

TONE RULES IN AKAN

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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 en 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 figurent nullement dans les publications courantes. Nous proposons donc ici de nous centrer sur certains aspects moins souvent traités des 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.

0. INTRODUCTION

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 paper¹ 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

¹ I would like to thank the JWAL anonymous referee for his/her very critical, illuminating comments and crucial suggestions, which have contributed in no small measure to the present shape of this paper. However any inadequacies or errors that might remain are absolutely mine.

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 §2.1.2 below on H-Spread 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*.

1. TONE IN 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.

1.1 AKAN TONAL INVENTORY

Akan has two contrastive level tones² namely, (1) high tone (H) and (2) low tone (L) symbolized as [´] and [`] superscripts respectively. H has an allotone referred to as downstepped high tone, *downstep* for short. The downstep H occurs 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.

1.2 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 Akan, overlap. So, apparently the mora in the context of

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 used the following Yoruba triplets [wá] 'to come', [wa] 'to look' and [wà] 'to exist' for his experiment. It was realized that speakers pronounced these triplets on [´ ´ ´], [´ ´ -] and [´ ´ -] 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 is synonymous with the syllable in Akan. We therefore study the syllable types in Akan, in the following section.

1.3 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.

1.3.1 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) **m̩** as in **m̩.bá** (Fa) / **m̩.má** (As/Ak) children
 ŋ̩ as in **ŋ̩.kwá** life
 ń̩ as in **má.ń̩.'sú** 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) **m̩** as in **sò.m̩** hold it
 w̩ as in **há.w̩** troubled
 r̩ as in **ò.f̩.r̩** albino
 ɲ̩ as in **dá.ɲ̩** to turn
 ŋ̩ as in **tó.ŋ̩** 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 CV# syllable, the final -V# is obligatorily deleted if it is specified as [+ High] and the C, [+ Sonorant]. The following data illustrate this process.

(3)	Underlying Rep.	Phonetic Representation			
		Fante	Akuapem	Asante	
	/kò.mú/	[kò.m̩]	[kò.m̩]	[kò.m̩]	enter
	/sì.à.rí/	[s̩.à.r̩]	[s̩.à.r̩]	[s̩.à.r̩.é]	luck
	/à.dù.à.ní/ / à.dì.bà.ní/	[è.dzì.bà.ɲ̩]	[à.du.à.ŋ̩]	[à.du.à.ní]	food
	/já.wò/	[já.w̩]	[já.w̩]	[já]	painful

The resultant -C# does not resyllabify to the coda position of the preceding syllable. Rather, it constitutes a syllabic peak bearing its own tone, the tone left floating as a result of the truncation of the high vowel, which it precedes at the lexical level. The syllabicity of the -C# in question is confirmed by Dolphyne (1988:52) in the following words: “In Akan the syllable is also described in terms of the tone on which the consonant and/or vowel which make up the syllable is uttered”. We note from (3) that the syllabicity of a delinked V automatically floats and grounds on the preceding C of a sonorant rendering it a syllabic consonant. Discussing the syllabicity of word-final nonvowel sonorants and TBUs in Akan, Cahill (1985:28) has posited, “The tone of the

deleted vowel appears on the newly-syllabified final consonant". See also Dolphyne (1988:102-110) and Abakah (1978, 2005) for detailed study of this process.

This syllable type is not unique to Akan. Clements (2000:140) has observed that in many African languages,

Coda consonants often result from the loss of a following vowel, and may retain some of the characteristics of the missing vowel as in Engenni (Eḡeḡe) where [ɛ́sáɲì] 'pepper' varies freely with [ɛ́sáɲ̩], whose final consonant bears the syllabicity and tone of the elided vowel.

This observation of Clements' (ibid.) does suggest that the nature of nonvowel coda sonorants as a syllabic and a TBU is a relatively common phenomenon in a number of African languages.

1.3.2 The V Syllable Type

The V syllable type is made up of every word- or morpheme-initial preconsonantal vowel, as illustrated in (4a). Every postvocalic vowel in Akan also constitutes a syllable, as the examples in (4b) below illustrate.

- (4) a. à as in à.nóú mouth
 ò as in ò.dzá fire
- b. ì.á as in ò.nɔ̀ì.á sibling
 pò.ó as in è.pò.ó (As/Ak) / è.pò.ó (Fa) cheating

Sometimes, the V_1V_2 sequence is made up of identical vowels. In some cases, the V_2 in the sequence is a toneless bound morpheme, which takes the tone of the root TBU. In (4c) below, when the (*italicised*) toneless adverbial and toneless intensifier bound morphemes *a* and *u* are suffixed to or infixes within the relevant root morphemes in (4c), identical vowel sequences (each of which constitutes a syllabic peak) result.

- c. dá day dáá daily
 sùm dark sùùm very dark / black

Observe that long vowels in Akan do not contrast with their short counterparts and are redundantly not phonemic in Akan.

Identical vowel sequences may also come about, in Akan, as a result of the deletion of the onset of a CV syllable that is preceded by another CV syllable. This inevitably causes the V_2 of a syllabic peak to constitute an onsetless syllable, which follows an identical vowel that is also the peak of a preceding CV syllable. (4d) illustrates this fact. However, see Abakah (2004b) for a detailed study of this process.

- d. nà.ná → nà.á 'grandparent'
 kò.dzɔ́ó → kò.ó (masculine name)

Other various phonological processes operate to cause identical vowels to occur in a sequence in Akan. We will not discuss them here but see Abakah (2004a §2.5.2) for some such processes, paying particular attention to the Fante/Akuapem examples in (2.13i-iv) and the Fante examples in (2.18). Invariably, each of the identical vowels in a sequence in Akan constitutes a syllabic peak. In Akan, therefore, a sequence of identical vowels does not signify one and the same vowel whose articulation is char-

acterized by a long duration, as it is the case in some languages. These identical vowels are heterosyllabic, each one constituting a peak of prominence in its own syllable and redundantly bearing its own tone, which may or may not be identical with the tone of the preceding vowel. In other words, in a V_1V_2 sequence in Akan, V_2 is in itself a syllable whether or not it is of the same quality as V_1 , and regardless of the pitches on which they (V_1 and V_2) are realized.

1.3.3 The CV Syllable Type

The CV syllable type is the commonest in the Akan language. Almost all Akan monosyllabic words and/or morphemes are of the CV type. Examples are given in (5).

- (5) **wù, rà, d(z)í** as in **è.wù.rà.dzí** (Fa) / **à.wù.rà.dí** (Ak/As) ‘lord’.

1.3.4 The CC Syllable Type

We identify the CC syllable type in Akan, which is under-reported in the literature. To begin with, Akan does not have a CCV syllable, and all CCV word stems have underlyingly a $C_1V_1C_2V_2$ structure whereby the C_2 is a liquid and the V_1 is specified as [+High]. Illustrative examples are provided in (6) below. Invariably the V_1 is either very weakly articulated or somewhat deleted, causing the syllabicity of the V_1 to fall on the liquid C_2 , which constitutes a syllabic peak. Since the syllable is the TBU in Akan, this syllabic liquid carries the tone, which the deleted vocalic TBU leaves behind. Let us critically examine the illustrative examples in (6), especially the pertinent input and output syllables/TBUs, which are italicised.

