# Yoruba Vowel Elision and Compounding*

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## 1 Introduction

This paper examines two strategies for eliminating vowels in hiatus in Yoruba: the elision of the first vowel in hiatus (First Vowel Elision) and the absence of the second vowel in hiatus (Second Vowel Absence).[1] I argue that First Vowel Elision is a post-lexical phonological rule, and that Second Vowel Absence, while it appears to be a phonological process, is in fact the result of the non-application of a certain morphological process in these forms.

First Vowel Elision (FVE) looks as if it is a purely post-lexical phonological rule because it occurs not just between verbs and their complements, but in a range of environments which are not subject to a uniform characterization (1a-1d). We will also see in section 2.1 that FVE occurs across clausal boundaries.

(1) a. gbé odó ⟶ gbódó *verb+noun*
lift mortar
'lift-mortar'

b. dé oko ⟶ dóko *prep+noun*
to farm
'to the farm'

c. pé ọmọ ⟶ pọ́mọ *comp+noun*
that child
'that the child...'

d. fọ apẹ ⟶ fapẹ *verb+noun*
wash pot
'wash-pot'

Second Vowel Absence (SVA), on the other hand, occurs in more restricted environments. It occurs between nouns in noun-noun compounds and between a certain set of verbs and their complements (2a-2b).

*The work in this paper is an outgrowth of a field methods class. Many thanks are due to the language experts who participated, Yiwola Awoyale (Igbomina data) and Mojisola (Ikale data). I would also like to thank Mark Liberman and Rolf Noyer for comments on an earlier version of this paper.

[1]This is traditionally called Second Vowel Elision, but I will refer to it as Second Vowel Absence because on my analysis this vowel is never inserted, hence it is absent. I will explain this part of the analysis in detail in section 4.

(2) a. ọmọ **adìye** ⟶ ọmọdìye *noun+noun*
child chicken
'chick'

b. wí **ẹjọ́** ⟶ wíjọ *verb+noun*
complain case
'argue'

Earlier studies have attempted to characterize the rules for vowels in hiatus using SPE rules (Bamgboṣe 1966), lexical phonology (Akinlabi and Oyebade 1987), autosegmental phonology (Pulleyblank 1988), and direct reference to the syntax (Awoyale 1995). However, all of these approaches have difficulty both in accounting for exceptions to their rules and in describing the SVA contractions, which behave distinctly. Awoyale's approach does not have these problems, but his account requires a large degree of direct reference to the syntax which I argue is not necessary.

In this paper I will show that FVE is a late phonological rule and requires no reference to the syntax; FVE is contraction. I will present Optimality Theoretic constraints which account for all cases of FVE.

I propose that all instances of SVA in verb-noun forms are instances of compounding and that the nouns in SVA forms are incorporated (Baker 1988).

I argue that SVA forms act differently than FVE forms phonologically because they are morphologically distinct: FVE forms, but not SVA forms, contain the non-inflected root form of the noun. Thus, in contrast to previous accounts, this account is able to account for the SVA forms without direct reference to the syntax.

## 2 First Vowel Elision Forms

In Yoruba, words which end in vowels can combine through FVE with words that begin in vowels. This rule distinguishes between different vowels, with high vowels being treated in a special way. A few examples of the many environments where this is possible can be seen in (3-6).

**Preposition+noun**

(3) **dé** oko ⟶ dóko
to farm
'to the farm'

**Verb+noun**

(4) **rà** ẹja ⟶ rèja
buy fish
'buy the fish'

**Complementizer+noun**

(5) **pé** ọmọ ⟶ pọ́mọ
that child
'that the child...'

**Verb+adjective+noun**

(6) **rí** agbaja ⟶ rágbaja
see big-dog
'saw big dog'

### 2.1 FVE is Not Sensitive to the Lexical Category of the First Word

Given the examples in (3-6) it seems that the rules of FVE are insensitive to the lexical category of the preceding form. The first vowel deletes on the word preceding a noun, regardless of whether this word is a preposition, a complementizer, a verb or an adjective.

### 2.2 FVE is Insensitive to Maximal Projection Boundaries

In addition, FVE seems insensitive to maximal projection boundaries. For example, FVE can occur between verbs and either direct, (7a), or indirect objects, (7b).

