The writing and reading of tone in Bantu languages

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1. Introduction

In this paper, I will discuss the relationship between linguistic aspects of tone in African languages on the one hand, and their practical application in the development of the orthography and the teaching of reading on the other hand.
Tone constitutes an integral part of nearly all African languages spoken south of the Sahara desert. Words consist of consonants, vowels, and tone (patterns), and each of these may serve to indicate minimal distinctions both in the lexicon and the grammar of a language.

When developing an orthography for an African language, it is necessary to study tone and the function of tone in that language in much the same way as one establishes the distinctive consonants and vowels for that language. Once the basic tone system is established and the function of tone has become clear, one needs to answer the following practical questions: Should tone be represented in the orthography? If so, should tone be written everywhere, that is, on each syllable, or only in certain places to disambiguate? Which of the different tones should be written, and how? And what are the repercussions of this for the teaching of reading?

This paper has the following outline. After presenting a few basic assumptions, Section 2 discusses some general topics about tone in African languages: tone versus intonation, tone systems in different types of languages, especially focusing on isolating and agglutinative languages, and what is meant by functional load of tone in a language. Section 3 discusses in more detail lexical and grammatical tone in Bantu languages. Section 4 treats tone orthography, first from a more general perspective, then more directly geared toward Bantu languages. Section 5 contains some practical remarks from which to develop a strategy for the teaching of tone.

It is clear that major languages like English and French have orthographies that are far from ideal. One letter or letter combination can be pronounced in several ways, or one particular sound can be represented in the orthography by different letters or digraphs. Those involved in the teaching of reading often wish that the alphabet could be made more systematic: one symbol representing one sound, and one sound always represented by the same symbol. They know that the teaching of reading would be speeded up greatly. However, English, French, and other languages have such a wide distribution that changes in these historically-grown orthographies that are far from ideal at present are virtually impossible. It means, though, that children take quite a long time to master the skill of reading.

In the teaching of reading in vernacular languages in Africa, the situation is quite different. First, much focus is on the teaching of reading to preliterate adults. Second, even where we aim at children, the teaching will often have to be extracurricular, since they mostly learn to read in a national language at school. This means that we do not have the luxury of spending several years teaching people to read. A conscious aim in developing orthographies for African languages should therefore be to make them as systematic as possible, following the phonemic principle, by which each distinctive sound is represented by one symbol, and each symbol represents one distinctive sound, that is, a system with no underrepresentation on the segmental level. This means that, if a language has five vowels, it will be written with five vowels. If it has a seven-vowel system, each of the vowels should be represented in the alphabet. If it has nine vowels, all nine should be represented by distinct symbols in the orthography. Similarly, in the consonant system, if a language has two kinds of b (egressive and implosive), both should be represented in the alphabet, for example, b and bh, or b and bb as is done in some other languages.

I have often heard the remark that adding different symbols and/or digraphs would complicate the system, while writing the language with the same vowel inventory as the national language (mostly five vowels).
vowels) would make it much easier. Reality is far from that. Things may look easier for the eye, but if there is underrepresentation, the people have to guess their way through the reading, which means they try, get stuck, and have to reread and reread. Since they will not immediately grasp the meaning, they get discouraged and give up reading in their own language. A system that looks maybe a bit more complicated, with a few extra vowel symbols or digraphs for consonants, needs some systematic teaching (for those already literate in a national language, as well as new readers), but will ultimately prove much more satisfactory. The result will be that people can decipher a text without getting stuck, and without having to reread, and they will grasp the meaning more readily.

2. Tone in African languages

[Topics: Africa]

2.1. Tone versus intonation

[Topics: intonation]

Languages like English and French can be called intonational. Words consist of sequences of consonants and vowels; a sentence has an intonational contour spread out over all the words, with stressed and unstressed syllables alternating, based on the basic stress patterns of the words as well as the composition of the sentence. The important feature in which intonational languages differ from tone languages is that, on the whole, intonation does not cause distinctions in word meaning, whereas tone does. If one does not use the correct intonation, one will sound foreign, but people will still get the meaning. As mentioned in Section 1 above, however, tone must be considered an integral part of the word in most African languages. Much in the same way as consonants and vowels, tone on any one syllable or word may signal minimal distinctions in meaning.

This means that if a person trying to learn a language does not pronounce the correct tone on a syllable or word, he will not only sound foreign, but people may not understand him, or they may get a wrong meaning. Similarly, if this same foreigner, trying to understand native speakers, does not catch words and phrases on their correct tone, he will either not understand or misunderstand them. The amount of possible confusion and ambiguity is directly proportional to the functional load of tone in a language.