- | | | | |
|-----|-------------------|------------------|--------------------------|
| (6) | Input | Output | |
| | <i>ɔ̀.bì.rá</i> | <i>ɔ̀.bì.á</i> | life |
| | <i>ɔ̀.kí.'rá</i> | <i>ɔ̀.kí.'á</i> | the soul |
| | <i>ɔ̀.bì.ré</i> | <i>ɔ̀.bì.é</i> | tiredness |
| | <i>fì.ré</i> | <i>fì.é</i> | to call |
| | <i>pì.rá</i> | <i>pì.á</i> | to sweep |
| | <i>à.bí.ré.kú</i> | <i>á.bí.é.kú</i> | (a species of sea snake) |
| | <i>kì.rá</i> | <i>kì.á</i> | to import |

The question now is: do the CC clusters in (6) constitute a CC syllable type or a complex onset of a CCV syllable type in Akan? This question has not received any discussion in the literature. However, we analyze CC as constituting a CC syllable type in Akan. The **r**, being the onset of the final $-C_2V_2\#$ syllable of a $C_1V_1C_2V_2$ stem at the underlying level of representation, resyllabifies to the nucleus position of the initial C_1V_1 syllable, which had previously been occupied by the deleted V_1 . It causes the final V_2 of the “new” stem to become an onsetless syllable by itself. Thus, the CCV stem in Akan is not a bimoraic monosyllable but a disyllabic stem just as Clements (2000) has argued.

Indeed, Clements (2000:146) has discussed in detail the TBU status of this syllabic liquid in Fante, one of the Akan dialects. See also Schachter and Fromkin (1968), Abakah (1978, 2000, 2002, 2004a), Dolphyne (1988) and Obeng (1989).

1.4 THE CLASSIFICATION OF AKAN VERBS

The overall tone pattern of the verbs in Akan fall into three tone classes in Fante and Akuapem: In Asante the tonal difference between classes II and III verbs is neutralized. We give examples of verbs in their respective classes below.

- Class I verbs are verbs with underlying H melody. Examples include **ká** ‘to say’ and /sómó/ [sóm]/[sómó] ‘to worship’.
- Class II verbs have underlying HL melody, exemplified by **nańt(s)iw** ‘to walk’ and /sáteĩrì/ [sáteĩr] (Fa) / [sákɔ̀rà] (As/Ak) ‘to reform’.
- Verbs with underlying LH melody constitute Class III verbs. Examples include **teĩré** ‘to show/teach’ and **mǎǎ** ‘to press’.

Note that there are no verbs with purely underlying L tone in Akan.

1.5 THE CLASSIFICATION OF AKAN NOUNS

This classification is based on attested surface tones on the noun. In determining the tone class to which each noun belongs, we have excluded the tone of the nominal prefix. This is because the nominal prefix in Akan is toneless underlyingly. Thus, a noun with LH melody is classified as H-toned if the L is borne by a preconsonantal, vocalic nominal prefix and the postconsonantal vocalic TBU is H-toned. But where the latter is L-toned followed by H-toned TBU(s), the noun is classified under the nouns with LH melody.

- *Class I nouns* have underlying LH melody. Examples include: **siká** ‘money’, **ò-pàmí** ‘God’.
- *Class II nouns* are those with underlying HLH tone pattern. Examples include: **ɲáń’sá** ‘astuteness’, **hó’hú** ‘guest/stranger’, **sá’máń** (Fa) / **sá’máí** (As) / **sá’máń** (Ak) ‘ghost’. These nouns may also be pronounced with nominal prefixes as in **ò-ɲáń’sá**, **ò-hó’hú** and **ò-sá’máń** / **ò-sá’máí** / **ò-sá’máń** respectively.
- Underlying L-toned nouns constitute *Class III nouns*. In these nouns all the TBUs regardless of their number are L. Nouns constituting this class are relatively uncommon. Examples include **àmàndzì** ‘trouble’; **ɲààteqòm** ‘hypocrisy’, **kèdzèkù** (Fa) ‘type of plant’.
- Like Class III nouns, *Class IV nouns* are relatively rare. These are nouns whose TBUs are all H. Examples include **kótókúróbá** ‘a hooked drum stick’; **ɲémá** (Fa) / **ńémá** / **nóómá** (As/Ak) ‘things/load’.
- *Class V nouns* have H-toned initial [+Low] vowel, **á**, followed by H’s, the final one of which whether singly or multiply linked is obligatorily downstepped: e.g. **ámó’tó** (Fa) type of seed; **ápétepr’éw**, a species of bird.
- *Class VI nouns* are produced with HLH melody, and all our examples are from the Fante dialect. They include **ádóròmá** ‘fig plant’, **wáńsímá** ‘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 **bátà** ‘butter’ **áńkɔ̀** ‘uncle’, **títeà** ‘teacher’ and **rédjò** ‘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.

2. 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).

2.1 TONE SPREADING

Tone spreading in Akan may be either *rightward* or *leftward*.

2.1.1 Rightward (Low-)Spreading

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

Following Pulleyblank (1986), we formulate the default tone assignment rule as (7) below. In Akan, like most two-tone languages, the default tone is L.

(7) Default Tone Assignment Rule

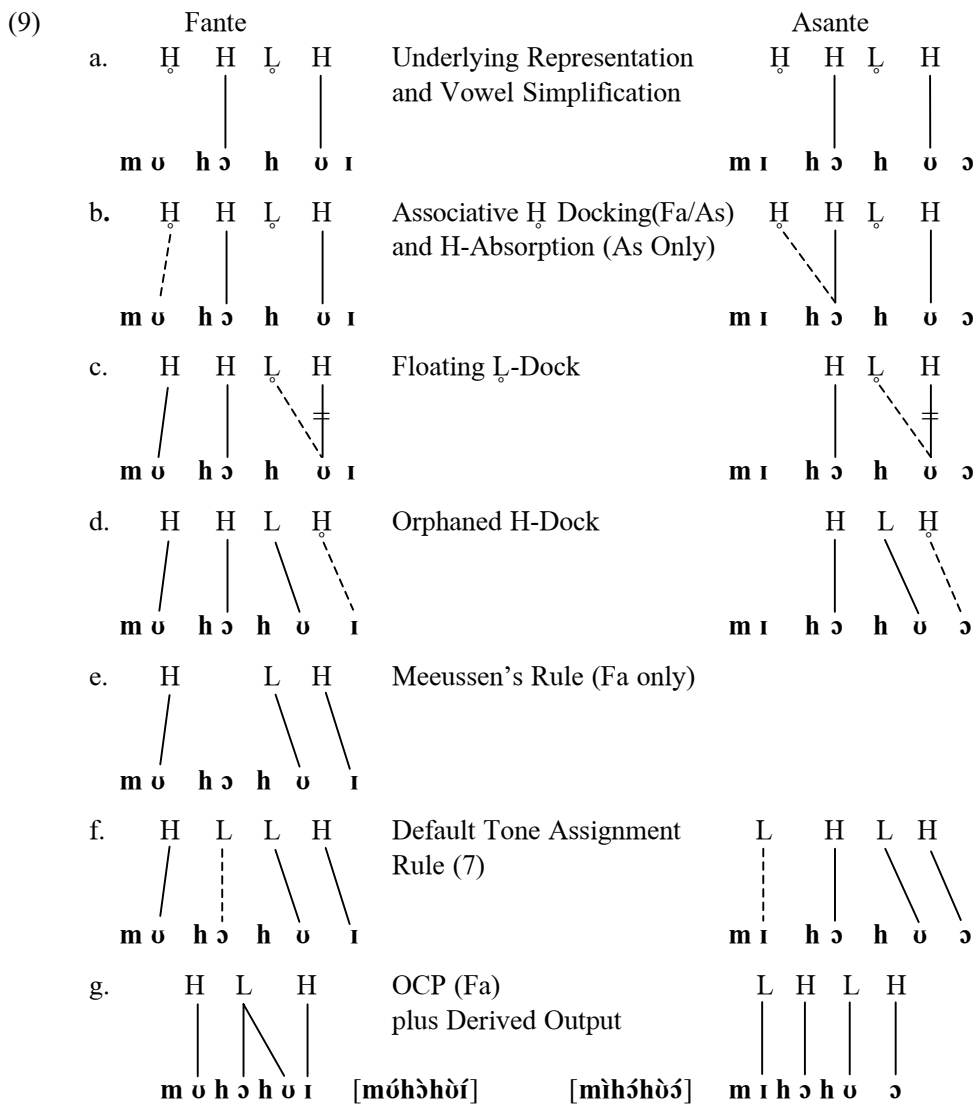
$$X \rightarrow \begin{matrix} L \\ | \\ X \end{matrix} \quad (\text{where } X \text{ stands for TBU})$$

This rule says that a TBU that is not preassociated with any tone is assigned a low tone.

