

Elision in Fante

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1. Introduction: the Fante tongue

Fante is a dialect of Akan, a Kwa language spoken in Ghana in the West African sub-region. The Akan language is spoken by about 44% (2000 census) of Ghana's approximately 20 million people as their mother tongue in the Ashanti, Brong Ahafo and Central Regions as well as in parts of Eastern, Volta and Western Regions of Ghana. It has several dialects including Fante, Asante, Akuapem (the three main dialects) and Bono, Kwahu, Wassa etc. Akan is also spoken by the Ahanta, Nzema, Sehwi, Aowin, Efutu, Senya, Awutu, Larteh, Anum, Kyerepong etc as second language. Akan is the major language in Ghana and it is spoken "by several million people throughout the country as their second language" Burmeister (1988: 98). It therefore comes as no surprise that Akan has become more or less the lingua franca in Ghana today. This fact is captured by Boadi's (n.d.:3) observation that "It would probably not be an exaggeration to say that it is possible to travel from the coast to the extreme tip of the north without much difficulty in communication if one speaks Akan".

The Akan language is classifiable dichotomously as Fante and Twi inasmuch as all the non-Fante dialects are collectively referred to as Twi, a classification clearly reflected in the title of Dolphyne's (1988) study.

Fante, the dialect under investigation, has three main subdialects namely: Iguae, Anee and Boka; see Abakah (1998, 2002a) for a detailed study of classification of Fante.

This study is cast within the theoretical framework of autosegmental phonology and focuses on comparative study of the three major subdialects of Fante namely, Iguae, Anee and Boka. Where these Fante subdialects share similarities and differences with the other dialects of Akan, comparisons will be made to Akuapem and Asante, the other major dialects of Akan, when relevant.

2. Elision

Elision is variously defined in the literature, and it appears there is no single definition which captures elision as it operates in Fante. Matthews (1997:111), for instance, defines elision as “a process by which a vowel at the end of a word is lost, or elided, before another vowel at the beginning of a word that follows”. This definition only specifies one of the several phonetic environments in which the process of elision operates in Fante, like any other variety of Akan. Even then, in this environment, it is not only vowels that end a first word that delete but also vowels that begin a second word are equally deletable in Fante as we will notice in the central portions of this paper. What is more, in the stream of running speech, both vowels and consonants and even syllables are subject to elision word-internally and elsewhere in any of the varieties of Akan.¹

Based on how elision operates in Fante we define elision as *a phonological process by which a vowel, a consonant and sometimes a syllable, which is an intrinsic property of a morpheme in the isolative style, is dropped in the combinative style.*

Gimson (1970) has remarked, “apart from word-internal elisions ... sounds may be elided in rapid colloquial speech, especially at or in the vicinity of word boundaries”. In Fante, elision of sound segments and syllables takes place word internally and at morpheme or word boundaries and word-finally whether in rapid colloquial, formal, careful or careless speech situation. Among the Fantes, a speaker is deemed to know and speak Fante well when s/he is able to delete sound segments or syllables appropriately in the course of discourse or speech delivery. Thus, in this paper, our discussion will focus on elision of vowels, consonants and syllables in the three main subdialects of Fante.

3. Vowel elision

To begin with, when a word that ends in a vowel is followed by another that begins with a vowel in the same breath group/phonological phrase in Fante, one of the vowels of the resultant $V_1\#V_2$ sequence created at the word boundary is truncated. This is a very productive phonological process in Fante. It involves words in different grammatical relationships as illustrated below.

There are two environments in which this phonological process takes place. First, if the second vowel in the sequence is specified as [-Low] then it is obligatorily deleted as (1) below exemplifies.

¹ See Gimson (1970), Pei & Gaynor (1954), Jones (1956), Clark & Yallop (1995), Crystal (1991), and others for other definitions of elision.

(1)	A	B	C (=A+B)	ENGLISH
a.	okura	ɔbirɪ	okurabɪr	‘female mouse’ (mouse + female)
b.	kɔtɔ	itu	kɔtɔtu	‘crab hole’ (crab + hole)
c.	wɔ	idzɔɪn	wɔdzɔɪn	‘your grey hair’ (your + grey hair)
d.	mɪ	osew	misew (Bk.)	‘my in-law’ (my + in-law)
e.	kɔ	ɪnɪna	kɔɪnɪna	‘go fetch fagots’ (go + fagots)
f.	tu	imuna	tumuna	‘dig a hole’ (dig + hole)

(Note: Bk. = Boka.)

Given the words in the isolative style as indicated in (1) A and B, the pronunciation indicated in C would naturally be accounted for as a result of the truncation of the initial vowel of the words in B. This process can aptly be captured by the following rule (2).

(2) NONLOW VOWEL DELETION RULE

$$\begin{array}{ccc}
 V_1 & \# & V_2 \\
 | & & \equiv \\
 [\alpha\text{High}] & & [-\text{Low}]
 \end{array}$$

This rule disassociates the second member of a two-vowel sequence at a word boundary provided the second vowel is specified as [-Low].

It is assumed that any segmental feature matrix that is delinked from the autosegmental/timing tier is automatically deleted. This does not obscure the fact that some resultant ‘floating’ matrices could float throughout the phonology of some languages. The following derivation, (3), based on (1b) captures our account above.

(3)	$ \begin{array}{ccccccc} C & V & C & V & \# & V & C & V \\ & & & & & & & \\ k & \text{ɔ} & t & \text{ɔ} & & i & t & u \end{array} $	underlying representation
	$ \begin{array}{ccccccc} C & V & C & V & \# & V & C & V \\ & & & & & \equiv & & \\ k & \text{ɔ} & t & \text{ɔ} & & i & t & u \end{array} $	[-Low] V ₂ deletion
	$ \begin{array}{cccccc} C & V & C & V & C & V \\ & & & & & \\ k & \text{ɔ} & t & \text{ɔ} & t & u \end{array} $	derived output: [kɔtɔtu]

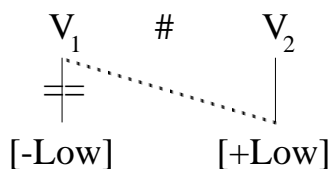
As regards the second environment, if the first member of the sequence, that is, the second vowel (V₂) is underlyingly [+Low] in the same breath group, then the first vowel (V₁) is obligatorily replaced by V₂ as examples in (4) illustrate.

(4)	INPUT	OUTPUT	ENGLISH
a.	mi # asɪw	[maasɪw] (Ig./An.)	'my in-law'
b.	wu # abufuw	[weeb ^w uf ^w uw] (Ig./An.)	'your anger'
		[wææb ^w uf ^w uu] (Bk.)	'your anger'
c.	ni # akumã	[neek ^w umã] (Ig./An.)	'his/her axe'
		[nææk ^w umã] (Bk.)	'his/her axe'
d.	kofji # anan	[kofjaanan]	'Kofi Anan' (proper name)
e.	dzi # adziban	[dzeedziban] (Ig./An.)	'eat food'
		[dzæædzibẽĩ] (Bk.)	'eat food'
f.	ɔ + jɛ # adzɪ	[ɔjaadzɪ]	's/he does well'

(Note: Ig. = Iguae; An. = Anee; Bk. = Boka.)

It is worth pointing out that this process is not just a deletion process, like the examples in (1) above, but a replacement or spreading of the V₂ (Florence Dolphyne, pers. comm.). We formulate the following rule to capture this generalization in Fante.

(5) LOW VOWEL SPREADING RULE



This rule spreads a low vowel leftwards across word boundary to the preceding nonlow word-final vowel.

The following derivation captures our account above:

(6)	$ \begin{array}{cccccc} C & V & V & C & V & C \\ & & & & & \\ m & i & a & s & i & w \\ \\ C & V & V & C & V & C \\ & & & & & \\ m & i & a & s & i & w \end{array} $	<p>input</p> <p>assimilation/low vowel spreading</p>
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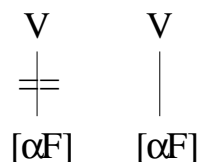
derived output: [maasiw]

It is noteworthy that when the V_1 # V_2 are of the same quality, it is difficult to determine whether it is the V_1 or the V_2 that deletes. Examples in (7) illustrate cases of sequence of identical vowels at word boundary.

