

## Resolving Hiatus in Olutura

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**ABSTRACT:** The main concern of the study was to identify and examine the different strategies that Olutura uses to resolve hiatus so as to get the optimal syllable in its phonotactics. Olutura is one of the dialects of the Luyia language spoken in Western Kenya, East Africa. Data is sampled from speakers of Olutura as a first language. The data is then analyzed to find out the phonological processes that are involved in the configuration of the optimal syllable in this language. The results of the study show that Olutura uses the phonological processes of coalescence, glide formation, epenthesis, prothesis and elision to resolve hiatus.

**Key words:** Hiatus, phonotactics, phonological process, coalescence, glide formation, epenthesis, prothesis, elision, optimal syllable.

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### I. INTRODUCTION

Hiatus is the pause that is created during the articulation of adjacent vowel sound sequences that belong to different syllables (Senturia, 1998). In some languages, vowel hiatus is not allowed because the pause creates unnaturalness, and, as such, difficulties in articulation. As a result, the phonotactics of different languages constraint them to deal with such articulatory difficulties using different phonological processes (Donegan&Stampe, 1979). The two researchers argue that cross-linguistically, these phonological processes always cause a change in the configuration of the syllable by changing the segment sequences in different ways. Casali (2011) concurs that in some languages, vowel hiatus is not allowed because the pause creates unnaturalness, and, as such, difficulties in articulation. Kolaczyk (2004) posits the view that phonological processes are the natural way that simplifies articulation and thus, form the phonetic constraints that occur in languages. Phonological processes always affect the configuration of the syllable by changing the segment sequences as a way of resolving vowel hiatus (Casali, 2011). This means that languages that do not allow hiatus always find a way of resolving it using different phonological process, which are, indeed the phonetic constraints that occur in languages. The processes that affect the sequences in the configuration of the syllable in Olutura are what this study is about. This study deals with the processes of coalescence, glide formation, epenthesis, prothesis and deletion as they are used as strategies for resolving hiatus in Olutura. In this paper, the terms language and dialect are used interchangeably since the difference between the two is, sometimes, blurred.

### II. METHODOLOGY

The data that was used in this study was collected from Olutura speakers in Bumula, Bungoma County in Western Kenya. Purposive sampling was used to identify the right respondents who were interviewed to get the required data. Two interviews were used to get the right respondents and the required data respectively. Stratified sampling was used to put the data into various word classes for analysis.

### III. RESULTS AND DISCUSSION

Olutura uses the phonological processes of coalescence, glide formation, epenthesis, prothesis and elision to resolve hiatus.

#### 3.1. Coalescence

Three types of coalescence occur in Olutura; namely:

**3.1.2 Vowel height Coalescence:** This type of coalescence which takes place when V<sub>1</sub> is a low vowel and V<sub>2</sub> is a high vowel, both of them coalesce into a mid vowel as illustrated in 1.

1: Olutura low and high vowel coalescence

| input           | Output        | Gloss                    |
|-----------------|---------------|--------------------------|
| (i) / a + i /   | /βa + itsa/   | [βetsa] they come        |
| (ii) / a + i /  | / βa + ira/   | [βe:ra] they kill        |
| (iii) / a + i / | /βa + isia /  | [βe:sja] they bring down |
| (iv) / a + i /  | /βa + imba/   | [βe:mba] they sing       |
| (v) / a + i /   | / βa + singa/ | [ βe:singa] they bathe   |

From the data in 1, the two vowels do not only fuse into the mid vowel /e/, but they also acquire a new feature of length. They, therefore, lose their original features of [+ high] and [-high] and acquire the features [-high] and [-low] respectively. The new feature of length, however, preserves the moras from the input seen in both V<sub>1</sub> and V<sub>2</sub>. The resultant long vowel seen in all the examples in 1 are an indicator of how Olutura is able to avoid the occurrence of diphthongs, a combination of vowels that is not allowed in this particular language. The occurrence of long vowels is in line with the phonotactics of Olutura which has long vowels in its vowel inventory.