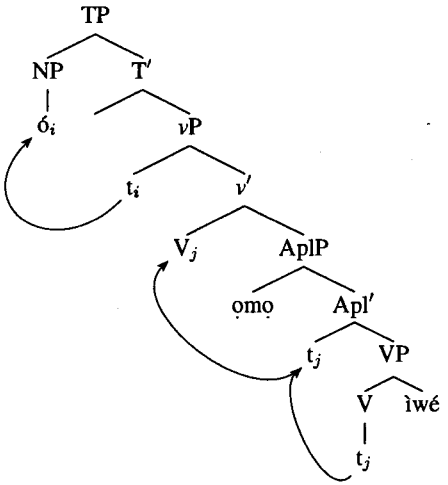
(7) a. ó fũ̀ ìwé ní ọmọ⟶ ó fũ̀wè ní ọmọ
3s gave book to child
'he gave the book to the child'

b. ó fũ̀ ọmọ níwè ⟶ ó fọ́mọ níwè
3s gave child to-book
'he gave the child the book'.

If we assume that the indirect object *ọmọ* is generated in the specifier of the Applicative Phrase (Marantz 1993), then the verb must raise to a position above the Applicative Phrase in order to produce the word order we find in

(7b). And if the verb is above the Applicative Phrase, then it follows that FVE operates across maximal projections, since in (7b) there is contraction of the verb and its indirect object. Thus FVE occurs across at least AplP, as shown in (8). If the verb moves onwards to Tense, then FVE will cross both AplP and *v*P.

(8)




### 2.3 FVE is Insensitive to Clausal Boundaries

(9) shows that FVE is also insensitive to clausal boundaries, such as CP. The verb in (9), *nĩ* 'to say', can appear without an overt complementizer; still, there is clearly a clause boundary between it and the noun *ọmọ* 'child'. (Note the separate tense markers in the lower clause.) FVE nonetheless applies to combine them, indicating that this process can cross clause boundaries.[2]

(9) ó nĩ [$_{CP}$ [ọmọ ma jẹ ẹja]] ⟶ ó lọ́mọ jẹja.
3s said child FUT eat fish
'He said the child ate the fish'

From this example we also learn that FVE is not sensitive to the phonological phrase, as defined by Selkirk's (1986) end-based account of the phonological phrase. In an end-based theory, phonological phrases are constructed by grouping all words into a phrase until the end of an $X^{max}$. If FVE were

[2]In Yoruba [n] and [l] are argued to be allophones of the same phoneme, [n] only occurs when it appears in front of a nasalized vowel and [l] occurs elsewhere.

bounded by the edges of the phonological phrase, hence by the edges of $X^{max}$, then it ought to be blocked by clausal boundaries. But (9) shows that it is not.

### 2.4 FVE is Blocked by Intonational Phrase Boundaries

We have just seen that FVE can apply across a clause boundary. It does not, however, apply across the boundary of an adjunct clause, as demonstrated in (10).

(10) a. ngbo John jẹ ọmọ jó.
while John eat child danced
'While John ate the child danced'

b. *ngbo John jọmọ jó
while John eat-child danced

I argue that this is because, cross-linguistically, clausal adjuncts are intonational phrase boundaries, as argued by Nespor and Vogel (1986). Vowel elision/contraction cannot occur across intonational phrase boundaries.[3]

Given the evidence in sections 2.1-2.4, we can see that deletion of the first vowel in hiatus (FVE) is a phonological rule which occurs across several types of syntactic boundaries between words and is only blocked by intonational phrase boundaries.

### 2.5 The Special Status of [i]

In the cases we have examined thus far, the first vowel has always deleted, but this is not always the case. When one of the vowels in hiatus is [i], it is always deleted, regardless of whether it is the first or the second vowel. For example, in (11a) the first vowel is not deleted because the second vowel is [i]. The same is true for (11b).

(11) a. gbé inọ́ ⟶ gbénọ́ *Bamgboṣe (1966)*
take fire
'take the fire'
b. ka ìwé ⟶ kàwé
read book
'read a book'

The deletion of [i] also occurs regardless of the syntactic status of the following or preceding forms.

[3]In support of this argument, we also do not find ATR harmony across adjuncts.

### 2.6 Summary of FVE Up to This Point

We can summarize FVE at this point by stating that:

(i) Deletion of the first vowel in hiatus (FVE) is a phonological rule which occurs between words across several types of syntactic boundaries and is only blocked by intonational phrase boundaries.