- (7) a. η kutwa # asem η kutwasem (lumps # case) ‘foolish statement’
 b. η kwanta # anan η kwantanan (junction # four) ‘crossroads’
 c. kwasia # adzum η kwasiadzum (fool # brain) ‘foolish thinking’
 d. akoɕɥi # ikur akoɕɥikur (falsehood # sore) ‘false sore’
 e. ekuraasi # ihm ekuraasihm (village # chief) ‘village chief’
 f. ɔkɔtɔ # ɔbɔn ɔkɔtɔbɔn (crab # valley) ‘crab hole’
 g. dzɥite # etɕew dzɥitetɕew (silver # hat) ‘silver hat’

Clements (1986) has observed that when two identical vowels occur in a sequence in Luganda, the V_1 invariably deletes causing the V_2 to spread to occupy the position, which the V_1 had occupied at the underlying level of representation. In other words, V_1 spreads to compensate for V_1 -loss. In Fante, the concept of compensatory lengthening does not apply in that when one of two identical vowels in a sequence deletes, the surviving one does not spread to occupy the position left vacant by the delinked vowel. Be that as it may, Clements (idem) accordingly states the rule of Twin Vowel Deletion which captures the elision process in Luganda and we quote it here as (8).

(8) LUGANDA TWIN VOWEL DELETION (from Clements 1986)



In the case of Fante, given the same phonetic environment as in (7), we cannot state explicitly whether it is the V_1 or the V_2 that deletes. But it could be argued straightforwardly that since the deletion of V_2 of a [+Low] vowel in a vowel sequence at word boundary is not attested in Akan then it is most plausible to assume that it is the V_1 that deletes given (7). In this sense Clements’ (idem) rule (8) is applicable to the Fante situation and could accordingly be adopted for the

present study. Nevertheless, the simple fact that the elision of V_2 , which is, [+Low] in a $V_1 \# V_2$ sequence, is not attested in any known variety of Akan does not offer us conclusive evidence to make such an assumption and adoption.

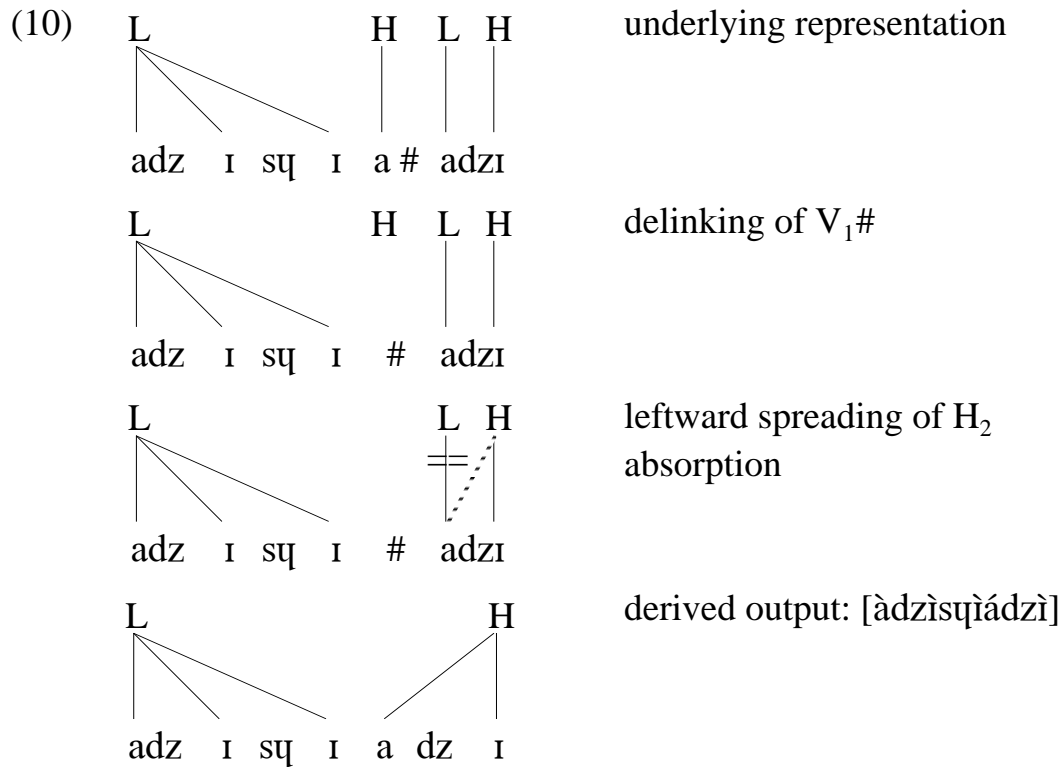
We resort to the Akan tonology to resolve the problem of whether or not to adopt Clements' (1986) rule of Twin Vowel Deletion in question. We assume that this is a plausible way by which we can determine which of the two identical vowels gets deleted in the combinative style since they bear contrastive input tones. Whereas the V_1 is H-toned, the V_2 is L-toned at the lexical level. (7a-c) constitute (9a) with tones marked. All the examples in (9) share identical segmental and tone melodies at word boundaries at the lexical level. At the phonetic level they divide into three different groups each of which has its own tone melody. Segmentally all the examples in (9) reduce the sequence of two low vowels to a single low vowel. Note that examples in (9a) are not glossed because they have been glossed in (7).

(9)	INPUT	OUTPUT
a.	ɲkùtòwá # àséń	ɲkùtòwàséń
	ɲkwàntá # ànáń	ɲkwàntàń
	kwàsìá # àdzɹíń	ɲkwàsìàdzɹíń
b.	àdzìsɹíá # àdzí	àdzìsɹíàdzí (the act of carrying # thing) 'load'
	ètɹíwá # àdzí	ètɹíwádzí (a thing despised # thing) 'an abomination'
c.	èsùmá # àdzí	èsùmá'dzí (hiding # thing) 'a secret thing'
	àsùmá # àséń	àsùmá'séń (sending # matter) 'a message'

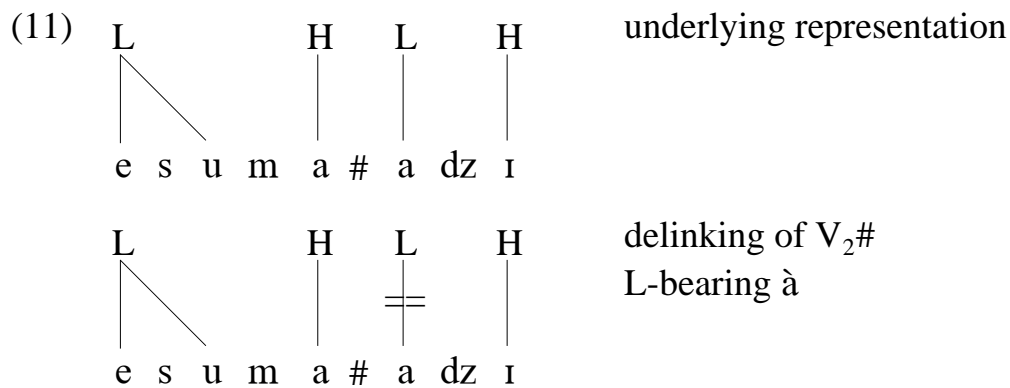
A closer look at the input and output tone melodies of the examples in (9a) readily reveals that it is the V_1 that deletes. This is because the input L-toned à of a V_2 survives at the output level while the input H-toned á of a V_1 does not appear at the phonetic surface. It could therefore be plausibly argued that the high tone (H) bearing V_1 á deletes with its input H melody and therefore adopting Clements' (1986) Twin Vowel Deletion rule in question is simply a matter of course. However, according to the data at our disposal, not all identical low vowels occurring in a sequence at a word boundary behave tonally the same as those in (9a). In (9b), for instance, it is plausible to assume that the V_2 deletes while the V_1 retains its input tone melody at the phonetic surface. A brief study of downstep in the existing literature on Akan tonology will reveal that this assumption is a rushed one. In Akan, a HLH melody at the lexical level invariably yields HL¹H/H¹H or downstep at the surface level.² For this reason,

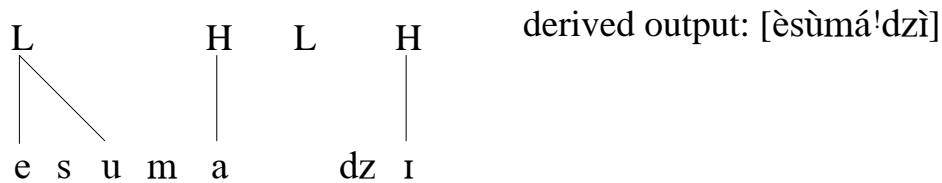
² See Stewart (1962), Schachter & Fromkin (1968), Dolphyne (1988), Obeng (1989), Abakah (2000, 2002b) among others, for a detailed study of downstep in Akan.

since the examples in (9b) do not contain downstep H in the output forms we assume that it is not the V_2 that deletes but rather the V_1 . After V_1 has deleted the H on the TBU following V_2 spreads to the V_2 dislodging its lexical L, which is in turn absorbed by the preceding L-bearing TBU. This account is captured by derivation (10).