L-Spreading is a grammatically conditioned process, operating within the Associative Construction, (NP₁'s NP₂), in Akan. The possessed NPs could belong to any of the noun classes. When class II nouns occur as possessed nouns in the associative construction, Fante and Asante output forms produce an extra H-toned suffixal vowel, *italicised* in (8). In Akuapem, the possessed noun retains its lexical tone at the phonetic level. Let us study the data below.

(8)	Isolation	Fante	Akuapem	Asante	
	ɔ́hɔ́'hú	mó hɔ́hò'í	mí hɔ́'hú	mì hɔ́hò'ɔ́	my guest
	àdà'ká	máádàkè'í	má'dá'ká	màdákà'á	my box
	ɲán'sá	ní ɲànsè'í	ní ɲán'sá	nì ɲánsà'á	his/her wisdom
	mán'só	ní mànsò'í	ní mán'só	nì mánsò'ɔ́	his/her litigation
	kú'sí	nú kùsì'í	ní kí'sí	nì kúsi'é	his/her rat

To account for these output forms we need a set of ordered rules. To begin with, the underlying tone melody of the associative construction with these nouns is essentially H̄ + H L̄ H. The segmental melody of the Associative morpheme is toneless, and the associative tone represented by the floating H is segmentless followed by the underlying tone of the possessed noun which is H L̄ H. Let us study the derivations below, in (9), 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].³ 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 H₁ of the possessed NP and merges with it via the process of tone absorption.⁴ Next, the underlying float-

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

⁴ See Hyman (1975) for the discussion of the process of tone absorption.

ing 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 $H \rightarrow \text{æ} / H^{vvv}$ to delete H after the H.⁵ 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 H₂ undergoes a H-Lowering process. The Meeussen’s Rule does not apply in Asante. However, the toneless Possessor NP₁ 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 H₂-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.

2.1.2 Leftward High-Spreading

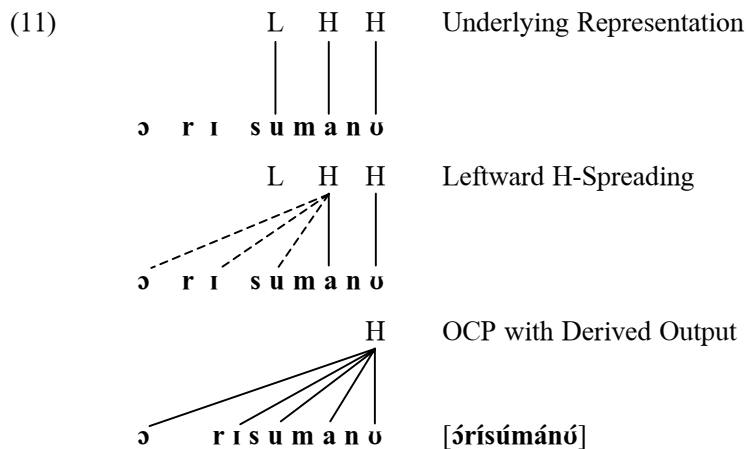
This type of H-Spreading refers to a tone sandhi situation where a declarative sentence in the Progressive Aspect or Future tense (both immediate and indefinite form) transforms into an adverbial clause whose English equivalent is introduced by *while, whereas, when, since* or *in view of the fact that*. Such sentences or tone phrases are marked by adverbial particles, **jí** and **nó** at the prepausal position. These particles 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 (10) exemplifies the phrases in question.

(10)	UR	Fante	Akuapem	Asante
a.	mɪ + rɪ + ɛɥìɛɥé + jí	[móróɛɥìɛɥéjí]	[míríɛɥìɛɥéjí]	[mííɛɥìɛɥéjí]
	I + PROG + search + while.PRES	‘while I am searching for it’		
b.	ɔ + rɪ + sù má + nó	[ó rúsú máń]	[ó rísú máń]	[ó ó súsú máń]
	s/he + PROG + hide + while.PAST	‘while s/he was hiding’		
c.	wu/ɪ + rɪ + púsà + nó	[írópúsáń]	[wó rípúsáń]	[wó ópúsáń]
	You.SG + PROG + rubbing + while.PAST	‘while you were rubbing’		

⁵ It could also be argued that the OCP motivates “Meeussen’s law” to dissimilate adjacent H tones in Fante.

- d. **je + ri + nántsìw̃ + jí** [jérínán'tsíw̃jí] [jérínán'tíw̃jí] [jéénán'tíjí]
 we + PROG + walk + while.PRES 'while we were walking'
- e. **mi + ri + bów̃ + jí** [móró'bów̃jí] [mírí'bów̃jí] [mííbójí]
 me + PROG + booze + since.PRES 'since I am boozing'
- f. **ɔ + ri + wú + nó** [órú'wúnó] [óríwúnó] [óówúnó]
 s/he + PROG + die + while.PAST 'when he was dying'

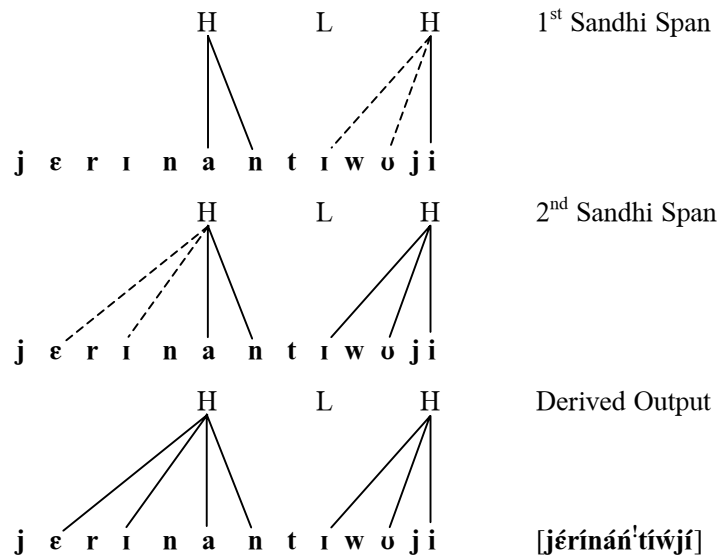
Let us first discuss the pattern in (10a–b). These are tone phrases with class III VRs. Note that the output tone melodies are the same in all the dialects of Akan despite their output segmental differences. We have noted that all preverbal morphemes that are cliticizable to the VR in Akan are underspecified for tone and they therefore redundantly receive L by default. Derivation (11) captures the process of H-Spreading involving class III verbs in Akan.



