Tone and Accent, and Getting the Two Together

John Goldsmith
The University of Chicago

1. Introduction

It is not a particularly controversial claim that English has an accentual system, though precisely what such a claim means is certainly open to dispute. If one works within the framework of metrical theory, then just how to pick out one characteristic of the system as making it "accentual" is far from obvious. I would like to do just that, though; I would like to pursue the (admittedly somewhat fluid) notion that an accentual system is one which uses the top row of the metrical grid to assign tone, and furthermore that the tone assignment that it accomplishes is autosegmental in character.

In some earlier papers on Bantu tone systems (especially Goldsmith (1982, 1984, and the introduction to Clements and Goldsmith (1984)), work that developed ideas of James McCawley's (McCawley 1978), I pursued the idea that tone languages could be derived (derivationally) from a deeper level at which the relevant information was not present on a separate tonal tier. Instead, we posited an "accent", represented as an asterisk, which was present in the linear string, rather than being on a separate autosegmental tier. It differed from a familiar feature primarily in that it tended to move around, hopping to the left or right under various circumstances.

My main goal in this brief paper is not to discuss English or languages like it, but rather to discuss a language that has the pedigree and the patrimony of a thoroughly classical tone language, yet which apparently assigns its tones through a system of accent placement that looks surprisingly like the systems of accent placement that we are familiar with from the stress languages described in the literature. This language is Kintandu, from the Kikongo group. One of the main points that I will try to make is that the notion of "extrametrical" is involved in the description of Kintandu, and you can't have an extrametrical syllable without the notion of metrical structure being involved. In particular, I will try to show that it is the notion "extrametrical" that is involved and not the closely related notion of
being, in a sense, a series of excuses for why this systems is different from Eastern Bantu systems. We need something better than that.

3. Kintandu

Daeleman (1983) presents a sketch of Kintandu, in the KiKingo group, which meets this general description. According to Daeleman, there are four Tone Groups of nouns, and four Tonal Cases in which these nouns can appear. The surface tone of a noun from a given Tone Group varies depending on the Tonal Case that it is realized in. Each noun, that is, can appear in any of four possible tonal forms; which form is used depends on the general syntactic environment, and the environments can be divided into four, which we then call our four Tonal Cases.

Let us describe these facts in a bit more detail. There are four Tone Groups of nouns; we will begin by calling them TG 1, TG 2, TG 3, and TG 4, and every noun falls into one of these four Groups. There are four Tonal Cases, which Daeleman calls I, II, III, and IV. The first of these we may call the "Basic" case, because it is closest to the underlying form (no tones are grammatically inserted or deleted in this Tonal Case); the third we may call "defocused", because the all the tones are Low in this Tonal Case. These eight distinctions interact in the following ways.

Tonal Case I is used for subject or object NPs. When used "predicatively" in the affirmative ("it is an NP"), Tonal case II is used, and Tonal case IV is used for negative predicative uses. Tonal case III is used, according to Daeleman, for "the first unit of a phrase in subject or object function," apparently just for use in the case of an associative construction ("the X of [the] Y").

4. The Basic Tonal Case I.

In the basic Tonal Case I, TG 1 nouns are all Low-toned; we may, therefore, identify TG 1 as the class of underlyingly toneless nouns. TG 2 nouns have a High tone on the penultimate mora. (See Table 1 below. The data there gives whole words, with the noun class prefix separated by hyphen; the tone rules apply to stems, however, not to words).
left. In this case, the trend, we can see, is to map the High tone to the last vowel, but in TGs 2 and 3 the final syllable is sometimes immune to the tonal association. Since Kintandu has the hallmarks of an autosegmental tone language (and, indeed, does use tone autosegmentally), I will begin by assuming that this difference between the tonal groups involves marking certain word-final syllables as extratonal, and that a rule associating a tone to the "final" vowel is in order, as written in (2). I will later come back and try to show that this was the wrong approach, and that extrametricality is more appropriate; but for now, that would seem odd, and we will pursue the more straightforwardly tonal perspective.

Let us say that TG 2 nouns are those that are underlyingly or lexically marked with their final syllables extratonal. We shall furthermore suggest that all toneless nouns (i.e., TG 1) have this property as well, redundantly, though the reason is not yet obvious by any means.