2.2. Tone systems

The first step in the analysis of a tone language consists in finding out how many basic tones there are: Is it a two-tone system, a three-tone system, or a four-tone system? How many level tones are there? Are there any rising or falling tones, and how can they be interpreted?

Looking at a number of languages of different language families in Africa, I observe the following two tendencies. First, languages with a basic tone system containing more than two levels are often isolating languages with short words. If not highly monosyllabic, they are disyllabic. On the other hand, the highly

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agglutinative Bantu languages with longer words have basically a two-tone system (with or without the feature of downstep and/or a system of internal tone sandhi).

Highly monosyllabic languages often have three or four tone levels (and quite often a rising and/or falling tone as well), and any syllable can be pronounced on any one of these tones, creating different meanings.

Attié (Kwa, Côte d’Ivoire)

\[
\text{\(ná\)} \quad \text{(extra high)} \quad \text{‘fallow field’}
\]

\[
\text{\(ná\)} \quad \text{(high)} \quad \text{‘comb, red’}
\]

\[
\text{\(na\)} \quad \text{(mid)} \quad \text{‘father-in-law, son-in-law’}
\]

\[
\text{\(ná\)} \quad \text{(low)} \quad \text{‘kind of fruit’}
\]

\[
\text{\(ná\)} \quad \text{(mid-low)} \quad \text{‘animal trap, fat’}
\]

In addition, these languages use tone to make a number of distinctions in the grammar, especially in the verbal system, as is shown in the following example.

Attié (Kwa, Côte d’Ivoire) (the syllable-final \(-n\) represents nasalization of the vowel)

\[
\text{\(hàn\)} \quad \text{\(zè\)} \quad \text{‘we have gone’}
\]

\[
\text{\(hàn\)} \quad \text{\(ze\)} \quad \text{‘we are going’}
\]

\[
\text{\(hán\)} \quad \text{\(ze\)} \quad \text{‘we should go’}
\]

\[
\text{\(hán\)} \quad \text{\(zè\)} \quad \text{‘let us go’}
\]

hàn  

zē  

‘we didn’t go’

Lendu (Central-Sudanic, Zaire)

ni               rà  rà  

‘you went’

ni               rà  rà  

‘you should go’

ní               rà  rà  

‘you are going’

ní               ra  rà  

‘you will go’

Thus, in languages that have a tendency to be monosyllabic, there appear to be numerous instances of tone distinguishing between various lexical items or grammatical constructions. Bantu languages are on the other end of the scale. They tend to have long words, and tone is less frequently the only distinguishing feature between nouns especially. Tone plays a role particularly in the verbal system of Bantu languages, as will be seen in Section 3 below.

2.3. Functional load of tone

Each African tone language uses tone in different ways to signal contrasts in the lexicon and grammar. The basic tone system (two or more tones) and the basic word structure (isolating or agglutinative) play a significant role in the way in which tone functions in a language. There is, of course, individual variation between languages.

Tone has a heavier or lighter functional load according to the intensity with which it is used to make minimal distinctions of meaning, and hence the amount of confusion that may be caused by the wrong speaking, hearing, or reading of tone. It must be said here that even if tone has a very light functional load, or hardly any in a language (for example, Lingala), it still is a tone language because each syllable of each word has its own tone, or each word has its own tone pattern.

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Languages vary in the way they use tone in the lexicon and in the grammar. In the lexicon, minimal pairs or sets for tone will be found distinguishing two or more nouns or verb infinitives. It is a good principle to **compare what is comparable**: to study tone in the noun system first, keeping track of all minimal pairs/sets found. Following that, one could do the same thing for verbs in their most basic form: an infinitive or imperative, listing all minimal pairs/sets distinguished by tone alone. A number of languages show minimal tone distinctions in the pronoun set, that is, different pronouns are distinguished by tone alone.

In many Central-Sudanic languages, the singular and plural pronouns form tonal minimal pairs, as for example in Lendu: *ma* ‘I’, and *mà* ‘we (excl.)’; *ni* ‘you’ and *nì* ‘you (pl.)’. In Ngiti, the first person pronouns are the same as in Lendu, the second person pronouns are *ny i* (sg.) and *ny i* (pl.), and the third person pronouns are *àbadhi* (sg) and *abádhì* (pl.).

