hēeha} & & \text{'}he is speaking against (or: badly about) them' \\
i+ku+va=\text{vuqIla} & & \text{'}he is talking to/about them' \\
\end{align*}
\]

The formative +i+ is only present in forms that meet the following two conditions: (i) no object infix, and (ii) stem of the shape =CVCa.

(2) General negative. All forms are identical with those of tense (1), except that they are preceded by the formative +na+. The /a/ of this formative is deleted if followed by a vowel.

\[
\begin{align*}
\text{na+tw}=\text{lola} & & \text{'}we do not look' \\
\text{na+nd}=\text{púlkâ} & & \text{'}I do not hear' \\
\text{na+tu+ku+va}=\text{hēeha} & & \text{'}we do not speak against them' \\
\end{align*}
\]

^5Note that all three words contain (i) only voiced consonants, and (ii) they all contain the somewhat marginal consonant /d/.

^6The formative /ku/ appears before an object infix in the following tenses: (1) present, (2) general negative, and (14) negative present, and
(3) **Durative past.** This tense always occurs with the pre-final (durative) formative +ag+.

/ndr+a=cóvaga/ >
ndyaa=cóvaga or ndaa=cóvaga 'I was (always) saying'
/a+a+va=pulíkaga/>  
aa+va=pulíkaga  'he (always) heard them'
/a+a+va=pulíhIlfga/>  
aa+va=pulíhícaga  'he was (always) listening to them'
/ndI+a=be'laga/ >
ndaa=be'laga  'I was (always) refusing'
/a+a+va=vulágaga/>  
aa+va=vulílaga  'he was (always) telling them'

It can again be noted that certain forms seem to follow the pattern PU in their surface form. This is the result of a "contraction-palatalization rule" saying: C(CVCV # → C(CVCV #).  

(4) **Narrative.**

υ+ká=cova  'you said'
υ+ka+cf=vona  'you saw them (Cl. 10)'
tυ+ka+va+vónaga  'we saw them continuously'
va+ka= hàama  'they migrated'
a+ka+va=héeha  'he spoke against them'
/a+ka+va=vulíla/ >
a+ka+va=vulíca  'he asked them'
/a+ka+va=pulíhIlfga/>  
a+ka+va=pulíhícaga  'he listened to them continuously'

also between the proclitic boundary (cf. 1.2.5) and an object infix.

7 The symbol C represents a "palatalized" consonant, eg. k + i → s; l + i → c. # represents word boundary.
(5) **Remote past.**

/ndI+a=cóvile/ >
ndaa=cóvile 'I talked'
/tu+a+vu=lólile/ >
twaa+vu=lólile 'I saw it (cl. 14)'
/ndI+a=beólile/ >
ndaa=beólile 'I refused'
/ndI+a+va=púlike/> 
ndaa+va=púlike 'I heard them'
/a+a+va=heóhile/> 
aa+va=heóhile 'I spoke against them'
/ndI+a+va=pulíhífílie/> 
ndaa+va=pulíhífíce 'I listened to them'

(6) **Narrative perfect.**

va+ka=cóvile 'they said'
/ndI+ka+va=púlike 'I heard them'
/ndI+ka=beólile 'I refused'
a+ka+va=heóhile 'he spoke against them'
/tu+ka+va=pulíhífílie/> 
tu+ka+va=pulíhífíce 'I listened to them'

1.2.2. **Tenses following pattern PSI**

(7) **Future.**

tu+lá=cova 'we shall say'
tu+láa+va=vona 'we shall see them'
tu+láa=haama 'we shall migrate'
tu+láa+va=heesha 'we shall speak against them'
/ndI+láa=covaga 'I shall say continuously'
a+láa+va=púlìka 'he will hear them'
a+láa+va=pulIkaga 'he will hear them continuously'
a+láa+va=pulÍhícaga 'he will listen to them continuously'
Remote adhortative. This "tense" denotes a request to do something but not immediately and/or at the place of speaking.

\[
\begin{align*}
\text{ndI+ká=cove} & \quad \text{'I may say'} \\
\text{ndI+ká=covage} & \quad \text{'I may say (at some length)'} \\
\text{ndI+ká=beele} & \quad \text{'I may refuse'} \\
\text{ndI+ká=beelage} & \quad \text{'I may refuse continuously'} \\
\text{ú+ka+kl=lole} & \quad \text{'you may look at it (cl. 7)'} \\
\text{ú+ka+vá=puliike} & \quad \text{'you may hear them'} \\
\text{ú+ka+vá=vullie} & \quad \text{'you may tell them'} \\
\text{ú+ka+vá=pulihiice} & \quad \text{'you may listen to them'} \\
\end{align*}
\]