**3.1.3 Morphophonemic word boundary coalescence:** This type of coalescence occurs at the boundary between morphemes and is what Bakovic (2007) refers to as ‘identity coalescence’. In this type of coalescence, identical vowels coalesce in a way that there is no change in the vowel quality in the output. This type of coalescence is illustrated using the Olutura words in 2.

2: Identity Coalescence in Olutura

|                |              |           |  |
|----------------|--------------|-----------|--|
| (i) /i + i /   | / ni + itsa/ | [ni:tʰsa] | I am coming                                  |
| (ii) / i + i / | / ni + iva/  | [ni:va]   | I am stealing                                |
| (iii) / u + u/ | / βu + ukha/ | [βu:xa]   | wake up                                      |
| (iv) /o +o/    | /βo +olola/  | [βo:lola] | untie  |
| (v) / a + a/   | /βa + akula/ | [βa:kula] | remove from the stem<br>(e.g. maize/bananas) |

This shows a coalescence occurrence in which all the features of the input are retained in the output as shown in Figure 1.

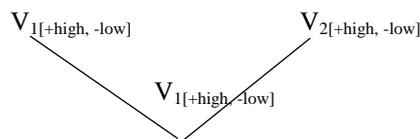


Figure 1: Olutura Identity vowel coalescence

The coalescence of the two identical vowels is what helps Olutura to avoid the surface realization of heterosyllabic vowels in the output in some environments. Heterosyllabic sequences occur in Olutura in some environments but identity coalescence certainly helps to avoid the occurrence of diphthongs. This is what results in the occurrence of the CVV syllable structure in Olutura. In this case, coalescence is driven by the onset at the morphophonemic boundary. In actual articulation, it is actually V<sub>2</sub> that fuses into V<sub>1</sub> because its non-assimilatory articulation is what would create hiatus.

**3.1.4 Single Vowel Replacement Coalescence**–This is the type of coalescence in which two vowels are replaced by a single instance of one of them as seen in 3. This happens when a common noun changes to the plural form.

3: Olutura sole vowel replacement coalescence

|                              |           |                         |
|------------------------------|-----------|-------------------------|
| (i) eliino (tooth)           | ama+ eno  | [ame:no] (teeth)        |
| (ii) eliina (a hole)         | ama+ ena  | [ame:na] (holes)        |
| (iii) esiina (a court event) | eβi + ena | [eβi:na] (court events) |

In the example in 3, the two vowels in the input, /a/ and /e/ and /i/ and /e/ are replaced by one of them, that is, the vowel /e/ and /i/ in the output. We observe here that the mora places in the input are maintained in the output form.

### 3.2 Glide Formation

In Olutura, glide formation results from the two glides /w/ and /j/ across the morphophonemic word boundary. In this language, glide formation resulting from the bilabial approximant /w/ occurs in three instances. This process is shown in 4 using two examples for each category. One occurrence is when a [+high] vowel is followed by another [+high] vowel. In this case, V<sub>1</sub> deletes and changes into a glide while V<sub>2</sub> is retained but forms the nucleus of the resultant CV syllable (examples 4 (i) and (ii) ). The second occurrence is when a [+high] vowel is followed by a [+low] vowel as seen in examples 4 (ii) and (iv). Just as in the first instance, V<sub>1</sub> becomes a glide while V<sub>2</sub> is retained. The third occurrence involves a [+high] vowel as the V<sub>1</sub> and a [-high] vowel, in this case a mid vowel as the V<sub>2</sub>. This is shown in examples 4 (iv) and (v).

#### 4: [+high ] vowel gliding in Olutura

| Input            | Output         | Gloss                            |
|------------------|----------------|----------------------------------|
| (i) [ u + i ]    | / omu + ifi/   | [omwifi] a thief                 |
| (ii) [ u + i ]   | / oβu + itsa / | [oβwitsa] friendship             |
| (iii) [ u + a ]  | /omu + ami /   | [ omwami] a leader               |
| (iv) [ u + a ]   | / oxu + aka/   | [ oxwaka] to weed                |
| (v) [ u + o ]    | / omu + ojo/   | [ omwojo] a heart                |
| (vi) [ u + e ]   | / exu + epa/   | [ exwe:pa] I want you            |
| (vii) [ u + a ]  | / lu + ana/    | [ lwa:na ] struggle/childishness |
| (viii) [ u + i ] | / olu + ika/   | [ olwi:ka] a horn                |