In many languages, tone functions much more heavily in the grammar. Tone may distinguish between certain verb tense/aspect forms, where the contrastive tone may occur either on the verb stem itself, on the subject pronoun/prefix preceding the verb stem, or on both.

As seen above in Lendu, ‘I’ and ‘we’ differ only by tone. Similarly, ‘you (sg.)’ and ‘you (pl.)’ are a tonal minimal pair. However, based on the verb tense or aspect used, each of these can be pronounced on a different tone. In the following examples, tone changes on the pronoun and the verb stem are determined by the tense or aspect.

\[
\begin{align*}
ma \ bb & \ ı \ bb \ ı \ & \text{‘I walked’} \\
mà \ bb & \ ıbb \ ı \ & \text{‘we walked’} \\
má \ bb & \ ıbb \ ı \ & \text{‘I will walk’} \\
m à \ bb & \ ıbb \ ı \ & \text{‘we will walk’} \\
ma \ bbí \ bb & \ ı \ & \text{‘I should walk’} \\
mà \ bbí \ bb & \ ı \ & \text{‘we should walk’} \\
má \ bbí \ bb & \ ı \ & \text{‘I am walking’}
\end{align*}
\]

m à bbí bb í

‘we are walking’

Tone may distinguish between affirmative and negative forms of a verb, as in Attié (Kwa, Côte d’Ivoire)

m è shè shè ‘I ate yam’ (SVO)

m è sh è shè ‘I didn’t eat yam’ (SVO)

ò zè ‘he went’

ò zè ‘he didn’t go’

Tone may distinguish between subject and object case in Nilotic and Cushitic languages. In Rendille (Cushitic, Kenya) all consonant-final masculine nouns have low tones in subject position.

makhaâbal ‘man’ (in isolation and as object)

makhaabal ‘man’ (as subject)

makhaabál ‘woman’

ínam ‘boy’ (in isolation and as object)

\textit{inam} \quad ‘boy’ (as subject)

\textit{inám} \quad ‘girl’

\text{iname} \quad \text{\textit{inam} á agarte} ‘the girl (S) saw the boy (O)’

\text{\textit{inam} inám á arge} ‘the boy (S) saw the girl (O)’

In Endo (Nilotic, Kenya), a word has different tones according to whether it functions as subject or as object in a sentence. Since Endo is a verb-initial language, both subject and object follow the verb. The particular tone on which the word is pronounced will indicate its subject or object case. Object tone is the same as in isolation. The change comes when it is subject.

\textit{páliin} \quad ‘farmer’ \quad \textit{kàchintà} \quad \textit{páliin} \quad ‘a farmer fell’

\textit{kòontì} \quad ‘animal horn’ \quad \textit{kàchintà} \quad k óōn tì \quad ‘a horn fell’

\textit{nyóróóròy óōn} \quad ‘chain’ \quad \textit{kàchintà} \quad \textit{nyóróóròy óōn} \quad ‘a chain fell’

Tone may distinguish between \textit{direction} and \textit{location} on postpositions. In Lendu (Central-Sudanic, Zaire), \textit{direction} and \textit{location} are signaled by different tones on the postposition: \textit{location} is marked by a high tone mostly replacing the original low tone of the directional postposition, though sometimes added to it, resulting in a rising tone.

\textit{k ë} \quad \textit{djì} \quad \textit{dza} \quad \textit{dj ë} \quad ‘he is climbing the house’

\text{directional)}

\textit{k ë} \quad \textit{djì} \quad \textit{dza} \quad \textit{dj ë} \quad ‘he has climbed the house and is still there’ (locational)

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Yet other ways may be found in which tone functions in the grammar of a language.

Tone functioning in the grammar may be overlaid on lexical tone, hence it is very important to first discover the basic tone system in a language by studying tone in the lexicon, before proceeding to study tone in the grammar. If one starts with the latter, it is often virtually impossible to disentangle lexical tone from grammatical tone.

### 3. Tone in Bantu languages

#### 3.1. The structure of Bantu languages

Bantu languages are highly agglutinative. Each noun or verb consists of a root/stem, which is in the majority of cases already disyllabic. Each noun is preceded by a class prefix, often consisting of a separate syllable. The majority of the nouns in isolation are therefore at least trisyllabic. Of course there may be a zero prefix for Class 5, and similarly, the prenasalization of the Class 9/10 prefix does not add an extra syllable to the noun stem. A number of Bantu languages are found with a pre-prefix preceding the class prefix, which means that most nouns in isolation are at least four syllables in length. Disyllabic verb stems, preceded by the infinitive prefix  *ku*- or  *i*- yield trisyllabic forms (only a handful of monosyllabic verb roots are found in each Bantu language). The imperative is the verb stem by itself, that is, at least a disyllabic form; any other verb form consists of a concatenation of morphemes and is much longer.