Negative subjunctive. This tense expresses prohibition, impos-

\[
\begin{align*}
\text{na+ndI+ká=cove} & \quad \text{'I should/may/can/shall...not say'} \\
\text{na+tu+ka+vá=vullie} & \quad \text{'we should/may/can...not tell them'} \\
\text{na+tu+ka+vá=pulihiice} & \quad \text{'we should/may/can...not listen to them'} \\
\end{align*}
\]

Negative future. All forms are identical with their positive counterparts of tense (7), except that they are preceded by }+na+ and end in /e/.

\[
\begin{align*}
\text{na+tu+laá=haame} & \quad \text{'we shall not move (migrate)'} \\
\text{na+laa+vá=heehe} & \quad \text{'we shall not speak against them'} \\
\text{na+ndI+laá=covage} & \quad \text{'I shall not say continuously'} \\
\text{na+laa+vá=pulihiice} & \quad \text{'We shall not listen to them continuously'} \\
\end{align*}
\]

Conditional.

\[
\begin{align*}
\text{ndI+ngá=cove} & \quad \text{'if I said'} \\
\text{ndI+ngá=puliike} & \quad \text{'if I heard'} \\
\text{ndI+ngá=beelage} & \quad \text{'if I refused (again and again)'} \\
\text{ndI+ngá=beele} & \quad \text{'if I refused'} \\
\text{ú+nga+vá=vone} & \quad \text{'if you saw them'} \\
\text{ú+nga+vá=heehe} & \quad \text{'if you spoke against them'} \\
\text{ú+nga+vá=puliike} & \quad \text{'if you heard them'} \\
\text{ú+nga+vá=vullie} & \quad \text{'if you told them'} \\
\text{ú+nga+vá=pulihiice} & \quad \text{'if you listened to them continuously'} \\
\end{align*}
\]
1.2.3. **Tenses following pattern PU**

(12) **Negative narrative.** The forms of this tense are in minimal contrast with those of the negative subjunctive (tense 9).

- \( \text{na+ndI+ka=c} \text{öve} \) 'I did not say'
- \( \text{na+ndI+ka=be} \text{éle} \) 'I did not refuse'
- \( \text{na+va+ka+tv=v} \text{óne} \) 'they did not see us'
- \( \text{na+tv+ka+va=nu} \text{jce} \) 'we did not ask them'
- \( \text{na+tv+ka+va=pv} \text{iIkáge} \) 'we did not hear them'
- \( \text{na+tv+ka+va=pv} \text{ilícáge} \) 'we did not listen to them'

If we compare the forms \( \text{=uju} \text{ce} < \text{=uju} \text{le} \) and \( \text{=pu} \text{iIlícáge} < \text{=pu} \text{iIlíáge} \) with those from the positive counterpart of this tense we notice that we arrive at parallel surface forms even though the tenses follow different patterns, i.e., APU (tense 4) and PU (tense 12). Kinga obviously has a surface constraint that does not permit high tone on a word final syllable. The "contraction-palatalization rule" mentioned under tense (3) will also have to state: \( \text{VCV} \# \rightarrow \text{VC} \text{C} \text{V} \# \).

(13) **Negative durative past.** Unlike its positive counterpart (tense 3), this tense may occur with or without the formative \( \text{-eg+} \).

\[
/\text{na+ndI+a=c} \text{öve}/
\]

- \( \text{na+ndaa=c} \text{öve} \) 'I was not saying'
- \( \text{na+ndaa=be} \text{éle} \) 'I was not refusing'
- \( \text{na+ndaa=co} \text{váge} \) 'I was not saying continuously'
- \( \text{na+ndaa=be} \text{éláge} \) 'I was not refusing continuously'
- \( \text{na+ndaa+va=v} \text{óne} \) 'I was not seeing them'
- \( \text{na+twaa+va=he} \text{éhe} \) 'we were not speaking against them'
- \( \text{na+twaa+va=pul} \text{íke} \) 'we were not hearing them'
- \( \text{na+twaa+va=pul} \text{iIcíce} \) 'we were not listening to them'
- \( \text{na+twaa+va=pul} \text{iIlícáge} \) 'we were not listening to them continuously'