The above examples show that in Olutura, glide formation may or may not result in compensatory lengthening. In examples 4 (i) to (v) there is no compensatory lengthening because the [+high] vowel that moves to the onset is not compensated in the output. In these examples, the [+high] vowel /u/ is lost but is replaced by the glide /w/, an occurrence in which one mora place is actually lost since the input had one mora place in the prefix and stem respectively. However, in examples 4(vii) and (viii), compensatory lengthening takes place because V<sub>1</sub>, which is a [+high] vowel /u/ is syllabified as part of the onset and loses its weight but this is compensated in the extra vowel that brings forth a long vowel. The vowel slots are, therefore, preserved. Moras play an autosegmental role and that is why they are not usually deleted (Hayes, 1989; Goldsmith, 1999). Although V<sup>1</sup> is replaced by the non moraic [w], its mora is compensated in the lengthening of V<sup>2</sup>. Glides are non moraic in Olutura because of their capability to form onsets in this dialect. Compensatory lengthening is shown in Figure 2.

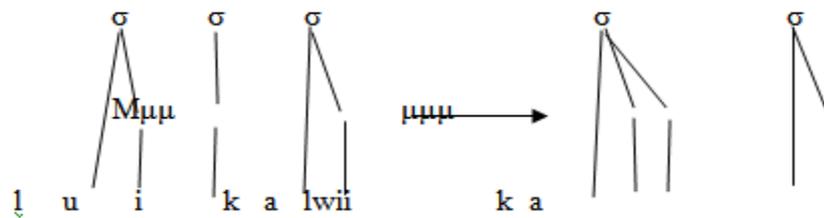


Figure 2: Olutura compensatory lengthening

In Figure 2, the mora that is lost when the [+high] vowel /u/ becomes a glide is recovered in the output compensatory lengthening which is realized through an extra [+high] vowel /i/. This is in turn realized as a CVV in the output from a CV.V; that is, the middle zero onset syllable moves to the nucleus of the preceding CV syllable.

Olutura has both contrastive and non-contrastive vowel length in its glide formation process because vowel length is used to distinguish meaning in some environments

In a language like (isi) Ndebele, there are times when the [+high] vowel /u/ fails to form a glide in the environment of the mid vowel /o/. When this happens, the first vowel/u/ does not elide but is instead syllabified as the nucleus of the CV syllable. This leaves the /o/ intact as an onsetless syllable at word medial position as shown in the examples in 5.

#### 5: Olutura non-glide forming /u/

- (a)
- |      |           |           |                                    |
|------|-----------|-----------|------------------------------------|
| (i)  | /xu+oma/  | [xu.o.ma] | to smoothen a floor using cow dung |
| (ii) | /xu +ana/ | [xu.ana]  | to give                            |
- (b)
- |      |             |           |                  |
|------|-------------|-----------|------------------|
| (i)  | /xu + o.ma/ | [xwo.ma]  | to dry up        |
| (ii) | /xu + a.na/ | [ xwa.na] | mow (like a cow) |

This occurrence is used in Olutura as a meaning distinguishing strategy because the words in 5(a) change the meaning when the /u/ changes into a glide 5 (b).

Olutura also has the occurrence in which the [+high] front vowel /i/ becomes a glide. In this dialect, glide formation involving the palatal glide /j/ takes place when the [+high] vowel /i/ comes before any [+high] or [-high] vowel as exemplified in 6. The [+high] vowel which is  $V_1$  changes to the glide /j/ while  $V_2$  is retained in the surface output. If  $V_1$  is the [+high] /i/, it is realized as a palatal glide /j/ in the output. This occurrence in Olutura is in accordance with Rosenthal (1994), who argues that the glides /w/ and /j/ are derived and therefore, underlying representations of the high vowels

In Olutura, glide formation is also used to resolve hiatus when the prevocalic high vowel/i/ changes into the palatal glide /j/. This occurs when the [+high] vowel /i/ comes before another [+high] vowel or a [-high] vowel as shown in 6.