The following are some examples of very long verb forms, which are not uncommon in Bantu languages. An original verb root can be followed by several verb extensions and preceded by tense or aspect prefixes, subject and object prefixes and negative or relative prefixes.

Swahili:  *wataitimilizishiana*  ‘they will accomplish it for each other’

---

3.2. Lexical tone contrasts

[Topics: lexical tone]

Before studying tone in the area of grammar, it is necessary to establish the basic tone patterns on nouns and verbs as they function in the lexicon. It is good to separate nouns and verbs, as will become clear from what follows.

Bantu nouns basically have disyllabic roots. This means that with a two-tone system, four tone patterns may be found: HH, HL, LH, and LL. These four patterns may be realized on the noun-plus-prefix in different language-specific ways.

In Lingala (Zaire) most of the nouns exhibit exactly these four tone patterns on the disyllabic noun roots, preceded by a class prefix on a low tone. Examples are all from Class 5:

- likambo: L. LL
  ‘problem’

- likeí: L. LH
  ‘egg’

- litáma: L. HL
  ‘cheek’

- libándá: L. HH
  ‘courtyard’
In the following example from Pokomo (Kenya), the tone pattern is linked to the noun from left to right, beginning on the prefix. The last tone of the pattern is simply spread on the leftover syllable. Examples are from Class 3.

\[
\begin{align*}
mýkîndû & \quad \text{HH. H} \quad \text{‘type of palm’} \\
mutsûzî & \quad \text{LH. H} \quad \text{‘soup’} \\
mîkono & \quad \text{HL. L} \quad \text{‘arm, hand’} \\
mubâno & \quad \text{LL. L} \quad \text{‘smoked fish’}
\end{align*}
\]

It seems that in Bantu languages with many nouns consisting of three syllables or more, there are not too many instances where tone is the only feature distinguishing between two otherwise identical words in isolation, that is, tone most likely carries a very light functional load in this part of the lexicon.

However, verb infinitives all have one and the same prefix, \textit{ku-/ko-} in most Bantu languages, followed by a \textit{(C)VCa} stem. Since the verb-final \textit{-a} is not part of the basic verb root, it does not carry distinctive underlying tone. The verbs generally split up into two tone classes, based on a high/low distinction belonging to the root, which is not necessarily realized on the vowel of the root.

In Lingala (Zaire), the \textit{H/L} distinction is indeed realized on the first vowel of the verb stem:

\[
\begin{align*}
\text{kosâla} & \quad \text{‘to do’} \\
\text{kozala} & \quad \text{‘to be’} \\
\text{kokóma} & \quad \text{‘to arrive’} \\
\text{kokoma} & \quad \text{‘to write’}
\end{align*}
\]

However, in Digo (Kenya), the tones on the infinitives have moved to the last syllable of the verb, so the distinction between high-tone verbs and low-tone verbs is marked on the verb-final \textit{-a}.

\[
\begin{align*}
\text{kulolá} & \quad \text{‘to marry’} \\
\text{kulola} & \quad \text{‘to look’}
\end{align*}
\]

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It will be clear that there is much more chance of tone being the only distinguishing feature lexically between verb stems with different meanings than with nouns, where there is so much more variety in noun-class prefixes and where there are twice as many different tone patterns. So, even though one rarely finds any tonal minimal pairs in the noun system, the verb system generally contains a high number of minimal pairs. It may therefore be necessary to mark the distinctive tone on the verb stem in the orthography. The following examples are just a few of the many tonal minimal pairs between infinitives in Mashi (Zaire) where the distinctive high or low tone is realized on the prefix rather than on the root vowel or on the verb-final vowel.

\[
\begin{align*}
\text{kúheka} & \quad \text{‘to not be ripe’} \\
\text{kuheka} & \quad \text{‘to arrive at the end’} \\
\text{kúhuma} & \quad \text{‘to touch’} \\
\text{kuhuma} & \quad \text{‘to yield a mushroom’} \\
\text{kúlaba} & \quad \text{‘to decorate’} \\
\text{kulaba} & \quad \text{‘to be on the point of expiring’} \\
\text{kúrhimba} & \quad \text{‘to lack buyers in the market’} \\
\text{kurhimba} & \quad \text{‘to beat the drum’}
\end{align*}
\]

### 3.3. Grammatical tone contrasts

[Topics: grammatical tone]

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Apart from lexical tone distinctions in the noun and verb system, most Bantu languages also have tone contrasts in different areas in the grammar. When speaking about lexical and grammatical tone, we are not saying that there are two different tone systems, but we are indicating in which parts of the language tone functions.