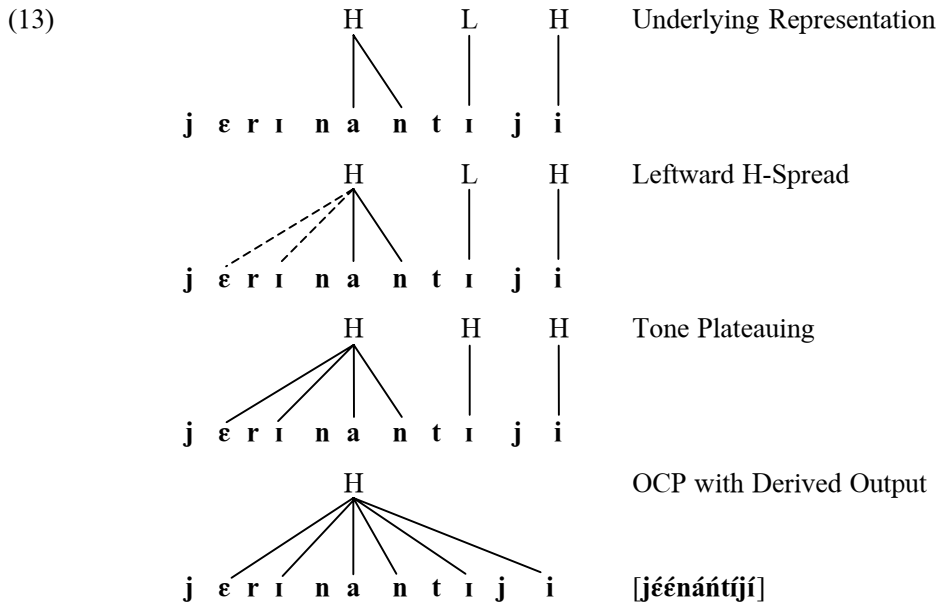
In the above derivation, the linked H of the final TBU(s) of the VR spreads leftwards to the leftmost boundary of the adverbial phrase. Finally, through the OCP effect, the adverbial marker's lexical H merges with the preceding H to superimpose its grammatical category on the clause/tone phrase by transforming it into an adverbial one.

If the construction involves a Class II verb as in (10c–d), then two types of H-Spread are observed in two sandhi spans in Fante and Akuapem. The first sandhi span involves the spreading of the lexical H of the adverbial marker particle **jí / nó** to the lexical L of the VR and dislodges it. The linked H of the VR then executes the second sandhi span by spreading leftwards successively to the leftmost boundary of the tone phrase/adverbial clause. The dislodged L floats between the two linked Hs to bring about downstep in the derived output. Derivation (12) captures this process.



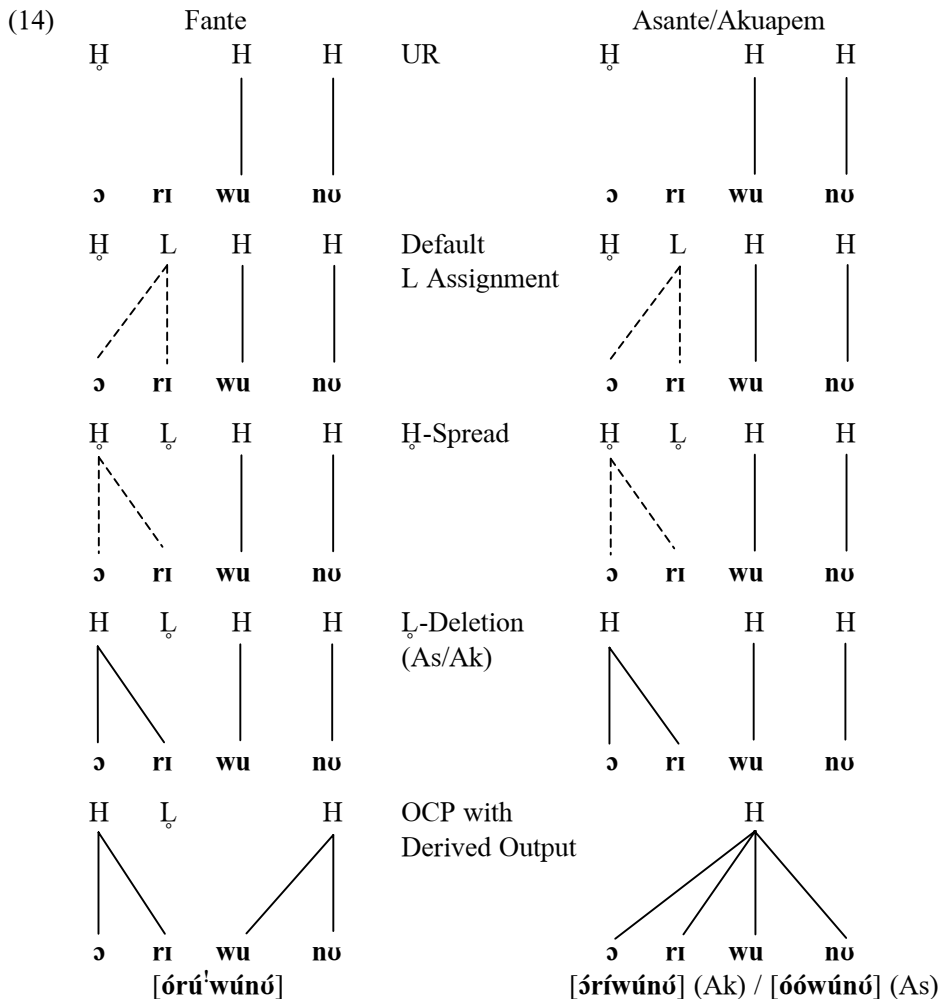


The Asante output forms of (10c–d) do not admit of downstep in spite of the fact that it has the same input tone melody as that of Fante and Akuapem that has, in situ, an indispensable structure requisite for the application of the downstep process in Akan. This suggests that Asante applies different tone rule(s) to arrive at its downstepless output melody. Basically two tone rules apply. First, the underlying H₁ spreads leftwards to the initial boundary of the tone phrase. This rule feeds the tone plateauing process (Goldsmith 1990) and as result, the resultant H-L-H becomes H-H-H which inevitably elicits the OCP in Asante at the final stage of the derivation, which analysis is captured graphically by (13) below.

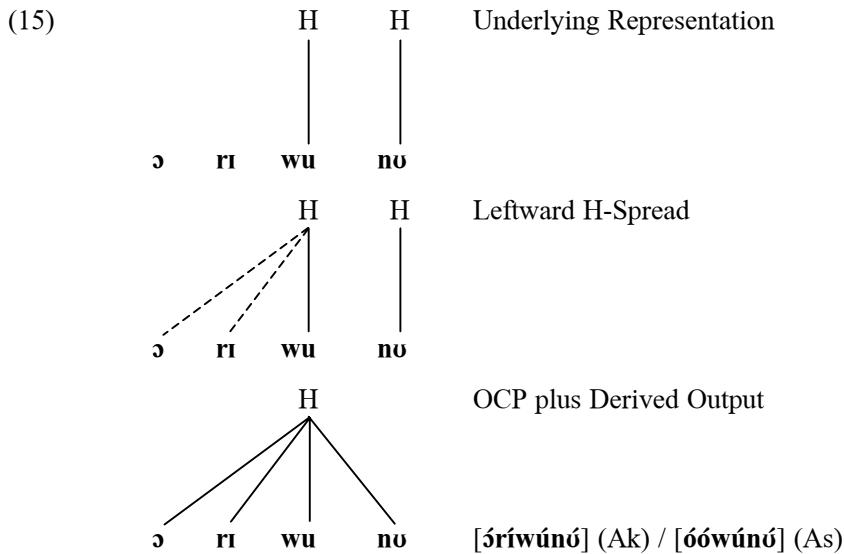


When a class I verb occurs in such constructions, downstep surfaces in the Fante final output even though the underlying tone melody does not contain the structure requisite

for the application of the downstep process in Akan. See (10e–f) above for illustration. The downstepping is brought about by the spreading of a floating H located at the prephrase/pre-clause void, to the toneless preverbal morphemes. But this spreading of the $\overset{\circ}{H}$ is invariably preceded by the Default Tone Assignment Rule, which causes the preverbal toneless morphemes to receive L by default. When the $\overset{\circ}{H}$ spreads to the received L, it causes it (the received L) to delink, float and condition the lexical H melody of the VR to receive downstep. Akuapem and Asante apply a further tone rule of floating L-deletion to forestall the downstepping in the final output. The following derivations capture this account.