#### 6: Olutura pre-vocalic glide formation.

|       | Input     | Output         | Gloss        |              |
|-------|-----------|----------------|--------------|--------------|
| (i)   | [ i + a ] | /eji + alo/    | [eʃjalo]     | world        |
| (ii)  | [ i + a ] | /eji + amberi] | [ eʃjamberi] | first fruits |
| (iii) | [ i +u ]  | /eju + uja]    | [eʃjuja]     | good taste   |
| (iv)  | [ i +e ]  | /eji +eja]     | [eʃjejo]     | a broom      |

Glide formation in Olutura involving the palatal glide /j/ is not as common as with the bilabial approximant /w/. However the process involving its occurrence is similar to that discussed using the examples in 6. However, in the case of /j/, glide formation occurs when the [+high] vowel /i/ in the input is phonetically realized as a palatal glide in the output form. This occurrence will always happen whenever the glide /j/ comes before a high, mid or low vowel.

Glide formation in Olutura can be accounted for using the notion of place of articulation. Both glides are homorganic and /j/ share the phonological feature of [+high] with the vowel /i/. The glide /w/ shares the phonological features of [+labial] and [+round] with the vowel /u/. In the case of a pre-fix and a noun or verbal stem, it was observed that in Olutura, glide formation always leads to the segment change of  $V_1$  and not  $V_2$ . The reason for this lies in the notion of positional faithfulness which protects  $V_2$  as it is at the privileged word initial position. Segments in this position always resist any form of phonological change.

### 3.3 Epenthesis

Epenthesis and prosthesis in Olutura as strategies for HR involve consonants and vowels alike and indeed whole syllables.

#### 3.3.1 Syllable Epenthesis

As shown in chapter two, the CV is the optimal syllable in Olutura. This statement implies its pivotal role in the phonology of this dialect. We observed the epenthesis of the CV syllable at either word medial or word final position in Olutura lexical items. The particular CV syllables and consonants involved in this case depend on the context. This is shown in the examples in 7.

### 3.3.2 CV Syllable Epenthesis in Olutura

Epenthesis in Olutura is determined by the morphological classes of number, possessive, noun class and case. This means that the constituents of the epenthetic CV syllable is determined by the grammatical category. In Olutura different CV syllables are used to realize the singular as shown in 7.

7: Olutura grammatical epenthesis

|       |      |           |             |                               |
|-------|------|-----------|-------------|-------------------------------|
| (i)   | /la/ | /e.+la/   | ekondielala | one sheep                     |
| (ii)  | /la/ | /e+la/    | etumwaelala | one cob of maize              |
| (iii) | /la/ | /mu+βeja/ | [mulaβeja]  | you will cheat ( near future) |
| (iv)  | /li/ | /mu+βajo/ | [muliβajo]  | you will be there             |

In 7 the epenthesis is formed by a CV syllable that has the consonant /l/ in the onset. The vowel elements in the syllable are /a/ and /i/.

8: Olutura CV epenthesis

|       | Input             | Output       | Gloss                                 |
|-------|-------------------|--------------|---------------------------------------|
| (i)   | [xu] [oxu + saβa/ | [xuxusaβa]   | to ask from you                       |
| (ii)  | [mu] /oxu+ saβa/  | [xumusasaβa] | to ask from (2 <sup>nd</sup> person)  |
| (iii) | [βa] /oxu +saβa/  | [xuβasasaβa] | to ask from ( 3 <sup>rd</sup> person) |
| (iv)  | [na] /oxu +fama/  | [xufamana]   | to love each other                    |

In 8, the epenthesis of the CV syllable happens between the prefix /xu/ which is an indicator meaning ‘to’ and the verbal stem. It brings out the meaning of ‘making or causing someone to do something’ and thus creates the grammatical aspect of person. We observe here that the prefix ‘xu’ and the verbal stems in (i) to (iii) are similar and it is only the epenthesis of the CV syllable that changes the meaning. The epenthesis of the [na] which occurs word finally in the output is morphophonemic and it brings out the meaning of ‘each other’ from the input /xufama +na/ to [xufamana].