Going by the downstep hypothesis it becomes transparently obvious that the data, which (9c) represents in this study, reveals that it is the V_2 , and not the V_1 , that deletes. When the V_2 deletes the L it bears does not delete but rather floats at the output level, causing the H it precedes to be downstepped. In other words, the floating L causes the H it precedes to receive a lower pitch value than the H preceding it. Derivation (11) captures our account of the output forms in (9c).

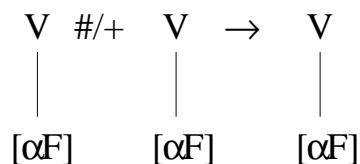




In (9c) the L carried by # a of a V_2 floats at the surface level, hence the downstep. If it were the V_1 that deleted then downstepping would not result as in (9a-b). It is now clear that in Fante, either the first or the second of two identical vowels in a sequence at a word or morpheme boundary in the isolative style can delete in the combinative style.

From the above argument, it is obvious that we cannot adopt Clements' (1986) Twin Vowel Deletion rule. However we wish to modify Clements' Twin Vowel Deletion rule as (12) to capture the process of Twin Vowel Deletion in Fante in an elegant fashion.

(12) TWIN VOWEL DELETION IN FANTE



This rule delinks one of two vowels in a sequence across a word/morpheme boundary if they share all the features specified in their segmental feature matrix without specifying whether it is V_1 or V_2 that gets delinked. It captures the generalization associated with the process of elision of identical vowels that occur in a sequence in Fante as examples in (7) and (9) demonstrate.

3.1 Simultaneous elision of vowels in a sequence

According to the data at our disposal, when two free forms merge to form a compound, the vowel sequences created at the formative boundary (i.e. $V_1 \# V_2$) may all delete simultaneously provided that:

- the final syllable of the first free form/element is a $CV_1\#$, whereby
- the C is specified as [+Sonorant] and
- the V_1 is [+High];
- the $\#V_2$ /the vowel which begins the second element is underspecified for tongue height position/feature.

The examples in data (13) illustrate this type of elision process.

(13)	INPUT	OUTPUT
a.	aɣɪrɛhɔwɔ + asem (sad + case/matter)	aɣɪrɛhɔwsem ‘a sad case’
b.	funu + adaka (corpse + box)	fundaka ‘casket’
c.	ɔturu + asem (liar + matter)	atursem ‘falsehood’
d.	pamɔ + adzi (to sew + thing)	pandzi ‘thing for sewing/ needle’
e.	tumi + asem (power + matter)	etumsem ‘display of power/ might’
f.	asɔri + ɔdan (church + building)	asɔrdan ‘church house’
g.	ɛnimɔamɔ + ɔhɪni (glory+king/chief)	ɛnimɔamhɪni ‘glorious king’
h.	ɛ/ɔ/ihɪni + i/ɔfie (king/chief + home)	ahɪɲfie ‘palace’
i.	asemɔ + ofunu (matter + corpse)	asemfun ‘frivolous/worthless matter’

3.2 Elision of postsonorant word-final high vowel

In standard Fante, if a root morpheme terminates in a final-SV syllable (where S stands for nonvowel sonorant) the V deletes obligatorily if it has [+High] specification in its feature matrix. This process applies to

- stems with XⁿSV structure (where Xⁿ stands for any number of syllables)
- pronominal forms in object/complement environment as in (14d – f) and
- the determiner nu as in (14f-g).

Let us study (14) for illustration.

(14)	UR	PR
a.	/mɪɲtɕimu/	[mɪɲtɕim] ‘twist’
b.	/ɲaɲkɔntɔnu/	[ɲaɲkɔnt ɔn] ‘rainbow’
c.	/sɔri/	[sɔr] ‘wake up’
d.	/kanɪ + mi/ count + me	[kanɪm] ‘count me’
e.	/ɔ + ru + ɕɪɕɛ + wu/ 3SG+PROG+search+2SG	[ɔruɕɪɕɛw] ‘s/he is looking for you’

- f. /Nkutumpɔɲi + nɔ/ [ɲkutumpɔɲin] ‘the haughty person’
 haughty person+DET
- g. /bufu + nɔ/ [buf un] ‘the malevolent one’
 malevolent person+DET

Phonological rule (15) captures the above process.

$$(15) \quad \begin{array}{cc} \text{C} & \text{V\#} \\ | & \equiv \\ [+Sonorant] & [+High] \end{array}$$

This rule delinks a word-final high vowel if it is preceded by a nonvowel sonorant.

This process applies differently in Asante and Akuapem where:³

- the final [+High] V is deleted, or
- the entire final –SV# syllable may be deleted, or
- the full/underlying SV# form may be retained.

It is noteworthy that this process operates differently in the Fante subdialects as well. If the S of a CVSV stem is the labial velar glide /w/, and the V₁ is nonfront, Iguae and Anee delete the V₂ only, as does the Akuapem dialect but Boka, like the Asante dialect, deletes not only the V₂ but also the penultimate S, that is to say, the entire final –SV# syllable is deleted. The examples in data (16) are illustrative of this fact.

(16)	UR	PR				
	<u>CVSV root</u>	<u>Ig./An.</u>	<u>Ak.</u>	<u>Boka</u>	<u>As.</u>	<u>English</u>
a.	kawu	kaw	kaw	ka	ka	‘to bite’
b.	asɔwu	asɔw	asɔw	asɔ	asɔ	‘hoe’
c.	powu	pow	pow	po	po	‘to bark’
d.	suwu	suw	suw	su	su	‘be weak’
e.	towu	tu	tow	tow	tu	‘to shut (door)’

(Note: Ig. = Iguae; An. = Anee, Ak. = Akuapem, As. = Asante)

³ See also Dolphyne (1988) for more examples.

It ought to be noted here that the only word in Boka which is an exception to the above generalization (tuw) happens to be an exception in Iguae/Anee as well (tu); see (16e). Whereas Boka retains the final /w/ like Akuapem does, Iguae and Anee delete it together with the V₂ just as in Asante. On the other hand, if the V₁ of the root is a front vowel, then Boka, like all the Fante subdialects, deletes only the V₂ as illustrated by the examples in (17).

(17)	UR	PR			
	<u>CVWV root</u>	<u>Boka</u>	<u>Iguae</u>	<u>Anee</u>	<u>English</u>
a.	siwu	siw	siw	siw	‘to pound’
b.	biwu	biw	biw	biw	‘to blockade’
c.	-tɕɛwu	ɪ-tɕɛw	ɪ/ɛ-tɕɛw	ɛ-tɕɛw	‘hat’
d.	a-sewu	a-sew	a-sew	a-sew	‘fishing net’

A brief study of the examples in (18) below reveals that Iguae and Anee consistently delete the [+High] V₂ of CVrV stems but in Boka

- only the [+High] V₂ may be deleted or
- the entire -rV syllable may be deleted, as in Asante and Akuapem; or
- the full form of the stem may be retained, as in Asante and Akuapem.

(18)	UR	PR			
	<u>CVrV root</u>	<u>Ig./An.</u>	<u>Boka</u>	<u>Ak./As.</u>	<u>English</u>
a.	ɕɪrɪ	ɕɪr	ɕɪ(ɪ)	ɕɪrɪ	‘lose’
b.	fɛrɪ	fɛr	fɛr(ɪ)	fɛrɪ	‘be embarrassed’
c.	kari	ker	ker(i)	kæri	‘to weigh’
d.	harɪ	har	ha(a)	ha	‘light’
e.	dɔrɪ	d ^w ɔr	d ^w ɔ(ɔ)	d ^w ɔ	‘be fat’
f.	tiri	tsir	tsi(i)	ti(re)	‘head’
g.	hɔrɔ	h ^w ɔr	h ^w ɔɔ	h ^w ɔr ^w ɔ	‘to wash’
h.	tɕɪrɪ	tɕɪ	tɕɪr	tɕɪ(rɪ)	‘to catch/arrest’

(Note: Ig. = Iguae; An. = Anee, Ak. = Akuapem, As. = Asante)

In (18h) Iguae and Anee delete the entire final -rV# syllable like one of the forms in Asante/Akuapem while Boka retains the wordfinal -r.