A number of Bantu languages have a third person singular subject prefix for certain tense/aspect forms that is minimally distinctive for tone from the second person singular subject prefix. In such languages, it is important to mark this tonal distinction in the orthography.

In Duruma (Kenya), the second person singular subject prefix is always ə-, and the third person singular subject prefix is ə- or a-. The choice is determined by the verb tense or aspect. However, there is a tonal difference between the two ə- prefixes, which in this language is realized on the following syllable, as follows:

\[
\begin{align*}
ku \ d\ddot{u}\ng a & \quad \text{‘to pierce’} \\
una \ d\ddot{u}\ng a & \quad \text{‘you are piercing’} \\
und\acute{a} \ d\ddot{u}\ng a & \quad \text{‘he is piercing’} \\
unda \ d\ddot{u}\ng a & \quad \text{‘you will pierce’} \\
und\acute{a} \ d\ddot{u}\ng a & \quad \text{‘he will pierce’}
\end{align*}
\]

In some Bantu languages, the object prefixes for third person singular and second person plural are distinguished by tone alone, for example, in Mashi mú- ‘him’ and mu- ‘you (pl. object)’.

\[
\begin{align*}
am\acute{u}b\acute{o}na & \quad \text{‘he saw him’} \\
amubona & \quad \text{‘he saw you (pl.)’} \\
amubona & \quad \text{‘he will see him’}
\end{align*}
\]

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It is suggested first to investigate if there are minimal tone distinctions in the sets of subject and object prefixes before embarking on the study of tone in the more difficult areas of the grammar.

Another area where tone will most likely function is the verb tense/aspect system. This is often much more difficult to discover since the distinctive tones indicating different tenses or aspects may be realized on the subject prefix and/or the verb stem, and in addition may be overlaid on the lexical tonal distinctions into two verb-tone classes. If, in addition, the language has a system of internal tone sandhi, it may be quite difficult to disentangle these different features from the resultant surface forms.

One widespread general feature (which occurs in Bantu languages, other Niger-Congo languages, and Nilo-Saharan languages) is that the different verb forms can be divided into two major groupings, perfective and imperfective aspects. Imperfective aspect and/or subjunctive mood may be marked by a high tone, often realized on the subject prefix. Therefore, when investigating tone, it is advisable to check through all different verb paradigms to see if there are two major categories: those which begin with low tone and those which begin with high tone. The following step would be to see if this is linked in any way to a perfective/imperfective aspect distinction or to a subjunctive/nonsubjunctive mood distinction. At the same time, one will want to see if any of these forms are identical segmentally, showing tone to be the only distinguishing feature. Languages where there are not at least two paradigms distinguished by tone alone are rare.

The initial high tone on the prefix may cause additional tonal alternations elsewhere in the verb form, but since these are triggered by the initial high tone on the subject prefix, it may be sufficient to mark tone on the subject prefix only, in order to disambiguate. If a verb is part of a minimal tone pair and/or the object prefix ‘him’ or ‘you (pl.)’ is used in the verb form, it may be necessary to mark tone there, too.

In Mashi (Zaire), the narrative past and the future are distinguished by tone alone on the first syllable of the verb form.

\begin{itemize}
  \item \textit{nag\'anja} \quad \text{‘I counted’ (narrative past)}
  \item \textit{n\'ag\'anja} \quad \text{‘I will count’ (future)}
\end{itemize}

Similarly, the recent past and the distant past are also distinguished by tone on the first syllable of the verb form.
nalasíre ‘I wept’ (recent past)

nálasíre ‘I had wept’ (distant past)

rhwalángaga ‘we kept (it) well’ (recent past)

rhwálángaga ‘we had kept (it) well’ (distant past)

The following is a set of four examples distinguished by tone alone. The verb kurhabaala ‘to help’ is transitive, and has a third person singular or a second person plural object prefix in the different forms.

rhwámúrhabaala ‘we will help him’

rhwámurhabaala ‘we will help you (pl.)’

rhwamúrhabaala ‘we helped him’

rhwamurhabaala ‘we helped you (pl.)’

