

## TONE RULES IN AKAN<sup>1</sup>

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### Abstract

Previous studies of Akan tone have focused on the concepts of downstep and downdrift, lexical tone and functions of tone. We believe less attention has been paid to tone sandhi rules, quite apart from the fact that tonal perturbations that are not triggered by the influence of (an) adjacent tone(s) have not received any attention at all in the current literature. This paper therefore focuses on the less discussed aspects of tone rules in Akan by studying tone sandhi and non-sandhi rules. Under the former rules Low Tone Spreading (L-Spreading) and High Tone Spreading (H-Spreading) rules are discussed while under the latter rules, tone polarization, tone dissimilation and total tonal reduplication are studied.

This paper also makes a contribution to Akan morphology. To begin with, scholars of Akan linguistics have asserted that, in Akan, the reduplicant of any reduplicative (irrespective of its word class at the phonological level) is invariably prefixed to the base. On the strength of non-sandhi rules, we demonstrate that this assertion is only partly true. Whether the reduplicative template is prefixed or suffixed to the base in Akan depends upon the word class that reduplicates and the subclasses to which relevant words belong.

Les études précédentes sur les tons in akan se sont centrées sur les concepts de la faille tonale et de l'abaissement graduel des tons ('downstep' et 'downdrift'). Il nous semble que l'on a prêté moins d'attention aux règles du sandhi tonal, sans compter que les perturbations tonales non-provoquées par l'influence d'un ou de plusieurs tons voisins ne figurant nullement dans les publications courantes. Nous proposons donc ici de nous centrer sur certains aspects moins souvent traités de règles tonales en akan en étudiant les règles du sandhi et de non-sandhi. Parmi ces premières nous examinons les règles pour l'expansion d'un ton bas (L-Spread) et celle d'un ton haut (H-Spread), tandis que parmi ces dernières nous étudions des concepts tels que la polarisation des tons, la dissimilation des tons et le redoublement total des tons.

Cette communication prétend aussi contribuer à la morphologie de l'akan. Pour commencer, les chercheurs dans le domaine akan ont toujours affirmé que l'élément rajouté dans un redoublement (quelle qu'en soit la catégorie du point de vue phonologique) est obligatoirement préfixé à la base. En vue des règles de non-sandhi nous démontrons que ceci n'est vrai qu'en partie. Que le rajout se préfixe ou se suffixe à la base en akan dépend de la catégorie du mot qui se redouble ainsi que des sous-catégories des mots en question

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## 0. Introduction.

### 0.1. Tone Rules.

Hyman & Schuh (1974) dichotomize their *Universals of Tone Rules* into Natural Diachronic and Natural Synchronic tone rules while Hyman (1975) subclassifies his set of tone rules into phonetic and morphophonemic (tone rules). This paper will not be organized within the framework of either of these subcategorizations of tone rules in that it focuses primarily on synchronic tone rules. Second, Hyman's (ibid.) two categorizations are indeed applicable to Akan but some of his specific examples apply differently in Akan. He, for instance, draws the distinction between "natural tone rules which have phonetic motivation" and those "which have a grammatical basis" referred to as phonetic and morphophonemic, respectively. But some of his assimilatory tone rules, which he treats under phonetic tone rules, basically have a grammatical basis in Akan. In his explication of, or rather justification for the term, *morphophonemic tone rule*, Hyman (ibid. 224) argues, "tone languages are characterized by numerous grammaticalized rules. These all have in common that they refer to specific morphemes or constructions." However, under Phonetic Tone Rules Hyman (ibid. 222) posits that

*Complete* horizontal assimilation occurs when there is no remaining phonetic trace of the underlying tone of the syllable onto which spreading has occurred. Complete L- and H- spreading are seen in the following rules:

- a. LHH → LLH
- b. HLL → HHL

In Akan an underlying LLLHH/LH melody can emerge at the phonetic surface as HHHHH/H melody, due to complete assimilation of the Ls into Hs by the utterance-final H and there is no trace of any of the underlying Ls. It is important to note that this process occurs when a declarative sentence is changed into an adverbial clause of time. See H-Spread §2.3.3 below for exemplification and brief discussion of grammatical points.

In this paper, however, a distinction is drawn between natural tone rules that are brought about by tonal assimilation and are referred to as *Tone Sandhi Rules* and those which are not tied in with tonal assimilation and are known as *Non-sandhi Rules*.

## 0.2. Akan

Akan is made up of various dialects including Akuamu, Akuapem, Akyem, Asante, Bron, Fante, Wasa, etc. but Fante, Akuapem and Asante constitute the best known/major dialects of the language. This paper seeks to discuss tone rules in Akan as they occur in these three major dialects. Thus, when an example given in this paper is peculiar to a dialect, it will be marked *Fa.* for Fante, *Ak.* for Akuapem and *As.* for Asante.

## 0.3. Akan Tonal Inventory

Akan has two contrastive level tones<sup>2</sup> namely, (1) high tone (H) and (2) low tone (L) symbolized as [  $\text{H}$  ] and [  $\text{L}$  ] superscripts respectively. H has an allotone referred to as downstepped high tone, *downstep* for short. The downstep H occurs in the context after an intervening L, whether linked or floating. The L in Akan has so far not been known to have an allotone that is phonetically or phonologically significant.

## 0.4. Tone-Bearing Units in Akan

To date, linguists have not reached a consensus on what the tone-bearing unit (TBU) is. Odden (1995: 448-452) has assembled evidence from a number of languages to demonstrate that whereas in some languages the mora is the TBU, in other languages it is the syllable. Odden accordingly concludes that further research work is required to give a definitive answer to the question of what the TBU is. In Akan this discussion is moot, because Akan does not have heavy syllable and, as a result, the syllable and the mora, in

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2 Acoustic analysis has revealed that the pitches of the so-called level tones are seldom strictly level in real speech (Laver: 1994). This fact has been proven by Hombert (1976) and Gandour (1978) who have used the following Yoruba triplets [wa $\text{H}$ ] 'to come', [wa] 'to look' and [wa $\text{L}$ ] 'to exist' for his experiment. It was realized that speakers pronounced these triplets on [  $\text{H}$  - ], [  $\text{H}$  - ] and [  $\text{H}$  - ] pitch melodies respectively. However, in this paper, we still maintain the concept of contrastive tones being realized on level pitches but our use of the term level implies relatively level.

Akan, overlap. So, apparently the mora in the context of Akan is synonymous with the syllable in Akan. We therefore study the syllable types in Akan, in the following section.

### 0.5. The Syllable Types in Akan

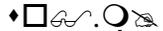
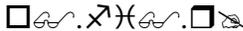
In the literature three main syllable structures are distinguishable in Akan. These are C, V and CV. In this paper we, in addition to these three traditional syllable types of Akan, will briefly study the CC syllable type in Akan.

#### 0.5.1. The C Syllable Type

As regards the C syllable type, any C that is not an onset of a CV syllable constitutes a syllable in Akan. Invariably, such Cs have [+Sonorant] specification in their feature matrix. For instance, a nasal consonant occurring preconsonantly in word-initial and – medial positions, as exemplified by (1), constitutes a syllable.

- (1). i.  as in  (Fa)/  (As./Ak.) ‘children’  
 ii.  as in  ‘life’  
 iii.  as in  ‘litigation’

Observe that each of the nonvowel sonorants, in Akan, occurring word-finally in phonetic representations as exemplified by (2) below also constitutes a syllable.