(14) **Negative present.**

- \( \text{na+twi=l} \text{óli} \) 'we are not looking'
- \( \text{na+tv+kv+va=l} \text{óli} \) 'we are not looking at them'
- \( \text{na+ndI=pul} \text{íki} \) 'I am not hearing'
- \( \text{na+tv+kv+va=pul} \text{íkági} \) 'we are not hearing them'
"I am not refusing"

'we are not speaking against them'

'we are not talking to them'

The occurrence of [+i+] is governed by the same conditions as in the present (tense 1).

(15) **Negative perfect.**

na+ndI=beśli

' I have not said'

na+ndI=beśli

' I have not refused'

na+ndI+va=ceqli

' I have not said to them'

na+ndI+va=hevli

' I have not spoken against them'

na+tu+va=pulfki

' we have not heard them'

na+tu+va=pulfhici

' we have not listened to them'

(16) **Negative narrative perfect.**

na+ndI+ka=geendi

' I did not go'

(17) **Negative remote past.**

na+ndaa=geendi

' I was not going'

1.2.4. **Opaque tenses**

The following three tenses do not as a whole follow just one pattern but rather each tense splits up into forms following different patterns.

(18) **Polite adhortative.**

(i) Forms clearly following pattern APU are all those with more than two syllables following the stem initial boundary.

v+nga=ćovage

' you may say'

v+nga=bełage

' you may refuse'

v+nga+va=pulike

' you may hear them'

v+nga+va=pulikaga

' you may hear them continuously'

v+nga+va=vuľila

' you may talk to them'
Forms clearly following pattern PSI are those built from (unextended) stems of the shape =CVV(N)Ca.

\[ U+\text{ngá}=\text{beela} \] 'you may refuse'
\[ U+\text{ngá}+\text{vá}=\text{heeha} \] 'you may speak against them'

Forms built from verbals with the shape =CVCa are ambiguous: they might be assigned to either pattern APU or to PSI. Of course, this ambiguity could also be seen in parallel forms of other tenses, but there it has always been possible to find one pattern accounting for all forms of one tense.

\[ U+\text{ngá}=\text{cova} \] 'you may say'
\[ U+\text{ngá}+\text{vá}=\text{lola} \] 'you may look at them'

\[ (19) \text{ Subjunctive.} \]

Forms clearly following pattern APU are all those which have more than two syllables after the stem initial boundary and which do not have an object infix.

\[ a=\text{púlike} \] 'he may hear'
\[ a=\text{cóvage} \] 'he may speak continuously'
\[ a=\text{gódoke} \] 'he may return'
\[ \text{cl}=\text{haámbuke} \] 'they (cl. 10) may change'
\[ a=\text{haanzánye} \] 'he may mix'

Forms clearly following pattern PSI are, firstly, all those having more than two syllables following the stem initial boundary and having an object infix, and, secondly, all two-syllable verbals of the shape =CVV(N)Ce.

\[ a+\text{vá}=\text{púlike} \] 'he may hear them'
\[ a+\text{vá}=\text{púlikeage} \] 'he may hear them continuously'
\[ a+\text{vá}=\text{vulage} \] 'he may tell them continuously'
\[ a+\text{vá}=\text{púlihícage} \] 'he may listen to them continuously'
\[ á=\text{beelee} \] 'he may refuse'
\[ a+\text{vá}=\text{heehe} \] 'he may speak against them'
(iii) Again, forms built from verbals of the shape =CVCe are ambiguous as to which pattern they follow.

\[ \text{á=cove} \] 'he may speak'
\[ \text{v+vá=lole} \] 'you may look at them'

(20) **Perfect.**

(i) Verbal forms which have in this tense three or more syllables following the stem initial boundary the penultimate of which consists of two moras follow pattern APU. The class of verbs building such perfect forms may be regarded as identical with the verbs having either a causative or a passive extension.

\[ \text{tu=taami\text{ú}n\text{ye}} \] 'we have been living together'
\[ \text{va=\text{ú}wendami\text{ú}n\text{ye}} \] 'we have gathered (trans.)'
\[ \text{a+vá=saamwí\text{í}se} \] 'he has greeted them'