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.



2.2 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: /rí/ ‘eat’ → [rí-é] ‘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 (16) 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 (17).

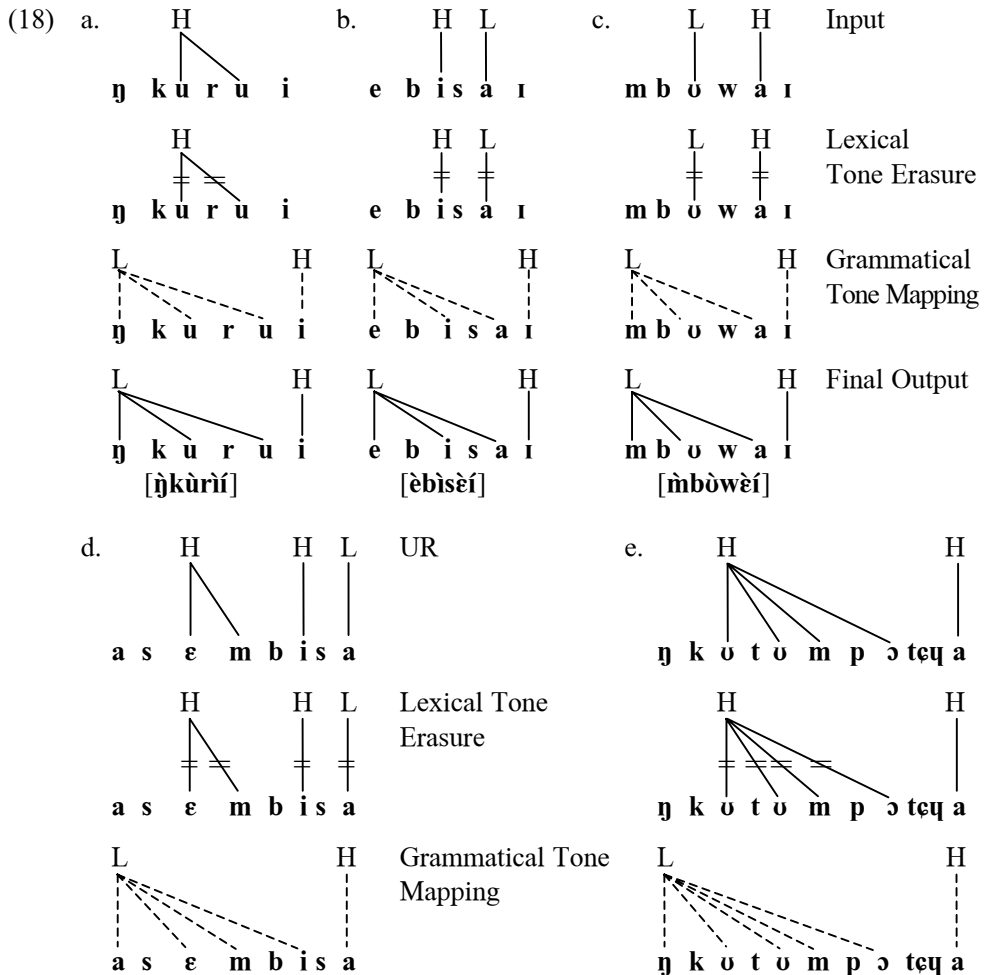
It is important to note that these constructions have a grammatical LH melody that deletes all underlying tones of the VR (in terms of deverbal noun formation) and those of the constituent elements of the compounds prior to mapping. When mapped, it is only the final syllable that receives the H. For exemplification, see (16) and (17) below with the prestem and the poststem italicised.⁶

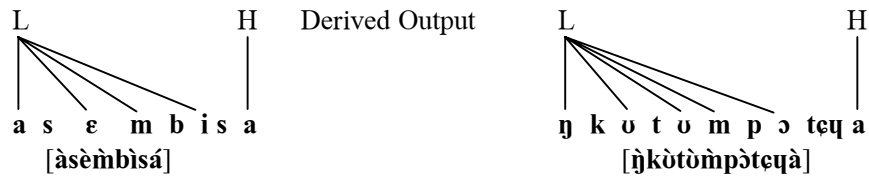
(16)	UR	Phonetic Representation			
		Fante	Akuapem	Asante	English
a.	kú rú to roof	[<i>ɣ̃</i> -kùrì-í]	[<i>ɣ̃</i> -kùrì-í]	[<i>ɣ̃</i> -kùrù-jé]	the act of roofing
b.	dá to sleep	[<i>ɲ̃</i> -dè-í]	[<i>ɲ̃</i> -nà-í]	[<i>ɲ̃</i> -nà-jé]	the act of sleeping
c.	dán ì to turn	[<i>ɲ̃</i> -dàní-í]	[<i>ɲ̃</i> -nàní-í]	[<i>ɛ̃</i> -nàní-jé]	turning/changing
d.	bí sà to ask	[<i>ɛ̃</i> -bìsè-í]	[<i>ɛ̃</i> -bìsà-í]	[<i>ɛ̃</i> -bìsà-jé]	consulting an oracle
e.	bù (w)á respond	[<i>m̃</i> -bùwè-í]	[<i>m̃</i> -mùà-í]	[<i>m̃</i> -mùà-jé]	response
f.	ɔ́ á to meet	[<i>ɛ̃</i> -ɔ́è-í]	[<i>ɛ̃</i> -ɔ́à-í]	[<i>ɛ̃</i> -ɔ́à-jé]	rendezvous
g.	dzì ná to stop	[<i>ɛ̃</i> -dzìnè-í]	[<i>ɛ̃</i> -dzìnà-í]	[<i>ɛ̃</i> -dzìnà-jé]	consultation

⁶ Note that final vowels of the stems change to [CORONAL] to agree with the suffix.

(17)	UR	Fante	Akuapem/ Asante	
a.	<i>àsém</i> + <i>bísà</i> matter + to ask	<i>àsèmbisá</i>	<i>àsèmmisa</i>	question
b.	<i>nám</i> + <i>teiwù</i> fish + fried	<i>nàhtëiwíí</i>	<i>nàhtëiwíí/ nàhtëijé</i>	fried fish
d.	<i>hú</i> + <i>cé</i> + <i>dú</i> self + to wear + on	<i>àhòcèdú</i>	<i>àhòcèsú(ɔ)</i>	self-control
c.	<i>àsú</i> + <i>mú</i> + <i>dzɔí</i> ear + in + cool	<i>àsùmùdzɔí</i>	<i>àsùmùdzɔí/ àsòmùdzɔijé</i>	peace
e.	<i>ɲ-kótómpɔ</i> + <i>teɣá</i> lie + to cut	<i>ɲkòtòm̀p̀d̀teɣá</i>	<i>ɲkòtòm̀p̀d̀teɣa</i>	telling of lies
f.	<i>dèj̀'̀t̀c̀ém</i> + <i>̀̀b̀ú</i> crocodile + stone	<i>dèj̀t̀c̀è̀m̀b̀ú</i>	<i>dèj̀t̀c̀è̀m̀b̀ú(ɔ)</i>	diamond
g.	<i>àdà'ká</i> + <i>mòná</i> coffin + hole	<i>àdàkàmòná</i>	<i>àdàkàmìna</i>	grave
h.	<i>àdzɔíni</i> + <i>teiré</i> mind + to show	<i>àdzɔij̀teiré</i>	<i>àdzɔij̀teiré</i>	suggestion
i.	<i>àbání</i> + <i>kèsí</i> castle + big	<i>àbàj̀kèsí</i>	<i>àbàj̀kèsí(é)</i>	great fortress

The derivations below labelled (18a,b,c) represent classes I, II, and III verbs respectively in the formation of deverbal nouns, while (18d) and (18e) represent the above-mentioned compound formation.





