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Section: Linguistics and Languages



This article is published by Royallite Global, Kenya in the *Research Journal in African Languages*, Volume 2, Issue 1, 2021

#### Article Information



Submitted: 4th Feb 2021  
Accepted: 30th April 2021  
Published: 7th May 2021

Additional information is available at the end of the article

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## Vowel harmony: The case of Anee and Iguae and Boka dialects in Ghana

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#### Abstract

This paper examined a dialect of Akan language which is traditionally labeled Fante in literature. The study highlights the Anee sub-dialect of (Mfantse) Fante nominal prefixes in the context of vowel harmony. Data was generated from fishermen, religious members during church services, and learners from Komenda College practicing schools. Analysis of data was based on Iguae and Boka sub dialects of Mfantse against Anee sub dialect. It was realized after thorough analysis that Anee dialect has a unique feature which accepts substitution of unrounded vowels with rounded vowels. Most speakers of the Anee sub dialect of Mfantse precisely Komenda through to Shama areas follow the rules of vowel harmony to some extent. Vowel harmony being discussed here can be seen as the restriction on the distribution of vowels which makes it necessary for the vowels of only one set to occur in a given word.

**Keywords:** dialect, harmony, nominal, prefixes, substitution, unrounded, vowel

#### How to Cite:

Cobbinah, S. E. (2021). Vowel harmony: The case of Anee and Iguae and Boka dialects in Ghana. *Research Journal in African Languages*, 2(1). Retrieved from <https://royalliteglobal.com/african-languages/article/view/609>

#### Public Interest Statement

This paper basically wants to find out why speakers of the Anee sub dialect of Mfantse tend to substitute unrounded vowels with rounded vowels in their production of most nominal prefixes. This will clear various misconceptions on substitution of unrounded vowels with rounded ones. It shall bring deeper understanding on research into why ATR vowels co occur in each set but swap in some occasions in the production of some nominal prefixes and other words but never violate the ATR rules of vowel harmony in the Anee sub dialect.



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## Introduction

We speak of vowel harmony when there is general condition that demands that all vowels within a certain domain, usually the word, must agree in one or more than one phonological property. This condition is manifested in the facts that vowels within morphemes display agreement and that, when morphemes are combined into complex words, all vowels of these various morphemes will agree. Crystal (1992), states that vowel harmony is a type of assimilation which takes place when vowels come to share certain features with contrastive vowels elsewhere in a word or phrase. It is a phonological rule that requires that the vowels of a word all share a specified feature, such as front or back articulation, thereby conditioning the form that affixes may take. Vowel harmony is the restriction on the distribution of vowels which makes it necessary for the vowels of only one set group to occur in a given word (Dolphyne, 2006). As the definition goes, this paper will focus on vowel harmony in Akan. In the Akan language, vowel harmony plays a dominant role. Mfantse, a dialect of Akan also shares such a phenomenon with other sister dialects of the language. The Mfantse dialect has since been seen as a single dialect but that has not been the case. The Mfantse dialect has been grouped into three sub dialects namely the Iguae, Boka, and Anee according to Abakah (2013). The paper will make much emphasis on the Anee sub dialect of Mfantse which has its geographical location stretching from Elmina, Komenda to Shama along the shores.

It focuses on two main phonological processes; they are Advanced Tongue Root (ATR) harmony and rounding harmony. The ATR harmony will deal with both the advanced and unadvanced vowels as they appear in the nominal prefixes of the Anee sub dialect of Mfantse and the roundedness in the production of some nominal prefixes which are unrounded and its reciprocal. Prefix as would be discussed in this paper is a word element that is placed at beginning or in front of a word to give another word or to make a new meaning. This paper will highlight how a vowel precisely a nominal prefix produced by the Iguae and the Boka sub dialects remain unrounded but becomes rounded in the Anee sub dialect and how a vowel produced in the Anee sub dialect is rounded but becomes an unrounded vowel in the Iguae and Boka sub dialects. All these processes will occur in the context of Advanced Tongue Root (ATR) vowel harmony.