If, in addition, there is a lexical minimal tone pair between two transitive verbs, the number of tonally contrastive forms between narrative past and future or between recent past and distant past could increase to eight in each case.

Finally, does tone function anywhere else in the language, causing minimal distinctions for meaning? It is good to investigate if there are any other verbal prefixes carrying different meanings which are distinguished by tone alone. Are there any affirmative and negative paradigms distinguished by tone alone? (See the Attié examples presented above in Section 2.3 of a non-Bantu language.) Mashi has relative clauses distinguished from their nonrelative matrix sentence by tone alone.

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In addition to these important aspects of tone in the verbal system, one should always be on the lookout for minimal pairs in other small word classes, for example, in conjunctions. Lendu (Central-Sudanic) has both \textit{ndè} (low tone) ‘and then’ and \textit{nde} (mid tone) ‘but’. Both can occur in the same position in a sentence, and clearly need to be marked for tone in the orthography.

4. Tone orthography

[Topics: tone: marking]

In the past, there has been much resistance to representing tone in the orthography in a number of African languages, due to several factors, like:

- It is a feature not found in English, French, or Portuguese.
- The difficulty of analyzing the tone system of the language and hence determining exactly where tone should be written in the language.
- The natural supposition of many people is that an orthography that looks more difficult, is harder to read. (I have argued above that \textit{not} writing tone often makes it more difficult, if not impossible, to read without previous knowledge of the content, since it underdifferentiates and people have to guess their way through a text.)

4.1. Symbolization of tone in the orthography

There seems to be a limited choice as to what symbols can and should be used to mark tone in the orthographies of African languages. I have encountered the following three systems:

4.1.a. The use of accents

<table>
<thead>
<tr>
<th>Acute accent: á é í ó ú</th>
<th>(high tone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grave accent: à è ì ò ù</td>
<td>(low tone)</td>
</tr>
<tr>
<td>Circumflex: â è î ô û</td>
<td>(falling tone)</td>
</tr>
<tr>
<td>Wedge: ă ĕ ĩ ô ũ</td>
<td>(rising tone)</td>
</tr>
</tbody>
</table>

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In some isolated cases, one finds the use of an overstrike or a tilde to mark tone: \( \ddot{a}, \ddot{u}, \ddot{u}, \) or \( \ddot{a}, \ddot{u}, \ddot{u} \).

These accents are placed on the vowel of the syllable in question. This system can be used for any type of language for both long and short words. It has been readily accepted in countries where French is the official language, since three of the four diacritics are used in the French orthography, albeit with a different function. I would expect that introducing such symbols in countries where Portuguese is the official language should not be too difficult. Anglophone countries tend to be very resistant to this (or any other) system of symbolizing tone in the orthography of local languages.

Even though this system is most widely used for languages that mark tone—and it seems by far the most relevant way of marking tone in Bantu languages—it has a small disadvantage in case both high and low tone need to be marked (for example, a three-tone language in which the mid tone is left unmarked). The grave and acute accents are mirror images of each other. This may in some cases initially be a little confusing to the prospective reader, and special emphasis needs to be given to help the new reader fix these accents in his mind together with the correct tones. Bantu languages, with two underlying tones, will in most cases only need one of these symbols: either high-tone marking by an acute accent, or low-tone marking by a grave accent, leaving the other one unmarked. Thus, the slight problem mentioned here, has no relevance for Bantu languages.

4.1.b. The use of punctuation marks preceding and/or following the word

```
''na  extra high

'na  high

zero-marking na  mid

-na  low

=na  extra low
```
combinations of these for rising or falling tones

This system may look somewhat unusual, but it has several advantages:

• The punctuation marks are more distinctive from each other than the accents.

• It is very useful for languages with more tone levels (the complete set can easily handle four or five levels, attested in a number of non-Bantu languages).

• Rising and falling tones can be represented fairly easily by combinations of these level tone symbols, one preceding and one following the word.

Attié (Côte d’Ivoire)

-\textit{ne}’ (LH) ‘tomorrow’

\textit{na}- (ML) ‘animal trap’

The main disadvantage of this system is that if it were used to mark tone on every syllable in languages with long words, the words would have to be broken up after every syllable. This makes the system of tone writing by punctuation marks unacceptable for Bantu languages, which have such a high degree of agglutination. It has proved to be very useful, though, for highly monosyllabic languages, which tend to have more tone levels.