2.3 TONE POLARIZATION AND TONE DISSIMILATION

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

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 belongs to either Class I or Class II as in (19) and (20) below. The only exception is that the 2 pl takes the initial tone of class II verbs in Fante and Akuapem. In Asante, the tones of the 1sg, 1pl and 3sg, 3pl polarize with the following initial tone of the class I VR while the 2sg and 2pl that occur in the same phonetic environment, take the tone of the initial TBU of the class I VR. On the other hand, in Class II, the 1sg, 1pl and 3sg, 3pl clitics in Asante take the tone of the initial TBU of the class II VR even as the tones of the 2sg and 2pl polarize with the initial tone of the same VR.

(19) Class I Nouns

UR	Fante	Akuapem	Asante	
a. mɪ + tɔ́nó	mí.tɔ̀n	mí.tɔ̀ɲ	mì.tɔ́ó	I sell
b. ɔwo/ɪ + tɔ́nó	í.tɔ̀n	wó.tɔ̀ɲ	wó.tɔ́ó	you sell
c. ɔ + tɔ́nó	ɔ́.tɔ̀n	ɔ́.tɔ̀ɲ	ɔ̀.tɔ́ó	s/he sells
d. jenɪ + tɔ́nó	jé.tɔ̀n	jé.tɔ̀ɲ	jè.tɔ́ó	we sell
e. homo + tɔ́nó	hóm.tɔ̀n	mó.tɔ̀ɲ	mó.tɔ́ó	you (pl) sell
f. wɔnomo + tɔ́nó	wó.tɔ̀n	wɔɲ.tɔ̀ɲ	wɔ́mó.tɔ́ó	they sell

(20) Class II Nouns

UR	Fante	Akuapem	Asante	
a. mɪ + sátɛ̀rì	mì.sátɛ̀rì	mì.sákɛ̀rà	mì.sàkɛ̀rá	I reform
b. wɔ/ɪ + sátɛ̀rì	ì.sátɛ̀rì	wó.sákɛ̀rà	wó.sàkɛ̀rá	your eform
c. ɔ + sátɛ̀rì	ɔ̀.sátɛ̀rì	ɔ̀.sákɛ̀rà	ɔ̀.sàkɛ̀rá	s/he reforms
d. jenɪ + sátɛ̀rì	jè.sátɛ̀rì	jè.sákɛ̀rà	jè.sàkɛ̀rá	we reform
e. homo + sátɛ̀rì	hóm.sátɛ̀rì	mú.sákɛ̀rà	mó.sàkɛ̀rá	you (pl.) reform
f. wɔnomo + sátɛ̀rì	wò.sátɛ̀rì	wòɲ.sákɛ̀rà	wɔ́mó.sàkɛ̀rá	they reform

In (19) and (20), which represent classes I and II verbs respectively, the pronominal concord is H-toned in (19a–f) in Fante and Akuapem because the verb root is L. In Asante, it is the other way round in terms of (19a,c,d) while in (19b,e,f), both the

verb and the pronominal concord are produced on H. This situation is reversed in the examples in (20) 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 (21) exemplify. The verb root is italicised.

- (21) a. *mí-kà* / *mì-kaá* I say
 b. *í-kà* / *ì-ká* you say
 c. *ś-kà* / *ḍ-ká* s/he says
 d. *jé-kà* / *jè-ká* we say
 e. *hóm-kà* / *hóm-ká* you (pl.) say
 f. *wś-kà* / *wḍ-ká* 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 (19) into their negative counterparts in (22) with the negative morpheme italicised.

(22)	Fante	Akuapem	Asante	English
a.	<i>mò.ṅ.tón</i>	<i>mì.ṅ.tón</i>	<i>mì.ṅ.tóó</i>	I do not sell
b.	<i>ì.ṅ.tón</i>	<i>wó.ṅ.tón</i>	<i>wó.ṅ.tóó</i>	you do not sell
c.	<i>ḍ.ṅ.tón</i>	<i>ḍ.ṅ.tón</i>	<i>ḍ.ṅ.tóó</i>	s/he does not sell
d.	<i>jè.ṅ.tón</i>	<i>jè.ṅ.tón</i>	<i>jè.ṅ.tóó</i>	we do not sell
e.	<i>hóm.ṅ.tón</i>	<i>mó.ṅ.tón</i>	<i>mó.ṅ.tóó</i>	you (pl) do not sell
f.	<i>wḍ.ṅ.tón</i>	<i>wḍ.ṅ.tón</i>	<i>wḍómó.ṅ.tóó</i>	they do not sell

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 (19) and (22) 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 (19), for instance, where the preceding pronominal clitic is said on H or L, the class I VR takes an opposite tone. And in (22), 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 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.

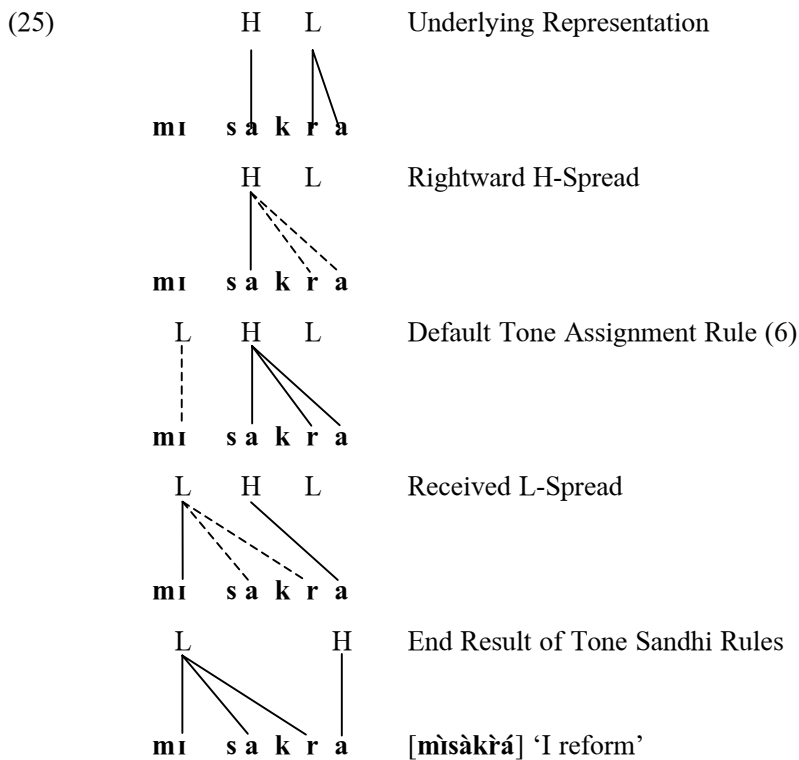
Nonetheless, when the verb root is polysyllabic, the mode of polarization that emerges is dependent upon the tone melody of the initial TBU of the VR. When tones of the VR are said on a level pitch, the mode of polarization is simple and predictable as in (23).

(23)	UR	Fante	Akuapem	Asante	
a.	mi + súmó	mú.sòm	mí.sòm/sòmò	mì.súm/súmó	I worship
b.	ɔwo + súmó	í.sòm	wó.sú/súmó	wú.súm/súmó	you worship
c.	ɔ + súmó	ś.sòm	ś.sòm/sòmò	ḍ.súm/súmó	s/he worship
d.	je + súmó	jé.sòm	jé.sòm/sòmò	jè.súm/súmó	we worship
e.	homu + súmó	hóm.sòm	mó.súm(ó)	mó.súm/súmó	you (pl.) worship
f.	wɔnumu + súmó	wó.sòm	wón.sòm/sòmò	wḍónúm.súm/súmó	they worship

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 (20), which we reproduce here as (24).