(ii) The vowel [i] always deletes regardless of whether it is the first or second vowel.

(12) defines FVE in light of these observations.

(12) **First Vowel Elision**: The first vowel deletes *except* when the second vowel is [i]. This process is blocked only by intonational phrase boundaries.

In the next section I argue that FVE occurs because Yoruba has a ranking of ONSET over MAX-IO. Because of this ranking Yoruba prefers deletion to syllables without an onset, thus causing FVE.

## 3 Phonological Constraints for Yoruba FVE Contractions

The ranking of constraints in Yoruba captures the causes of First Vowel Elision. (The tonal output can also be explained within OT, but I will not show this here.) In this section I present an Optimality-Theoretic analysis of Yoruba vowel elision.

The constraints below operate within a certain domain. They will not operate across clausal adjuncts, which always define a separate intonational phrase, but they will operate on all adjacent words which do not begin or end intonational phrases.[4]

### 3.1 Crucial Constraints and Rankings

Yoruba can have CV, V, or syllabic nasals as syllables; however, we find vowel deletion in CV.V.CV words, indicating that Yoruba prefers deletion to syllables

[4]We would like to know if these constraints would operate between e.g. Aux+verbs and Subj+verbs, but it is impossible to tell because verbs always begin with consonants and are thus not candidates for elision.

without an onset (13).

(13) ONSET: Syllables have onsets.

MAX-IO must rank below ONSET in Yoruba because segments are deleted to repair ONSET violations (15). Thus we rank ONSET higher than MAX-IO (14), which prohibits deletion.

(14) MAX-IO: Every input segment has a correspondent in the output.

(15)

| /dé oko/ | ONSET | MAX-IO |
|---|---|---|
| ☞ a. dóko | | * |
| b. dé oko | *! | |

It is the ranking of ONSET>>MAX-IO that motivates elision in (16-17).[5]

(16) **rà** ẹja ⟶ rẹ̀ja
buy fish
'buy the fish'

(17) tẹ̀lé ẹja ⟶ tẹ̀lẹ́ja
follow fish
'follow the fish'

Elision is blocked in forms without ONSET violations, (18). This shows us that FVE is not an effect of a constraint on the size of minimal words.

(18) **ra** bóbálò ⟶ ra bóbálò
buy bible

There are no diphthongs in Yoruba (Bamgbọṣe 1966). Thus, in order for a CVVCV word to have an onset the two vowels cannot be syllabified as a diphthong (20). The constraint which prevents this is *DIPH (19).

(19) *DIPH: There are no diphthongs.

I argue that *DIPH is undominated in Yoruba; otherwise we would get forms such as the one in (20) in order to repair ONSET violations.[6]

[5]We know that it is ONSET and not FTBIN that motivates elisions because, in (17), FVE applies despite the concomitant creation of a non-binary foot where there were none in the input, in violation of FTBIN.

[6]*DIPH is also in an important constraint in that it triggers assimilation between nouns which are genetival. Thus between a noun and a possessor there is a different constraint domain which ranks MAX-IO (14) higher than in the elided forms we are discussing in this paper.

(20) rà ẹja ⟶ *ràẹ.ja
buy fish

Because [i] in Yoruba acts differently than other vowels, we need a constraint which accounts for this unusual behavior. Traditionally, [i] in Yoruba is argued to be underspecified (Pulleyblank 1988).[7] Pulleyblank argues that [i] is deleted more readily than other vowels because it is underspecified. [u] is also deleted over other vowels; thus [u] could be argued to be only partially specified.

Because I am providing an Optimality-Theoretic account of FVE, the account must follow the principle of *richness of the base* (Prince and Smolensky 1993). The principle of *richness of the base* expresses a generalization that in OT all cross-linguistic variation depends of the ranking of constraints rather than differences in the inputs of languages. That is, underlyingly, no vowel can be guaranteed to be underspecified.

Thus, we cannot argue that high vowels ([i] and [u]) are deleted simply because they are impoverished of features; then we would have to argue that [i] and [u] are underspecified in all languages. Rather, I argue that [i] and [u] are deleted because of a ranked constraint which penalizes certain vowels, namely those which are less sonorous (or high). The constraint is stated in (21).