\textbf{4.1.c. The use of special marks to indicate different grammatical categories}

In Sabaot (Nilotic, Kenya), the tone on a word as the subject is different from the tone on the same word as the object. The colon is used to indicate that the word should be subject, as follows:

\textit{kamwoochi} :\textit{kwaan} (VS) ‘his father said to him’ (\textit{kwaan} is subject)

\textit{kamwoochi} \textit{kwaan} (VO) ‘he said to his father’ (\textit{kwaan} is object)
Another minimal tone contrast in this language is the difference between ‘we’ and the indefinite ‘one’. The latter is marked by a slash preceding the word, as follows:

\begin{align*}
\textit{kikiibat mbareet} & \quad \text{‘we ploughed the field’} \\
/k\textit{kikiibat mbareet} & \quad \text{‘one ploughed the field’}
\end{align*}

A similar approach was followed in Engenni, where different verb categories were marked by different symbols, which bore no direct resemblance to the tone. The people had to learn these as belonging to a certain tense or aspect. This also helped to deal with the problem that the tones on the different verb tenses and aspects would sometimes affect the tones on the preceding and following noun phrases.

In the cases presented above, the special marks serve to disambiguate between certain grammatical categories distinguished by tone alone. The teaching of tone writing in this way will have to follow a different approach, since it is not linked to people’s awareness of different tones. Instead, we will have to raise their awareness of certain grammatical features in relation to the specific marks used. This approach appears to be helpful for writing grammatical tone in agglutinative languages, especially when the verb tone influences the tones of the words preceding and following, or when there is no regular paradigm for the differences between object and subject tone. Systems like these have not yet found widespread use in Africa however.

Other systems for symbolizing tone may be used elsewhere in the world, but have found virtually no acceptance in Africa. These include the use of raised numbers following the word, as was done in Mexican languages at some point, and the use of certain letters, for example, \( h \) at the end of a word to indicate a particular tone (in Southeast Asian languages).

### 4.2. How much should tone be written?

To make a decision as to how much tone should be written in a language, the following two interrelated questions need to be answered:

1. Should all level tones, as well as rises and falls, be symbolized in the orthography?
2. Should the symbols chosen be used to write tone everywhere in the language, or should tone be marked only in those places where there is potential ambiguity of meaning?

The first question raises the problem if in a two-tone language one writes both the high (acute accent) and the low (grave accent), as well as falling and rising tones on a short syllable by the appropriate combinations of acute and grave accents. The general consensus is that one can leave one of these

unmarked, either the low tone or the high tone. If tone is marked throughout the language, one could follow this approach: high tone marked, rising and falling tone marked, low tone unmarked (or vice versa: low tone marked and high tone unmarked). This means that any and all unmarked syllables are low (or high, according to the choice of system). Similarly, in languages with a three-tone system, low and high could be marked with a grave and an acute accent, and a mid tone remain unmarked.

However, in Bantu languages with longer words and hence a much lighter functional load of tone, especially in the lexicon, one may not want to write tone everywhere in the language. One may decide to write tone only to deal with semantic ambiguities, which means writing it on a number of lexical items and in particular grammatical constructions, but not on every word. Though this is probably the favored choice of tone marking in Bantu languages, there are a few drawbacks of which those who design orthographies should be made aware. These disadvantages become apparent when this method of tone writing to disambiguate semantically is combined with the system of leaving one tone unmarked, as explained above. The argument is the following: When, out of a lexical minimal pair or a grammatical minimal construction, one item is marked to disambiguate (for example, by a high-tone acute accent), the people may learn to read the marked one correctly. However, if while reading a text, they come across the unmarked word or grammatical construction, it is most unlikely that it would immediately occur to them that they have a choice: the unmarked one in front of them or the marked one. Since they would most likely not be immediately aware of this, they would probably at random pronounce either the marked or the unmarked one. Unmarked means in this situation to read the tone opposite to the marked one, whereas in most other words and constructions of the written language not marked for tone, it would mean: read any tone (that is, the one that carries meaning). The solution to this problem would be to leave one tone unmarked only when tone is marked everywhere in the language, and to write all tones when tone will be marked only where there are potential ambiguities. I do not know of any languages that have applied this fully, but it would be worth experimenting with and documenting to serve as a guide for the development of tone writing in other Bantu languages.

