Avoiding tone marks

A remnant of English education?

by Mike Cahill

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1. Introduction

This article is the result of research prompted by the author’s struggles with how or if tone should be marked in a language which has never had an orthography. Though the language group involved, Kɔnni, is quite small, the author believes the issues involved are applicable to all languages in Ghana.

This article will show that tone is phonemic in Ghanaian languages, but it is largely underrepresented in orthographies. My contention is that the basic reason for this is that alphabet-makers in Ghana, past and present, have been used to the English alphabet, which has no tone marks. Technical reasons for not marking tone are also discussed, and criteria for deciding whether tone marking is needed are examined.

In the discussion below, curly brackets {} are used to enclose orthographic symbols (letters of the alphabet), while slashes // enclose phonemes, and square brackets [ ] enclose phonetic representations.
Tone is phonemic but largely unwritten in Ghanaian languages

One of the starting assumptions of a sound orthography is that each phoneme should be represented by its own symbol. A phoneme is **OVERDIFFERENTIATED** when more than one symbol is used to represent it. This is the case for the letters {d} and {r} in several Ghanaian languages, for example, Hanga, Kusaal, and Dagaari, to mention just a few. In these languages, [r] can be shown to be a manifestation of an underlying /d/, but social and other factors favor the use of both {d} and {r}. Overdifferentiation generally presents few problems for readers.

On the other hand, **UNDERDIFFERENTIATION** occurs when two or more phonemes are represented by a single symbol, or a phoneme is not represented at all in the orthography. For example, in Akan orthography no distinction is made between oral and nasalized vowels, though the difference is crucial in distinguishing some words. Underdifferentiation creates ambiguities in written forms and has the potential to cause serious problems for readers, to the point of even making a text undecodable.

Now then, “a sound is considered phonemic…if its substitution in a word does cause a change in meaning” (Crystal 1985:228). In Ghanaian languages, tones are phonemic as much as any vowel or consonant; to change the tone of a word can change the meaning or make it into nonsense. It is common to talk of **LEXICAL TONE**, which changes the meanings of individual words, and **GRAMMATICAL TONE**, which changes the meaning of a larger utterance. Illustrations of each are given below.

**Lexical tone (Kɔɔnɔ)**

a. [dàá œ] stick, wood

b. [dáá œ] akpetishie drink

c. {da daa daa œ} Don’t buy(??)! (ambiguous)

**Grammatical tone (Anu fɔ)**

a. [i kó] he goes (habitual)

b. [i kò] he will go (future)

Of the 31 Ghanaian languages for which the author has orthographic information, 21 do not mark tone at all in their orthographies, nine mark grammatical tone, and four mark tone to differentiate minimal pairs (see the appendix).

2. Why not?

There are two basic reasons for not marking tone in Ghanaian languages. One is technical; the other is attitudinal. The attitudinal problem has caused a paralysis of action to solve the technical problem and is, therefore, the more serious and basic of the two.

The basis of the attitudinal problem is, simply, that Ghanaian languages are not like English. By and large, the people in a position to formulate orthographies for Ghanaian languages have either been native English speakers or Ghanaians highly educated by means of the English language. Either way, these people (the author included!) view the English alphabet as the “normal” way to go about the task. By the time they have graduated from university, or even secondary school, Ghanaians have read much more in English than in any Ghanaian language. They are not trained to think in terms of tones but only consonants and vowels. They have adapted their reading strategies to fit the English alphabet. Thus, the natural inclination is to favor alphabets which are as much like English as possible. Of course, the outsider, the native English speaker, does the same.

This tendency affects decisions about non-English symbols like \{ ʋ \} and \{ ŋ \}, but reaches a maximum when it comes to putting “those funny-looking marks all over the page.” Diacritics have been eradicated from modern-day English, and we are reluctant to reintroduce them elsewhere.

Thus far, the discussion has been concerned with the visual aspects of marking tone. But, many non-Ghanaian expatriates in the past have had a basic uneasiness with the whole concept of tone itself.

A shocking number of people concerned with African languages still seem to think of tone as a species of esoteric, inscrutable, and unfortunate accretion characteristic of underprivileged languages—a sort of cancerous malignancy afflicting an otherwise normal linguistic organism. Since there is thought to be no cure—or even reliable diagnosis—for this regrettable malady, the usual treatment is to ignore it, in hope that it will go away of itself. With a more optimistic determination, one group of language learners in Africa asked a trained linguist to come and try to “get rid of tone” in the local language (Welmers 1973:77).

Interestingly, Awedoba (1991:37), in a thorough survey of tone needs in Kasem orthography, lists “the European (Anglo-French) legacy” first among factors to explain why tone has not been written in traditional Kasem orthographies.

Page 3.
Thus, the underlying reason for a reluctance to mark tone comes from the fact that those in the decision-making process have been prejudiced in favor of English sounds and symbols. Reinforcing this prejudice is the fact that the most widespread language group of Ghana, Akan, does not mark tone at all.

