VO Evel HARMONY AND TONE IN AKAN TOCOPYMNS

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Akan toponyms call into question several previously held generalizations made by linguists about vowel harmony and tone. Thus, because most toponyms were 'historically' phrases or even clauses but have become single words or are on the way to becoming single words, their phonological behavior regarding vowel harmony and tone may hold on to their original phrasal and clausal traces. Toponyms that are not completely lexicalized exhibit phonological behavior of phrases or sentences and may therefore be seen as exceptions to the Akan vowel harmony and tonal assimilation processes. However, completely lexicalized toponyms follow the vowel harmony process in Akan by which all the vowels in a word are either RTR or ATR and that ATR vowels can assimilate preceding RTR vowels into ATR. Also, with completely lexicalized toponyms, the vowel harmony process of raising can go beyond one syllable. Although only the ATR vowel harmony value is synchronically active today, there is evidence to show that RTR vowel harmony value was active some time ago. Thus, contrary to the assertion that RTR vowels are unable to lower ATR vowels to RTR, there is evidence to suggest that RTR vowels may be able to lower ATR vowels to RTR. The low ATR vowel, /a/, can raise a RTR vowel to ATR. Concerning tone, a floating low tone may or may not cause a downstepping of a following high tone. A low tone associated with the initial vowel of the second element of a compound toponym may be changed to a high tone.

1. Introduction

This paper shows that a systematic attention to Akan toponyms calls into question several previously held generalizations made by linguists about vowel harmony and tone. A study of some Akan toponyms points to the fact that there are exceptions to previously stated generalizations about how vowel harmony and tone operate in Akan. The paper shows that because most toponyms were 'historically' phrases or even clauses but have become single words or are on the way to becoming single words (from a lexical or syntactic perspective), their phonological behavior regarding vowel harmony and tone may hold on to their original phrasal and clausal traces. Regarding vowel harmony, the paper shows that:
(1) Toponyms that have been completely lexicalized follow the vowel harmony process in Akan by which all the vowels in a word are either RTR or ATR and that ATR vowels can assimilate preceding RTR vowels into ATR.

(2) Contrary to the notion that a RTR vowel which has been raised to ATR cannot raise another preceding RTR vowel to ATR, there is evidence to show that with completely lexicalized toponyms, some RTR vowels raised to ATR raise other preceding RTR vowels into ATR. Thus, with completely lexicalized toponyms, the vowel harmony process of raising can go beyond one syllable;

(3) Contrary to the assertion that RTR vowels are unable to lower ATR vowels to RTR, there is evidence to suggest that RTR vowels may be able to do so. For example, close observation of the elements that form the toponym Adankoromo — a [a]'a nominalizing prefix' + dan [dan] 'depend on' + kuro [kuro] 'town'+ no [nu] 'the'—suggests that the RTR vowel [u] of no [nu] 'the' lowers the ATR vowels [o] and [u] into [o] and [u] respectively. In Odumase [odumas]1 formed from odum [odum] 'a type of timber' and ase [asì] 'beneath', the RTR vowel [a] lowers the ATR vowels [u] and [o] into [u] and [o] respectively.

(4) Contrary to the notion that the low ATR vowel, /æ/, cannot raise a RTR vowel to ATR vowel, there is evidence to show that /æ/ can do so.

Concerning tone, the paper explains that Akan toponyms are sometimes inconsistent with the generalization that if a segment or syllable is deleted, its associated tone should remain and exert an influence on the tone of an adjacent syllable. Specifically, I show that:

(1) If the final component of the toponym is the postposition eso [èsù] 'on' or 'on top of', the initial vowel [e] is deleted and its associated low tone may or may not cause a downstepping of a following high tone.

(2) If the final component of the toponym is the postposition ase [àsì] 'under' or 'beneath', then the full form including the tonal pattern may be maintained. However, the low tone associated with the initial [a] vowel may be changed to a high tone.