### 3.3.3 Epenthesis of Consonants

The epenthesis of a consonant element to a zero onset vowel is another way that Olutura uses as a HR strategy. The consonants /β/ and /j/ are added to the zero onset syllable in word medial position to create a CV syllable as a way of repairing inputs that do not meet the phonotactic requirements of Olutura. The examples in 9 are used to illustrate the epenthesis of either /w/ or /j/ in Olutura.

9: Consonant epenthesis in Olutura

|       | Input                    | Output                   | Gloss                              |
|-------|--------------------------|--------------------------|------------------------------------|
| (i)   | si + ola                 | [si.βu.lu]               | a rotten thing                     |
| (ii)  | /βa + ira/               | [βa.ji.ra]               | they are taking                    |
| (iii) | /i+ira/                  | [i.ji.ra]                | it is taking (e.g. an animal)      |
| (iv)  | /βa + i <sup>n</sup> ga/ | [βa.ji. <sup>n</sup> ga] | they are forcing                   |
| (v)   | /βa + ala/               | [βa.ya.la]               | they are trying them (as in court) |
| (vi)  | /βa + ina/               | [βa.ji.na]               | tempting him to fight              |

In Olutura, what determines the consonant that is inserted in the epenthesis process is the word class as well as the environment. Example 9 (i) refers to [-animate] whereas the rest of the examples in the same series refer to +animate entities. However, if [-animate] entities would perform the action of taking, they would also take on the epenthetic /ji/ ! This is also a case of irregular occurrences whose motivation is not clear.

### 3.3.4 Vowel Epenthesis

Just like syllable and consonant epenthesis, vowel epenthesis is one of the phonological processes that are used to repair inputs that do not meet the phonotactics of Olutura. The epenthesis of vowels at the end of a verb causes a change in the meaning of the word as shown in 10.

10: Olutura vowel epenthesis

| Input                    | Output                    |                     |
|--------------------------|---------------------------|---------------------|
| (i) /ke.nda/ ( to walk)  | [xu.ke. <sup>n</sup> dia] | to help one to walk |
| (ii) /ke.nda/ ( to walk) | [βa.ke.ndia]              | help them walk      |
| (iii) /hona/ ( heal)     | [honia]                   | to heal             |

|      |          |         |             |                          |
|------|----------|---------|-------------|--------------------------|
| (iv) | /inJira/ | (enter) | [i.nJi.sia] | cause something to enter |
| (v)  | /kona/   | (sleep) | [ko.nia]    | put to sleep             |
| (vi) | /kula/   | (buy)   | [ku.sia]    | sell                     |

In 10, a vowel that was not initially in the input is added to the verbs immediately after the last CV syllable. This means that the CV syllable takes on a new vowel element and changes the syllable from CV in the input to CGV in the output. However, it must be noted here that since the vowels involved are the [+high] vowels /i/ and /u/, they are phonetically realized as glides in the phonological processes of glide formation. Ordinary Olutura orthography uses the vowel /i/ and not the glide /j/ in such words as exemplified in 10. In Olutura, vowel epenthesis as a strategy for HR only involves the [+high] vowel /i/ which is inserted before the low vowel /a/ which is relegated from the second position in the CVV syllable to the third position. The vowel epenthesis only involves Olutura verbs and it changes the syllable structure from CV to CVV.

### 3.4 Prothesis

In Olutura the phonological process of prothesis occurs in nouns and verbs and it involves both consonants and vowels. In this dialect, prothesis involves syllables or single sound segments as discussed in the preceding subsections.

#### 3.4.1 Syllable Prothesis

In the noun class system, Olutura reports a 3<sup>rd</sup> class system which is a prefix that marks different aspects of the noun. These aspects indicate, for instance whether the object is [+animate] or [-animate], plant or animal. Various CV syllables are prefixed to the stem to indicate these aspects as shown in the examples in 11.

