

# Prefix Productivity by Tongue Root in Standard Yorùbá

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## Abstract

This paper examines the activities of Yorùbá prefixes with regard to their tongue root features. Prefixes in Yorùbá are vowels. It is believed that some harmonic relationship exist between these prefixes and the first vowels of root words which prefixes are attached to. The harmonic features of Tongue Root Harmony (Pulleyblank 1986, 1988, Archangeli and Pulleyblank 1989, Orié 2002) is employed to analyse the relationship between the prefix and the initial vowel of the root word. In vowel production, tongue root could either advance or retract. Vowels that are produced with the advancement of the tongue root are said to be vowels with [+ATR] features while those that are produced with the retraction of the tongue root are those with [-ATR] features. Yorùbá vowel system does not exhibit full harmony; it is only the mid-vowels (*e*, *o*, *e*, *o*) that possess complete harmony. Ten semantic classes are used to determine the class of the derived nominal through [+ATR] and [-ATR] vowel prefixes. Analysis shows that prefixes with [+ATR] features derive a set of nominal classes different from those derived by prefixes with [-ATR] features. This paper concludes that [+ATR] and [-ATR] vowel prefixes are not definite in the class of nominals that can be derived based on the ten semantic classes employed in the study.

## 1.0 Introduction

One of the goals of the study of general linguistics is to examine and analyse all the intrinsic elements involved in language and language use. As such, all processes, no matter how trivial they seem to be, are crucial in the study of linguistics and its components. One of such processes is issues relating to harmony and the various relationships involved. What this paper discusses is the robustness of vowel prefixes in line with harmonic phenomenon along Tongue Root axis.

By harmony, we mean the way segments of a language co-occur. Such segments are mostly vowels. Vowels of such a language will be divided into two or more harmonic sets. In Yorùbá, such harmony operates only among vowels. In this case, members of one

set can only co-occur with each other; such vowels cannot co-occur with the vowels of another set, i.e. vowels in harmony co-occur in a mutually exclusive environment with vowels of other set (Awobuluyi 1967, Bamgbose 1967, 1986, Oyelaran 1971 and Pulleyblank 1986, 1989). Existing literature has identified four types of harmonic features for Yorùbá. These are:

- a. Tense vs Lax (Ladefoged 1967, Courtenay 1968, Fresco 1970)
- b. Front vs Back (Bamgbose 1967, Awobuluyi 1967)
- c. Tongue Height harmony (Awobuluyi 1967, Oyelaran 1971, 1973)
- d. Tongue Root Harmony (Pulleyblank 1986, 1988, 1996 Archangeli and Pulleyblank 1989, Orié 2002) among others.

For the purpose of this study, the Tongue Root Harmony is adopted.

## 2.0. Tongue Root Harmony

Tongue Root Harmony involves division of vowels depending on whether in the production of a given vowel, the root of the tongue advances or retracts. A vowel that is produced when the root of the tongue advances is called Advance Tongue Root [ATR] vowel. By contrast, a vowel that is produced when the root of the tongue retracts is called Retracted Tongue Root [RTR] vowel.

However, using the binary features (Hyman 1972), we reduce the two to plus or minus Advance Tongue Root, for short, [ $\pm$ ATR]. The [+ATR] vowels in Yorùbá are *i*, *u*, *e* and *o* while [-ATR] vowels are *ɛ*, *ɔ* and *a*. However, Yorùbá does not operate perfect harmony as such, *i*, *u* on the one hand, which are [+ATR] and *a* on the other hand which is [-ATR] co-occur with members of the two sets in an unpredictable manner. Perfect harmony only occurs between *e*, *o* on the one hand and *ɛ*, *ɔ* on the other hand. In this study, we are focusing on these four vowels (*e*, *o*, *ɛ*, *ɔ*). We shall test whether [+ATR] (*e*, *o*) vowel prefixes derive certain set of nouns that [-ATR] (*ɛ*, *ɔ*) vowel prefixes cannot derive.

I test the phonetic features that can be associated with the vowels that are used as prefixes in Yorùbá nominalisation. This test is carried out in line with the relationship of the prefixes with the root words. This root is minimally a V(P).<sup>16</sup> The kind of nominals that are derived through the given class of prefixes may be the basis for our conclusion on the type of prefixes that exist in the language concerning their form, number and semantics.