2. Method

The data for this study consist of Akan toponyms from different parts of Akan areas in Ghana. The study involves a morphophonemic description of the toponyms. In particular, it involves a description of the morphophonological issues (that take place during the formation of toponyms) which are contrary to established claims about vowel harmony and tone in Akan phonology. The study does not pay any particular attention to etymology or history of such toponyms. The claims made are based on my transcripts and on morphophonemic facts.

3. Data analysis

This section presents a discussion of vowel harmony and tone in Akan toponyms. The discussion dwells mainly on exceptions (that arise from the study of Akan toponyms) to previously stated generalizations about vowel harmony and tone. There are two subsections and each subsection begins with a brief discussion of toponyms that conform exactly with the generalizations made in the literature and is followed by a discussion of those that do not conform to such generalizations.

3.1 Vowel harmony

Vowel harmony is a type of assimilation when vowels come to share certain features with other vowels of the same class, (Crystal 1994:168). Phonetically, ten vowels are identified in Akan (Twi). These vowels are [i i e e a o o u u] or [I I E E a E a u u]. Thus, there is a restriction on the distribution of the vowels which does not generally allow the vowels of Set 1 to occur in the same word with those of Set 2 (Dolphyne 1988:15). In the examples in Table 1, the vowels are from either of the sets above.

Table 1: Vowel harmony sets

<table>
<thead>
<tr>
<th>Set 1</th>
<th>Set 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kofò [kòfì] 'name of a male person born on Friday'</td>
<td>kofe [kòfì] 'go and throw up'</td>
</tr>
<tr>
<td>Adu [àdù] 'proper name'</td>
<td>Ado [àdù] 'proper name'</td>
</tr>
<tr>
<td>esie [èsiè] 'hill'</td>
<td>esee [èsiè] 'father'</td>
</tr>
<tr>
<td>owwu [òwìwì] 'death'</td>
<td>ewoo [èwìwì] 'honey'</td>
</tr>
</tbody>
</table>

The words under Set 1 have only ATR vowels whereas those under Set 2 have only RTR vowels. According to Lindau 1979, Akan ATR vowels are characterized by a hollow quality because during their production the root of the tongue is pushed forward, a process which enlarges the space in the pharynx. Thus, there is a wider pharynx and lower larynx. Lindau (1979:171) remarks further that 'because the tongue is a constant mass, when the root is advanced, the front of the tongue, including the blade is also displaced upwards as an automatic consequence of the pull of the posterior genioglossus'.

The low central ATR vowel [æ] has different characteristics in the different Akan dialects. Dolphyne 1988 and Lindau 1979 note that unlike the Fante dialects, in which during its articulation the tongue root is pushed forward thereby enlarging the space in the pharynx and thus giving it a hollow quality, in the Akuapem and Asante dialects the root of the tongue is not pushed forward during its articulation. Thus, [æ] is the Akuapem and Asante dialects is not characterized by a hollow quality. During the articulation of RTR vowels, the root of the tongue is retracted and the larynx is raised thereby narrowing the space in the pharynx. RTR vowels are therefore not characterized by the hollow quality associated with ATR vowels. From the above discussion, it is true to say with Dolphyne 1988 and Lindau 1979 that vowel harmony in Akan is controlled by the relative size of the pharynx.
more exceptions than previously thought. Thus, as noted earlier, a careful observation of Akan toponyms points to the fact that there are exceptions to previously stated generalizations about how vowel harmony operates in Akan.

In the remaining part of this section, I show the phonological characteristics of both completely lexicalized and partially lexicalized toponyms with particular reference to how they react to the Akan vowel harmony process.

3.1.1 Completely lexicalized toponyms

Close observation of the toponyms suggests that across morpheme boundaries, a RTR vowel assimilates to an ATR vowel. The examples in Table 2 make the above claim clear.