In most cases, speakers of the Anee sub dialect of Mfantse substitute rounded vowels with unrounded vowels in most of their speeches and also substitute the unrounded vowels with the rounded vowels on other occasions. The most interesting part is the use of ATR harmony in this domain. If the word in context is in either +ATR or -ATR, all the vowels been used will follow each set of two vowel class. It is for this these reasons that this research has been conducted to prove how vowel harmony and roundedness do work in the Anee sub dialect of Mfantse. This paper also shows how ATR vowels swap positions in the Iguae and Boka sub dialects against the Anee sub dialect. This paper will perhaps show a slight difference between the Anee sub dialect verses the Iguae and the Boka sub dialects of Mfantse.

## Literature Review

### Theoretical Framework

The theory that influenced this investigation was Vowel harmony and Correspondence theory. This theory covers the major issues in the generative analysis of vowel harmony and vowel typology. It accounts for the most prominent features of vowel harmony system such as root control and affix control, which takes the center stage of Mfantse dialects in terms of vowel harmony. There are several cross linguistics works on vowel harmony. Many of such works concentrate much on ATR harmony, thus the advanced and unadvanced nature of vowels. Little attention has been given to roundedness as an aspect of vowel harmony since it is a phonological process peculiar to the Mfantse dialect of Akan. Tuffour (2020) posits that, there are vowels in which the root of the tongue is drawn forward and the larynx is lowered, so that the part of the vocal tract in the pharynx is considerably enlarged. These vowels are called advanced tongue root. (or more simply +ATR) vowels. In the other set, there are vowels in which there is no advancement of the tongue root or lowering of the larynx (-ATR vowels).

### Literature Review

O'keefe (2013) posits that vowel harmony can be defined as a set of systematic co-occurrence restrictions. In other words, a language exhibiting vowel harmony will generally have two sets of vowels whose co-occurrence is highly marked. In his works, he suggested Akan has two varieties of vowel harmony; that is ATR harmony and rounding harmony. He states in his work that all back vowels are indeed rounded and the others are unrounded. Thus [+back] and [+round] refer to the same set of vowels in Akan. His work shows the existence lip rounding as a kind of vowel harmony in Akan.

Dolphyne (2006) states that vowel harmony is the restriction on the distribution of vowels which makes it necessary for the vowels of only one set to occur in a given word. Dolphyne (1986:1) opines that vowel harmony in Akan characterizes a whole word and is thus a property of the word. Dolphyne (2006) argues that besides a vowel being advanced or unadvanced, Mfantse has an additional feature of vowel harmony in which only that are rounded or only vowels that are unrounded can occur in a certain verbal prefixes, depending on whether the verb stem has rounded or unrounded vowels. Dolphyne gave instances where these vowels rounding occur in the Mfantse and Asante dialects of Akan. In Asante for instance, the nominal suffixes agree in lip position with the vowel of the noun stem.

Therefore, when there is a round vowel in the root or stem, the affix vowel turns out to be round in harmony with the root or the stem vowel or vice versa. This is what Dolphyne (1988), O'Keefe (2003), among others, describe as rounding harmony in Adomako (2008). Abakah (2013) in his paper 'vowel replacement pattern in Mfantse dialect' raises a concern that vowel replacement and a vowel harmony has some semblance in the sense that, they maximally share some common features. On the contrary, he pointed out that though vowel replacement and vowel harmony are both vowel replacement and vowel alternation processes, they differ in some extent. The explanation he gave was, in vowel

replacement, an underlying vowel is replaced with another vowel to harmonize with either a following vowel or consonant in certain distinctive feature(s) at the phonetic stage. In vowel harmony, on the other hand, an underlying vowel is replaced with another vowel in order to agree with an adjacent vowel only in being identical in terms of some distinctive feature(s). So, where a vowel alternates to agree with a following consonant, and not a vowel, it cannot be said to be a process of vowel harmony. Per the explanation of the two processes, then the conclusion can be drawn that vowel replacement differs from vowel harmony according to Abakah (2013).

From the above literatures, it can be deduced that the concept of vowel harmony and lip rounding has extensively been dealt with. But the issue of a rounded vowel turning to be an unrounded vowel and vice versa in the Anee sub dialect seems to be at the blind side of most researchers. Most of the literatures are hammering on rounding harmony and (ATR) harmony as different phonological processes. The roundedness being discussed here is making reference to how +ATR or –ATR vowel changes its spread state to a state of rounded vowel and vice versa in the speeches of the above speakers. This is what this paper will unearth to all readers.