11: CV noun class prothesis in Olutura

| Input | CV syllable                | Output          | Gross      |
|-------|----------------------------|-----------------|------------|
| (i)   | /lala/ [si]                | [sikombesilala] | one cup    |
| (ii)  | /lala/ [mu]                | [musalamulala]  | one tree   |
| (iii) | /lala/ [mu]                | [mundumulala]   | one person |
| (iv)  | /lala/ [n <sup>a</sup> da] | [embwandala]    | one dog    |

It is interesting that aspects of the same occurrence in which the noun indicates singularity are realized through the epenthesis of different CV syllables. Indeed the input is the same for 11 (i) to (iv) but (i) and (iv) realize different outputs in the prothetic CV syllable. The different outputs are because of the emergence of different consonant elements in the onset. This shows that in Olutura the prefix indicating these different aspects of the noun is irregular.

When it comes to the morphological class of number, Olutura realizes only two instances of the CV syllable prothesis, that is, /si-/ for singular and /bi-/ for plural. The two are shown in 12.

12: CV syllables indicating number in Olutura

| Input | CV syllable | Output                | Gross |
|-------|-------------|-----------------------|-------|
| (i)   | /si/        | [si.la.la.]           | one   |
| (ii)  | /βi/        | [βi.βi.ri]            | two   |
| (iii) | /βi/        | [βi.ne]               | four  |
| (iv)  | /βi/        | [βi. <sup>n</sup> gi] | many  |

The morphological class of possession is also realized through the multiple phonological processes of prothesis, epenthesis and coalescence, all at a go. This is shown using the Olutura examples in 13.

## 13: Multiple processes of possession in Olutura

| Input        | CV syllable | Output      | Gross                                     |
|--------------|-------------|-------------|---|
| (i) /ange/   | /si/        | [si+a+nge]  | mine (e.g. granary, match box.etc.)       |
| (ii) /fwe/   | /si/        | [si+e+fwe]  | its ours                                  |
| (iii) /ange/ | /ki/        | [ki+a+nge]  | mine ( e.g. ropes, loafs of bread, etc.)  |
| (iv) /fwe/   | /ki/        | [ki+e+fwe]  | ours ( many, e.g ropes)                   |
| (v) /ange/   | /ku/        | [ku+a+ange] | mine ( e.g. a rope, a loaf of bread, etc. |
| (vi) /ange/  | /lu/        | [lu+a+nge]  | mine ( e.g. a song                        |
| (vii) /ange/ | /vi/        | [vi+a+nge]  | mine ( many) e.g. shoes                   |
| (viii) /fwe/ | /vi/        | [vi+e+fwe]  | ours (many) e.g. presents                 |

From the output realizations in 13, /si/, /ki/ and /vi/ have been prefixed to the stem /nge/ in the phonological process of prothesis. These are then followed by the zero onset syllable /a/ or /e/ in the phonological process of epenthesis and lastly there is the coalescence of the two vowels /i/ and /a/ in the output. The coalescence happens when the [+high] vowel /i/ and the mid vowel /e/ are joined in the long vowel that is in the output. Similarly the inputs that have /ku/ or /lu/ prefixed to the stem /nge/ undergo prothesis which is followed by the epenthesis of the zero onset syllable that coalesces with the vowel element in the preceding CV syllable. Another process; that of gliding, still occurs to complete the sequential alternation process in the grammatical aspect of possession in Olutura. The prothesis process in which a CV syllable is prefixed is vital here because anything contrary would not yield the correct word.

## 3.4.2 Vowel Prothesis

The Oluturavowel prothesisoccurrence shown in 14 happens when a vowel is put at the word initial position before the basic word.

## 14: Vowel prothesis in Olutura

|       |         |                         |                  |
|-------|---------|-------------------------|------------------|
| (i)   | /kaala/ | /a.ka:.la/              | he is imagining  |
| (ii)  | /kula/  | /e.ngu.la/              | I am buying      |
| (iii) | /kenda/ | /o.ke. <sup>n</sup> da/ | you are walking  |
| (iv)  | /xina/  | /a.xi.na/               | he is dancing    |
| (v)   | /kona/  | /o.ko.na/               | you are sleeping |

Vowel prothesis in Olutura is what manifests itself a V syllable structure, and in this case, occurs at word initial position. This is the verbal prefix that changes the basic verb in the grammatical category of person. Prothesis involving consonants is shown in the examples in 15.