(ii) All other forms of this tense follow pattern PSI.

\[ \text{ndf=covile} \] 'I have said'
\[ \text{ndf+beelile} \] 'I have refused'
\[ \text{tu+vá=lo\text{l}ile} \] 'we have looked at them'
\[ \text{a+vá=he\text{e}hile} \] 'he has spoken against them'
\[ \text{a+vá=pulike} \] 'he has heard them'
\[ \text{tú=teengwe} \] 'we have started' \[ k =\text{te\text{é}ng \text{l}a} \]
\[ \text{á=he\text{v}íte} \] 'he has ground' \[ k =\text{he\text{vé}ta} \]
\[ \text{tú=he\text{k}y} \text{e} \] 'we are happy' \[ k =\text{he\text{k}e\text{a}} \]

(iii) I only know one single example that could be regarded as ambiguous as to which pattern it follows:

\[ \text{á=bihe or: á=bie} \] 'he has gone (somewhere)' \[ <\text{ukw}=\text{bíha} \]

1.2.5. **The proclitic boundary #.**

Forms of all tenses may occur with an additional formative, ie. +pi+, or +ci+, or even +pi+ci+. The position of these formatives is between the tense marking infix and the object infix (if those formatives are parts of the word). I shall regard these special formatives as being followed by a special "proclitic" boundary #. Words containing such a boundary always follow pattern APU; eg. from tense (10) Negative Future which
normally follows pattern PSI:

\[
\begin{align*}
na+t\nu+laa+v\acute{a} &= v\nu+Ile \\
n\acute{a}+t\nu+laa+ci\#k\nu+va &= v\nu+Ile
\end{align*}
\]

'we shall not tell them'

'we shall not tell them there'

2. **Outlines for analyzing pitch**

2.1. **Long or double vowels?**

Following Chomsky and Halle, I shall distinguish long and short vowels by a feature [LONG] in the surface phonetics. Underlyingly, however, there are strong indications that long vowels must be analyzed as sequences of two (identical) vowels. The assignment of high tone also involves counting one long vowel as equal to two short vowels. Therefore I shall treat high tone assignment at a stage that precedes the reinterpretation of double vowels as [+long] units. This reinterpretation might be regarded as a universal convention not adding to the complexity of Kinga grammar (cf. Woo [1969:26]).

2.2. **The (dis)solution of pattern PU.**

The assignment of high tone to the next to last mora of a word (pattern PU) has been shown as of rather restricted occurrence. Besides in a marginal (and doubtful?) group of nouns we find it regularly in a group of negative tenses. This group includes firstly all tenses with the final vowel I. Secondly, it occurs in two (negative) tenses with the final vowel e. This peculiar limitation of the occurrence of pattern PU suggests regarding these tenses as containing an underlying final sequence of two vowels:

- **tense (15), (16), (17):** \(+iIe+i+ > +iIIi+
- **tense (12), (13):** \(+a+i+ > +ee+
- **tense (14):** \(+ii+

Adopting these word-final two-vowel sequences we gain a major overall simplification in the description of Kinga tone and can now include all forms following pattern PU into the pattern APU, eg.:
The double vowel will later undergo length reduction as Kinga does not permit long vowels in word final position. The few nouns following pattern PU can also be described as having a lexical representation ending in a two-vowel sequence. This would not lead to any further complications, eg.:

I'li=ho'veee  'crow'
I'navuu  'cat'

2.3. **The reduced tone system of Kinga.**

Having included pattern PU into pattern APU, we are now left with just a two-way distinction of words, both nouns and verbs. Which pattern a certain word follows will have to be marked in the lexicon for nouns, and will depend (mainly) on the "tense" (thus never be lexically defined) with verbals. Many linguists would prefer to describe this state of affairs in terms quite distinct from those used for "real" or "full" tone languages (cf. Voorhoeve, in this issue).

Within the framework of generative phonology there are several ways to describe the high tone assignment for a language like Kinga. For instance, each word could carry a (rule?) feature that determines whether a high tone is assigned to APU or PSI position. For underived nouns such a feature would have to be part of the entry in the (first) lexicon, for all other words it would have to be assigned after the formatives are placed into strings, maybe in the "second lexicon".