(21) *HIGH-V: A segment less sonorous than a mid vowel is non-nuclear (in the spirit of Prince and Smolensky (1993).

Thus, [i] and [u] will always be deleted over other vowels.[8] The constraint I propose here (*HIGH-V) is similar to the Nuclear Harmony Constraint proposed in Prince and Smolensky (1993). On my account, because high vowels are crosslinguistcally less sonorous than low or mid vowels, any high vowel creates a violation of *HIGH-V. Because [u] is not deleted when it occurs with [i] (see (23) below, *múwé* 'make book') there is an additional constraint which causes [u] to be preferred over [i]. This constraint is *HIFRONT (22).

(22) *HIFRONT: A segment less sonorous than a mid vowel and less sonorous than a central vowel is non-nuclear.

[7]Pulleyblank (1988) also shows that [i] is the vowel epenthesized to break up consonant clusters in loan words.

[8]This does not, however, explain why [i] is the epenthetic vowel in Yoruba. If high vowels are dispreferred in general we would not expect them to show up to break up clusters in loan words. This is a problem for further research, beyond the scope of this paper.

Because the vowel [u] does not violate *HIFRONT, but [i] does, it is more expensive to maintain [i] in the output.

The tableau in (23) exemplifies the interaction between these constraints. In (23) we see that the candidate with [u], candidate (a), is penalized less than the candidate with [i], candidate (b), because candidate (b) would cause more violations of *HIFRONT. Of course candidate (c) is ruled out because of a violation of the highly ranked ONSET constraint. *HIFRONT and *HIGH-V are not crucially ranked with respect to one another. MAX-IO needs to rank below all these constraints so that we always find deletion of one of the vowels in order to repair ONSET violations.

(23)

| | /mú ìwé/ | ONSET | *HIGH-V | *HIFRONT | MAX-IO |
|---|---|---|---|---|---|
| ☞ | a. múwé | | * | | * |
| | b. míwé | | * | *! | |
| | c. mú ìwé | *! | | | |

DEP-IO (24) must rank over ONSET because consonants are never epenthesized to repair ONSET violations (*múbìwé) (25).

(24) DEP-IO: Segments in the output are present in the input.

DEP-IO is not ranked with respect to *DIPH.

(25)

| | /mú ìwé/ | DEP-IO | ONSET |
|---|---|---|---|
| ☞ | a. múwé | | |
| | b. mú bìwé | *! | |
| | c. mú ìwé | | *! |

In addition, there is a positional faithfulness constraint which explains why we find that the first vowel consistently elides when the two vowels in hiatus both have features which do not violate *HIGH-V or *HIFRONT, as in (26a) and (26b).

(26) a. sọ òótọ́ ⟶ sòótọ́
speak truth
'speak the truth'

b. rọ́ awọ ⟶ rẃọ
sew leather
'sew the leather'

This constraint is MAX-NOUN (27). I propose that, in Yoruba, faithfulness to the initial segment of a noun ranks higher than other faithfulness constraints.

(27) MAX-NOUN: A segment of a noun in the input is present in the output.[9]

Tableau (28) shows how MAX-NOUN forces elision of the first vowel, because deletion of the noun's segments is penalized by MAX-NOUN, but deletion of another constituent's segments is only penalized by the low ranked MAX-IO.

(28)

| /sọ òótọ́/ | ONSET | MAX-NOUN | MAX-IO |
|---|---|---|---|
| ☞ a. sòótọ́ | | | * |
| b. sọ́tọ́ | | *! | |
| c. sọ òótọ́ | *! | | |

*HIGH-V must rank higher than MAX-NOUN so that [i] is always deleted in the output regardless of whether it is the first or second vowel (29). In addition, *HIFRONT must rank over MAX-NOUN so that when [u] is the first vowel and [i] is the second vowel, [i] deletes. MAX-NOUN ranks over MAX-IO, because noun segments are always maintained over all other segments.

In (29) [i] is deleted, even though it violates MAX-NOUN. However, if two vowels are equally sonorous, as in (30), the ranking of constraints will force the first vowel to delete.