(24)	Fante	Akuapem	Asante	
a.	mì.sátèr	mì.sákà	mì.sàkà	I reform
b.	ì.sátèr	wó.sákà	wó.sàkà	your eform
c.	ḍ.sátèr	ḍ.sákà	ḍ.sàkà	s/he reforms
d.	jè.sátèr	jè.sákà	jè.sàkà	we reform
e.	hóm.sátèr	mó.sákà	mó.sàkà	you (pl.) reform
f.	wḍ.sátèr	wḍn.sákà	wḍóm.sàkà	they reform

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 (25) 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 non-sandhi domain where the received L dissimilates to become H. Hence ostensibly Asante displays tone polarization in terms of the 2sg and the 2pl. pronominal clitics, in reality what it exhibits is more of dissimilation than tone polarization. Let us present this account schematically as (25).



If, on the other hand, the pronominal concord is either the 2sg or 3pl. then nonsandhi rule operates causing the dissimilation of the received L to H.

Finally, when the VR happens to be a member of class III verbs, exhibiting an underlying LH melody, the polarization process does not take effect at all. The toneless pronominal concord takes the same tone as the initial TBU of the class III verb with the exception of the 2sg. in Asante/Akuapem and the 2pl. in all the dialects where dissimilation results as exemplified by (26).

(26)	UR	Fante	Akuapem	Asante	
a.	mi + tèiréw	mì.tèiréw	mì.tèiréw	mì.tɛ̀ɪ̀ré	I write
b.	wo + tèiréw	ì.tèiréw	wó.tèiréw	wó.tɛ̀ɪ̀ré	you write
c.	ɔ + tèiréw	ɔ̃.tèiréw	ɔ̃.tèiréw	ɔ̃.tɛ̀ɪ̀ré	s/he writes
d.	jeni + tèiréw	jè.tèiréw	jè.tèiréw	jè.tɛ̀ɪ̀ré	we write
e.	homu + tèiréw	hóm.tèiréw	mó.tèiréw	mó.tɛ̀ɪ̀ré	you (pl.) write
f.	wɔnom + tèiréw	wò.tèiréw	wón.tèiréw	wóómó.tɛ̀ɪ̀ré	they write

2.3.1 Toneless Adjectives, Toneless Intensifiers and Tone Polarization

Some adjectives in Akan are unspecified for tone and these invariably take the tone opposite to that of a following intensifier in a predicative environment. This means that in the predicative, if the intensifier is H-toned then the adjective is L-toned and where it is L-toned the adjective is H-toned at the phonetic surface as (27) below demonstrates. Toneless adjectives include **muam** 'fragrant/aromatic'; **dew** 'sweet'; **ɲɲm** 'bitter'; **few** 'beautiful'; **tan** 'ugly'; **ɲtem** 'salty'; **dur** 'heavy'; **har** 'light', **dzin** 'hard/difficult'. It is important to note that all intensifiers in Akan, whether H-toned or

From (31) it can be seen that when a reduplicated class I verb is further reduplicated, the second reduplicant (reduplicant₂) is suffixed and not prefixed to the root. Classes II and III verbs also show that the reduplicant₂ is a suffix and not a prefix. Hence going by the underspecification and default tone assignment theories (discussed extensively in the literature by scholars including Pulleyblank (1986), Kenstowicz (1994), Odden (1995), Gussenhoven and Jacobs (1998), Cahill (1999), Roca & Johnson (1999), among others, we assume that in Akan, the reduplicant could be prefixed or suffixed to the verb root depending on the class to which the VR belongs and also on the type of reduplication. We have seen that as far as further reduplication of reduplicated verbs goes in Akan, all the reduplicative templates are suffixed and not prefixed to the base.

We observe that in (31), the reduplicated Class I VR has contrastive tones like Classes II and III verbs. Thus, serving as a new base for further reduplication, like Classes II and III verbs, its reduplicant₂ is suffixed and not prefixed to the base. In (31) 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.

2.4 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.

(32)	UR	Fante	Akuapem	Asante
a.	<u>kúnú</u> + <u>pá</u>	<u>kù</u> ̀̀ <u>n</u> ̀̀ <u>pá</u>	<u>kù</u> ̀̀ <u>n</u> ̀̀ <u>pá</u>	<u>kù</u> ̀̀ <u>n</u> ̀̀ <u>pá</u>
	husband + good		good husband	
b.	<u>ní</u> (<u>m</u>) <u>pá</u> + <u>húnú</u>	<u>ɲ</u> ̀̀ <u>n</u> ̀̀ <u>pá</u> <u>húnú</u>	<u>n</u> ̀̀ <u>pá</u> <u>húnú</u>	<u>n</u> ̀̀ <u>pá</u> <u>húnú</u>
	human being + useless		worthless person	
c.	<u>tání</u> + <u>gówó</u>	<u>tà</u> ̀̀ <u>g</u> ̀̀ <u>ó</u>	<u>tà</u> ̀̀ <u>g</u> ̀̀ <u>ó</u>	<u>tà</u> ̀̀ <u>g</u> ̀̀ <u>ó</u>
	(loin-)cloth + weak		rag (Fa) / native rag loin-cloth (Ak/As)	
d.	<u>nání</u> + <u>kúm</u>	<u>nà</u> ̀̀ <u>ɲ</u> ̀̀ <u>kúm</u>	<u>nà</u> ̀̀ <u>ɲ</u> ̀̀ <u>kúm</u>	<u>nà</u> ̀̀ <u>ɲ</u> ̀̀ <u>kúm</u>
	meat + bit		a piece of meat, e.g. leg	
e.	<u>kóm</u> + <u>fúfúw</u>	<u>k</u> ̀̀ <u>m</u> ̀̀ <u>fúfúw</u>	<u>k</u> ̀̀ <u>m</u> ̀̀ <u>fúfúw</u>	<u>k</u> ̀̀ <u>m</u> ̀̀ <u>fúfúw</u>
	hunger + white		intense hunger	
f.	<u>kót</u> <u>k</u> ̀̀ <u>ó</u> <u>r</u> ̀̀ <u>bá</u> + <u>téíw</u>	<u>k</u> ̀̀ <u>t</u> ̀̀ <u>k</u> ̀̀ <u>ò</u> ̀̀ <u>r</u> ̀̀ <u>bà</u> <u>téíw</u>	_____	_____
	hooked stick + crooked		warped hooked stick	
g.	<u>mánsá</u> + <u>tsíw</u>	<u>mà</u> ̀̀ <u>n</u> ̀̀ <u>sà</u> <u>tsíw</u>	_____	_____
	Mansa (female name) + deaf		Mansa the deaf	

In data (32), both the first element (E₁), which is underlined, and the second element (E₂) have H melody but the H of the E₁ dissimilates to become L before an underlying

H across a morpheme boundary in a compound. In brief, therefore, a H+H sequence at a morpheme boundary in compounds in Akan dissimilates to become LH as (33) shows.

$$(33) \quad \begin{array}{ccc} \text{H} + \text{H} & \rightarrow & \text{L} \quad \text{H} \\ | \quad | & & | \quad | \\ \text{X} \quad \text{X} & & \text{X} \quad \text{X} \end{array} \quad (\text{where X is a TBU and + a morpheme boundary})$$