### Data Analysis

This paper will discuss the Mfantse nominal prefixation in the Anee sub dialect in the context of ATR vowel harmony and rounding harmony. Basically, vowel harmony is the restriction on the distribution of vowels which makes it necessary for the vowels of only one set to occur in a given word, Dolphyne (2006). Thus, the vowels in the language appear in a specific set in which they are supposed to be. In the Anee sub dialect of Mfantse, many circumstances account for the alteration of most of their nominal prefixes which differ from both the Iguae and Boka sub dialects of Mfantse. Some of these circumstances which make evidence to the above claims can be seen in the data and explanations below.

In the Anee sub dialect of Mfantse, when a prefix begins with a rounded +ATR vowel in the underlying form in the Iguae and Boka sub dialects, the vowel serving as the prefix changes to an unrounded +ATR vowel in the surface representation and this change of the form of the vowel makes the distinction between the Anee and the other sub dialects of Mfantse. This is the data to support such a claim.

<b>Iguae/Boka</b>	<b>Gloss</b>	<b>Anee</b>
Oguan [og <sup>w</sup> an]	“sheep”	iguan [ig <sup>w</sup> an]
Owura [owura]	“lord/master”	ewura [ewura]
Onyin [onin]	“male/ masculine”	inyin [inin]
Owu [owu]	“death”	iwu [iwu]
Ofun [ofun]	“corpse/dead body”	ifun [ifun]
Osimesi [osimesi]	“this or that person”	esimesi [esimesi]
Osu [os <sup>y</sup> u]	“crying/ to cry”	esu [es <sup>y</sup> u]
Obi [obi]	“someone/somebody”	ibi [ibi]
Osi [osi]	“it happens/it is placed”	isi [isi]

Osiw [osiw]	“it blocks/(s) he pounds”	isiw [isiw]
Ogu [og <sup>w</sup> u]	“it falls/(s) he sows”	igu [ig <sup>w</sup> u]
Owin [o <sup>ɔ</sup> in]	“it leaks”	iwin [i <sup>ɔ</sup> in]
Osuar [os <sup>w</sup> ar]	“it is small”	isuar [is <sup>w</sup> ar]
Oyi [oji]	“(s)he takes”	iyi [iji]

From the above data, it can be deduced that in the Anee sub dialect the +ATR rounded vowels are not fully realized in most of their speeches. It rather changes to an unrounded +ATR vowel. Thus the form of the vowel as the prefix has been altered but not the rule of vowel harmony. Another circumstance which characterizes this phenomenon under discussion can also be realized when a prefix begins with an unrounded +ATR vowel in the underlying form in the Iguae and Boka sub dialects, the vowel serving as the prefix changes to a rounded +ATR vowel in the surface representation and this change of the form of the vowel makes the distinction between the Anee and the other sub dialects of Mfantse. This is the data to support such a claim.

<b>Iguae/Boka</b>	<b>Gloss</b>	<b>Anee</b>
Ekutu [ek <sup>w</sup> utu]	“orange”	okutu [ok <sup>w</sup> utu]
Eburow [eburo]	“maize/corn”	oburow [oburo]
Ewuradze [ewuradzi]	“God”	owurade [owuradzi]
Ebusua [ebus <sup>ɔ</sup> ia]	“family/clan”	obusua [obus <sup>ɔ</sup> ia]
Esusuow [esuso]	“rainy season”	osusuow [osuso]
Ekuwa [ek <sup>w</sup> ua]	“Wednesday female child”	okuwa [ok <sup>w</sup> ua]
Efuwa [ef <sup>w</sup> ua]	“Friday female child”	ofuwa [of <sup>w</sup> ua]
Esuon [es <sup>w</sup> on]	“seventh born”	osuon [os <sup>w</sup> on]
Enu [enu]	“fifth born”	onu [onu]
Enum [enum]	“five”	onum [onum]
Ehum [eh <sup>w</sup> um]	“storm/wind”	ohum [oh <sup>w</sup> um]
Egua [eg <sup>w</sup> a]	“chair/stool”	ogua [og <sup>w</sup> a]
Edwuma [edz <sup>w</sup> uma]	“work/job”	odwuma [odz <sup>w</sup> uma]
Ewi [e <sup>ɔ</sup> i]	“thief”	owi [o <sup>ɔ</sup> i]
Ebun [eb <sup>w</sup> un]	“greenish/unripen”	obun [ob <sup>w</sup> un]
Eguaba [eg <sup>w</sup> aba]	“guava”	ogua [og <sup>w</sup> aba]
Ewuraba [ewuraba]	“mistress”	owuraba [owuraba]
Eguar [eg <sup>w</sup> ar]	“bathe”	oguar [og <sup>w</sup> ar]
Ebufuw [eb <sup>w</sup> ufu]	“anger”	obufuw [ob <sup>w</sup> ufu]
Enumfu [enumfu]	“breast”	onumfu [onumfu]
Edur [edur]	“medicine”	odur [odur]
Ebubur [ebubur]	“dove”	obobur [obubur]
Eduwa [ed <sup>w</sup> uwa]	“beans”	oduwa [od <sup>w</sup> uwa]
Ekue [ek <sup>w</sup> u]	“name”	oku [ok <sup>w</sup> u]
Ehuwa [eh <sup>w</sup> a]	“begger”	ohuwa [oh <sup>w</sup> a]