(29)

| /ka ìwé/ | ONSET | *HIGH-V | MAX-NOUN | MAX-IO |
|---|---|---|---|---|
| ☞ a. kàwé | | | * | * |
| b. kìwé | | *! | | |
| c. ka ìwé | *! | | | |

The winning candidate (a), *ọbẹ̀* 'buy soup', violates MAX-IO, but since it is ranked so low it is not crucial. Candidate (b) is ruled out by a violation of *DIPH. Candidate (c) is ruled out by a violation of ONSET.

In (30) IDENT-F accounts for the lack of coalescence (candidate (e)) because the candidate with coalescence does not maintain featural specification from the input to the output.[10] We also see that (f) is ruled out because it cru-

[9]This constraint is similar in flavor to noun faithfulness constraints proposed in Smith (1997); here Smith discusses evidence from Japanese where certain contrasts exist in nouns that do not in other lexical categories. It is also similar to the positional faithfulness constraints proposed by Casali (1997).

[10]UNIFORMITY could also be used to account to rule out the coalescence candidate.

cially violates MAX-NOUN.

(30)

| /ra$_1$ o$_2$bè/ | DEP-IO | *DIPH | ONSET | MAX-NOUN | IDENT-F | MAX-IO |
|---|---|---|---|---|---|---|
| ☞a. robè | | | | | | * |
| b. raobè | | *! | | | | |
| c. ra obè | | | *! | | | |
| d. ra bobè | *! | | | | | |
| e. rV$_{1,2}$bè | | | | | *! | |
| f. rabè | | | | *! | | |

The final hierarchy of constraints in depicted in (31).

(31) DEP-IO *DIPH
ONSET
*HIGH-V *HIFRONT
MAX-NOUN
IDENT-F
MAX-IO

## 4 Second Vowel Absence

Seemingly, the SVA forms present a counter-example to claims made in the literature on vowel elision (e.g., Casali 1997) that FVE between lexical words is universal. Casali argues that FVE is universal because, for lexical words, the word-initial position is stronger than the word-final one. Much work on positional faithfulness concerning various processes in phonology supports this claim (Beckman 1998).

In support of Casali (1997), I argue that Yoruba does not delete the word-initial or second vowel in SVA forms. Rather I argue that this vowel is not even present in the UR. Before I go into my analysis of these forms, let me first provide a description of the character of SVA and of the environments in which it can occur.

SVA, in contrast to FVE, seems to be sensitive to syntactic boundaries and insensitive to the status of [i] in Yoruba. We should view the insensitivity to the status of [i] as a clue that what is occuring in SVA forms is *not* phonological.

We state a generalization of where SVA occurs in (32).

(32) **Second Vowel Absence**: The second vowel does not appear, *regardless* of whether the first or second vowel is [i] (33b). This occurs in certain morphosyntactic contexts; SVA is restricted to occurring in noun-noun compounds and between certain verbs and nouns (34a-34b).

**Verb+noun**

(33) a. ó ta **e**po ⟶ ó tapo
3sg spill oil
'He spilled oil'

b. ó wí **ẹ**jọ́ ⟶ ó wíjọ
he complain case
'He pleads a case'

**Noun+noun**

(34) a. ọmọdé **o**bìnrin ⟶ ọmọdébìnrin
little-child girl
'little girl'

b. ọmọ **a**dìye ⟶ ọmọdìye
child chicken
'chick'

### 4.1 The Syntactic Status of Nouns in SVA Forms

Although nouns in the FVE verb-noun forms can be referential and definite, this is not the case for SVA forms. Compare (35a) to (35b).

(35) a. ó ta **e**po ⟶ ó tapo SVA
3sg spill oil
'He spilled oil' *He spilled *the* oil

b. rà **ẹ**ja ⟶ rẹ̀ja FVE
buy fish
'buy a/the fish'

In addition, many pairs which undergo SVA are semantically distinct from those that undergo FVE in that they often have idiomatic or non-compositional meaning. As shown in (36), we find an idiomatic meaning for the verb 'remove' and the noun 'foot' when the second vowel is elided, but a compositional meaning when the first vowel is elided.

(36)

| 2 words | Std Yoruba | Semantics | Phonology | English |
|---|---|---|---|---|
| gbé ẹsẹ̀ | gbẹ́sẹ̀ | compositional | FVE | remove foot |
| gbé ẹsẹ̀ | gbẹ́sẹ̀ | idiomatic | SVA | walk fast |
| fẹ́ ọ̀rọ̀n | fọ́rọ̀n | compositional | FVE | to want matter |
| fẹ́ ọ̀rọ̀n | fẹ́rọ̀n | idiomatic | SVA | to like |

Table 1: SVA vs. FVE

In contrast to the SVA forms in (36), the nouns in FVE forms do not lose their syntactic status as arguments of the clause and can be referential, as in (37).