It is true that there are technical difficulties involved as well. These should not be minimized, but they should be seen in light of the total picture of devising an orthography. These technical linguistic problems are nicely summed up as follows, as applied to the Hanga language. “It is not proposed to write tone. There are very few words distinguished by tone alone, moreover construction tone often overrides lexical tone or perturbations modify the basic tone, making tone difficult to mark” (Hunt 1981:42).

I interpret the above as saying:

1. Tone distinguishes few words and, therefore, has a low functional load. Few ambiguities will result from not marking tone.

2. The underlying tone of a word can be overridden by grammatical tone (Hunt’s “construction tone”).

3. The underlying tone (or presumably even the grammatical tone) can be modified by various perturbations.

4. Therefore, it is hard to decide how to mark tone!

These will be addressed below one at a time.

The fact that tone may distinguish few words is not in and of itself a valid reason for excluding it from the orthography. In Kɔnni, the phonemes /v/ and /f/ distinguish very few words. But unlike tone, {v} and {f} are familiar species, and we take it for granted they should both be included. The term “functional load” is one that is used quite often but with no specific definition. There is more to it than just minimal pairs, however, tonal or otherwise, and this will be discussed more fully in the next section.

Next, the presence of grammatical tone actually simplifies the task of tone marking. The grammatical tone gives the meaning of the utterance and would definitely be marked in preference to an underlying lexical tone. In addition, the grammatical tone would be easier to discover than some of the underlying lexical tones in a language.

Perhaps a slight diversion is appropriate at this point to make clear the phonological model that underlies this discussion. From the thought to the actual speech, we can symbolize the production of speech very generally as follows:

**LEXICON**

Words are stored here, together with underlying lexical tones. Grammatical tones, if present, cancel lexical tones at this level.

**PHONOLOGICAL RULES**

These rules act to modify or “perturb” the tones that come out of the lexicon.

As for the third problem, the perturbations that come from various rule applications are of more concern than grammatical tone substitutions. For example, in Kɔnni, we have:

\[ \text{[ hɔgʊ]} \] woman, wife

\[ \text{[ ŋwɔ hɔgʊ]} \] I don’t have a wife.

For the word / hɔɡʊ/ in the second case, would the underlying lexical tone LH be marked, or the surface tone HH? The problem of which level to represent in orthography is not unique to tone; in particular, vowels in Ghanaian languages exhibit even greater variation! For example, the Kɔnni / i/ can vary as follows:

\[ \text{[ yɪ ba]} \] give them
\[ \text{[ yʊ wa]} \] give him

\[ \text{[ tasɨka]} \] the headpan
\[ \text{[ tasɨŋ]} \] headpan

Here the phoneme / i/ has three distinct allophones: / i, v, i/. The problem we face in orthography here is a familiar one: do we write morphophonemically, phonemically, phonetically, or what? The problem does not always yield simple answers, but it is one we have faced and have found some solutions for.

Why have we not done the same with tone? Besides all the attitudinal factors above, there is the technical problem of tone analysis. It can be difficult to determine what the lexical tone on a word is, especially if one’s linguistic training has not emphasized tonal analysis. But autosegmental phonology and other developments offer new hope in analyzing tone, and we are in a better position today to deal with tonal problems than ever before.

3. Considerations for decisions on tone marking

From the purely linguistic point of view, there would seem to be no reason not to mark tone in a language in which it has been identified as phonemic. However, the decision to mark or not to mark must take several other factors into account. There are at least the following factors.

1. Linguistic: is there a phonemic contrast?
2. Psycholinguistic: how important is the contrast (functional load)?
3. Sociolinguistic: do the users want it?
4. Practical: can you print it or type it?
5. Official: what government policies exist?

The linguistic factor above has been discussed; let us turn to the other factors, in reverse order.

If the government has a policy prohibiting tone marks, that will negate all the other factors. In the past, the Bureau of Ghana Languages had such a prohibition, which is the reason Konkomba, Kusaal, and others that had SIL work done at that time marked no tone, and they still don’t. The report of the Ghanaian Language Alphabet Standardization Committee which met last year [1992] advises tone marks “should be used sparingly” but does acknowledge the need for them. At this point in Ghana, linguists are free to pursue the subject.

On the practical side, while those who are blessed with computers can print almost anything they want (when the things are working right!), most standard English typewriters do not have {́́́́́́́} tone marks. For printing when a computer is not available, tone marks may often have to be added by hand. This is a barrier, but not an insurmountable one.

The sociolinguistic factor must also be considered. If the goal is to get people to read, an unpopular orthography would not help. Sometimes the influence of the educated ones (again, influenced by an education in English) can be enough to turn opinion against a linguistically sound orthography. Sometimes the people as a whole prefer their printed page to “look like Twi” or “look like English,” or “not look like Gonja.” The users’ opinions must be taken into account.

Perhaps the most neglected area is the psycholinguistic one, and the rest of this section will deal with this. Given that there is a phonological contrast, is it important enough to be symbolized? Is the functional load of the phoneme high enough to warrant a place in the orthography?