- (2).  as in  ‘hold it’  
 as in  ‘troubled’  
 as in  ‘albino’  
 as in  ‘to turn’  
 as in  ‘to sell’

Underlyingly, each word-final sonorant in Akan is an onset of a -CV# syllable. Generally speaking, in Akan, especially in Fante and sometimes in Akuapem, if a word ends in a











prefix and the postconsonantal vocalic TBU is H-toned. But where the latter is L-toned followed by a H-toned TBU(s), the noun is classified under the nouns with LH melody.

- Class I nouns have underlying LH melody. Examples include:  $\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  ‘money’,  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  ‘God’.
- Class II nouns are those with underlying HL<sup>H</sup>H tone pattern. Examples include:  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  ‘astuteness’,  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  ‘guest/stranger’  $\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  (Fa)/ $\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  (As)/ $\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  (Ak) ‘ghost’. These nouns may also be pronounced with nominal prefixes as in  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$ ,  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  and  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$ /  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  respectively.
- Underlying L-toned nouns constitute Class III nouns. In these nouns all the TBUs regardless of their number are characterized by the L. Nouns constituting this class are relatively uncommon. Examples include  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  ‘trouble’;  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  ‘hypocrisy’,  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  (Fa.) ‘type of plant’.
- Like Class III nouns, Class IV nouns are relatively rare. These are nouns whose TBUs are all H. Examples include  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  ‘a hooked drum stick’;  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  (Fa)/  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  (As/Ak) ‘things/load’.
- Class V nouns have H-toned initial [+Low] vowel,  $\text{a}^{\text{H}}$ , followed by Hs, the final one of which whether singly or multiply linked has to obligatorily be downstep; e.g.  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  (Fa) ‘type of ‘seed’;  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  ‘a species of bird’.
- Class VI nouns are produced on HLH melody and all our examples are obtained from the Fante dialect. They include  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  ‘fig plant’,  $\text{m}^{\text{L}}\text{ɔ}^{\text{H}}\text{m}^{\text{L}}\text{ɔ}^{\text{H}}$  ‘a fly’

So far a native noun with HL melody is not attested in Akan. Those that have this tone pattern are all borrowed from the English language. They include words like  $\text{bɔ́tɔ́}$  ‘butter’  $\text{ɔ́nɔ́}$  ‘uncle’,  $\text{tɔ́sɔ́}$  ‘teacher’ and  $\text{rɔ́dɔ́}$  ‘radio’. These constitute their own class but since we are not going to make use of them in this paper, we will not discuss them further.

## 1.0. Tone Sandhi Rules

Let us now focus our attention on our study of tone rules in Akan. Tone sandhi refers to the analysis of the allotonic variation in the phonetic realization of tonemes due to contextual effects exercised by neighbouring tonemes (Laver, 1994: 476). All the tone rules, discussed in this section, fall within the domain of tone spreading. It is worth pointing out that downstep is a tone sandhi process in Akan but since it has received a great deal of attention in the existing literature, it will not be discussed in this paper. However, detailed study of downstep in Akan can be found in Stewarts (1962), Schachter and Fromkin (1968), Dolphyne (1988), Obeng (1989) and Abakah (2000, 2002, 2004a).

### 1.1. Tone Spreading

Tone spreading in Akan *Rightward* or *Leftward*.

### 1.2. Rightward Tone Spreading

Rightward tone spreading can be classified into Low-Spreading and H-Spreading. This subsection focuses on L-Spreading.

#### 1.2.1. Low-Spreading

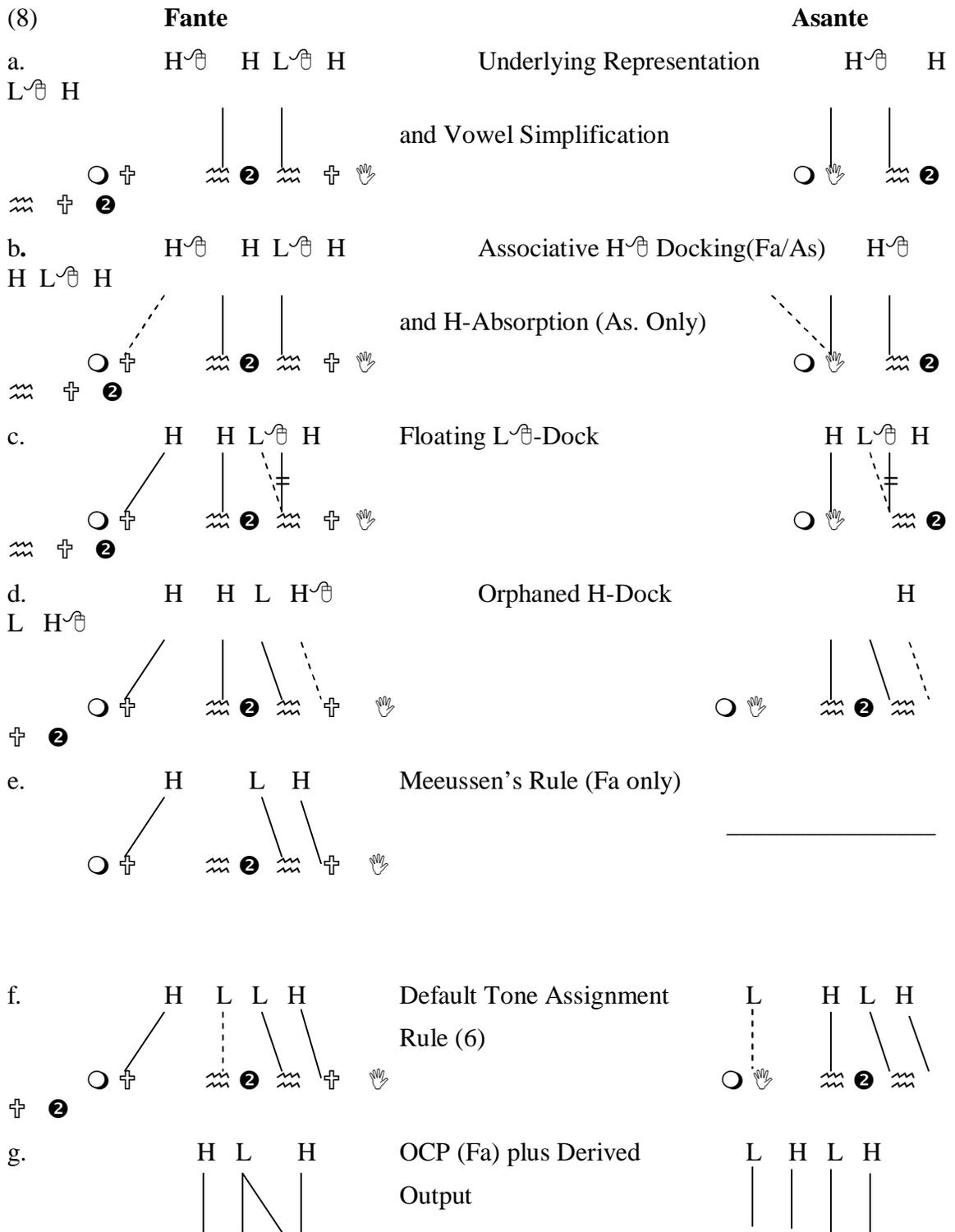
Following Pulleyblank (1986), we formulate the default tone assignment rule as (6) below. In Akan, like most two-tone languages, the default tone is L.