## 3.0 Semantic Classes

In this paper, we present ten noun types that can be derived by Class I and Class II vowel prefixes. The choice of these type of nouns is based on different parameters that have been used by various scholars (Levelt 1989, 1993, Awobuluyi 2008, Gagliardi, Lidz,

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<sup>16</sup> This assertion follows Pulleyblank and Akinlabi (1988) and Ajiboye *et al.* (2003). They claim that no matter the size or structure of the root a prefix attaches to, it has a VP structure

and Polinsky 2009, Plaster and Polinsky 2010.) Our choice of these nominal classes cuts across the classification that has been done by earlier scholars. We also base the classification on the possible classes of derivation that can be achieved through the prefixation process in the language.

The nominal classes are as shown in (1):

- (1) a. Agentive
- b. Event
- c. Abstract
- d. Concrete
- e. Mass
- f. Count
- g. Referential
- h. Instrument
- i. Animate
- j. Inanimate.

What is left is to determine the kind of nominals that a set of Yorùbá prefixes could derive along the semantic classes above.

#### **4.0 Harmony Based Vowel Prefix**

In a language that exhibits perfect vowel harmony, vowels of such a language will be divided into two or more perfect harmonic sets. In this case, members of one set can only co-occur with each other; such vowels cannot occur with the vowels of another set (Ladefoged 1971). In the case of Yorùbá, almost all the existing works on harmony are purely phonological in their analytical approach. What we are set to do here is to examine what role harmonic features play in the morpho-syntax of nominalization process in Yorùbá language.

Existing literatures have shown that Yorùbá language does not exhibit perfect vowel harmony features; perfect harmony exists only within the four vowels with the mid features: mid-high (*e, o*) and mid-low (*o, e*). Therefore, in this work, we further assert that vowel harmony system operates in Yorùbá but not fully (Przedziecki 2005, Ajiboye & Pulleyblank (MS). The other three vowels have different phonological features. Vowel *u* does not begin a word in standard variant of Yorùbá. Vowels *i* and *a* can co-occur with all the other vowels. However, the participation of these vowels (*i, u, a*) in harmony system, in respect of nominal formation will not be discussed in this work because they violate vowel harmony rule.

Relationship between prefixes and the vowel of the initial vowel of root words are harmonic. In order to establish this fact, we examine what Bakovic (2003) claims about the relationship that exists between a prefix and the vowels of the root. Bakovic argues that a root should not be altered in the process of prefixation and explains that affix vowels often

alternate to agree with root vowels. In such cases, the prefix vowels will have to undergo some phonological alternation. That is what Bakovic (2003) calls Root-Outward Harmony.

Root-outward harmony is a pattern that states that root needs not be phonologically altered under affixation. In vowel harmony, there must be a phonological agreement between vowels. What this means in essence is that it is the vowel of the root that determines whether the prefix vowel will be [+ATR] or [-ATR] in a language where full harmony exists. For instance, if the root word is *fě* (want), the prefix that can be attached to it must be a [-ATR] prefix vowel (*ɛ-* or *o-*), but if the root word is *lé* (to increase), the prefix that can be attached to it is [+ATR] prefix vowel (e or o). Archangeli and Pulleyblank (1989) also argues that the linking pattern of the harmonic features must be from right to left. Bokovic's Root-Outward Harmony further corroborates the idea of Archangeli and Pulleyblank.

In Standard Yorùbá, prefixes are the oral vowels with mid and low tones, excluding the vowel u. Based on the interaction and performance of these vowels in prefixation, we propose that natural mid-vowels are *ɛ* and *o* but that they are extended to mid-high vowels *e* and *o* respectively after the advance tongue retraction. In this paper, I demonstrate that the interaction of prefixes and root vowels in word formation, to some extent, is controlled by the vowel harmony rule. This is so due to the vowels that are used in prefixation, because, as we pointed out earlier, only the mid-vowels strictly follow the vowel harmony phenomenon. Consider (2) and (3):

- (2) a.  $\dot{\epsilon} + t\acute{o}$                        $\dot{\epsilon}t\acute{o}$   
           pre + right                      ‘right’  
       b.  $\dot{\epsilon} + t\acute{e}$                           $\dot{\epsilon}t\acute{e}$   
           pre + humiliate                ‘humiliation’
- (3) a.  $o + f\grave{o}$                              $of\grave{o}$   
           pre + speak                    ‘incantation’  
       b.  $\grave{o} + r\acute{e}$                           $\grave{o}r\acute{e}$   
           pre    befriend                 ‘friendship’