## 15: Consonant prothesis in Olutura

|       | singular | glossary         | plural                       |
|-------|----------|------------------|------------------------------|
| (i)   | /alja/   | s/he is eating   | /βa.lja/ they are eating     |
| (ii)  | /anjwa/  | s/he is drinking | /βa.njwa/ they are drinking  |
| (iii) | /ola/    | that one         | /βa.la/ those ones           |
| (iv)  | /βeja/   | cheat            | /βa.βe.ja/ they are cheating |
| (v)   | /aβaja/  | s/he s playing   | /βaβaja/ they are playing    |

## 3.5 Elision

As a strategy for HR, Olutura has the elision of both V<sub>1</sub> and V<sub>2</sub> in different environments.

3.5.1 V<sub>1</sub> Elision

In Olutura the elision of V<sub>1</sub> has two instances; one is that V<sub>1</sub> is elided when the function word precedes the lexical word while the second instance occurs when V<sub>1</sub> also elides when the function word comes after the lexical word. The two occurrences are shown in the examples in 16(a) and (b) respectively.

16: Olutura V<sub>1</sub> elision

(a)

| <b>Input</b>    | <b>Output</b> | <b>Gross</b> |                    |
|-----------------|---------------|--------------|--------------------|
| (i) oyo+etsa    |               | [oje:tsa]    | That one is coming |
| (ii) eyo+endayi | [eje:ndaji]   |              | That one is good   |
| (iii) eyo+ange  |               | [eja:nge]    | That one is mine   |

(b)

|                     |                |            |              |
|---------------------|----------------|------------|--------------|
| (i) embwa+eyi       |                | [embwe:ji] | this dog     |
| (ii) omwana+oyo     | [omwano:jo]    |            | that child   |
| (iii) omulayi+ okwo | → [omulajokwo] |            | the nice one |
| (iv) omuleyi+okwo   | [omulejokwo]   |            | the long one |

The words in the examples in 16(a) are either a basic verb, an adjective or a pronoun and a demonstrative. In the examples in (a), V<sub>1</sub> which is the vowel attached to the 2<sup>nd</sup> syllable in the function word is deleted, leaving V<sub>2</sub> which is the vowel in the zero onset and first syllable of the verb, adjective or pronoun. In the examples in 16(a), the mid low vowel 'o' deletes leaving the mid low front vowel /e/. This shows that in Olutura the elision of V<sub>1</sub> can be of a mid vowel so that what is seen in this case is a back to front kind of deletion owing to the fact that the back vowel, /o/, which is on the right elides and leaves the front one, /e/ which is on the front of the conventional vowel trapezium.

Elision of V<sub>1</sub> also occurs when the function word comes after the lexical word as shown in 16(b). In examples (i) and (ii), which are common nouns, the [+low] vowel /a/ is deleted and leaves the [-low] vowels /e/ and /o/. In example (iii), the word in which V<sub>1</sub> occurs is an adjective just like in example (ii) in 16(a). However, the adjectives in the two examples occur after and before the demonstratives respectively. Thus, when the adjective comes before the demonstrative, the V<sub>1</sub> that deletes is in the lexical word but if it comes after the functional word the V<sub>1</sub> that deletes is in the functional word. Therefore, V<sub>1</sub>, which happens to be at the final word position, is targeted for deletion, irrespective of whether the vowel occurs in the lexical or functional word. V<sub>2</sub>, which is at word initial position is preserved. At this point the observation by Beckman (1998) that the word initial position is a prominent position that has the burden of language storage, retrieval and processing and many languages tend to protect it is viable.