However, for Kinga I prefer a different solution. I think it can be shown that in Kinga the choice between the two possible tone patterns is determined by some inherent quality of the final vowel or a word. This can most readily be seen with nouns that are derived from verbal radicals. Whereas no connection can be found between noun class and tone pattern, there is a strong correspondence between the tone pattern and the final vowel used for the building of nominal stems.
Examples:

(1) Final vowel /a/ - pattern APU - infinitives (cl. 15)

`ukú=gona` 'to sleep'
`uku=vúla` 'to tell'
`uku=génda` 'to walk'
`uku=púlika` 'to hear'
`uku=pulíka` 'to wait'

(2) Final vowel /o/ - pattern APU - instrumental nouns

`ínénggo 9/10` 'long knife (to cut grass with)' < =héngga
`uku=koómbana iŋombo` 'to hold each other at the wrists'
`ílì=cénggo 5/6` 'pole (to build with)' < =céngga
`íkì=pépele 7/8` 'pipe (for smoking)' < =pëpà
`ímóndelo 9/10` 'hammer' < =pónda

(3) Final vowel /i/ - pattern APU - agent nouns

`ún=céngi 1/2` 'builder' < =céngga
`ún=dáguči 1/2` 'diviner' < =dága
`ún=dìndìlici 1/2` 'watch-man, supervisor' cf. =lìnda
'to stay somewhere and be well'
`=loóngoci adj.` 'first' < =loóngola 'to go ahead'
`úm=póonzi 1/2` 'blacksmith' < =pónda

(4) Final vowel /e/ - pattern PSI - patient nouns

`úvú=hevete 14` 'flour' < =héveta 'to grind'
`úvú=heenga 14` 'piece of land cleared from grass'
< =héngga 'to cut grass'
`íŋ=koombe 3/4` 'pliers' cf. `uku=koómbana iŋombo (above)
`úvú=céenga 14` 'village' < =céenga 'to build'
'=valace adj.' 'holy' < =valáca 'to make clean'
cf. =válala 'to become clean'

Verbal tenses too show this dependence of tone pattern from the final vowel. (We still leave aside opaque tenses and the influence of the proclitic boundary #.)
What exactly is now this inherent quality of the final vowel that determines the choice between APU and PSI high tone assignment? Though it is obvious that it has to be some prosodic feature it is difficult to define it phonetically, as it never surfaces directly on the segment itself. But as it results in a high tone on some other segment I shall call this feature \([\text{HIGH}]\).

The next question is which pattern depends on a final \([+\text{high}]\) and which on a final \([-\text{high}]\). I shall link the pattern PSI with an underlying final \([+\text{high}]\) vowel, for it seems to be the more marked pattern. It is not only less frequent, it also depends on more information, i.e. the position of both word and stem-initial boundary. Also, words containing the proclitic boundary \(\#\) and thus displaying a greater complexity in structure all follow pattern APU; in other words, where the two patterns are neutralized only pattern APU survives. If a word does not receive the specific or marked "accentuation" in PSI position, it follows one of the few universally wide-spread accent patterns: it receives high tone in APU position, which again points to this pattern as being the unmarked member of the pair.\(^8\)

In underlying representation words will now have to be marked either \([+\text{high}]\) or \([-\text{high}]\) on the last vocalic segment. All preceding vocalic segments will redundantly be marked \([-\text{high}]\). This is exactly

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\(^8\)I have not provided historical evidence for this analysis, since it is not clear to me how such evidence is relevant in a synchronic solution. However, it is interesting to note that Proto-Bantu word-final H and L correspond to my Kinga analysis, whereas the PB distinction H vs. L on non-word-final vowels has no regular correspondence in Kinga. Thus, pattern APU is linked to words with final low tone, and pattern PSI to words with final high tone (in Proto-Bantu).
why Kinga is being described as having a strongly "reduced tone system": a tone system is "reduced" to the extent that tonal distinctions are—underlyingly—restricted to certain positions in formatives or formative strings.

3. **Opaque tenses**

In section 1.2.4 three tenses were described in which we observed a split into two patterns, i.e. APU and PSI. The conditions for the split were different in each of the three tenses. It may be noted that no PU forms were involved in those (opaque) tenses. What we have to state then is rules that change final [+high] vowels into [-high]—or vice versa.

3.1. **Polite adhortative (tense 18).**

There are several ways to describe the switching between APU and PSI forms. Verbals containing one or more extensions attached to the radical follow pattern APU; non-extended radicals follow pattern PSI.