#### (6) Default Tone Assignment Rule

L



paying attention to the L-Spread effected by the underlying floating L of the possessed NP in both Fante and Asante.





It is worth pointing out at this juncture that most Akan nouns, deverbal or nondeverbal, have a nominal prefix and an optional nominal suffix both of which are toneless. We refer to the prefix segment of the circumfix as *pre-stem* and the suffix, *post-stem* in this paper. We repeat here for emphasis that the nominal prestem and poststem that conjointly mark the possessed NP are both toneless. Here, the first rule that applies is a segmental one, specifically vowel simplification process, which deletes the second of two vowels in a sequence at word boundary only if it is specified as [-Low].<sup>3</sup> The first tone rule to apply is the docking of the segmentless associative H in both dialects though in different directions. It docks rightwards to the toneless possessor NP in Fante while in Asante it docks rightwards to the linked H<sub>1</sub> of the possessed NP and merges with it via the process of tone absorption.<sup>4</sup> Next, the underlying floating L of the possessed NP, in both dialects, spreads rightwards to the final H-toned syllable and dislodges it. The dislodged H in turn spreads to the toneless poststem in both dialects.

Note that the docking of the segmentless associative H to the toneless possessor NP results in a sequence of H-H, that is, adjacent occurrence of two Hs across morpheme boundary in Fante. This violates the Obligatory Contour Principle (OCP), and it is out of the ordinary because the OCP is very active in Akan (Odden 1986) and, it plays a major role in the discussion of Akan suprasegmental phonology (Abakah 2004a); but it is inactive here. To resolve this OCP violation, Fante applies the Meeussen's Rule, which (Goldsmith 1984) formulates as "H → Ø / H —" to delete H after the H<sup>5</sup> This syllable whose linked H deletes as a results of the application of Meeussen's Rule is eventually supplied with the default L. It is plausible to assume that when the OCP fails to apply in Fante under the above tonological circumstances, the H<sub>2</sub> undergoes a H-Lowering

<sup>3</sup> See Abakah (2004b) for a detailed study of vowel simplification in Akan.

<sup>4</sup> See Hyman (1975) for the discussion of the process of tone absorption.

<sup>5</sup> It could also be argued that the OCP motivates "Meeussen's law" to dissimilate adjacent H tones in Fante.

process. The Meeussen’s Rule does not apply in Asante. However, the toneless Possessor NP<sub>1</sub> in Asante receives default L to yield the final output.

One needs only two rules, one tonal and one segmental, to account for the Akuapem output forms in (7). Akuapem does not need any nominal suffix in this sort of construction as can be seen in (7). The segmental rule that applies is vowel simplification followed by the Associative H docking which targets the toneless possessor NP. In brief, Akuapem operates only rules namely, Vowel Simplification Rule (8a) and Rightward H<sup>0</sup>-Spread (8b), none of which affects the lexical tone melody of the possessed NP to generate the final output. So, the input tone melody of the possessed NP in Akuapem remains unperturbed throughout the derivation and is, for this reason, identical with the output tone melody.

### 2.0. H-Spreading

This type of H-Spreading refers to a tone sandhi situation where a declarative sentence in the Progressive Aspect or Future tense (both immediate and indefinite) form transforms into an adverbial clause whose English equivalent is introduced by *while, whereas, when, since* or *in view of the fact that*. Such sentences or tone phrases are marked by adverbial particles, **er** and **■** at the prepausal position. **er** and **■** occur in the present and past aspects forms of the sentences respectively even as their individual Hs merge with the preceding H, if any. Thereafter, it spreads leftwards until the leftmost boundary of the tone phrase of an adverbial clause is reached. Data (9) exemplifies the phrases in question.

(9) UR	Fante	Akuapem	Asante
(a) $\text{O} + \text{□} + \text{☑} + \text{er}$ [ $\text{O} + \text{□} + \text{☑} + \text{er}$ ] [ $\text{O} + \text{☑} + \text{☑} + \text{er}$ ] I + Prog. + search + while (present)	$\text{er}$ [ $\text{er}$ ] [ $\text{er}$ ]	$\text{er}$ [ $\text{er}$ ] [ $\text{er}$ ]	$\text{er}$ [ $\text{er}$ ] [ $\text{er}$ ]
(b) $\text{②} + \text{□} + \text{◆} + \text{■}$ [ $\text{②} + \text{□} + \text{◆} + \text{■}$ ] [ $\text{②} + \text{◆} + \text{■}$ ]	$\text{■}$ [ $\text{■}$ ] [ $\text{■}$ ]	$\text{■}$ [ $\text{■}$ ] [ $\text{■}$ ]	$\text{■}$ [ $\text{■}$ ] [ $\text{■}$ ]
		‘while I am searching for it’	