<table>
<thead>
<tr>
<th>Toponym</th>
<th>Structure</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>[asotiriri]</td>
<td>nom. affix + water + within</td>
<td>(marshlands)^2</td>
</tr>
<tr>
<td>[baedu]</td>
<td>child + ten</td>
<td></td>
</tr>
<tr>
<td>[kukurantumi]</td>
<td>lift + if + neg. + able</td>
<td>(Impregnable)</td>
</tr>
<tr>
<td>Anyinant</td>
<td>A [a] + nyina [ni] + emu [em]</td>
<td>Surrounded by silk-</td>
</tr>
<tr>
<td>[anyinat]</td>
<td>nom. affix + silk-cotton tree + within</td>
<td>cotton trees</td>
</tr>
</tbody>
</table>

For example, in Asuom (asotiriri) the RTR vowel of the nominalizing prefix [a] assimilates to a ATR vowel, [a], because of the following ATR vowel, [a], of nsuo [nsu] ‘water’. Reagarding Anyinant (anyinat), there are two instances of raising from RTR to ATR. The open low vowels [a] of nyina [ni] ‘silk-cotton tree’ and the nominalizing affix a [a] change to [a] because of ATR vowel [a] of emu ‘within’ and [a] of nyina [ni] ‘silk-cotton tree’ respectively.

In the next section, I show that for toponyms that have been completely lexicalized, it is even possible for a RTR vowel which has been raised to ATR to raise a preceding RTR vowel into ATR.

3.1.2 Completely lexicalized toponyms in which a RTR vowel raised to ATR is able to raise a preceding RTR to ATR

Dolphyne (1988:23) notes that vowel harmony process of replacing an unadvanced vowel by an advanced vowel does not normally extend beyond the syllable immediately preceding the advanced vowel. She notes further that for some speakers, it is possible for other preceding vowels to be raised to ATR. The examples in Table 3 and other examples scrutinized in the data show that in many toponyms, the RTR prosody extends beyond a syllable. Thus although normally [RTR] [RTR] [ATR] become [RTR] [ATR] [ATR], with regard to completely lexicalized toponyms we have [RTR] [RTR] [ATR] becoming [ATR] [ATR] [ATR]. The toponyms in Table 3 exemplify this pattern.
In all the toponyms above, the ATR harmony goes beyond one syllable. The RTR vowels [i] in osei assimilate to [e] in oseikorom. In mmepon [mimimpon] the RTR vowels [i] and [o] of mmepon [mmi] ‘mountains’ are assimilated into ATR [i] and [e], respectively. In Kukubi kukubii the RTR vowels [o] of koko [kolko] ‘hill’ changes to ATR [u] because of following ATR vowel [i] of determinative bi ‘a’. The harmony span operates over the entire word. [u] and [a] of ehiaowa ‘if you’re poor’ or ‘if you’re in need’ are both raised to ATR — [u] and [e] respectively—by the ATR vowel [u] of nwu ‘don’t die’.

### 3.1.3 Toponyms in which RTR vowels lower ATR vowels to RTR

Contrary to the view expressed in the literature on Akan vowel harmony (Dolphyne, 1988, Schachter & Fromkin, 1968:97) that it is only ATR vowels which are able to raise RTR vowels to ATR and that RTR vowels are unable to lower ATR vowels to become RTR, the toponyms presented in this section suggest that RTR vowels may be able to lower ATR vowels into RTR. Thus, the toponyms in Table 4 are inconsistent with the generalization expressed by the above authors.

Three of the five toponyms are discussed below. In Akuron the RTR nominal affix [a] changes to the ATR vowel [e] due to the influence of the ATR vowel [u] of kuro ‘town’ has on it. Besides the above harmony process, the ATR vowel, [o], of kuro ‘town’ takes on the RTR feature of the following RTR vowel [a]. In Asuokoko [asuokoko] the RTR vowel [a] of koko ‘red’ influences the ATR vowel, [o], of asu ‘river’. [o] changes into a corresponding RTR vowel, [a]. Finally, in Topease [tpeas] of asa ‘beneath’, which is RTR, lowers the ATR vowel, [e], of tope [tpe] ‘giant snail’ to RTR [e].

### 3.1.4 Toponyms in which the low ATR vowel can raise a RTR vowel to ATR

Schachter & Fromkin 1968 and Stewart 1967 have argued that RTR vowels preceding the ATR low vowel [e] cannot change to ATR. However, the examples in Table 5 below contradict this claim.