3.3 Deletion of presonorantal high vowel

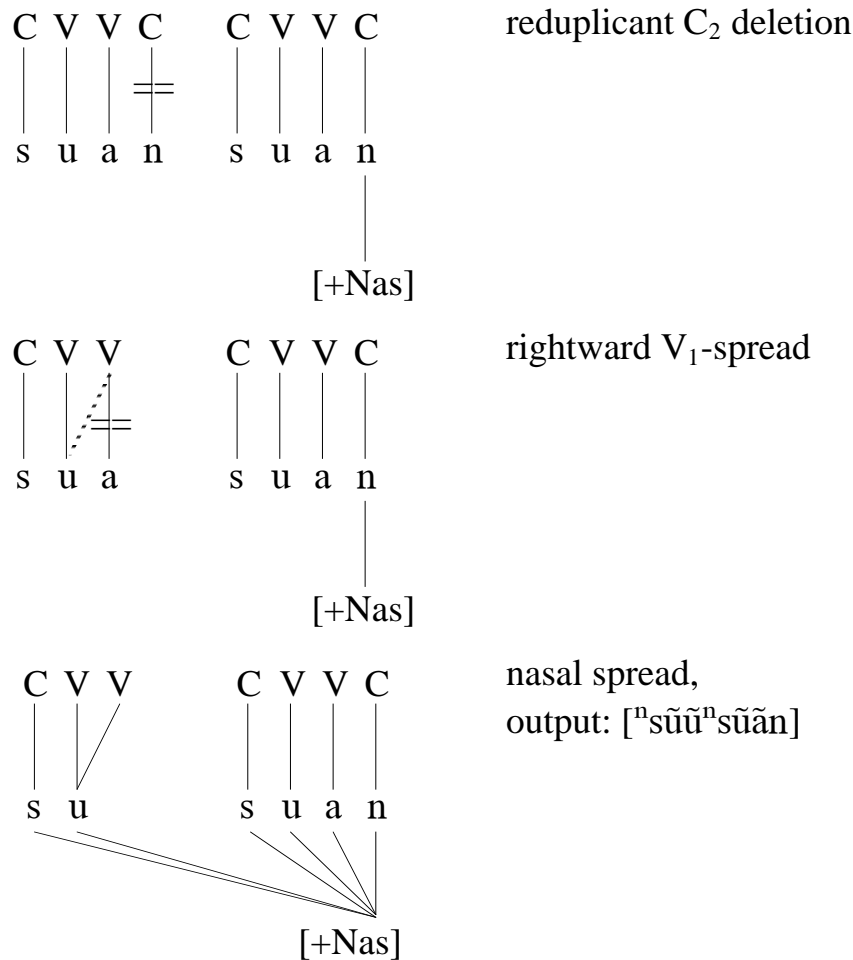
In all the dialects of Akan, especially Fante, an underlying (V) $C_1V_1C_2V_2$ stem has the V_1 regularly deleted at the phonetic surface if it is specified as [+High, -Back, -ATR] and the V_2 [-High]; the C_2 must also be [+Sonorant]. Invariably, the C of the resultant CSV is relatively heavily aspirated in the final output, if it is voiceless and does not undergo any sibilantisation process in the case of /t/.⁴ Examples in (19) illustrate this process.

(19)	UR	PR	ENGLISH
a.	(ɔ)bira	(ɔ)bra	'life'
b.	(ɔ)kɪra	(ɔ)k ^h ra	'soul'
c.	pɪra	p ^h ra	'sweep'
d.	tɪra	t ^h ra	'transcend'
e.	tɪna	t ^h na	'sit/stay'
f.	fɪnã	f ^h nã	'be tired'
g.	pɔmã	p ^h mã	'load(a gun)'
h.	ɛdɪnã	ɛdnã	'Edina/Elmina town'
i.	fɪra	f ^h ra	'mix'
j.	tɔwa	t ^h wa	'tobacco'
k.	fɪɛ	f ^h ɛ	'call'
l.	tɕɪɛ	tɕ ^h ɛ	'show'
m.	tɪɛ	t ^h ɛ	'wide'
n.	sɪɛ	s ^h ɛ	'visit'

In contrast, when the V_1 is [+ATR] the elision process is put in hold as the examples in (20) illustrate.

(20)	UR	PR	ENGLISH
a.	pɪra	p ^j ɪra	'be hurt'
b.	ɛbɪra	ɛb ^j ɪra	'opposite'
c.	fɪra	f ^j ɪra	'wallow in dust'
d.	mpunã	mp ^w unã	'log'
e.	fɪra	f ^w ɪra	'wear/put on (cloth)'
f.	sumã	s ^w umã	'hide'
g.	simã	s ^j imã	'ideal (person)'

⁴ In Fante, when lexical /t/ and /d/ occur before palatal/front vowels they undergo a stridentization/sibilantization process, becoming [ts] and [dz], respectively.



The Boka forms in (22) present a different scenario. Here, the [+High] V₁ of the base does not appear at the output level, but its effects, on all the vocalic melodies of the reduplicant and the C preceding it in the base, are still there. The effects include the following:

- The V₁ of the base being [+ATR] conditions the vowels of the reduplicant to be [+ATR] in the output form.
- If the V₁ in question is [+Palatal] then, in the phonetic representation, the initial Cs of both the base and the reduplicant are also [+Palatal].
- If the V₁ is [+Round] then the initial Cs of the base and the reduplicant are also [+Round], or labial-palatal when the initial C is specified as [+Coronal].

3.4.1 Vowel elision in reduplicated CVV stems

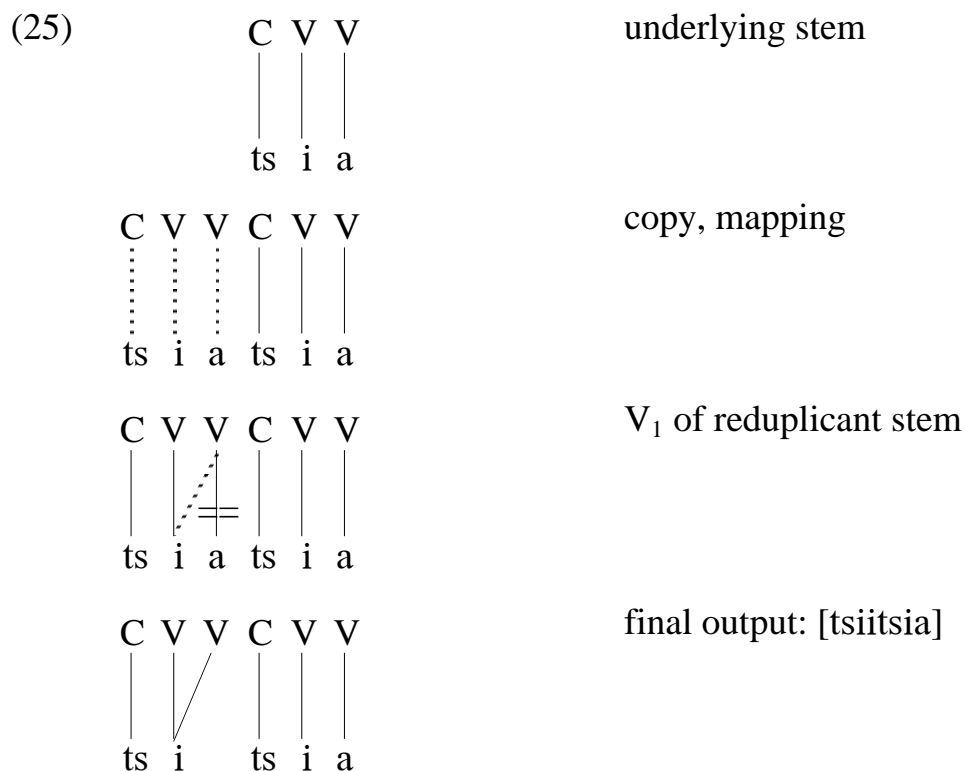
When a CVV stem reduplicates in Fante, the V₁ spreads to the V₂ and replaces it in the reduplicant, provided it (the V₁) is specified as [+High, +ATR] and the V₂, [+Low, -ATR] as examples in (24) demonstrate. Note that reduplicative

forms indicate repetition(s) of the action denoted by the verb stem. We assume, in this paper, that the reduplicant is prefixed to the base as obtained in the Akan literature, albeit in Abakah (n.d.), it is argued that the reduplicant in Akan is often suffixed to the base.

(24)	UR	PR		REDUPLICATED FORM	
	<u>Verb stem</u>	<u>Ig./An.</u>	<u>Boka</u>	<u>Ig./An.</u>	<u>Boka</u>
a.	tia ‘step on’	tsia	tsææ	tsii-tsia	tseetsæ
b.	mĩã ‘press’	m ^ɲ ĩã	m ^ɲ ãã	m ^ɲ ĩĩ-m ^ɲ ĩã	m ^ɲ ẽẽm ^ɲ ã
c.	dua ‘plant’	dɥia	dɥææ	dɥii-dɥia	dɥoodɥæ
d.	kia ‘greet’	tɕia	tɕææ	tɕii-tɕia	tɕeetɕæ
e.	hũã ‘beg for food’	ⁿ h ^w ũã	ⁿ h ^w ũæ	ⁿ h ^w ũũ- ⁿ h ^w ũã	ⁿ hõõ ⁿ h ^w ã

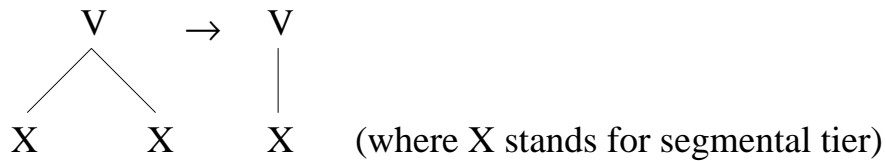
(Note: Ig. = Iguae; An. = Anee.)