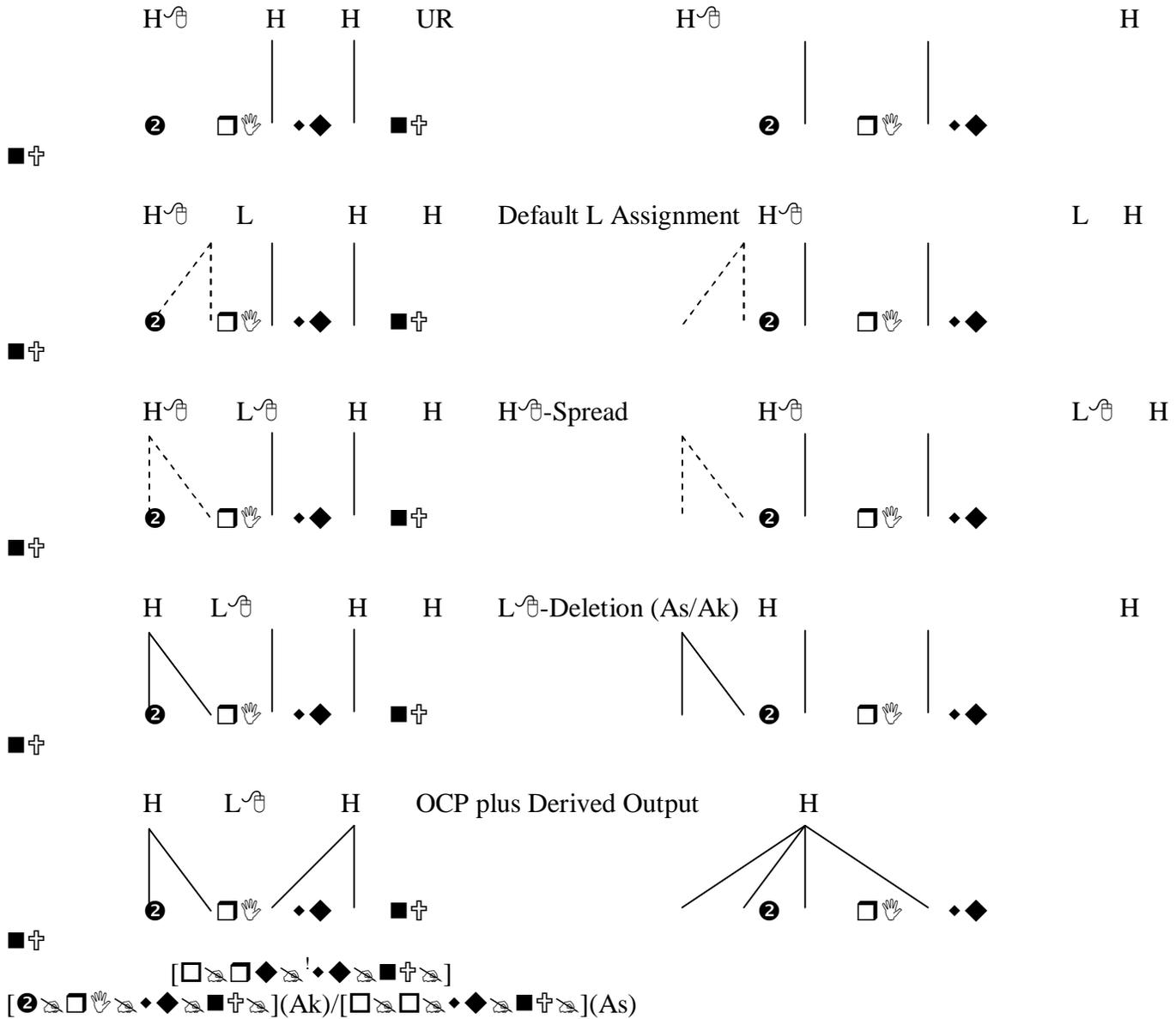




(13)

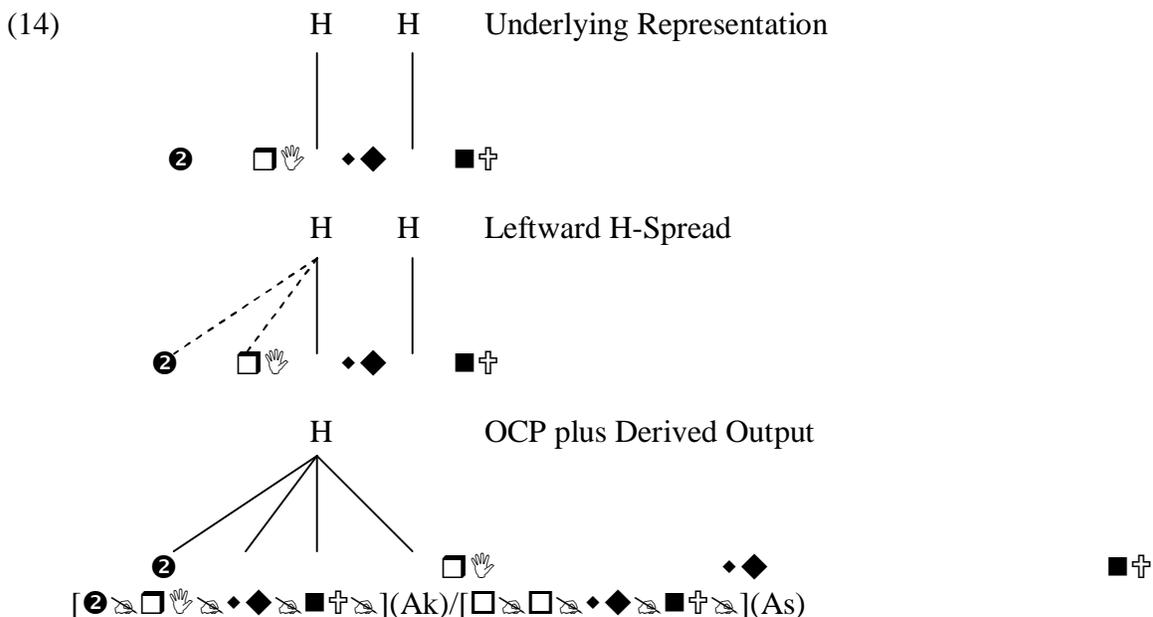
**Fante**

**Asante/Akuapem**



Another plausible account can be presented with reference to the Akuapem and Asante output forms whereby the H melody runs over all the TBUs of the adverbial clause. Here, the default tone assignment rule is put on hold resulting in the application of only one tone rule, that is, the H of the VR spreads leftwards to the leftmost boundary of the clause or tone phrase. This inevitably elicits the OCP effect that merges the H of the aspect marker with the preceding multiply linked H as the following derivation demonstrates in

graphic terms.



### 3.0. Tone Replacement

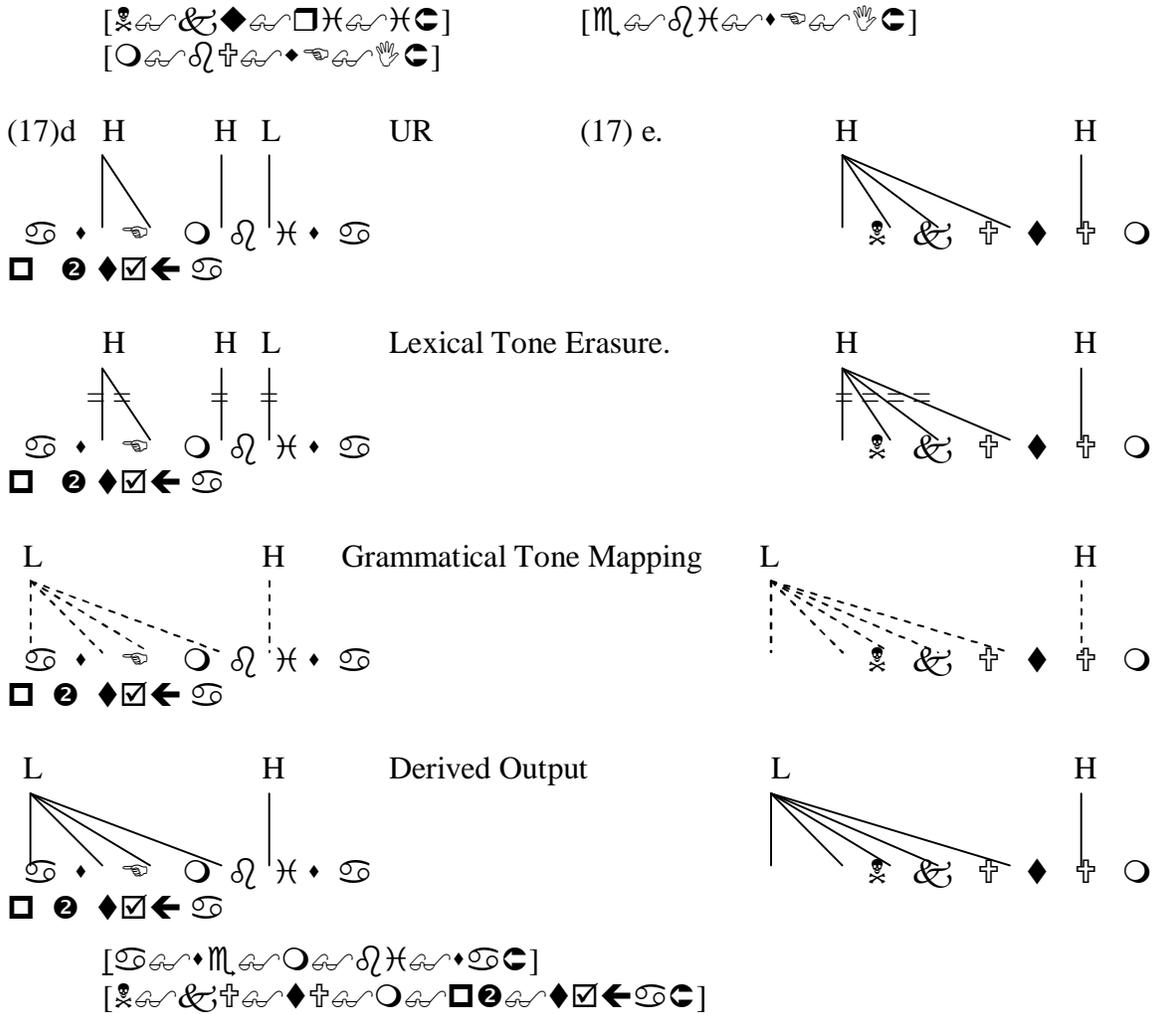
*Tone Replacement* refers to a process by which a phonological tone of a morpheme is replaced by a grammatical tone (Hyman 1975: 255). Tone replacement occurs in many languages of West Africa. In Igbo, for instance, the imperative is usually constructed by replacing the phonological tone of the first syllable of the VR and adding a suffix as follows: /□<☉/ ‘eat’ → [□<☉-☉] ‘eat!’ (Hyman, *ibid.*). In Akan however, the tone replacement process manifests itself in two areas of Akan morphophonology namely, during the:

- transformation of a verb root into a deverbal noun as exemplified by (15) and,
- formation of a compound word whose first element is a noun and the second element belongs to any word class, be it major or minor, also exemplified by (16).

It is important to note that these constructions have a grammatical LH melody that deletes all underlying tones of the VR (in terms of deverbal noun formation) and those of the constituent elements of the compounds prior to mapping. When mapped, it is only the final syllable that receives the H. For exemplification, see (15) and (16) below with the







**4.0. Tone Polarization and Tone Dissimilation**

Tone polarization is defined in Hyman and Schuh (1974) and Hyman (1975). Newman (1995: 771) amplifies the concept, writing:

The notion of “tonal polarity” refers to a usually morphemic segment whose tone is invariably opposite that of a preceding or following tone. ... In the case of true polarity the tone of some element is always assigned as opposite to that of a neighbouring tone but there is no compelling synchronic reason to presume that the tone started underlyingly as some specified tone or other.

The toneless pronominal clitics in Akan do almost invariably take a tone opposite the tone of the following initial TBU of the verb root in Fante and Akuapem, if the verb



in (19) in Fante. Here, the pronominal concord is L-toned because the initial TBU of the VR is H-toned at the phonetic stage. Akuapem behaves in the same way as Fante except that the 2sg and 2pl take the same tone as the initial TBU of the class II VR. There is however one verb that presents a very interesting tonal perturbation in Fante. Speakers of Fante often swap the tones for the pronoun and the verb root as (20) exemplify. The verb root is underlined.

- (20)
- a.  $\text{O}^{\text{H}}\text{5}-\underline{\text{A}}\text{5}\text{1}\text{1}/\text{O}^{\text{H}}\text{1}\text{1}-\underline{\text{A}}\text{5}\text{1}\text{1}$  ‘I say’
  - b.  $\text{H}^{\text{H}}\text{5}-\underline{\text{A}}\text{5}\text{1}\text{1}/\text{H}^{\text{H}}\text{1}\text{1}-\underline{\text{A}}\text{5}\text{1}\text{1}$  ‘you say’
  - c.  $\text{2}^{\text{H}}\text{5}-\underline{\text{A}}\text{5}\text{1}\text{1}/\text{2}^{\text{H}}\text{1}\text{1}-\underline{\text{A}}\text{5}\text{1}\text{1}$  ‘s/he says’
  - d.  $\text{E}^{\text{H}}\text{5}-\underline{\text{A}}\text{5}\text{1}\text{1}/\text{E}^{\text{H}}\text{1}\text{1}-\underline{\text{A}}\text{5}\text{1}\text{1}$  ‘we say’
  - e.  $\text{M}^{\text{H}}\text{5}\text{O}^{\text{H}}\text{5}-\underline{\text{A}}\text{5}\text{1}\text{1}/\text{M}^{\text{H}}\text{5}\text{O}^{\text{H}}\text{5}-\underline{\text{A}}\text{5}\text{1}\text{1}$  ‘you (pl.) say’
  - g.  $\text{D}^{\text{H}}\text{2}^{\text{H}}\text{5}-\underline{\text{A}}\text{5}\text{1}\text{1}/\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}-\underline{\text{A}}\text{5}\text{1}\text{1}$  ‘they say’

These two forms, used interchangeably in Fante, exhibit an illustration of archetypical polarization. Here, the toneless subject concord takes the tone opposite to the tone melody of the VR. This also seems to suggest that this monosyllabic verb and possibly some other monosyllabic verbs in Fante, may be as toneless as the subject concord. However, a closer look at the invariable way the monosyllabic or the class I verb behaves when the negative morpheme is cliticized to it may seem to negate this conclusion. The negative morpheme in Akan is a toneless syllabic nasal (N), but the class I verb consistently takes an H when this morpheme is cliticized to it, suggesting that it is underlyingly H in all dialects. Let us elucidate this claim by converting the examples in (18) into their negative counterparts in (21) with the negative morpheme boldfaced.

- (21)
- |    | Fante   | Akuapem   | Asante  | English Gloss |
|----|---|---|---|---------------|
| a. | $\text{O}^{\text{H}}\text{1}\text{1}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$                    | $\text{O}^{\text{H}}\text{1}\text{1}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$                    | $\text{O}^{\text{H}}\text{1}\text{1}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$                    |               |
| b. | $\text{H}^{\text{H}}\text{1}\text{1}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$                    | $\text{H}^{\text{H}}\text{1}\text{1}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$                    | $\text{H}^{\text{H}}\text{1}\text{1}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$                    |               |
| c. | $\text{2}^{\text{H}}\text{1}\text{1}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$                    | $\text{2}^{\text{H}}\text{1}\text{1}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$                    | $\text{2}^{\text{H}}\text{1}\text{1}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$                    |               |
| d. | $\text{E}^{\text{H}}\text{1}\text{1}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$                    | $\text{E}^{\text{H}}\text{1}\text{1}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$                    | $\text{E}^{\text{H}}\text{1}\text{1}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$                    |               |
| e. | $\text{M}^{\text{H}}\text{5}\text{O}^{\text{H}}\text{5}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$ | $\text{M}^{\text{H}}\text{5}\text{O}^{\text{H}}\text{5}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$ | $\text{M}^{\text{H}}\text{5}\text{O}^{\text{H}}\text{5}.\text{N}^{\text{H}}.\underline{\text{D}^{\text{H}}\text{2}^{\text{H}}\text{1}\text{1}}$ |               |

f.  

Studying the tonology of Margi, a bitonal language like Akan, Odden (1995: 465) has remarked that in Margi, “Changing roots and suffixes are simply toneless, and assimilate the tone of the neighbouring morpheme.” A comparison of (18) and (21) reflects a similar process in that Fante and Akuapem class I verb roots do not have a fixed output tone pattern. This behaviour of the class I VR cuts across all tense/aspect shapes in which it occurs. Invariably the class I VR may either assimilate the tone of an adjacent TBU or take a tone opposite to a neighbouring tone. This may motivate one to assume that the class I VR is underspecified for tone even though tones can vary for reasons other than underspecification. In (18), for instance, where the preceding pronominal clitic is said on H or L, the class I VR takes an opposite tone. And in (21), since the preceding morpheme has a phonetic L, the class I VR is realized on H, a tone opposite to the received L.