Ewia [eɥia]	“the sun”	owia [oɥia]
Ekuma [ek <sup>w</sup> uma]	“an axe”	okuma [ok <sup>w</sup> uma]

With the above data, it is imminent that the feature of roundedness in connection with the Anee sub dialect has been realized openly. Though from the data, the rounded feature has been clearly dealt with, but the concept of vowel harmony rule has been faulted a bit in the sense that vowels in the unadvanced set can be found in the advanced set. But this is as a result of how those words are produced in the Mfantse orthography. The cause of the distinction of the prefix vowel can also be attributed to the shifting of the front mid vowel [e] into being a back mid vowel [o] in a horizontal direction, Abakah (2013). Thus, those vowels are counterparts as far as vowel harmony is concerned. Again, the instances accounting for the topic under discussion can be realized when a rounded –ATR vowel as prefix in the underlying form in the Iguae and Boka sub dialects changes to an unrounded –ATR in the surface representation and this occurs in the Anee sub dialect of Mfantse. Thus, that will create the distinction between the Iguae/Boka sub dialects and the Anee sub dialect. The data below will support the claims being mounted here.

Iguae/Boka	Gloss	Anee
ɔber [ɔbɪr]	“feminine/female”	ɛber [ɛbɪr]
ɔwa [ɔwa]	“snake”	ɛwa [ɛwa]
ɔkɔr [ɔk <sup>w</sup> ɔr]	“eagle/(s)he went”	ɛkɔr [ɛk <sup>w</sup> ɔr]
ɔpɛ [ɔpɛ]	“to like/ harmattan”	ɛpɛ [ɛpɛ]
ɔɔɔm [ɔɔ <sup>w</sup> ɔm]	“(s)he joins”	ɛɔɔm [ɛɔ <sup>w</sup> ɔm]
ɔdan [ɔdan]	“it changes”	ɛdan [ɛdan]
ɔson [ɔsɔn]	“elephant”	ɛson [ɛsɔn]
ɔsaw [ɔsaw]	“(s)he dances”	ɛsaw [ɛsaw]
ɔfa [ɔfa]	“it takes/accommodates”	ɛfa [ɛfa]
ɔhyɛ [ɔɔɛ]	“to force/(s)he wearing”	ɛhyɛ [ɛɔɛ]
ɔhaw [ɔhaw]	“it troubles/worries”	ɛhaw [ɛhaw]
ɔtɔ [ɔt <sup>w</sup> ɔ]	“to fall/buy”	ɛtɔ [ɛt <sup>w</sup> ɔ]
ɔnom [ɔnɔm]	“(s)he drinks”	ɛnom [ɛnɔm]
ɔbor [ɔb <sup>w</sup> ɔr]	“he swims”	ɛbor [ɛb <sup>w</sup> ɔr]
ɔhor [ɔhɔr]	“(s)he washes”	ɛhor [ɛhɔr]
ɔsow [ɔsɔw]	“it bears/produces”	ɛsow [ɛsɔw]
ɔhwɛ [ɔɔ <sup>w</sup> ɛ]	“(s)he watches”	ɛhwɛ [ɛɔ <sup>w</sup> ɛ]
ɔhen [ɔhɪn]	“chief/king”	ɛhen [ɛhɪn]
ɔwen [ɔwɪn]	“(s)he designs”	ɛwen [ɛwɪn]
ɔsen [ɔsɪn]	“(s)he carves”	ɛsen [ɛsɪn]
ɔwow [ɔwɔw]	“she/it reproduces”	ɛwow [ɛwɔw]
ɔtow [ɔtɔw]	“it throws/lays egg”	ɛtow [ɛtɔw]
ɔsɔw [ɔsɔw]	“it catches”	ɛsɔw [ɛsɔw]
ɔtwe [ɔt <sup>w</sup> ɛ]	“antelope”	ɛtwe [ɛt <sup>w</sup> ɛ]