TG 2 nouns have a lexical High tone, and we will have to get it to associate with the last vowel. This will be accomplished by the Tone Association Rule 2, whose initial formulation is given just below. The intent of this formulation is to assign the rightmost High tone to the final vowel of the word, where the rule is blind to a word-final syllable marked extratonal. This understanding of the formalism would allow rule (2) to associate a High to a penultimate syllable when the ultima is extratonal; as I have indicated, though, we shall consider a quite different interpretation below. TG 3 nouns have a High tone, which is realized on the final mora in shorter nouns (those whose stem has one or two syllables), and on the penult in longer nouns. This is due, we shall suggest, to a rule assigning final-extratonical in certain grammatical conditions; we will call this the "Extratonal Marking Rule", given in (1). TG 4 nouns have a lexical High tone, and it is assigned to the final vowel; thus the final vowel here is not extratonal. Rule (2), it should be clear, applies after rules (1), since (1) prepares the ground for it to apply appropriately.
A look at TG 1 suggests that in this Tonal Case, a High tone is added to the lexical tone of the noun, since we have already posited TG 1 as being underlyingly toneless, and a High tone appears here on the penult. In addition, we see that a "plateau" or sequence of High tones is formed in TGs 2 and 3 by what we take to be a general rule specifying that all syllables are High when surrounded on the surface by High tones (of which only one can be the lexical one, given what we have suggested so far). Thus again, this Tonal Case appears to add a High tone to the lexical tone of the noun. In TG 4, a High appears on the first syllable of the stem, and not on the last, surprisingly; we shall suggest that a High tone is present on the final vowel in an intermediate stage of the derivation, and is removed by rule.

We thus posit a grammatical High tone prefix "H" which is prefixed in Tone Case II (and also Tone Case IV, as we shall see shortly).

We suggest that extratontality marking to the final vowel is assigned again lexically to TGs 1 and 2, and by rule (1) to TG 3. TG 4 never has its final vowel marked extratontal. Even though we do not see a High tone on the surface, the final vowel is still not extratontal here in TG 4, whose account we will return to in a moment.

We have already said that the last tone is assigned to the last (non-extratontal) vowel in the stem, and we see that any grammatical High tone is assigned to the first vowel. This second tone association is produced by rule (3). The relationship between the two tonal association rules, (2) and (3), will be discussed further below; for now, we may just say that they are extrinsically ordered, with (2) before (3), that is, we associate a High to the last vowel, and only after that try to associate a left-over High tone to the first vowel. The condition that the High be floating (as indicated by the circle around the H in (3)) ensures that it applies only to Highs that have already not been affected by rule (2).
(5) Final High deletion

\[ \begin{array}{c}
  V
  \downarrow \ # \\
  H
  \downarrow \\
  \emptyset
\end{array} \]

It will be important for us to notice that rule (5), Final High Deletion, applies only to High tones associated with the absolutely final syllable. If an extratonal syllable follows, a penult bearing a High tone will not lose that tone by rule (5). This interpretation conflicts with the one suggested above rule (2), the Initial Tone Association rule, and will be the basis below for our reinterpretation of what we have called "extratonality" as being actually extrametricality.

Given this understanding, ki-tuutu is derived as in (6).

(6) ki tuutu

\[ \begin{array}{c}
  \vdots \\
  H \ H
\end{array} \]

One High lexical, one from tonal case

ki tuutu

\[ \begin{array}{c}
  \vdots \\
  H \ H
\end{array} \]

rules (2) and (3)

ki tuutu

\[ \begin{array}{c}
  \vdots \\
  H
\end{array} \]

rule (5)

If we assume, as we have done, that TG 4 nouns have an underlying H, and that they get a second High in this tonal case (just as TG 2 and TG 3 nouns do), then rule (5) is exactly what we need to account for their derivation, as we see in (7).
(2) Initial Tone Association Rule (first formulation):

\[ V \]

\[ V \]

\[ \text{stem} \]

\[ \text{H} \]

(3) Clean-up Tone Association Rule

\[ V \]

\[ \text{stem} \]

\[ \text{H} \]

I would like to suggest an alternative view of the analysis presented so far in which it is not extratonality which is the crucial variable, but rather extrametricality. This perspective is motivated by three points: (i) the observation above that the "blindness" of the rules to extratonal syllables is only partial; rule (5) must be quite aware of their presence; (ii) the desire to see rules (2) and (3) as part of a single process, that of assignment of High tone to a metrically Strong position, a point investigated in several recent papers on Kirundi and Xhosa; and (iii) the desire to view the assignment of a High tone to the ultima or penult as being parallel to the assignment of metrically Strong position to one of the last two syllables.