4.3. Where should tone be written in Bantu languages?

I have not seen Bantu languages with tone written everywhere, though this may be done in some of the tonally more complex Bantu languages in Cameroon. Since at present the most likely choice is to write tone to disambiguate semantically only, the first step in the study of a language would be to list the areas where tone causes minimal distinctions and may have to be marked. Those who develop the orthography can systematically consider each point and make a decision on how to disambiguate the written forms.

I suggest the following procedure, which is valid in principle for all tone languages. First, compile a list of all minimal tone contrasts in nouns and verbs (in Bantu languages, most likely many more of the latter than the former). If the number of lexical tonal minimal pairs in the verb system is substantial, do some testing with full tone writing throughout the language. In addition, list all the areas of grammar where tone functions, to distinguish subject and object prefixes, verb aspects, relative clauses, and so forth. It is best to mark each one of a pair, writing both high and low tone in the language that has two tones. Lexical tonal contrasts, once marked in the orthography, should be listed exhaustively in an orthography guide, followed by an example of each of the grammatical constructions that require tone writing.

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5. The teaching of tone

[Topics: tone: teaching]

This section deals with the pedagogical approach to teaching tone. It suggests ways to teach people to read the tone marks once the analysis has been done and a decision has been made to write it in the language.

The teaching of tone reading is easiest when tone is written everywhere in the language, rather than at certain places only to disambiguate lexical and grammatical ambiguities, though similar principles are followed.

The teaching of tone reading is necessary for both beginning readers, and those people who have learned to read in a language of wider communication first, and who now need to make the transition to reading their own language, including the tone marks.

The principle is to always introduce tone in pairs, that is, from a real minimal pair in the language. Following that, the learner, preliterate or already literate in another language, needs to have an exercise where he is forced to look at the tone marks without having anything else to hang on to. This can be done with an exercise with so-called nonsense syllables (or nonsense words). These are syllables that exist in the language, but carry no specific meaning. When four or five are put together in a sentence, the reader is forced to look at the tones only. In this way, both the already literate person and the preliterate will learn to read the tone marks. (Since the preliterate does not yet read any consonants or vowels, he just repeats the segmental part of the syllable from what the teacher says, and learns to look at the tone marks only). This method of tone teaching has been proven successful in a number of experiments both in West Africa (where tone was written with the punctuation marks) and in Eastern Africa (where tone was written with the accents).

In a language where tone is fully written, the teaching for preliterates needs to cover all the tone marks before moving on to the teaching of vowels and consonants (Figure 1). When tone is written only sporadically to disambiguate, the teaching of tone can be done in special exercises presented alongside some of the vowel and consonant lessons, always being shown in contrastive pairs.
After the initial introduction by a real minimal pair and an exercise with nonsense syllables or words, the teaching for literates can immediately continue with a list of real minimal pairs in the language (Figure 2). This will reinforce the necessity to look carefully at the tone marks and raise the awareness of the function of tone in the language. This can be followed by short sentences containing each item of these minimal pairs (Figure 3). It is often possible to create sentences that are the same, except for the inserted items. Since fluent reading becomes more and more guessing, it is good to force the learner to look closely at the marks indicating tone, so when he needs it, he has learned to recognize the mark and to pronounce the syllable or word on the right tone.

In every case of tone teaching of which I am aware, it has been easiest to raise people’s awareness of tone by first working with lexical minimal pairs. In this way, they learn the value of the tone marks first before tackling the minimal distinctions in the grammar. These also need to be taught systematically, however, so people will become aware of the tonal contrasts in the grammar of their language and can learn to read these distinctions easily.

6. Conclusion

This paper has provided observations and suggestions for those engaged in analyzing and teaching tone. I have tried to bring together linguistic aspects of tone, which are a necessary prerequisite for the development of a good representation of tone in the orthography, and the pedagogy of teaching the reading of tone, which is a necessary follow-up once the tone orthography has been decided.

I have tried to give some specific focus to tone in Bantu languages, though the principles set forth in this paper are generally valid for tone systems of any African tone language. This paper was specifically written to raise the awareness of people concerned with orthography development of and literacy in the many tone languages of Africa. I hope that joining the linguistic background to the practical purposes of (1993). Notes on Literacy, 19(1).
tone orthography and tone teaching will enable them either to do the necessary linguistic background work themselves, or to seek help from experienced linguists. In this way, a scientifically-based tone orthography can be developed capable of disambiguating at least all potential semantic tonal ambiguities.

My hope is that this paper may contribute in such a way that people may learn to read their languages more fluently without constantly having to guess and to reread. Then they will be able to read joyfully with understanding their own language, which is their heritage and is an expression of their ethnic identity.