We realize that the input V₁ of the base does not appear at the phonetic surface in the reduplicatives in Boka. In the Iguae/Anee reduplicated forms, on the other hand, no vowel gets deleted as (24) clearly shows and as captured by the following derivation:



To account for the Boka output forms we need Long Vowel Shortening rule, which we formulate as follows:

(26) LONG VOWEL SHORTENING RULE



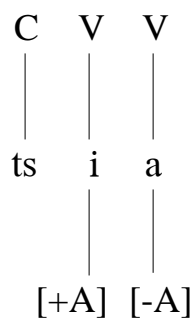
This rule states that a long vowel is reduced to a short one.

The fundamental difference between the rule in (26) and the Fante Twin Vowel Deletion rule in (12) is that the latter applies to sequence of identical vowels belonging to two different words/morphemes but occurring contiguously at the boundary between the said morphemes/words as described in §3 above, while the former applies to reduce a sequence of two identical vowels occurring within a morpheme/word, as a result of the application of some phonological rule such as spreading or assimilation. In other words, in the latter, the identical vowels occurring in sequence are not identical at the systematic phonemic level but are identical only at the systematic phonetic level while in the former the vowels are identical at both systematic phonemic and phonetic levels.

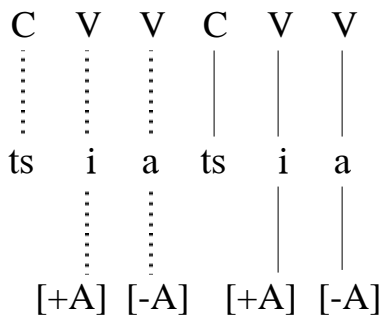
A plausible account for the Boka examples in (24) is, the V_1 deletes in the base, so the surviving surface vowel of the base, the lexical V_2 , undergoes raising and lengthening processes in the reduplicant. We think this account admits of naive and simplistic approach to analysis within the framework of autosegmental phonology. A more plausible account resides in the fact that we can allow the underlying stem to copy its segmental melodies without their prosodic properties (Odden 1995). As a result, mapping and linking conventions apply to link the segmental melodies to the autosegmental tier. Two other processes, leftward spreading of [+Low] vowel, and vowel harmony (VH) apply, concurrently in both the base and the reduplicant, prior to the application of the elision process in the base to generate the final output.

With reference to VH, the vowels in the base agree in tongue root and height positions captured in the derivation in (27) below. The V_1 being [+ATR] ([+A]), in terms of tongue root feature specification, spreads to/conditions the following [-ATR, +Low] V_2 to become [+ATR] in both the base and the reduplicant. The [+Low] V_2 and the preceding [+High] V_1 also agree in two dimensions of VH, in being [α ATR] and [α Low] in the base. However, in the reduplicant, the resultant identical [+Low] vowels undergo a raising process, thereby becoming mid vowels. The derivation in (27) captures this account graphically.

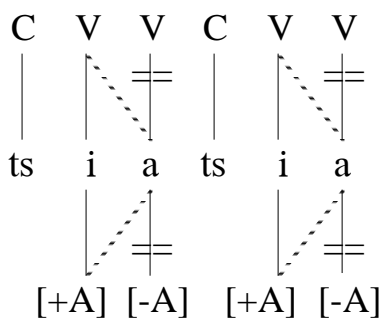
(27)



underlying representation

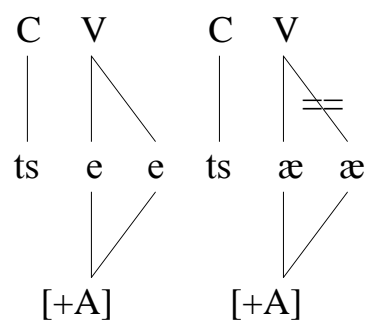


copy, mapping, linking convention

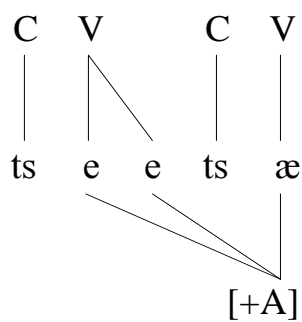


[+Low] vowel spreading

vowel harmony, V raising in the RED



long vowel shortening (26) in the base



OCP,
derived output: [tseetsæ]

Observe that the multiply linked vowels of the reduplicant also harmonize with the following initial consonant of the base in being [αRound]. In (27), it is clearly demonstrated that the [+Low] V₂ spreads leftwards to the preceding [+High] V₁, and in so doing become multiply linked, also in both the base and the reduplicant. One of the resultant identical vowels is ultimately truncated in the base through the application of the Long Vowel Shortening rule, as stated in (26) above, to generate the final output.

However, there is a systematic exception to the spreading of V₁ to V₂ in the reduplicant in the Iguae and Anee subdialects of Fante. Whenever a CVV stem in Fante does not satisfy the conditions specified above, specifically if the V₁ is not a [+ATR] vowel, even though it is specified as [+High], then spreading of the V₁ in the reduplicant is suspended. All the segmental sounds of the stem are rather copied in the reduplicant with an epenthetic glide inserted to break the vowel sequence in both the base and the reduplicant, as the examples in (28) illustrates.

(28)	UR	PR		REDUPLICATED FORM	
		<u>Ig./An.</u>	<u>Boka</u>	<u>Ig./An.</u>	<u>Boka</u>
a.	bua ‘help’	b ^w ɔwa	b ^w a	b ^w ɔwa-b ^w ɔwa	b ^w ɔɔb ^w a
b.	ɱua ‘fade’	ɱɔwa	ɱa	ɱɔwa-ɱɔwa	ɱɔɔ-ɱa
c.	tĩã ‘punish’	tsĩã	tsã	tsĩã-tĩã	tsẽẽ-tsã
d.	kɪa ‘bent’	tɕɪja	tɕa	tɕɪja-tɕɪja	tɕɛɛ-tɕa
e.	tua ‘join’	tɥɪja	tɥa	tɥɪja-tɥɪja	tɥɔɔ-tɥa

(Note: Ig. = Iguae; An. = Anee.)

Boka consistently adheres to the application of the vowel reduction rule, as stated in (26) above, in the base, as we have seen in (24) and (27). However, in the reduplicant the two identical low vowels are raised to become mid vowels. Here, the raised vowels of the reduplicant agree with the initial consonant of the base in labiality. Thus, because the initial consonants of the base in (28a-b) and (28e) are specified as [Labial] the vowels in the reduplicant are also [Labial].

3.4.2 Vowel elision in reduplicated adjectival stems

When an adjectival base that ends in a V₁V₂ of the same quality reduplicates, the rule stated in (26) invariably applies to delink one of the vowels from the timing tier in the reduplicant in all the dialects and subdialects of Akan. That is, whenever two identical vowels occur in a sequence in a prefix of a reduplicant one of the vowels deletes. This process is exemplified in (29).

(29)	ADJECTIVE STEM	REDUPLICATED FORM
a.	tsĩãã ‘slim/slender’	tsĩã-tĩãã
b.	fʼítaa ‘white’	fʼíta-fʼítaa
c.	trókãã ‘mucoid’	tr ^w úka-tr ^w úkãã
d.	ɸɪsɪɪ ‘dry’	ɸɪsɪ-ɸɪsɪɪ
e.	p ^w ɔfʼɪɪ ‘freshly’	p ^w ɔfʼɪ-p ^w ɔfʼɪɪ
f.	s ^w ok ^w oo ‘freshly/rosy’	s ^w ok ^w o-s ^w ok ^w oo
g.	s ^w uf ^w ɔɔ ‘damp’	s ^w uf ^w ɔ-s ^w uf ^w ɔɔ
h.	m ^w us ^w uu ‘disconsolate’	m ^w us ^w u-mus ^w uu
i.	bajaa ‘soft/loose’	baja-bajaa

The derivation in (30) reflects the above account.