In Asante, on the other hand, Class I verb roots are prelinked to H because their tones are always H regardless of the quality of the tone of the preceding morpheme. On the strength of this evidence, we presume that class I verbs in Akan cannot be said to be toneless and that they are preassociated to H despite the fact that they appear to be changing VR roots in Fante and Akuapem. We will therefore posit that in Proto-Akan, the class I verb was H and that its changing characteristics in Fante and Akuapem is a relatively recent innovation. Thus the proto-forms would be the same as the present day Asante forms.

Nonetheless, when the verb root is polysyllabic, the mode of polarization that emerges is dependent upon the tone melody of the initial TBU of the VR. When tones of the VR are said on a level pitch, the mode of polarization is simple and predictable as in (22)

(22) UR	<b>Fante</b>	<b>Akuapem</b>	<b>Asante</b>
a. 			
b. 			

- c.  $\text{e} + \text{†}\text{C}\text{O}\text{†}\text{C}$        $\text{eC.†}\text{C}\text{O}\text{C}$        $\text{eC.†}\text{C}\text{O}\text{C}/\text{†}\text{C}\text{O}\text{†}\text{C}$        $\text{eC}$
- d.  $\text{e} + \text{†}\text{C}\text{O}\text{†}\text{C}$        $\text{eC.†}\text{C}\text{O}\text{C}$   
 $\text{eC.†}\text{C}\text{O}\text{C}/\text{†}\text{C}\text{O}\text{†}\text{C}$        $\text{eC.†}\text{C}\text{O}\text{C}/\text{†}\text{C}\text{O}\text{†}\text{C}$  ‘we worship’
- e.  $\text{†}\text{C}\text{O}\text{†} + \text{†}\text{C}\text{O}\text{†}\text{C}$        $\text{†}\text{C}\text{O}\text{C.†}\text{C}\text{O}\text{C}\text{O}\text{†}\text{C.†}\text{C}\text{O}\text{†}\text{C}$        $\text{O}\text{†}\text{C}$
- f.  $\text{e}\text{†}\text{C}\text{O}\text{†} + \text{†}\text{C}\text{O}\text{†}\text{C}$        $\text{eC.†}\text{C}\text{O}\text{C}$        $\text{eC.†}\text{C}\text{O}\text{C}/\text{†}\text{C}\text{O}\text{†}\text{C}$        $\text{eC}$

It is evident from the above data that in Fante and Akuapem the toneless pronominal clitic takes a H while the VR is realized on L. In Asante the opposite is true in that the toneless pronominal clitic (except for the 2sg. and 2pl. which take the tone of the VR) takes L while the VR is produced on H. But if the verb root belongs to Class II verbs (with a lexical HL melody) then the tone of the pronoun concord polarizes with the following initial H of the VR as in (19) which we reproduce here as (23)

(23)	<b>Fante</b>	<b>Akuapem</b>	<b>Asante</b>	
a.	$\text{O}\text{C}\text{O}\text{C.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{O}\text{C}\text{O}\text{C.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{O}\text{C}\text{O}\text{C.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{O}\text{C}\text{O}\text{C.†}\text{C}\text{O}\text{C}\text{O}\text{C}$
b.	$\text{O}\text{C}\text{O}\text{C.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{O}\text{C}\text{O}\text{C.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{O}\text{C}\text{O}\text{C.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{O}\text{C}\text{O}\text{C.†}\text{C}\text{O}\text{C}\text{O}\text{C}$
c.	$\text{eC.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{eC.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{eC.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{eC.†}\text{C}\text{O}\text{C}\text{O}\text{C}$
d.	$\text{eC.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{eC.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{eC.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{eC.†}\text{C}\text{O}\text{C}\text{O}\text{C}$
e.	$\text{†}\text{C}\text{O}\text{C}\text{O}\text{C.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{†}\text{C}\text{O}\text{C}\text{O}\text{C.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{†}\text{C}\text{O}\text{C}\text{O}\text{C.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{†}\text{C}\text{O}\text{C}\text{O}\text{C.†}\text{C}\text{O}\text{C}\text{O}\text{C}$
f.	$\text{eC.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{eC.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{eC.†}\text{C}\text{O}\text{C}\text{O}\text{C}$	$\text{eC.†}\text{C}\text{O}\text{C}\text{O}\text{C}$

The element of polarization is clear in Fante/Akuapem where the pronominal clitics (apart from the 2sg in Akuapem and 2pl. in both Fante and Akuapem) take L, a tone opposite to the H of the initial TBU of the VR. In Asante, on the other hand, the tonal perturbations are the direct result of tone sandhi rule which derivation (24) captures below. We also see an ostensible polarization occurring with the 2sg. and the 2pl. in Asante only. This ostensible polarization comes about as a result of a combination of two tone sandhi rules. First, the initial H of the VR spreads to the rightmost boundary of the VR. At this juncture, the default tone assignment rule applies after which the received L invariably spreads to the following H-toned TBUs leaving the final one intact. This marks the end of the tone sandhi rules. At this point, we are ushered into nonsandhi domain where the received L dissimilates to become H. Hence ostensibly Asante displays tone







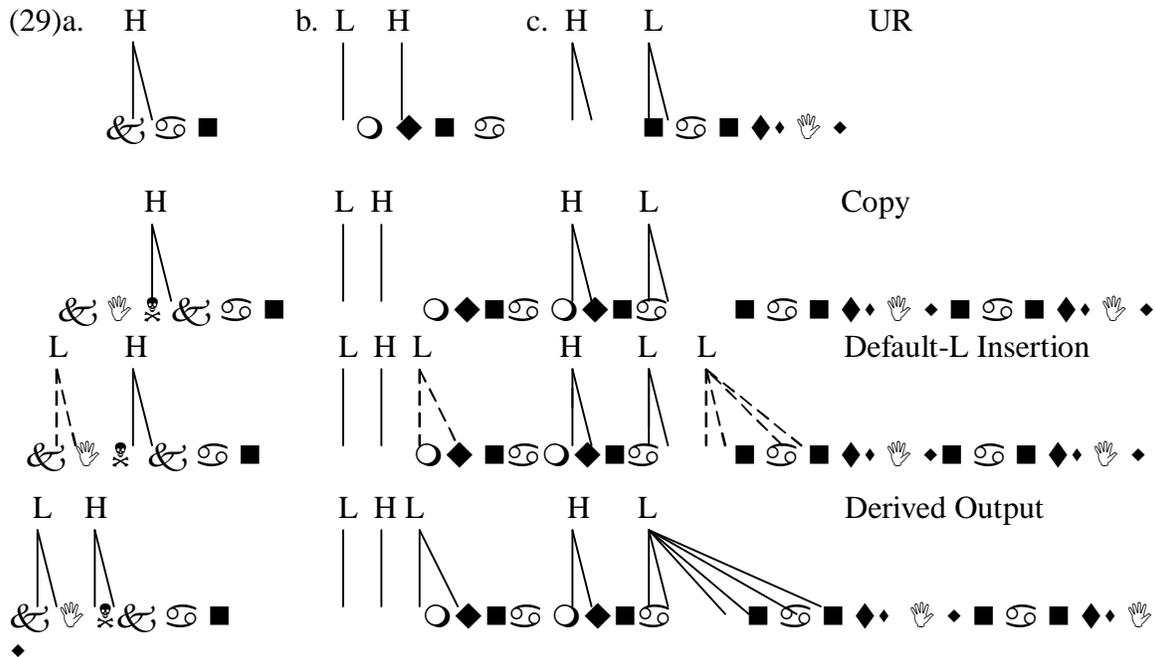
#### 4.2. Tone Polarization in Reduplicated Forms