For the interaction between perfect [+ATR] and [-ATR] vowels during the process of derivation, the feature of the vowel prefix is altered thus:

- (4) a.  $\dot{\epsilon} + to$                      $\rightarrow$          $*\dot{\epsilon}to$   
           pre + plan
- b.  $\dot{\epsilon} + p\grave{e}$                      $\rightarrow$          $*\dot{\epsilon}p\grave{e}$   
           pre + call
- c.  $o + gb\acute{o}$                      $\rightarrow$          $*ogb\acute{o}$   
           pre + old

However, when the vowel of the root such as in the examples in (4) is allowed to determine the choice of its prefixes based on its harmonic features, the derivational process can be said to be phonologically conditioned. Consider (5):

- (5)
- |    |            |   |           |
|----|------------|---|-----------|
| a. | è + to     | → | eto       |
|    | pre + plan |   | ‘plan’    |
| b. | è + pè     | → | èpè       |
|    | pre + call |   | ‘curse’   |
| c. | o + gbó    | → | ogbó      |
|    | pre + old  |   | ‘old age’ |

Having discussed the four vowels that obey full harmony with the root morpheme, we are left with how to account for vowels *i*, *u* and *a*, which behave differently from what has just been reported of the four mid-vowels. Recall that we have shown that vowel *u* cannot be a prefix in Standard Yorùbá, so, it can only be found in the root morpheme. On the other hand, vowel *i*, which is [+ATR] can co-occur with *e*, *o* which also share [+ATR] feature, and *e*, *o*, which are [-ATR]:

- (6)
- |    |               |  |            |
|----|---------------|--|------------|
| a. | ì + fẹ        |  | ifẹ        |
|    | pre to love   |  | ‘love’     |
| b. | ì + tọ        |  | itọ        |
|    | pre + urinate |  | ‘urine’    |
| c. | ì + só        |  | isó        |
|    | pre + fart    |  | ‘fart’ (n) |
| d. | ì + pè        |  | ipè        |
|    | pre + call    |  | ‘call’(n)  |

Similarly, vowel *a*, which is [-ATR] can co-occur with [-ATR] vowels *e*, *o* and [+ATR] vowels *e*, *o*:

- (7)
- |    |                |  |                 |
|----|----------------|--|-----------------|
| a. | à + tẹ         |  | àtẹ             |
|    | pre savourless |  | ‘saltless food’ |
| b. | a + rọ         |  | arọ             |
|    | pre limp       |  | ‘lame’          |
| c. | a + yo         |  | ayo             |
|    | pre full       |  | ‘fully fed’     |
| d. | a + dé         |  | adé             |
|    | pre cover      |  | ‘crown’         |

The examples in (7) show that mid-vowel [-ATR] can be attached with high vowel [+ATR] of the root. This violates the rule of full harmony. If vowel harmony system were

to be controlled by the prefix vowels *a-* and *i-*, then the prefixes should be altered to satisfy the harmonic status of the root vowel as shown in (4). This is the reason why we claim that the prefixes do not respect harmony rule.

Furthermore, one of the reasons why *à-*, *a-*, *ì-* and *i-* are much more productive than all other prefixes, as established above, is because they can be found in the same harmonic environment; they can attach to any root regardless of the vowel quality. On the other hand, when the [+ATR] mid-vowels (e, o), stand as prefix, they cannot be attached to any root which has [-ATR] vowel. We present two different sets in (8), each set containing vowels with uniform harmonic features and the vowels of the root they can interact with:

(8)	<b>Set I [+ATR]</b> ɛ ----- e, o, i, a ɔ ----- ɛ, o, i, a,	<b>Set II [-ATR]</b> e ----- e, o, i o ----- e, o, i
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The above shows how vowel harmony conditions the interaction that exists between prefixes and root vowels in Yorùbá. This shows that the complete vowel harmony operation occurs with the mid-vowels only. In what follows, I present the nominals that are derived by [+ATR] and [-ATR] prefixes:

#### 4.1 Derived Nominals by [+ATR] feature Prefix

In this section, I present a table of derived nominals by vowel prefixes that have [+ATR] features. The vowel prefixes with this feature are used to derive nominals according to the ten semantic class of nouns as presented above.