(37) ó fún ìwé ní ọmọ ⟶ ó fúnwè ní ọmọ
3s gave book to child
'he gave the book to the child'

In addition, for FVE forms, when the verb's or another constituent's final vowel is not elided and joined with a noun it has the same meaning as when it undergoes FVE (cf. (37-38)).

(38) ó fún ìwé ní ọmọ
3s gave book to child
'he gave the book to the child'

SVA verb-noun forms however, unlike FVE ones, cannot be separated syntactically into a verb and noun that are not string-adjacent and maintain their meaning (cf. 39a-39c).

(39) a. ẹsẹ̀ ló gbé
foot 3s remove
'It was the foot that was removed' ('*It was walked fast')

b. ó gbẹ́sẹ̀
3s remove-foot
'He walked fast'

c. ó gbésè
3s remove-foot
'He removed the foot'

In (39a) we cannot get the idiomatic reading, 'it was walked fast', when the noun is fronted. The only reading possible for (39a) is the compositional reading, 'it was the foot that was removed'.

Often, however, we find compositional meaning in SVA forms (although note that the noun still cannot be definite), see (40).

(40) ó fọ aṣo ⟶ ó fọṣo
3sg wash clothes
'He washed clothes' (*'He washed *the* clothes')

I argue that even these compositional forms, like the idiomatic SVA forms, are compounds. The evidence for this argument comes from possessive constructions. Forms such as (40) (with SVA) occur when there is no overt possessor. However, in the Igbomina dialect, when there is a possessor, the first vowel elides instead of the second, resulting in the form in (41a).[11] In certain dialects, FVE is forced when there is an overt possessor. Furthermore, in Igbomina the form with SVA in (40) is ungrammatical with a possessor. This is exemplified in (41b). Thus it seems that although (40) is compositional it is syntactically a compound and the noun *clothing* is incorporated.

IGBOMINA

(41) a. ó fọ aṣo Yiwola ⟶ ó faṣo Yiwola
3sg wash clothes Yiwola
'He washed Yiwola's clothing'

b. *ó fọṣo Yiwola
3sg wash-clothes Yiwola

The ungrammaticality of (41b) indicates that *aṣo* must not be an accessible object to be possessed in (40) but can be in (41a). Therefore I conclude that *aṣo* in (40) must be incorporated, because 'clothing' is not an argument but a lexically inseparable piece of the verb.[12]

[11]This form is also possible without an overt possessor, but always implies a possessor.

[12]There are dialects (Ikale, for example) which can have a possessor with the SVA form in (40) (see (42)). If we argue that the form in (40) is always a compound then

These data from possessive constructions clearly show us that even compositional SVA forms are instances of incorporation.

Because of the factors outlined above for SVA nouns, i.e., lack of referentiality and inability to be definite, I conclude that all SVA forms are the result of incorporation (Baker 1988), whereas the FVE forms are the result of simple phonological contraction.

What is important to note from the argumentation in this section is that FVE forms act differently than SVA ones more than just phonologically. Therefore we are justified in treating them separately.

On my account SVA verb-noun pairs are formed in the same way noun-noun compounds are, namely, through being incorporated into another syntactic head. The proposal that the SVA forms are compounds explains why they undergo the same phonological rules as noun-noun compounds. It also explains their semantic behavior.

## 4.2 Why the Initial Vowel of a Noun is Absent when that Noun is Incorporated

Now that we have discussed the syntactic status of these nouns, I will discuss why the initial vowel of a noun is absent when that noun is incorporated.

I propose that, in Standard Yoruba, when a noun is incorporated, only a certain form of the noun is inserted, namely one without the initial vowel. This results in what appears to be the elision of the second vowel, but is in fact just the underlying absence of the noun's initial vowel.

### 4.2.1 A Morphological Account of SVA

The initial vowel of a noun in Yoruba is a residue of a classifier system (as mentioned in Bamgbọṣe 1966). Thus the initial vowel was arguably a separate morpheme, and perhaps still is, structurally.