(30)	<p>C V C V V</p> <p>s^w o k^w o</p>	underlying representation
	<p>C V C V V C V C V V</p> <p>s^w o k^w o s^w o k^w o</p>	copy, mapping
	<p>C V C V V C V C V V</p> <p>s^w o k^w o s^w o k^w o</p>	vowel shortening
	<p>C V C V C V C V V</p> <p>s^w o k^w o s^w o k^w o</p>	derived output: [s ^w ok ^w os ^w ok ^w oo]

4. Consonantal elision

Consonantal segments are equally liable to elision in the course of discourse, as we have already noted. In all the three major subdialects of Fante, a surface intervocalic liquid⁵ deletes provided the vowels between which it occurs are

⁵ It is worth explaining that Akan does not have a liquid consonant in its systematic

identical. Let us study the data in (31) for exemplification.⁶ It is important to note that [r] and [l] are free variants in Akan, specifically in Fante and Asante. Thus, the use of one in this data implies the other.

(31)	UR	PR	POST-LIQUID DELETION OUTPUT
a.	mĩ+ara 1SG+FOC	mãra	mãã ‘I (emphatically)’
b.	obiara	obiara	obiaa ‘everybody’
c.	nĩnã+ara all+FOC	jĩnãra hĩnãra	jĩnãã (Ig./Bk.) ‘(emphatically) all’ hĩnãã (An.) ‘(emphatically) all’
e.	biribi	biribi	biibi ‘something’
f.	mĩ+rĩ+tu 1SG+PROG+dig	murutu	muutu (Ig./An.) ‘I am digging’ m ^{ɔ̃} iitu (Bk.) ‘I am digging’
g.	jɛ + rɪ + da 1PL+PROG+sleep	jerida	jɛɛda ‘We are sleeping (it)’
h.	wɔ + dɪ + num	wɔrunum	wɔɔnum ‘They are drinking’

(Note: Ig. = Iguae; An. = Anee; Bk. = Boka.)

It must be noted that countless Iguae speakers rarely delete the intervocalic liquid, if it is the initial segment of the progressive aspect morpheme [rɪ, ri, rɔ, ru]. Hence for these speakers, -r- in (31e-g) does not undergo any alternation.

4.1 Intervocalic consonantal elision

In all the dialects of Akan, consonants that occur in human names and kinship terms of C₁V₁C₂V₂ and V₁C₁V₂ stem structure are, more often than not, deleted if they occur intervocalically as C₂. This C₂ may or may not be identical with the (preceding) C₁. Let us study (32) for illustration.

(32)	PRE-DELETION NP	POST-DELETION NP	PROPER NAMES
a.	pàpá (kwesi)	pàá (kwesi)	Papa (Kwesi)
b.	nàná (mansa)	nàá (mansa)	Nana (Mansa)
c.	màmá (mensima)	màá (mensima)	Mama (Mensima)

phonemic inventory. Thus all liquids that occur in Akan phonetic representations are brought about by a P-rule which operates on underlying intervocalic/d/ to change it to [r] or [l]. This explains why [d], [r] and [l] are free variants in Akan, specifically in all the subdialects of Fante and Asante. See also Schachter & Fromkin (1968), Dolphyne (1988), Abakah (1993, forthcoming), and others.

⁶ See also Dolphyne (1988) for a discussion of r-deletion process in the Asante dialect of Akan.

d.	kòfi (nimo)	k ^w òó (nimo)	Kofi (Nimo)
e.	édzà (kum)	èè (kum)	Egya (Kum)

It is discernible from (32) that where the vowels, between which the target consonant for deletion occurs, are not identical as in (32d-e), the Cs in the nominal need not be identical as in the case of (32a-c). After C₂ is deleted, V₁ spreads to V₂ thereby generating an output that contains twin vowels as exemplified by (32d-e). The derivation in (33) presents a graphic account of this process where the underlying vowels in the noun stem are not identical. But where the Vs are identical the only process that takes place is the deletion of the (relevant) intervocalic C.

(33)	C V C V	underlying NP, deletion of C/C ₂	V C V
	=		=
	k o f i		e dz̥ a
	C V C V	V ₁ spread	V C V
	/ =		/ =
	k o i		e a
	C V V	derived output:	V V
	/	[k ^w oo] on the left, and	/
	k o	[ee] on the right	e

Note that these nominals serve as either forenames or titles only. Consequently, their output forms (under post-deletion NP) in (32) always occur in the combinative style but rarely in the isolative style. Nevertheless, when they occur in the isolative style the deletion process freezes in the cause of understanding and, for this reason, their lexical and phonetic representations are identical. It is noteworthy that the underlying tone melodies of these words are retained at the phonetic level except that their TBUs occur contiguously, resulting in gliding tones.

4.2 Consonant elision in reduplicated forms

When lexical verbal base morphemes that end in a -CV# syllable reduplicate, the rule in (15) above applies to the base while the final CV syllable deletes in the reduplicant, provided the following conditions are satisfied:

- the final vowel must be specified as [+High]
- the C must be a sonorant
- the V preceding the C must not be a mid vowel

Let us study the examples in (34) for illustration.⁷

(34)	UR (VERB ROOT)	PR	REDUPLICATED FORM
a.	hunĩ ‘to be worm-eaten’	hun	hũhũn
b.	turu ‘to carry at one's back’	tur	tutur
c.	huru ‘wash’	ʌur	ʌuʌur
d.	hunũ ‘swell’	ʌũn	ʌũʌũn
e.	tɕiri ‘bind’	tɕir	tɕirtɕir
f.	mijɕimu ‘twist’	mijɕim	mijɕimijɕim
g.	nantrwu ‘walk’	nantsiw	nantsinantsiw
h.	jamu ‘grind’	ĩam	ĩĩam
i.	jawu ‘to insult’	jaw	jijaw

However, (except for few words including [dɔr] ‘to be fat’, [tɕer] ‘to delay’) if the vowel preceding the nonvowel sonorant is a mid vowel, then the elision process in the reduplicant is put on hold as the examples in (35) demonstrate.

(35)	UR	PR	REDUPLICATED FORM
a.	tɔnu ‘sell’	t ^w ɔn	t ^w ɔntɔn
b.	fɛmu ‘borrow’	f ^{ɛ̃} m	f ^{ɛ̃} ɪmf ^{ɛ̃} m
c.	kari ‘weigh’	ker	kirker (Ig./An.) kerker (Ig./Bk.)
d.	pori ‘snob’	p ^w or	p ^w urp ^w or

(Note: Ig. = Iguae; An. = Anee; Bk. = Boka.)

4.2.1 Consonant elision in reduplicated adjectives

A reduplicated adjectival base with a nonback vowel may undergo another process of reduplication, which may be referred to as second reduplication (Dolphyne 1988). When this happens the initial C of the reduplicant deletes to yield a final output of a ‘tripled’ form as in (36a-b). It is worth noting that the reduplicated adjective indicates intensity and the degree of intensity is related to

⁷ See also Dolphyne (1988: 124-138) for a detailed study of reduplicated forms in Akan.

the number of times the adjective is reduplicated (Dolphyne 1988: 137). Thus, with the reduplicated forms of all the adjectives in (36a-h) the first reduplicated form reads *very good, very dirty, very fine/beautiful, very painful, very light, very wide, very stinking and very hard* respectively. The second reduplicated forms also have the following semantic readings, starting from (36a) to (36h): *very very good, very very dirty, very very fine/beautiful, very very painful, very very light, very very wide, very very stinking and very very hard* respectively.

(36)	ADJECTIVE ROOT(S):		FINAL	DELETION
	1ST REDUP.	2ND REDUP.	SONORANT	OF INITIAL C OF
			DELETION	REDUPLICANT
a.	pa ‘good’ papa	papapapa	—	papaapa
b.	fĩ ‘dirty’ fĩfĩ	fĩfĩfĩfĩ	—	fĩfĩfĩfĩ
c.	fɛw ‘fine’ fɛwfɛw	fɛwfɛwfɛwfɛw	fɛɛfɛɛfɛɛfɛw	fɛɛfɛɛɛɛfɛw
d.	jaw ‘painful’ jawjaw	jawjawjawjaw	jaajaajaajaw	jaajaaaajaw
e.	har ‘light’ harhar	harharharhar	haahaahaahar	haahaaaahar
f.	— ‘wide’ teter	teterteter	tetɛeteter	teteɛeter
g.	— ‘stink’ kaŋkan	kaŋkaŋkaŋkan	—	kaŋkaaŋkan
h.	dɪn ‘hard’ dzɪndzɪn	dzɪndzɪndzɪndzɪn	—	dzɪndzɪndzɪn

However, if an adjectival root ends in a [-Nasal] nonvowel sonorant, this final sonorant deletes in all the prefixal forms, i.e. the reduplicant, the triplicant and the requadruplicant,⁸ before other rules apply to generate the final output. (See 36c-f above). On the other hand, if the final nonvowel sonorant of the stem is specified as [+Nasal] then it deletes only in the triplicant together with the initial

⁸ We have coined the terms *retriplicant* and *requadruplicant* after *reduplicant* to refer to the third and fourth identifiable parts of the word stem in a reduplicated form. In /papapapa/ [pa⁴-pa³-pa²-pa¹], for instance, [pa¹] is the stem, [pa²] is the reduplicant [pa³] the retriplicant and [pa⁴] the requadruplicant.