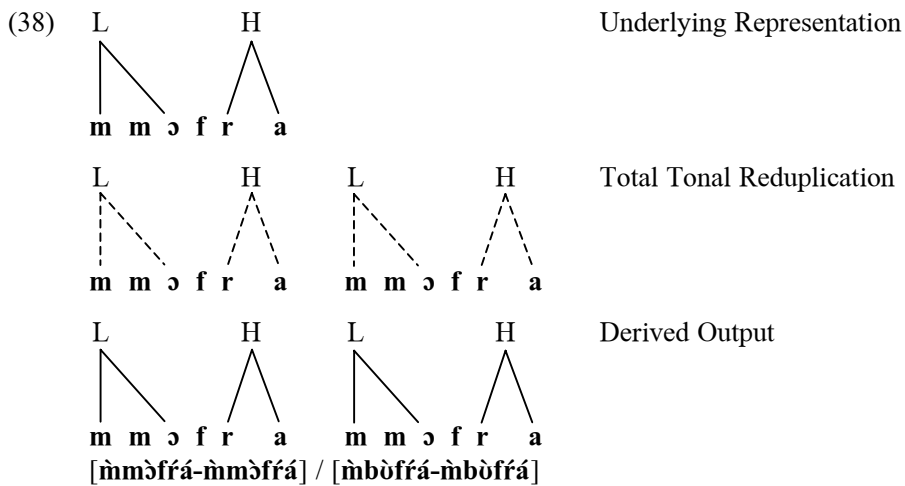
It is worth pointing out that some Fante speakers may put the dissimilation process on hold preferring to retain the input tone melody of the constituent elements of the compound at the phonetic surface. Hence (32e) and (f), for instance, may be produced as [kɔ́mɔ́fɔ́w] and [kɔ́tɔ́kɔ́rɔ́bɔ́tɔ́i] respectively and both forms are used interchangeably by Fante speakers. Like all noun-adjective sequences in the combinative style, the underlying tone melodies of these word classes are retained at the surface level only if, and if only if the noun and the adjective are not merged to form a compound word. However, when the noun-adjective sequence merge to form a compound, the underlying H of the noun element consistently dissimilates to L. So, in Akan, we can at all times tell a noun-adjective compound and a noun-adjective sequence apart according to their output tone melodies.

Let us now consider dissimilation in reduplicated forms. Data (34) below is a list of L-toned adjectives in Akan and their reduplicated forms. This is followed by another list of words, data (35), and their reduplicated forms containing nominals and adjectives alike with underlying LH melody. It also exhibits dissimilation just in the same way as the examples in (34) illustrate when reduplicated.

- | | | | | | |
|------|----|------------------|---------------------|---------------------------|---------------------------------|
| (34) | a. | <i>bàjàà</i> | soft/loose and wide | bàjàbàjàà | exceedingly soft/loose and wide |
| | b. | <i>sòkòò</i> | fleshy/rosy | sòkòsòkòò | extremely fleshy/rosy |
| | c. | <i>mùsòò</i> | sad/low spirited | mùsòmùsòò | dreadfully sad/low spirited |
| | d. | <i>t̀r̀òkàà</i> | slippery | t̀r̀òkàt̀r̀òkàà | extraordinarily slippery |
| | e. | <i>t̀ùùm</i> | black | t̀ùùt̀ùùm | extraordinarily dark |
| | f. | <i>pìkàà</i> | thick | pìkàpìkàà | exceptionally thick |
| | g. | <i>f̀ɛ̀t̀ɛ̀i</i> | damp/wet | f̀ɛ̀t̀ɛ̀if̀ɛ̀t̀ɛ̀i | awfully damp/wet |
| (35) | a. | <i>àkɔ́r</i> | eczema | àkòràkɔ́r | eczema (pl.) |
| | b. | <i>èjìwá</i> | eye | èjìwàèjìwá | in the eyes of the public |
| | c. | <i>àsówá</i> | ear | àsòwààsówá | many people within earshot |
| | d. | <i>àb'íní</i> | brown | àb'ìnàb'íní | brownish (pl.) |

The briefest study of (34) 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 (34) 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 (35) 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.

Tonologically speaking, the fact that the reduplicant does not copy the tone of the base is shown clearly by the examples in (34) and (35) above. In all these examples,

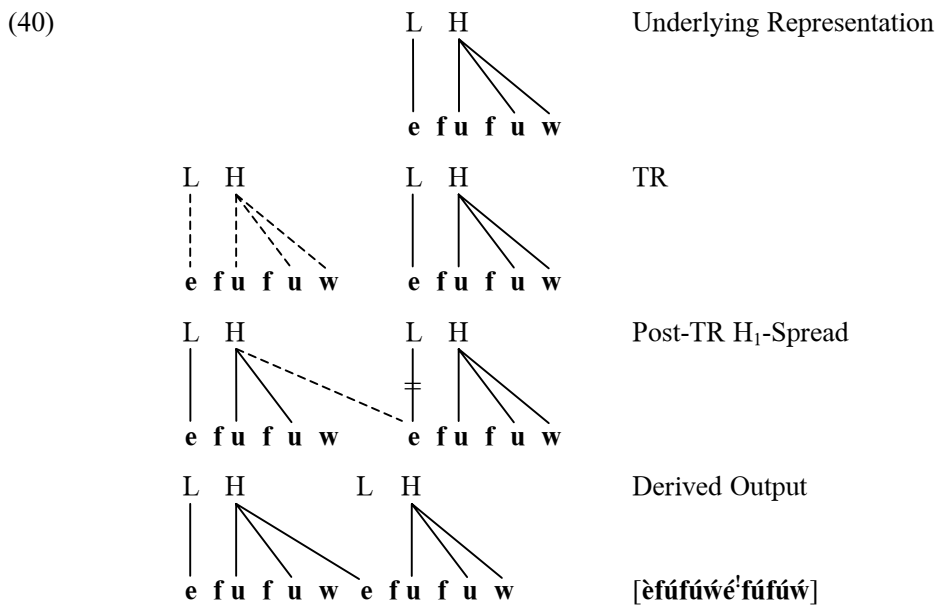


In the above derivation, since the base cannot be distinguished from the reduplicant, broken association lines are used to link the segmental tier with the tonal tier at the total reduplicating stage.

We now consider **defective total (tonal) reduplication**. This refers to a type of TR where the reduplication itself does not turn out to be the ultimate tone rule. Here, after a base has undergone the TR process, some other tone rules apply to generate the final output. Here, the component duplicates may, or may not, have identical segmental melodies but have, at least, partially identical tone melodies at the phonetic surface. Again, like the preceding data, it is impossible to distinguish between the reduplicant and the base. Thus the TR rule, in this scenario, feeds post-TR tone rule(s), which slightly transform(s) the tone melody of one of the TBUs of the totally reduplicated duplicates, making the derived outputs imperfect total reduplicatives. Let us study closely the examples in (39) in which all the bases are adjectives.

- (39)
- | | |
|------------------------------------|--|
| a. <i>ɛ́fúfúw</i> white (pl.) | <i>ɛ́fúfúw-é'fúfúw</i> very white (pl.) ¹ |
| b. <i>ɛ́h'í</i> annoying | <i>ɛ́h'í-é'h'í</i> very annoying |
| c. <i>ɛ̀pìṣṣáám</i> (Fa) glorious | <i>ɛ̀pìṣṣáám-ɛ̀pìṣṣáám</i> (Fa) very glorious |
| <i>ɛ̀nùòṣáám</i> (As/Ak) | <i>ɛ̀nùòṣáám-ɛ̀nùòṣáám</i> (Ak/As) |
| d. <i>àkèsí(é)</i> big/great (pl.) | <i>àkèsí(é)-ákèsí(é)</i> very big/great (pl.) |

The initial L-toned vowel of the base receives an H in the post-dash duplicate. This does not reduce the effect of the TR phenomenon, in that the change in tonal specification is brought about by a post-TR tone sandhi rule. Specifically, the H of the left/pre-dash duplicate spreads rightwards across the duplicate boundary to the initial L-toned TBU of the post-dash/right duplicate, causing it to delink. This gives rise to downstep because the delinked L floats to exert a pitch-lowering control on the lexically multiply linked H in the post-slash duplicates. The following derivation captures the whole concept of post-TR rule of rightward H-spreading, turning an otherwise a perfect total reduplicative into a defective one.



It is worth noting that in (39c–d) the post-clone H₁-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.

3. 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 reduplicant₂ 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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