Tone polarization occurs also in reduplicated forms of the Akan VR. The reduplicant of the reduplicated forms of these verbs, which is not associated to any tone at the input level, takes a tone melody opposite to that of the root. Thus, while the VRs as in (28) are either H-toned as in (28a) or mixed-toned as in (28b-c) the tones of the reduplicants whether prefixed (28a) or suffixed (28b-c) to the verb root are invariably realized on L. The verb roots are underlined.

- (28) a. 'to count' → 'to read'
- b. 'to frown' → 'to frown habitually'
- c. to walk → (Fa/Ak)/ (As) 'to roam'

(28a), (28b) and (28c) represent classes I, II and III verbs respectively. Kager (1999: 196) has asserted that the reduplicant, also referred to as reduplicative template, tends to have an invariant prosodic shape lacking a one-to-one relation with a prosodic unit in the base. Steriade (1988), Kager (1999), among others, have observed that reduplicative templates tend to have unmarked phonological structures. Odden (1995: 465) has also remarked that reduplication copies *only* the segmental melody without its tone melody. See also Spencer (1991), McCarthy and Prince (1998), Fabb (1998) for a similar view. Therefore, following Odden (op. cit.) and others, we argue that reduplication in Akan only copies the segmental tier minus the tonal tier. Thus, whereas the TBUs of the base are prelinked to the tonal tier, the TBUs of the copy are unspecified for tone but receive a L by the application of the default rule for tones (6).

In virtue of (6) and our argument based on Odden's (1995) remark quoted above, the reduplicative templates in (28a-c) receive the derivations in (29a-c) respectively.



The above data (28–29) reveal a very important phonological fact about Akan. A good number of scholars, including Stewart (1962), Schachter and Fromkin (1968), Cahill (1985), Dolphyne (1988), Obeng (1989), Abakah (1993) and Owusu-Ansah (1995) have all argued either forcefully or tacitly that the reduplicant in Akan is prefixed to the base. Based principally on the data available to us, of which data (28) above and (30) below constitute a sample, we hold a completely different view. In (30a), that is, with class I verbs, for instance, the reduplicant is prefixed to the base. This is determinable by the fact that the base, emboldened and underlined in the output form, maintains its underlying tone melody & ɔ ɔ ɔ, at the phonetic surface. The TBUs of the reduplicant, being toneless, receive L by default and we see it as being prefixed to the root.

But a different scenario emerges when classes II and III verbs, represented by (28b) and (28c) respectively, undergo the reduplication process in Akan. At this point, the tone melodies of the output and the input forms of the bases are identical, albeit the tones of the reduplicative templates are all realized on level L. From examples (28b) and (28c), we realize that in two out of the three examples representing all the classes of verbs in Akan, the reduplicants/reduplicative templates are suffixed to the base.



we have a situation by which all the VRs representing all the classes of verbs in Akan exhibit a 100% attachment of the reduplicants to the base on the right and not on the left. We think that the conclusion that the reduplicant in Akan is invariably prefixed to the stem needs to be given a second but closer look.

**5.0. Tone Dissimilation.**

Hyman and Schuh (1974) refer to dissimilation as a process by which a syllable prelinked to a particular tone, changes its tone specification when it is in proximity with a syllable with an identical tone melody. Newman (1995: 771) has made it clear that dissimilation is similar to “tone polarity”. And that the difference between dissimilation and polarization, which he terms “true polarity”, resides in the fact that in dissimilation a specified tone is changed if certain conditions are met, but in polarization the segment that polarizes is unspecified for tone. However, dissimilation is a very productive tonological process in Akan, especially in compounding involving certain free forms as in the following examples.

- (31) **UR**                      **Fante**                      **Akuapem**                      **Asante**
- a.  $\&\blacklozenge\blacksquare\blacklozenge + \square\textcircled{\text{C}}$                        $\&\blacklozenge\textcircled{\text{C}}\blacksquare\textcircled{\text{C}}\square\textcircled{\text{C}}$   
 $\&\blacklozenge\textcircled{\text{C}}\blacksquare\textcircled{\text{C}}\square\textcircled{\text{C}}$                        $\&\blacklozenge\textcircled{\text{C}}\blacksquare\textcircled{\text{C}}\square\textcircled{\text{C}}$  ‘good husband’  
 (husband + good)
- b.  $\blacksquare\textcircled{\text{C}}(\textcircled{\text{C}})\square\textcircled{\text{C}} + \textcircled{\text{C}}\blacklozenge\blacksquare\blacklozenge$                        $\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\square\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\blacklozenge\blacksquare\blacklozenge$                        $\blacksquare\textcircled{\text{C}}\square\textcircled{\text{C}}$   
 (human being + useless)
- c.  $\blacklozenge\textcircled{\text{C}}\textcircled{\text{C}} + \textcircled{\text{C}}\textcircled{\text{C}}\blacklozenge\textcircled{\text{C}}$                        $\blacklozenge\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\blacklozenge\textcircled{\text{C}}$   
 $\blacklozenge\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\blacklozenge\textcircled{\text{C}}$                        $\blacklozenge\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\blacklozenge\textcircled{\text{C}}$  ‘rag’ (Fa)/native loin-cloth  
 (loin-) cloth + weak                      of a rag’ (Ak/As)
- d.  $\blacksquare\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}} + \&\blacklozenge\textcircled{\text{C}}\textcircled{\text{C}}$                        $\blacksquare\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\&\blacklozenge\textcircled{\text{C}}\textcircled{\text{C}}$   
 $\blacksquare\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\&\blacklozenge\textcircled{\text{C}}\textcircled{\text{C}}$                        $\blacksquare\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\&\blacklozenge\textcircled{\text{C}}\textcircled{\text{C}}$  ‘a piece of meat, eg leg’  
 (meat + bit)
- e.  $\&\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}} + \textcircled{\text{C}}\blacklozenge\textcircled{\text{C}}\blacklozenge\textcircled{\text{C}}$                        $\&\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\blacklozenge\textcircled{\text{C}}\blacklozenge\textcircled{\text{C}}$                        $\&\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}$   
 (hunger + white)
- f.  $\&\textcircled{\text{C}}\blacklozenge\textcircled{\text{C}}\&\textcircled{\text{C}}\square\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}$                       +                       $\blacklozenge\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}$   
 $\&\textcircled{\text{C}}\textcircled{\text{C}}\blacklozenge\textcircled{\text{C}}\textcircled{\text{C}}\&\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}\textcircled{\text{C}}$                       \_\_\_\_\_



just in the same way as the examples in (33) illustrate when reduplicated.