C of the reduplicant, which it precedes and, with which it shares place of articulation features as in (36g-h).

A sequence of three or more identical vowels reveals how long the vowel in that environment is. At any rate, the long vowel can be shortened or further lengthened as long as the breath would allow in relation to the extent of intensity the speaker intends to carry across to his/her addressee(s).⁹ As is discernible from (36), no matter how long a vowel is lengthened, the largest reduplicated form that can ever be used consists of three identifiable parts (Dolphyne 1988, Abakah 1993).

5. Syllable elision

Elision in Akan, as we have noted above, has not received any remarkable attention in the literature. At best reference is made to elision of vowels in passing and no reference has so far been made in the literature to elision of syllables in any of the varieties of Akan. This section therefore serves to fill a vacuum. In Fante, syllable elision takes place word-internally and in imperative clauses containing associative phrases.

5.1 Word-internal syllable elision

In rapid speech, Fante speakers delete the second syllable of any polysyllabic word with $\sigma_1 - \sigma_2 - \sigma_3 - \sigma_4 \sigma^n / V_1-CV_2- CV_3- X^n$ structure,¹⁰ if the following conditions are met:

- The vocalic nucleus of the second syllable and the following CV syllable which may be the third syllable (if it is not preceded by a C syllable type) or the fourth syllable (if there is an intervening C syllable between it and the second syllable) are identical.
- The σ_1 /the initial V syllable is a nominal prefix or a plural formative.

Examples in (37) illustrate this type of syllable elision. The CV syllable, the candidate for elision, is emboldened. In order not to confuse this type of syllable elision with Intervocalic Consonant Elision discussed in §4.1, tone has been marked in the data in (37).

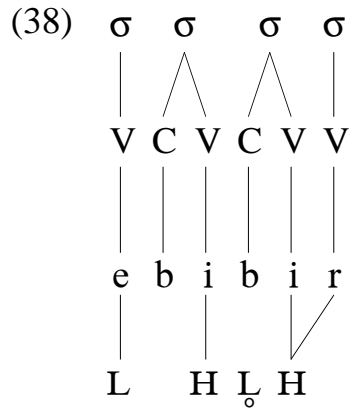
⁹ See Dolphyne (1988:137ff) and Owusu-Ansah (1995:170ff) for intensificatory functions of reduplicated forms in Akan.

¹⁰ The s^n/X^n stand for any number of syllables and $s_1 - s_2 - s_3 - s_4$ stand for first, second, third and fourth syllables respectively.

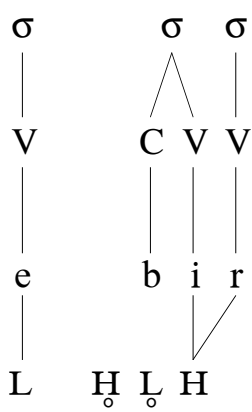
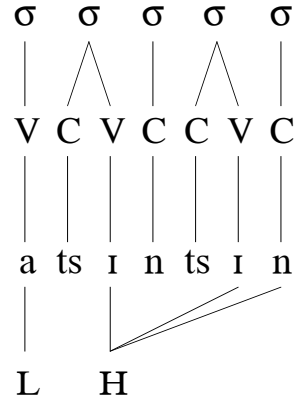
(37)	INPUT	OUTPUT	ENGLISH
a.	à- fú -!fú- í	ǎá!fúr / àá!fúr	‘new (PL)’
b.	è- bí -!bí- í	ě!bír / èé!bír	‘Black Africa’
c.	é- sí -tçì- ré	étçiré / éétçiré	‘sugar’
d.	à- tsí -ń- tsí - ń	ǎńtsín / àáńtsín	‘tall (PL)’
e.	ò- sì -sí-!fú	òsí!fú / òòsí!fú	‘cheats’
f.	è- tù - ù -tù- mí	èntùm / èèntùm	‘black(pl)’
g.	è- fú -fú- w	ěfúw / èéfúw	‘white (PL)’
h.	à- kò -kò- ó	àkòó / ààkòó	‘red (PL)’
i.	à- kú - kó	ǎkó / àákó	‘hen/fowl/chicken’

It is discernible from the above data that the initial vocalic segments of the lexemes remain short but bear a gliding tone where the TBU, of the delinked CV syllable following it, carries a contrastive tone at the lexical level as in (37a, b, d, g, i). Abakah (2000, 2002b) has argued that “Akan normally does not permit contour/gliding tones on a single tone bearing segment and therefore whenever a single syllabic segment appears to bear a contour tone in this language, such a tone is decomposable into two contrasting level tones” (2002b: 254). Examples in (37) contradict this argument. Here, if the CV syllable following the initial vocalic segment deletes, its tone does not delete but rather floats (Goldsmith 1976, 1990; Gussenhoven & Jacobs 1998, Cahill 1999 and Roca & Johnson 1999). Where the lexical tone of the deleted syllable and that of the TBU preceding it are identical, the floating tone is absorbed by its linked counterpart as exemplified by (37c, e, f, h). In contrast, when the syllable following the initial vowel of the lexeme loses its segmental anchor, the floating tone co-shares with the preceding linked tone its segmental anchor. In so doing, a contour tone is inevitably created on the initial short vowel of the lexeme as the derivation in (38) captures.

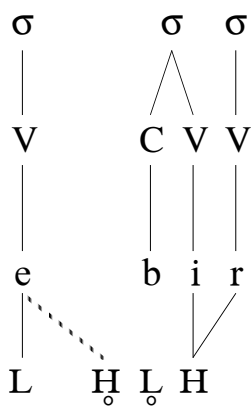
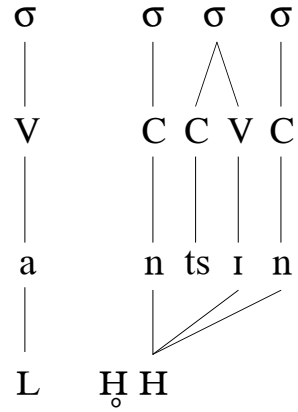
It goes without saying that some speakers of Fante lengthen the initial vowel of the lexemes in question in the final output. In this case, the process of vowel lengthening is similar to the cases we have studied in §4.1 involving (32d-e), which derivation (33) accounts for graphically.



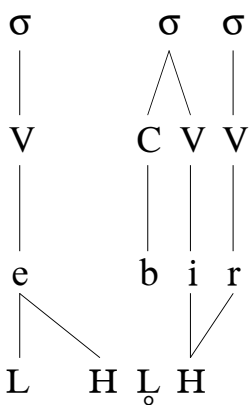
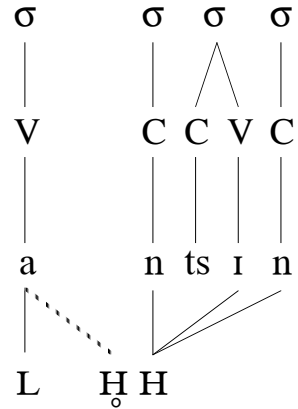
underlying
representation



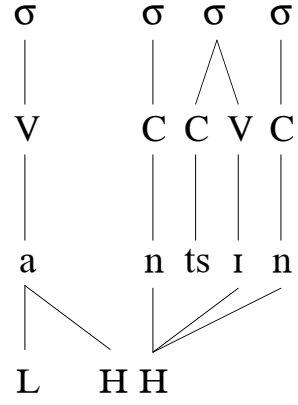
σ₂ deletion



floating H grounding



derived output:
[ě'bír] 'the black race'
on the left, and
[ǎńtsín] 'tall/long pl.'
on the right