If we regard the switching as a partly non-phonological readjustment rule, of which the application is specifically restricted to this tense, we can describe the change of the final vowel as either from [+high] to [-high] or from [-high] to [+high].

   (a) ā → a / EXT + ___] POL. ADH.
   (b) a → ō / RAD + ___] POL. ADH.

It is, of course, possible to replace the formative class labels by formulas that show the possible sequences of segments. But it seems to me that at a stage where grammatical information as detailed as the label of a specific tense is available the labels of formatives would be available too.

Making use of certain asymmetry in the set of possible word final vocalic segments we can avoid referring to the grammatical information of the tense label. So far we have used the following word final sequences:

\[ \ddot{v} \quad \ddot{v} \\
\ddot{v} \ddot{v} \quad - \]
Of course, it would be difficult to detect a final sequence \( v' \), for its surface representation should be identical with that of simple \( v \). But here we could use this sequence and reduce it if the verbal radical is extended.

\[
(c) \quad \delta \rightarrow \emptyset / \text{EXT} \ + \ a____^9
\]

An alternative formulation would be:

\[
(c.1) \quad a\delta \rightarrow \{\delta / \text{RAD} \ + _____^9 \}
\]

Like before, RAD can be replaced by a purely phonological formula:

\[
(c.2) \quad a\delta \rightarrow \{\delta / = (C) V(V) C _____^9 \}
\]

I should like to add that the Polite Adhortative is a disappearing tense and only a few of my informants felt competent to give examples of its use. I do not have forms of verbals with only one extension consisting of only one vocalic segment (ie. causative or passive).

3.2. Subjunctive (tense 19).

Subjunctive forms follow pattern PSI unless both of the following conditions are met:

(i) there is no object infix; and
(ii) the verbal stem is extended.

Using grammatical information in the form of formative class labels this rule can be formalized as follows:

\[
\delta \rightarrow e \ / \ # \ VP = \text{RAD} + \text{EXT}_1 + _____^9
\]

The formative labels could again be replaced by sequences of segments.

In principle it is possible to devise an alternative solution starting from a final [-high] vocalic segment. This would be changed into [+high]

---

9 The second \( V \) does not have to be bracketed as optional. Surface forms like \([v+\eta g\dd=cova]\) can be derived in two ways:

(i) \( v+\eta g\dd=cova \) --> \( v+\eta g\dd=cova \)
(ii) \( v+\eta g\dd=cova \) --> \( v+\eta g\dd=cova \)
if either one of the following two conditions are met:

(i) a formative intervenes between verbal prefix and radical; or
(ii) the radical is not followed by an extension (or: is directly followed by the final).

With this solution we could totally abandon the final element /e/ (found in tenses 8 through 11) in favor of final /e/, because the tense markers would take care of the change from [-high] to [+high]. However, I prefer a special subjunctive rule where the change is from high to non-high.

3.3. Perfect (tense 20).
Forms of this tense follow pattern PSI unless the final /iile/ is preceded by a vocalic extension.

\[ \ddag\rightarrow v / +V+VC \]

Again, an alternative rule could be formulated stating the change in the opposite direction.

The rule as stated here has to apply before the incorporation of the vocalic extensions into the final /iile/:

\[ +i+iile \rightarrow +i+iile \]
\[ +u+iile \rightarrow +i+iue \]

It seems possible that the influence of the vocalic extensions is a residue of a time when tonal contrasts in Kinga were not yet reduced to word final position. (Comparative evidence shows that passive *ú and causative *f are tonally distinct from all other verbal extensions. (cf. Meeussen [1967:92]).)

3.4. An epilogue to the analysis of tone.
In my opinion the rules proposed here do not reflect directly what has happened historically. There are indications that the processes neutralizing the prosodic qualities of all but the word final vowels had originally been operating in the "stem" part of the word only, i.e. to the right of the stem initial boundary. (The agglutination between formatives in pre-stem position seems to be much less tight than between a root and its extensions and suffixes.)
It is technically possible to describe the high tone placement of Kinga as an interaction between high and low final vowels on one side and high and low tense markers on the other side. This would not be implausible historically, and there is even some synchronic evidence pointing in this direction. The fact that the three tenses without a (surface) tense marker are all "irregular" in one way or another is in need of more explanation than has been offered so far. Also, one might like to write a description of Kinga where the formative +laga+ exerts an influence that produces PSI high tone assignment, thus not leaving the connection "+laga+ requires PSI" unaccounted for.