This prefix, or decayed class marker, can also be seen as the locus of referentiality or as a determiner. Thus it is natural that it does not appear in SVA constructions. It has long been recognized that inflectional morphology

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we need to explain why *aṣo* is an accessible object in (42) in Ikale.

IKALE

(42) ó fọṣọ Yiwola (*in other dialects)
3sg wash-clothes Yiwola
'he washed Yiwola's clothing'

does not occur inside compounds (Kiparsky 1982). Thus, noun-initial vowels do not occur in Yoruba compounds because these markers are inflectional. Words that appear in compounds tend to be inserted without inflection.

Harris (1991) points this out for Spanish word-markers. Specifically, Harris argues that the final vowel in the Spanish nouns is a noun-word-marker (43).

(43) a. pas-**o** *Harris (1991)*
step-ClassI
'step'

b. pas-**a**
raisin-ClassII
'raisin'

In Spanish, word-markers do not occur word-internally (Harris 1991) (see (44), where word-markers are in bold-face). Similarly, in English compounds such as *rat-catcher* are grammatical, but compounds with inflection for number such as **rats-catcher* are not grammatical.

(44) a. lej-**os** *Harris (1991)*
'far'

b. lej+an-**o** (*lej-**os**+an-**o**)
'distant'

I propose that this initial vowel on Yoruba nouns is similar to the final vowel on Spanish nouns in that it is only added to nouns which are words or occur at the edge of an X°. Thus this vowel is never added to words in compounds because they are either within N or within V (45). The rule for the insertion of this vowel is stated in (45).

(45) *noun-word-marker vowel* $\longleftrightarrow$ _ [X°

If the noun 'child' is underlyingly /mọ/, the surface form *ọmọ* occurs only when the noun does not form a compound with something that precedes it. In Yoruba the gender of the noun predicts whether the noun-word-marker is realized as *o-*, *u-*, *e-*, *a-*, *i-*, *ẹ*, or *ọ-*.

Because compounded forms have an incorporated noun, noun-word-markers are never inserted in the morphology because the second noun is never at the edge of an X°. This is exemplified in (46). Here we see that the initial vowel of a noun is only inserted at the edge of an X° as seen in (46b). This

form can not mean 'walk fast', but can only mean 'remove foot' because it is not a compound.

(46) a. [$_X$∘gbé sẹ̀ ⟶ gbésẹ̀
remove foot
'walk fast'

b. [$_X$∘gbé [$_X$∘ẹ́sẹ̀ ⟶ gbẹ́sẹ̀
remove foot
'*walk fast' (√'remove foot')

### 4.2.2 FVE and SVA Forms with a Following Noun

Another key difference between contractions and compounds can be seen when they are followed by another noun. In FVE forms with a following noun the extra noun is interpreted as a possessive modifying the NP, and the entire pair is an argument of the verb (47a). However, in SVA forms the verb and the first noun form a compound and the second noun is interpreted as an argument of this verbal compound (47b).

This is further evidence that SVA forms are compounds resulting from incorporation of the noun into the verbal head.

(47) FVE:
a. mo rí ọmọ aja ⟶ mo rọ́ma aja
I saw [child dog]
'I saw the dog's child'

SVA:
b. ó bí ọmọ aja ⟶ ó bímọ aja
3sg [birth child] dog
'She have birth to a puppy'

Thus the semantic differences between FVE forms and SVA forms (lack of referentiality, inability to be possessed) are a result of the fact that SVA forms include a noun which is not a DP, but is just an N. In contrast, FVE forms combine DPs with verbs. The lack of referentiality in SVA forms on my account comes from the lack of a determiner (or the lack of a +referential determiner in the sense of Longobardi 1994). Because SVA forms, or rather their nouns, are not NPs or DPs, but merely bare nouns, they can be neither definite nor referential.

## 5 Conclusion

In this paper, I have argued that FVE can be accounted for purely phonologically. SVA, on the other hand, requires reference to morphological information. I have attempted to provide an account of two distinct phonological phenomena in Yoruba which also is able to explain the syntactic and semantic differences between FVE and SVA forms. In addition, this account (unlike previous accounts) is able to account for both SVA and FVE varieties of verb-noun forms without requiring the phonology to make reference to syntactic information or employing arbitrary rules.

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