### 3.2 Tone

Akan is a tone language in which pitch is a feature that decides the lexical meaning of a word. Akan has two contrasting tones—high and low. Like other Kwa languages with two tones, Akan also exhibits downdrift and downstep. Downdrift refers to a gradual lowering of the pitch of high tones preceded by low tones. A high tone lowered in pitch is called a downstepped high tone4.
For example:

'Owótrash Gyáší pé 'Akošiá
'Mr. Kwasi Gyasi likes Akosua.'

In the above schematic, we see that the high tones fall in pitch as the utterance progresses. The descent in pitch is such that the final high tone is lower in pitch than the initial low tone. The second high tone syllable .á. is lower in pitch than the first high tone syllable .wá. but higher in pitch than the third high tone syllable .kó.

In the remaining part of this section, I discuss toponyms that obey the tonal process on nonautomatic downstepping (which suggests that low tones can step down the pitch of following high tones) and those that do not.

3.2.1 Toponyms that obey the downstep process in Akan

According to Dolphyne (1988:59), sometimes in Akan 'a low tone syllable in H-L-H sequence may be deleted, that is dropped altogether, but its pitch lowering effect on the following High tone remains'. In effect, H-L-H → H-H. For example, Kofi [kófi] + ədan [ədá] becomes [kófi] ədá.

An observation of the data reveals that very few of the toponyms obey this tonal assimilation process. Table 6 below shows toponyms that obey the above tonal assimilation.

<table>
<thead>
<tr>
<th>TOPOYMS</th>
<th>STRUCTURE</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abooso</td>
<td>á + bó + éso</td>
<td>On rocks</td>
</tr>
<tr>
<td>[ábuóšó]</td>
<td>pl. rock on top of Akokoaso</td>
<td>Ákóókó + éso</td>
</tr>
<tr>
<td>[ákóókóšó]</td>
<td>Akokoá (river) on Birebireso</td>
<td>Birébire + éso</td>
</tr>
<tr>
<td>[birébírešó]</td>
<td>Birebire on</td>
<td></td>
</tr>
</tbody>
</table>

In the above table, Abooso [ábuóšó], Akokoaso [ákóókóšó] and Birebireso [birébírešó] obey the normal floating tone process (where a low floating tone lowers the pitch height of a following high tone). Thus, although the /ê/ vowel of the second element of the compound, éso 'on (top of)', is deleted, its associated low tone is left floating and, as in other automatic downstep situations, it brings down the pitch of the following high tone.

3.2.2 Toponyms that violate the downstep process in Akan

In most of the toponyms, the floating tone process does not operate. Specifically, in most of the toponyms, when a segment is deleted, its associated tone does not have any assimilatory effect on the following high tone. This may suggest that in such toponyms the segment is deleted with its associated low tone. The above claim is explicated in Table 7.

Table 7: Toponyms that violate tonal assimilation process

<table>
<thead>
<tr>
<th>NAME</th>
<th>STRUCTURE</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anweaso</td>
<td>Anwē + éso</td>
<td>On a rocky/stony area.</td>
</tr>
<tr>
<td>[āpwiásó]</td>
<td>gravel on Beposo</td>
<td>Bēpō + éso</td>
</tr>
<tr>
<td>[bípósó]</td>
<td>mountain on (top of) əfíño</td>
<td>əfí + éso</td>
</tr>
<tr>
<td>[bífíso]</td>
<td>əfí (river) on Topoease</td>
<td>Topé [tőpé] + ase [āsí]</td>
</tr>
<tr>
<td>[bíshíáší]</td>
<td>kola nut (tree) beneath</td>
<td></td>
</tr>
</tbody>
</table>

The data show that in such toponyms as Anweaso [āpwiásó], Beposo [bípósó] and the other examples, if the second element of the compound toponym is éso 'on (top of)', then, when the low-tone syllable .ê. is deleted, the tone of the final syllable .ó. is not downstepped.