In 16(b) the deletion occurs between a noun and a function word and the V<sub>1</sub> that is in the lexical word, in this case the noun is deleted. The output shows that V<sub>1</sub> deletes in quick speech when two words from different word classes end up as one in the phonotactics of Olutura. In the examples in 16 (b), V<sub>1</sub> is the low vowel /a/ in the second CV syllable of the noun while V<sub>2</sub> is either the mid back vowel /o/ or the mid front vowel /e/. There is the elision of the [+low] vowel /a/ while the mid vowels are left intact in the output. Examples 16 (b) (iii) and (iv) show that elision also targets the [+high] vowel /i/ which leaves the [-high] vowel [o]. It was observed that the elision process in Olutura that targets V<sub>1</sub> always ends up with the preservation of the [-high] vowels /o/ or /e/. An algorithm to this effect can be stated as:

elision of [+high,+low] vowels →[mid] vowels

### 3.5.2 V<sub>2</sub> Elision

In Olutura, the process of elision also targets V<sub>2</sub> at the morpheme boundary. This, just like with the deletion of V<sub>1</sub>, the deletion of V<sub>2</sub> also involves a lexical and a function word at the word morpheme boundary. The environment in which V<sub>2</sub> is elided is the same as the elision of V<sub>1</sub>; V<sub>2</sub> elision occurs at the boundary between a lexical and a function word and it does not matter which of the words comes first; the elision will take place on the first vowel of the second word. The examples in 17 show the deletion of V<sub>2</sub> from either the lexical or the function word.

17: V<sub>2</sub> elision

| (a)   | Input   | Output                                     | Gloss               |
|-------|---|--|---------------------|
| (i)   | /e.mo.n.i <sub>1</sub> +e. <sub>2</sub> jo/                 | [e.mo.ni.jo]                               | that eye            |
| (ii)  | /mu. <sup>n</sup> du. <sub>1</sub> +o. <sub>2</sub> jo/     | [mu. <sup>n</sup> du.jo]                   | that person         |
| (iii) | /mu.fu.mu. <sub>1</sub> +o. <sub>2</sub> no/                | [mu.fu.mu. <sub>1</sub> no]                | this prophet        |
| (iv)  | /i. <sup>n</sup> gu.βo <sub>1</sub> +i. <sub>2</sub> ɲu.mu/ | [i. <sup>n</sup> gu.βo <sub>1</sub> ɲu.mu] | a dry cloth         |
| (v)   | /i.mbwa <sub>1</sub> +i. <sub>2</sub> <sup>n</sup> da.ji/   | [i.mbwa <sub>1</sub> .nda.ji]              | a good dog          |
| (b)   | Input   | Output                                     | Gloss               |
| (i)   | /xu <sub>1</sub> +e <sub>2</sub> si.ro/                     | [khu. <sub>1</sub> si.ro]                  | at the market       |
| (ii)  | /xu <sub>1</sub> +e. <sub>2</sub> mo.ni/                    | [xu. <sub>1</sub> mo.ni]                   | on the eye          |
| (iii) | /o.li <sub>1</sub> +i. <sub>2</sub> <sup>n</sup> go/        | [o.li. <sub>1</sub> <sup>n</sup> go]       | are you at home?    |
| (iv)  | /o.li. <sub>1</sub> +o. <sub>2</sub> mu.la.mu/              | [o.li. <sub>1</sub> mu.la.mu]              | are you fine?       |
| (v)   | /o.ju <sub>1</sub> +o. <sub>2</sub> mwi.fi/                 | [o.ju <sub>1</sub> mwi.fi]                 | this one is a thief |

It was observed that the mora place of the vowel that elides is lost because there is no compensatory lengthening in the output.

#### IV. CONCLUSIONS

This paper has demonstrated that Olutura uses the phonological processes of coalescence, epenthesis, prosthesis and elision to resolve hiatus. The study concludes that the two types of coalescence that occur in Olutura are not only used to resolve hiatus, but also to avoid diphthongs. With regard to glide formation, the study concludes that process is not as common with the palatal glide /j/ as it is with the bilabial approximant /w/. As regards the process of epenthesis, this study concludes that in Olutura, syllables, consonants and vowels can be epentheted. Hiatus resolution involving prosthesis happens with only vowels and consonants. Elision in Olutura targets both V<sub>1</sub> and V<sub>2</sub> and the vowel that elides can be from either the lexical or function word. In some cases, the four processes of prosthesis, epenthesis, coalescence and gliding all take place at the same time in resolving hiatus in Olutura.

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