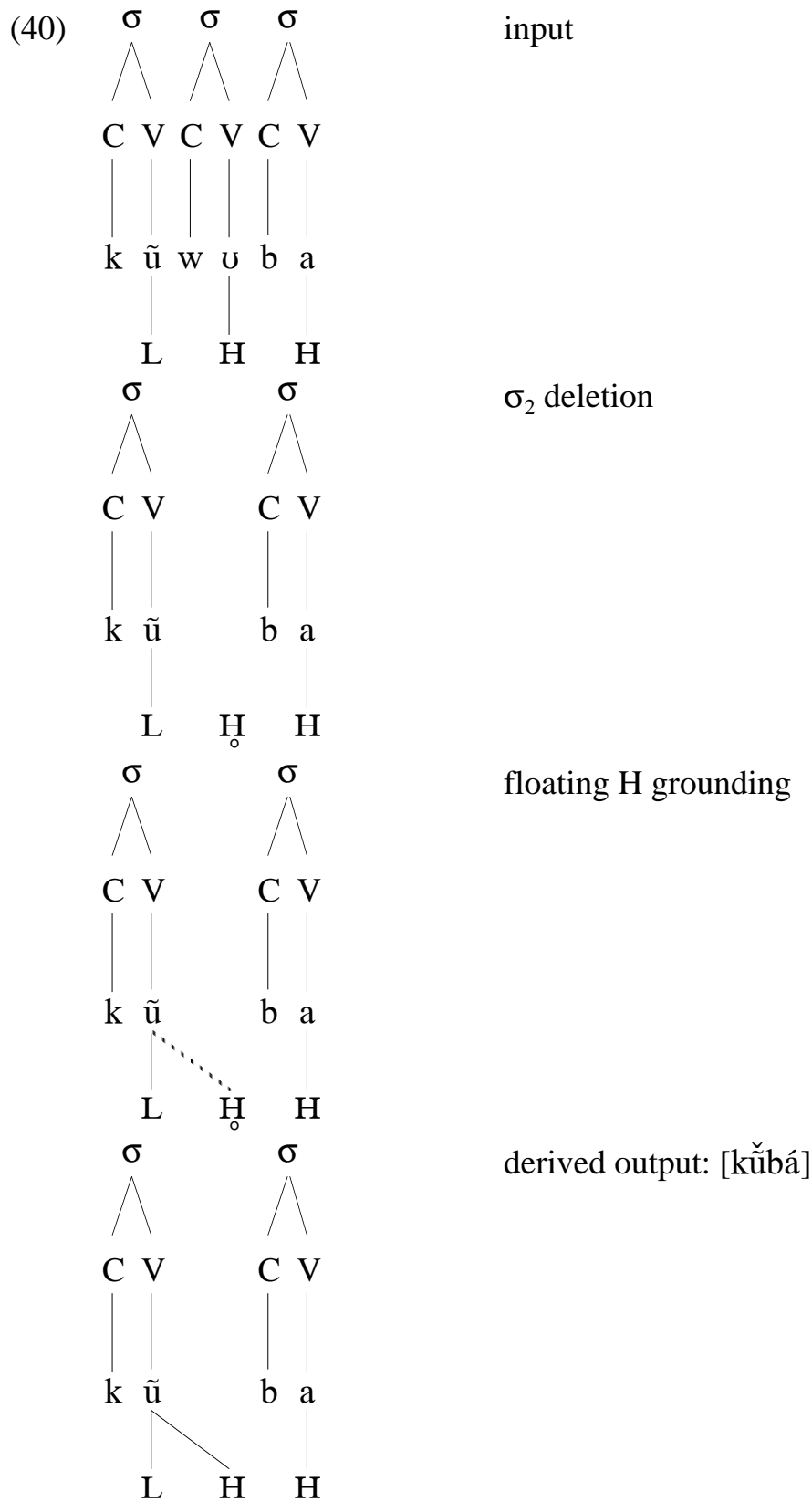
5.2 Syllable elision in an imperative clause

We note that in Akan, in general and Fante in particular, two segments constituting a CV syllable may delete in an imperative clause involving an Associative Phrase occurring in predicative environment. For the elision process to materialize, the possessor NP₁ must be the second person singular pronoun. (39) exemplifies this process.

(39)	INPUT	OUTPUT
a.	kò wú 'kwáń go+2SG.ASM+way	kǒ.'kwáń / kò.ó.'kwáń 'go on your journey'
b.	bò wú nɔ̀ɔ́á hit+2SG.ASM+sibling	bǒ.'nɔ̀ɔ́á / bò.ó.'nɔ̀ɔ́á 'strike your sibling'
c.	d(z)ì wú 'námí eat+2SG.ASM+fish	d(z)ǔ.'námí / d(z)ù.ú.'námí 'eat your fish/meat'
d.	ɕɔ̀ɔ́ è wú nà look+2SG.ASM+mother	ɕɔ̀ɔ́ ǎ.nà / ɕɔ̀ɔ́.ó.nà 'look after your mother'
e.	frè wú bɔ̀dɔ́mí call+2SG.ASM+dog	frǎ.bɔ̀dɔ́mí / frè.ó.bɔ̀dɔ́mí 'call your dog'
f.	sò wú dɔ̀ɔ́à m hold+2SG.ASM+tree+in	sǒ.dɔ̀ɔ́à.m / sò.ó.dɔ̀ɔ́à.m 'hold your staff'
g.	kǔ wú bá kill.PL+2SG.ASM+children	kǔ.bá / kǔ.ǔ.bá 'murder your child'
h.	kà wú hǔ drive+2SG.POSS+body/self	kǎ hǔ / kǎǎhǔ 'hurry up'

This sort of elision is similar to the type in §5.1. The only difference between the two types is, whereas that of §5.1 occurs word internally or lexically, this present one under discussion (§5.2) occurs clause-internally or postlexically and targets a base morpheme of a CV syllable for elision. While some speakers produce the final syllable of the verb preceding deleted possessor concord on a short vowel, bearing a rising tone, in careless speech forms, other speakers lengthen the same vowel in the same way as we have seen in §5.1. The resultant two identical vowels share the two contrastive tones, the V₁ carries the linked tone while the V₂ anchors the floating tone.

These output segmental and tonal melodies are identical to the word-internal elision of syllables and are accounted for in precisely the same fashion. The derivation in (40) below is quite similar to the derivation in (38) above.



The only remarkable difference that can arise between the two resides in the fact that in (37), which is schematically accounted for in (38), it is invariably the σ_2 that deletes, but in terms of the data in (39), graphically accountd for in (40), the monosyllabic verb can be replaced with a disyllabic or polysyllabic verb. When this happens it would no longer be the σ_2 that will delete but rather the second word as in (41) with two different phonetic representations.

(41) ɕɛ̀.ɕɛ̀.wú.hǔ > $\text{ɕɛ̀.ɕɛ̃.hǔ}/\text{ɕɛ̀.ɕɛ̀.ɔ́.hǔ}$ > ‘search yourself’
 $\text{ɕɛ̀.ɕɛ̃.hǔ}/\text{ɕɛ̀.ɕɛ̀.ɔ́.hǔ}$

Be that as it may, accounting for the output in (41) will not be different from the account we have proposed for the data in (37) and (39) above.

6. Conclusion

In this paper we have tried to demonstrate that vowel elision involving the truncation of one of two contiguous vowels at word boundary is a highly productive phonological process in Fante. Where it has been difficult to determine which of two identical vowels in a sequence at a word or a morpheme boundary deletes in the combinative style, we have recourse to tonology to resolve the difficulty. Generally speaking to determine which one of two identical vowels in a sequence deletes at word/morpheme boundary is a near-impossibility. We have therefore demonstrated in this paper that it is not an uphill task to place linguistic fingers on which one of the two identical vowels in question is the likely candidate for elision. We presume that if linguists, researching into segmental phonology of tone languages, adopt this approach a number of segmental problems that often confront them in their analyses could be effortlessly resolved.

However, the elision of postsonorant word-final [+High] V has been noted to operate differently in the various subdialects of Fante. The subdialectal differences as well as the dialectal differences between the three major dialects of Akan have been duly noted. As regards the elision of consonants, we have observed that any consonant that deletes in any of the varieties of Fante has to occur intervocalically at the underlying level of representation. We have not spared the elision of syllables in the stream of running speech in Fante, which has hitherto not received mention in any documented study. A Fante speaker is deemed to know his/her language if s/he follows these rules of elision either in the course of discourse or in the course of reading. Good readers of Fante are those who follow these rules of elision while those who are unable to apply them while reading are often understood with difficulty unless they get their tones

right. However, those who fail to apply these rules in discourse situations are ridiculed as speaking like the book. Hence, the reader can imagine the importance of this study.

ABBREVIATIONS USED

ASM	associative marker	<u>Fante dialects:</u>	
ATR	advanced tongue root	Ak.	Akuapem
C	consonant	An.	Anee
DET	determinate marker	As.	Asante
FOC	focus marker	Bk.	Boka
H	high tone	Ig.	Iguae
L	low tone		
NP	noun phrase		
PH	phonetic representation		
PL	plural		
POSS	possessive		
PROG	progressive		
SG	singular		
SON	sonorant		
TBU	tone-bearing unit		
UR	underlying representation		
V	vowel		
VH	vowel harmnoy		

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