- (33) a. ରିତେଶତେଶତେଶ ‘soft/loose and wide’  
ରିତେଶତେଶରିତେଶତେଶତେଶ ‘exceedingly soft/loose and wide’
- b. ♦କ୍ଷୁକ୍ଷୁକ୍ଷୁ ‘fleshy/rosy’      ♦କ୍ଷୁକ୍ଷୁକ୍ଷୁ♦କ୍ଷୁକ୍ଷୁକ୍ଷୁ ‘extremely fleshy/rosy’
- c. ଠଟନଟନଠଟନ ‘sad/low spirited’      ଠଟନଟନଠଟନଠଟନଠଟନଠଟନ ‘dreadfully sad/low spirited’
- d. ◆କ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁ ‘slippery’      ◆କ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁ◆କ୍ଷୁକ୍ଷୁ  
କ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁ ‘extraordinarily slippery’
- e. ◆କ୍ଷୁକ୍ଷୁକ୍ଷୁ ‘black’      ◆କ୍ଷୁକ୍ଷୁକ୍ଷୁ◆କ୍ଷୁକ୍ଷୁକ୍ଷୁ ‘extraordinarily black’
- g. କ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁ ‘thick’  
କ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁ ‘exceptionally thick’
- h. କ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁ ‘damp/wet’  
କ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁକ୍ଷୁ ‘awfully damp/wet’
- (34) a. ତେଜକ୍ଷୁକ୍ଷୁ ‘eczema’  
ତେଜକ୍ଷୁକ୍ଷୁତେଜକ୍ଷୁକ୍ଷୁ ‘eczema pl.’
- b. ମୁଖକ୍ଷୁକ୍ଷୁ ‘eye’  
ମୁଖକ୍ଷୁକ୍ଷୁକ୍ଷୁ ‘in the eyes of the public’
- c. ତେଜକ୍ଷୁକ୍ଷୁ ‘ear’      ତେଜକ୍ଷୁକ୍ଷୁତେଜକ୍ଷୁକ୍ଷୁ ‘many people’s ears’
- d. ତେଜକ୍ଷୁକ୍ଷୁ ‘brown’  
ତେଜକ୍ଷୁକ୍ଷୁକ୍ଷୁ ‘brownish pl.’

The briefest study of (33) reveals that not all the sequences of two identical vocalic segments at the adjectival root-final position are copied in the reduplicant. This is referred to as partial reduplication. The examples of (33) are all partial reduplicatives in that not all the segments of the base are copied in the reduplicant. The final vowel is overtly absent in the reduplicant. Nonetheless, it is widely acknowledged that the size of the reduplicant in partial reduplication varies from language to language (Kager 1999). In (34) the bases of all the reduplicatives are nouns and we realize that the TBUs of the reduplicant are all multiply linked to the L by default.

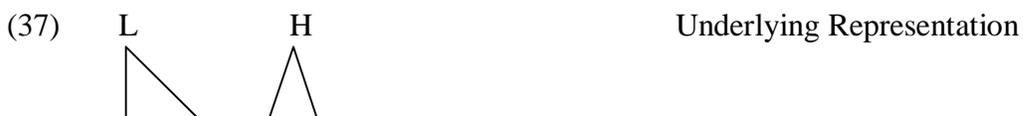


b. ♦አጭረው gold ♦አጭረው-♦አጭረው  
 ‘golden’

c. ማገቻዎች/ማገቻዎች children  
 ማገቻዎች - ማገቻዎች  
 (Fa.) ‘children in general/  
 ማገቻዎች -  
 ማገቻዎች (Ak.As.) ‘childlike’

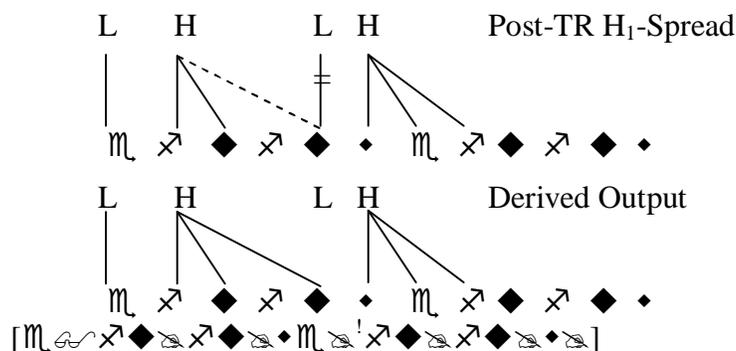
d. ማገቻዎች adults ማገቻዎች  
 ማገቻዎች (Fa) ‘many adults’  
 ማገቻዎች (2) VIPs  
 ማገቻዎች - ማገቻዎች (Fa)  
 ‘many VIPs’  
 ማገቻዎች (2) -  
 ማገቻዎች (2) (As./Ak.)

In (36) the roots are all nouns. Generally, a reduplicated noun indicates plurality and a reduplicated plural noun indicates intensity of the plurality. However, this tendency is counterexemplified in (36a-c), where the bases are nouns, but become adjectives when reduplicated. It is only (36c), which has a dual grammatical function of being an adjective in one context and a plurality indicator in another. In (36) the base and the reduplicant are completely identical, in terms of both segmental and tone melodies, and it is impossible to tell them apart. The point here is, whether the reduplicant is prefixed or suffixed to the base, the same segmental and tone melodies occur across the boundary between the “reduplicant” and the “base”, and we propose the term “duplicate” to cover both in such circumstances. We therefore argue that in these cases, the pre-dash duplicate is a clone of the post-dash duplicate and vice versa. The following derivation is, as a result, proposed to account for the types of total (tonal) reduplicatives in Akan.









It is worth noting that in (38c-d) the post-clone H<sub>1</sub>-Spreading rule also applies but the type of downstep that results is also referred to as downdrift in traditional literature on tonology, which Abakah (2000, 2002, 2004a) refer to as downstep type II. On the whole, total tonal reduplication is a very productive tonological process in Akan. Almost all the physical adjectives in Akan as well as most nominals and adverbs undergo total tonal reduplication when they reduplicate.

## 7.0. Concluding Remarks

In this article we have tried to analyse some of the tone rules in Akan. These rules have been classified dichotomously as sandhi and non-sandhi tone rules. We have coined the terms *duplicate* as well as *prestem* and *poststem* to facilitate our analysis of some of the tonological processes in Akan, which have hitherto not received any discussion in the literature. We also have, on the basis of tonal perturbations in Akan, demonstrated in this article that the reduplicants of the Akan reduplicatives are not by definition, prefixed to the base as claimed in the existing literature. We have also shown in this paper that the reduplicatives of class I verbs and some adjectives prefix their reduplicants to the base, while classes II and III verbs constantly suffix their reduplicants to the base when they reduplicate. However, when an existing reduplicative undergoes further reduplication, the reduplicant<sub>2</sub> irrespective of its underlying verb class, is suffixed to the base.

Finally, as a by-product of this study, we have discovered that Akan has a morphological process whereby a prefix and a suffix are simultaneously affixed to a base

morpheme to conjointly express a grammatical function. Looking at this morphological formative from the orthodox analytical perspective, a disyllabic bound morpheme in Akan prefixes and suffixes its first and second syllables respectively to the base simultaneously. The most important thing to note here is the fact that this type of morphological formative, that is, circumfix/parasyntesis is not reported in the Akan linguistics literature. This paper, therefore, does not only contribute to Akan phonology but also Akan morphology.

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