##### (9) Nominals Derived by [+ATR] prefixes

	Root	Gloss	Derivation process	Derived Nominal	Gloss	Semantic Class
a.	gbó	old	o-gbó	ogbó	old age	abstract
b.	lé	increase	è-lé	èlé	increment	event
c.	gbé	carry	e-gbé	egbé	disappearing charm	abstract
d.	rò	think	è-rò	èrò	thought	abstract, event
e.	tò	arrange	è-tò	ètò	plan	event
f.	gbo	squeeze	è-gbo	ègbo	corn-meal	mass
g.	gbè	support	è-gbè	ègbè	supporter	animate
h.	gé	cut	è-gé	ègé	piece from a whole	count
i.	so	to fruit	è-so	èso	fruit	concrete,
j.	pè	call	è-pè	èpè	curse	abstract

The examples in (9) show that [+ATR] vowels are capable of deriving abstract, concrete, count, animate and inanimate nominals. However, [+ATR] prefixes cannot derive event and instrument classes.

## 4.2 [-ATR] VOWEL PREFIX

Here I present nominals that can be derived by [-ATR] prefixes

### (10) Nominals Derived by [-ATR] prefixes

	Root	Gloss	Derivation process	Derived Nominal	Gloss	Semantic Class
a.	rò	soft	è-rò	èrò	antidote	mass
b.	fò	speak	ọ-fò	ọfò	incantation	abstract
c.	rẹ	befriend	ọ-rẹ	ọrẹ	friendship	abstract
d.	dẹ	hunt	ọ-dẹ	ọdẹ	hunter	animate
e.	bọ	appease	ẹ-bọ	ẹbọ	sacrifice	concrete
f.	gbẹ	dig	ọ-gbẹ	ọgbẹ	wound	concrete
g.	rù	carry	ẹ-rù	ẹrù	load	concrete
h.	fun	to be white	ẹ-fun	ẹfun	chalk	count
i.	tọ	need to be	è-tọ	ètọ	right	event
j.	wà	to exist	ẹ-wà	ẹwà	beauty	concrete

The outputs in (10) show clearly that, [-ATR] vowels are capable of deriving six out of the ten nominal categories. The instrument nominal category cannot be derived by the [-ATR] prefixes. Agent and referential categories cannot be derived by the mid-low front vowel ẹ- but the mid-low back vowel ọ- can derive them. Finally, the prefix ọ- is capable of deriving both agent and referential nominals.

Following is the summary of nominals derived by [+ATR] and [-ATR] prefixes

### 4.3 [+ATR] VS [-ATR]

The derived nominals by the [+ATR] and [-ATR] vowel prefixes are compared in line with the ten nominal classes. This will establish the more productive vowel prefix between [+ATR] and [-ATR] vowel prefixes. Consider the table in (11):

#### (11) Productivity Chart of [+ATR] and [-ATR] Prefixes

	+ ATR		-ATR	
	e	o	ẹ	ọ
<b>Agent</b>	x	√	x	√
<b>Event</b>	x	x	√	x
<b>Abstract</b>	√	√	√	√
<b>Concrete</b>	√	√	√	√
<b>Mass</b>	√	√	√	√
<b>Count</b>	√	√	√	√

<b>Referential</b>	x	√	x	√
<b>Instrument</b>	x	x	x	x
<b>Animate</b>	√	√	√	√
<b>Inanimate</b>	√	√	√	√

The table above shows that both [+ATR] and [-ATR] vowel prefixes are capable of deriving abstract, concrete, count, mass, animate and inanimate nominal classes. However, [+ATR] vowel prefixes cannot derive event and instrument nominal classes. Prefix *e*, which is a [+ATR] vowel prefix cannot derive agent nominal class. On the other hand, [-ATR] vowel prefixes cannot derive instrument nominals. Furthermore, [-ATR] vowel prefix *ɛ* cannot derive agent and referential nominal classes while prefix *o* also cannot derive event nominal class.

Further analysis of the table shows that out of the four harmonic vowel prefixes, using the ten nominal classes, [+ATR] prefix *e* is the least productive. Overall, [-ATR] vowel prefixes are more productive than [+ATR] vowel prefixes.

## 5.0 Conclusion

I have established in this paper that the distinction between different parameters of Yorùbá vowels aimed at investigating the types of nominals that can be derived by different prefixes have shown that Standard Yorùbá prefixes are not definite in their derivational process based on the ten nominal categories that have been employed in this research work. The vowel prefixes are divided according to their tongue root features. Although, the distinction between the two classes in terms of derivational capability is very minimal, the data presentation shows that [-ATR] vowel prefixes are actually more productive than its [+ATR] counterpart. The productivity is tested with the ten nominal categories presented in this study.

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