Point (i) will follow directly if we drop the notion of extratonality from our analysis, and say rather that accent is assigned to either the ultima or the penult. Rule (5) will thus apply correctly. Furthermore, rules (2) and (3) can be assimilated to a general schema for association of High tones to accent syllables.

What would this general schema be? It has been suggested in many places in the literature (most fervently, perhaps, by the present writer) that an "accentual principle" exists which associates an accented tone -- let us simplify here, and say simply a High tone -- to an accented vowel. In the case of Kintandu, however, it makes most sense to say that there are two levels of accent, primary and secondary. The first-vowel of the stem always receives secondary accent, while the primary accent falls either on the ultimate or penultimate syllable of the stem. In this
With the same grid structure, but only one High tone (as in the Basic Tonal Case I), then the only permitted structure is as in (11).

The analysis of the data from Kintandu presented thus far would reduce, then, to the following points: (i) a lexically governed extrametricality rule (1); the general condition on tone-accent relation given in (9); and the Final High Deletion rule (5), a simple tone rule.


The following discussion of KiYaka, a language not too distantly related to Kintandu, is based on the material in van den Eynde 1968, as well as a handout prepared by van den Eynde for a 1984 presentation in Eisenstadt, Austria.

There are three Tone Groups in KiYaka, and three Tonal Cases. I shall attempt to make the assignment of numbers match up with the categorization already given for Kintandu, though the correspondence is, of course, far from perfect.

The first Tonal Case is the one that van den Eynde calls "indeterminate", as in Table 4. [TG 1 corresponds to van den Eynde's Group C; TG 2 to his Group B, and TG 3 to his Group A].
TGs 2 and 3 are easily derivable given the analysis set up so far for Kintandu. We will assume the same accent rules operate in these two classes as are mentioned in the analysis of example (9)-(11) above in Section 8. Thus the first and last vowel of the stem is accented in TG 3, and the first and penult are accented in TG 2:

(13)  

a. TG 2  

\[
\begin{align*}
\text{x} & \quad \text{x} \\
\text{x} & \quad \text{x} \\
\text{ba - the mu the} & \quad (\text{mu})
\end{align*}
\]

b. TG 3  

\[
\begin{align*}
\text{x} & \quad \text{x} \\
\text{x} & \quad \text{x} \\
\text{yi - sa a mbi ka}
\end{align*}
\]

Tones must be associated as indicated in (13), given the Tone-Accent Attraction Condition suggested above. We suggest that the Final High Tone Deletion rule (5), above, is operative in KiYaka as well as in Kintandu, thus deleting the second High in 14b (TG 3), but not in 14a (TG 2).

The only form that needs to be accounted for, then, is the TG 1 form, in which the grammatically inserted High tone is assigned not to the final vowel, as it would be in Kintandu, but is, instead, spread across the entire stem.

It is not clear to this writer at this point whether it would be more appropriate to view the spreading of the High tone as the result of a language-specific tonal rule (which would be easy to write, in and of itself), or to view it as a way of maintaining tone/accent parallelism in special circumstances. This second, much more speculative, approach would suggest viewing TG 1 forms as having equal grid markings on all stem vowels (for the sake of concreteness, let us say all unaccented, as in 15). Then the modification required in the Tone-Accent Attraction Condition would be as follows, where the changes are given in square brackets: "A tone-to-grid structure is well-formed if and only if there is no tone-bearing syllable which has an [equal or] lower level of accent than a toneless syllable. (Thus, if a syllable S has a tone, all syllables with a greater [or equal] level of accent than S must also bear a tone)." The change is
Footnotes

1. This material is based upon work supported by the National Science Foundation under Grant No. BNS-8421245.

References