However, if the second unit of the compound is əsí [āsí] 'beneath', then there is no deletion and the low tone associated with the initial syllable .á. of əsí 'beneath' may be raised to a high tone as exemplified in Table 7 above. For example, bese [bíší] 'kola nut (tree)' + ase [āsí] 'beneath' becomes Besease [bíshíáší] where a H-L + L-H becomes A-L-L-L. The low tone on the initial vowel of the second unit of the compound changes to high. The above discussion suggests that it is probably too simple to argue that in an H-L-H tonal situation the L must step down the pitch of the following H.

4. Summary

In any language, permissible sequences for a string of unrelated words may be impermissible for a single word or morpheme. The toponyms that are not completely lexicalized exhibit phonological behavior of phrases or sentences and may therefore be seen as exceptions to the Akan vowel harmony and tonal assimilation processes.

This paper has shown that completely lexicalized toponyms follow the vowel harmony process in Akan by which only ATR or RTR vowels occur in a word and in which ATR vowels can assimilate RTR vowels into ATR.

I have also shown that several toponyms violate the vowel harmony process. In particular, I have shown that during toponymization, contrary to what is found in the literature that RTR vowels are unable to lower ATR vowels to RTR, there are cases where the obverse is true.

Moreover, I showed that contrary to the often held notion that a RTR vowel which has been raised to ATR cannot raise another preceding RTR vowel to a ATR, there are exceptions to this claim. Specifically, I provided evidence to
show that some RTR vowels raised to ATR can raise other RTR vowels to ATR. Thus, I showed that the process of raising can go beyond one syllable.

Close observation of the toponyms suggests that only the ATR vowel harmony value is synchronically active today. However, the toponyms suggest that dichronically, Akan may have had both ATR and RTR harmony. Specifically, a systematic attention to the toponyms suggests that as complex phrases became lexicalized, either the ATR or RTR value might have triggered harmony. The data collected for this study provide no indication regarding when and why RTR harmony ceased to be active.

Concerning tones, I showed that the phenomenon of downstepping operates during the formation of toponyms. In particular, I explicated the fact that even when a segment or syllable is deleted, its associated tone may remain and exert an influence on the tone of adjacent syllables. Examples of floating low tones stepping down the pitches of following high tones were provided in the various core sections.

However, I also explained that when the final element of the compound toponym is the postposition eso [esO] 'on or on top of', then the initial vowel sound [e] (which has a low tone) is deleted and its associated low tone may or may not cause a downstepping of the following high tone.

Moreover, if the final unit of the compound toponym is the postposition ase [a$], then the full form including the tonal pattern may be maintained. However, in many examples, the low tone associated with the initial vowel, [a], is changed to a high tone.

This study has thus revealed that a close and systematic attention to the morphophonological facets of Akan toponyms calls into question generalizations about vowel harmony and tone; any future work on the above phonological processes should therefore take nouns and nominalized compounds as important sources of data.

NOTES

1 A town near Sunyani in Ghana’s Brong Ahafo Region. In the Eastern Region a town with an identical name is pronounced [odumas~] with vowels from both harmonic sets.

2 According to Mr. Twumasi Ankrah, an elder of this town, the original name of the town was Asuohofo (people who live by the river). The name was later changed to Asuom.

3 According to Opanin Yaw Bonsu, an elder of the town, Akrop~ was the largest settlement and, politically, the most powerful at the time it was founded.

4 There are two types of downstepping—automatic and non-automatic. The high tones whose pitches have been stepped down in the example given in this text come under automatic downstepping since they are phonologically conditioned. In a downdrift situation you have an automatic downstepping. Non-automatic downstep refers to a situation where in a sequence of two high tones the second high tone has a lower pitch than the first. For example, in /b'hish/ ‘creator’ the final high tone is a downstepped high tone. Nonautomatic downstepping is symbolized by placing an exclamation mark [!I] before the high tone that is downstepped.

5 Opanin Kofi Saara, an elder of the town, claims that the town was named, not after River Akokoa, but after a small hill. He explained that the word akokoa is a combination of kokoa ‘hill’ and the diminutive suffix wa ‘small’.

REFERENCES