From the above data it can be deduced that in the Anee sub dialect the –ATR rounded vowels are not fully realized in most of their speeches. It rather changes to an unrounded –ATR vowel. Thus, the form of the vowel as the prefix has been altered but not the rule of vowel harmony. The cause of the distinction of the prefix vowel can also be attributed to the shifting of the front low vowel [ɛ] into being a back low vowel [ɔ] in a horizontal direction, Abakah (2013). These two vowels are counterparts in vowel harmony.

Similar reason accounts for the fact that when an unrounded –ATR vowel is a prefix in the underlying form in the Iguae and Boka sub dialects, the vowel changes to a rounded –ATR vowel in the surface representation and this occurs in the Anee sub dialect of Mfantse. This mechanism creates the differences which characterizes the Anee sub dialect as being distinct from the other two sub dialects of Mfantse. Below is the data to support such a claim.

Iguae/Boka	Gloss	Anee
ɛboa [ɛb <sup>w</sup> ɔa]	“fishing net”	ɔboa [ɔb <sup>w</sup> ɔa]
ɛmo [ɛm <sup>w</sup> ɔ]	“rice”	ɔmɔ [ɔm <sup>w</sup> ɔ]
abon [ab <sup>w</sup> ɔn]	“shell”	ɔbon [ɔb <sup>w</sup> ɔn]
amon [am <sup>w</sup> ɔn]	“new/fresh”	ɔmon [ɔm <sup>w</sup> ɔn]
adwen [ad <sup>w</sup> ɔɪn]	“mudfish”	ɔdwen [ɔd <sup>w</sup> ɔɪn]
ɛpo [ɛp <sup>w</sup> ɔ]	“sea”	ɔpo [ɔp <sup>w</sup> ɔ]
ahon [ah <sup>w</sup> ɔn]	“peels”	ɔhon [ɔh <sup>w</sup> ɔn]
dɔm [dɔm]	“multitude”	ɔdɔm [ɔdɔm]

The data above testifies the assertion of the above process discussed. With this process under discussion, it can be deduced that it is a bit rare as compared to the other processes as far as nominal prefixation in the Anee sub dialect is concerned. Again, the vowels which undergo such transformation can be clearly be identified from the data given above. Thus, from this analysis it is without doubt that the Anee sub dialect of Mfantse is characterized by certain processes which makes it distinct from the Iguae and Boka sub dialects of Mfantse.

## Conclusion

An attempt has been made in this paper to unearth the nominal prefixation of the Anee sub dialect of Mfantse which always create the distinction between the Iguae and Boka sub dialects against the Anee. In the Anee sub dialect, word (prefixes) which begins with an unrounded ATR vowel at underlying form in the Iguae and Boka sub dialects change to a rounded ATR vowel in the Anee sub dialect. When the prefix is a rounded ATR in the underlying form in the Iguae and Boka sub dialects, it changes an unrounded ATR vowel in the surface representation which is the Anee sub dialect. In real sense, the circumstances which culminate such processes have been discussed in this paper. Thus, the attempt to delve into the nominal prefixation of the Anee sub dialect of Mfantse has been thoroughly discussed in this paper.

**Funding:** This paper was received no external funding.

**Acknowledgement:**

I am grateful to all tutors in languages department for their support and encouragement. Much gratitude goes to the head of the department for his sense of direction and also to Mr, Adu David Tuffour.

**Bionote:**

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