No one has yet come up with a simple way to precisely measure the functional load of a phoneme or even rank it against other phonemes. Powlison (1968) made an attempt, but his criteria are really unworkable and were severely criticized by Gudschinsky (1970). Unseth and Unseth (1991) have approached the whole subject from a complementary viewpoint, that of ambiguity, which seems to be a much more fruitful approach.

Functional load is difficult to quantify, because there are two components to consider: one which we can call LINGUISTIC FUNCTIONAL LOAD, which is purely mechanical, and the other being PSYCHOLINGUISTIC FUNCTIONAL LOAD, which is psychological.
Linguistic functional load considers how many phonemes contrast with the phoneme in question, how frequently it is used in words, and its predictability, both within words and (harder to measure) within texts. It can be assessed with a dictionary and a variety of texts. For example, the more frequent the use, the higher the functional load; the more predictable the phoneme is, the lower its functional load. Powlison deals exclusively with this concept.

Psycholinguistic functional load, on the other hand, is the relative weight a real live speaker or reader gives a phoneme in determining the meaning of what he hears or reads. In a given word, there may be several features that cue the reader to its identity, but they are not all weighed equally.

For example, in Mazatec, a tonal language of Mexico, there are phonemically 16 consonants, eight vowels, and four tones. If the linguistic functional load is considered, both consonants and vowels should have a higher functional load than tone, because there are more contrasts within those systems. However, Mazatecs can carry on extended conversations just by whistling, with tone carrying all the information, and an alphabet which does not mark tone is totally incomprehensible (Gudschinsky 1970).

In contrast to linguistic functional load, psycholinguistic functional load cannot be mechanically measured but must be tested by observation of live readers. It is often asserted that “ambiguities will be resolved by context.” This claim may or may not be true, depending on the language, but it needs to be tested in any case. In the Kɔnni examples given earlier, it is not likely that “akpeteshie drink” and “wood” would have uses similar enough to be confused in context, but it may be possible. Furthermore, the beginning reader, slowly working his way through a paragraph, will not have the strategies of a more experienced reader to disambiguate words. Instead of confident armchair assertions, careful on-the-field testing and observations are needed.

Bauernschmidt (1980) writes about the need to assess the functional load of phonemes, including suprasegmental ones like tone, since it is “usually not necessary for every feature which is phonologically contrastive to be symbolized. A decision to underdifferentiate contrasts must be made carefully and on the basis of testing rather than on hunches or personal prejudice. In the early stages of the literacy program it is safer to symbolize more of the contrasts and err on the side of redundancy than to underdifferentiate and later have to add more symbols. It is a less painful experience for all concerned (including the linguist) to subtract rather than add symbols” (1980:14).

It is important to be especially careful to give the reader every cue he needs, even to the point of redundancy, not only in “the early stages of the literacy program,” but also in the early stages of reading for an individual. Mugele (1978) makes the point that fluent readers can make good predictions about a text, not even needing to process every symbol, but beginning readers need every bit of information that will help him find the meaning. A “simpler” orthography is not necessarily easier for the beginner! He concludes, “It is much easier for the fluent reader to ignore data that he no longer needs than it is for the beginner to guess at the meaning of a word for lack of data that would have given him the means to identify the exact word” (1978:24).

4. Conclusion

Page 7.
This article has asserted that decision-makers’ training and background in English has been a major underlying cause for not dealing adequately with the marking of tone in Ghanaian languages. In addition, a great amount of inertia exists because of not marking tone in the past. Finally, linguistic difficulties, though present and not trivial, can be faced and overcome.

In conclusion, the author has two recommendations for those who may be in a decision-making role for orthographies. First, assuming an adequate linguistic analysis is available, err on the side of more tone marking rather than less. In rural Ghana, most people will probably not have more than a few years of schooling. They will be classed more as “beginning readers” than fluent ones. If the goal is mass literacy, then one must cater to the circumstances of the majority. Therefore, more redundant features should be supplied to them on the printed page. If it becomes apparent that the marks are not needed, they can be deleted. (It may even be possible to have an orthography that marks tone more fully in the primer and early reader materials, but drops it in more advanced material.)

Second, careful field testing should be done, comparing not marking tone with different ways of marking tone. This should be done both with beginning readers and readers fluent in the language being tested, if possible. (This assumes the teaching of tone marking is done in an effective way, also.) One of the most thorough examples of this is by Mfonyam (1991), who dealt with a very complex tonal system in Cameroon.

It is possible that testing will suggest that for many languages in Ghana, tone marking would not improve the orthography. The author doubts that this would be the case. But if it is, at least the linguist will have the satisfaction of knowing his orthography is based on sound data, and that he has not given in to “our lazy preference for not symbolizing those elements of the language which are difficult for us to hear or difficult for us to analyze” (Gudchinsky 1970:23).

References


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Citations

**Appendix. How Ghanaian languages mark tone**  
Page 9.
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