4. **Summaries**

4.1. **Summary of tense formulas.**

The following tense formulas show only the negative prefix +na+ (if present), the tense marker (if any), and the verb final formative.

1. **Present:**
   
   The formative +i+ is only present in forms that meet the following two conditions: (i) no object infix, and (ii) the stem has the shape =CVC+.

   Because this tense requires an object infix to be preceded by the formative +ku+ it could most economically be described as containing the proclitic boundary # following the verbal prefix.

2. **General negative:**

   Both remarks made under tense (1) are also valid for this tense.

3. **Durative past:**

4. **Narrative:**

5. **Remote past:**

6. **Narrative perfect:**

7. **Future:**

8. **Remote adhortative:**

9. **Negative subjunctive:**

(1)  (2)  (3)  (4)  (5)  (6)  (7)  (8)  (9)
(10) Negative future: na laa ē
(11) Conditional: nga ē
(12) Negative narrative: na ka ee
(13) Negative durative past: na a ee
(14) Negative present: na (i) ii

Both remarks made under tense (1) are also valid for this tense.

(15) Negative perfect: na iiiii
(16) Negative narrative
   Perfect: na ka iiiii
(17) Negative remote past: na a iiiii
(18) Polite adhortative: nga aa
(19) Subjunctive: ē
(20) Perfect: iiē

4.2. Summary of rules

(1) POL. ADH. rule:

   aa → \{(a / = (C) V (V) C) # \}

(2) SUBJ. rule:

   ē → e / #(C) V = (C)(V) V C + (VC)_1 + #

(3) PERF. rule:

   [+high] → [-high] / + V + VC #

These three rules are clearly very early rules and are unordered with respect to each other.

(4) PROCL. rule:

   [+high] → [-high] / # X [-----] #

This is only the prosodic part of the rule. The proclitic boundary also requires that an object infix be preceded by the formative +ku+ (cf. section 1.2, tense (1), footnote, and section 1.2.5).
(5) **PSI rule:**
\[
[-\text{high}] \longrightarrow [+\text{high}] / [\underline{---}] = X [+\text{high}] #
\]

(6) **APU rule:**
\[
[-\text{high}] \longrightarrow [+\text{high}] / \{ [\underline{---}] (C) [ ] (C) [-\text{high}] # \}
\{ # (C) [\underline{---}] C [ ] # \}
\]

The second part of this rule takes care of high tone assignment in words with less than three syllabic segments, eg., the imperative: côva 'speak!'  

(7) \[
\begin{array}{l}
\begin{array}{c}
\text{+syl} \text{l} \\
\text{a} \text{high} \\
\beta \text{low} \\
\gamma \text{back} \\
\delta \text{tense}
\end{array}
\end{array}
\rightarrow \emptyset /
\begin{array}{c}
\begin{array}{c}
\text{+syl} \text{l} \\
\text{a} \text{high} \\
\beta \text{low} \\
\gamma \text{back} \\
\delta \text{tense}
\end{array}
\end{array} [\underline{---}] #
\]

(8) \[[+\text{high}] \longrightarrow [-\text{high}] / [\underline{---}] #\]

(9) \[
\begin{array}{l}
\begin{array}{c}
\text{---} \\
\text{+cons} \\
\text{+syl} \text{l} \\
\text{a} \text{high} \\
\text{+high}
\end{array}
\end{array}
\rightarrow \begin{array}{c}
\begin{array}{c}
\text{---} \\
\text{+cons} \\
\text{+syl} \text{l} \\
\text{a} \text{high} \\
\text{+high}
\end{array}
\end{array} [\underline{---}] [	ext{+high}] #
\]

This is the prosodic part of the "contraction-palatalization" rule mentioned in section 1 under the tenses (3) and (12). It doubles a high tone from a mono-segmental extension onto the syllabic segment to the right unless this segment is word final, in which case the high tone is doubled to the left. Later, the extension will lose its syllabic quality and thereby also its tone.

(10) \[[-\text{high}] \longrightarrow [+\text{high}] / [\underline{---}] [+\text{high}]\]

This rule changes a low-high rising sequence to a level high tone.
REFERENCES


