Tone in Izii and Ezaa Multisyllabic Words: An Autosegmental Analysis

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ABSTRACT

This work sets out to interrogate the phonological processes involved in the formation of multisyllabic nouns in the Izii and Ezaa dialects of the Igbo language using the autosegmental method of analysis. The data were gathered using the personal interview method. Six respondents, three males and three females were sampled and one hundred and fifty words randomly selected from the Ibadan 400 Word List (as outlined in Udoh (2004) were used and the interview was recorded electronically. In the findings, the phonological processes of deletion, elision and insertion were mainly used while the results of the processes were inflectional as no change of word class was recorded. However, some of the processes produced contour tones, closed syllables as well as consonant clusters especially in Ezaa dialect portraying unusual phonological features when compared with other dialects of the Igbo language.

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1.0 Introduction

Igbo language is noted for its multidialectal feature. One of these dialects is the Abankaleke (Northern/Wawa) Dialect Cluster (Ikekeonwu (1987). Earlier scholars like Meir and Meir (1964-1970) and Bendor-Samuel (1975) had noted the perceptible peculiar features of these dialects and erroneously suggested that the dialects belonged to a different linguistic system especially Izii and Ezaa which are the most popular among the Abankaleke Dialect Cluster. However, more recent works by notable scholars such as Ikekeonwu (1987), Ukpabi (2003), Udoh (2004), Anyanwu (2005), Nwaozuzu (2008) and Obianika (2012) have proved that the Abankaleke Dialect Cluster are bonafide dialects of the Igbo language. This work therefore seeks to proffer explanation in a principled way the occurrence of some of the peculiar features of this dialect cluster that generated the argument in the first place such as consonant clusters, contour tones and closed syllables as found in multisyllabic words in Izii and Ezaa using the Autosegmental model of analysis.

1.1 Objective

The main trust of this work is to explain in a formal way the phonological processes that generated some peculiar features as they occur in multisyllabic words perceptible in the Abakaleke Dialect Cluster especially Izii and Ezaa dialects using the autosegmental phonological model. These processes include deletion, elision and insertion which generate closed syllables, consonant clusters and contour tones which are not popular in many other Igbo dialects.

1.2 Methodology

The data for this work is collected from six adult L1speakers of Izii and Ezaa dialects; three males and three females and the recording done electronically. Using the purposive random sampling, one hundred and fifty words are selected from the Ibadan 400 words (Udoh 2004) and the data recorded electronically. Analysis of the phonological processes involved in forming the words are done autosegmentally with a view to finding out the phonological features found in the dialects which occur as a result of these

processes and those that are inherent in the words as lexemes in the lexicon of the dialects.

2.1 Tone and Autosegmental Phonology

Autosegmental phonology is a phonological theory that assumes a multitiered approach to phonological analysis. It was introduced by John Goldsmith in 1976. He, however, acknowledged that other linguists had earlier viewed the speech flow from a multitier point of view (Goldsmith (1990). Some of these linguists include Hochett (1958) and Leben (1973). Hockett in his *Manual Phonology* likened the speech flow to the arrangement of a musical piece where some instruments are arranged in such a way that some sounds are superimposed on others.

Also, Leben (1973) in *Suprasegmental Phonology* according to Goldsmith (1990), drew attention to the extreme constraints of analyzing a tone language in a linear format. Using examples from some African languages spoken in Sierra Leone, he illustrated that certain phonological phenomena cannot be effectively accounted for within the linear segmental format. His work pointed out in the clearest way the shortcomings and inadequacy of segmental phonology in analyzing suprasegments such as tone but was unable to proffer solutions in a principled way as to how the inadequacy could be overcome and the problematic suprasegments accounted for formally.
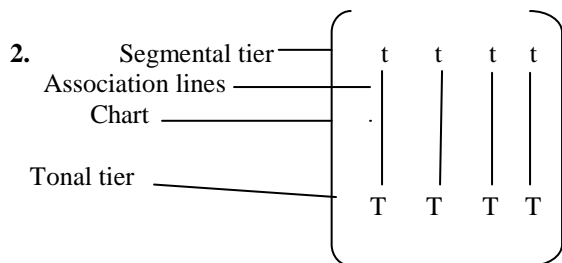
Halle and Vergnaud (1982:67) explain this notion thus; 'what has been novel in autosegmental phonology is that tones of an utterance are not viewed as diacritics of vowels or syllables: rather the tones are viewed as constituting an autonomous sequence of entities, core of the utterance.'
The following is their illustration:

1.   t   t   t   t

         T   T   T   T

The two *tiers* would then be linked by what Goldsmith calls association lines:

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2.

| Segmental tier | t | t | t | t |

Association lines

Chart

Tonal tier

| T | T | T | T |

The segmental tier linked to the tonal tier enclosed in a square bracket is referred to as a 'chart':

In order to indicate how the features on the different tiers are to be co-articulated as a single acoustic signal, Goldsmith (1976) proposed the wellformedness conditions (WFC):

3a. all vowels are associated with at least one tone
b. all tones associated with at least one vowel and
c. association lines do not cross.

He stipulates that if any of the representations violates the wellformedness condition, the association lines would then be deleted or added until the representation was well formed. The mapping is to be carried out from left to right and any remaining unassociated tone or tone bearing unit is assigned to the last tone or tone bearing unit.

Some scholars such as Clements and Ford (1979), Haraguchi (1977) Hulst and Smith (1982) and Halle and Vergnaud (1982) in applying the WFC found out that languages met the conditions in a number of ways. Williams (1976) therefore proposes an approach in which he assumes that the multiple assignment of tone to a single syllable could only result from a language specific rule. He formulates a number of rules which he terms Tone Mapping Rules (TMR).

4.

a. Mapping procedure maps from left to right a sequence of syllables.
b. It assigns one tone per syllables, until it runs out of tones.
c. Then, it assigns the last tone that was specified to the remaining untoned syllables on the right.
d. until it encounters the next syllable to the right belonging to a syllable with specified tone.
e. If the procedure above runs out of syllables, more than one tone may be assigned to the last vowel only if the grammar of the language include a specification to that effect.

In their discussion of William's TMR, Halle and Vergnaud aver that the TMR does not require that each tone be obligatorily linked to a vowel. They therefore assume that "only tones linked to segments in the phonemic core are phonetically actualized". Any such unlinked tones are termed 'floating tones'.

Following the work of scholars such as Pike (1948) Meeussen (1963) Clements and Ford (1979), Halle and Vergnaud (1982), and the result of his subsequent works on tone languages such as Tonga (Goldsmith (1981) Kikuyu (Goldsmith 1990:11) and Sakuma (Goldsmith (1985), Goldsmith modified the WFC a great deal. He called the modifications 'association conventions' (AC). In these modifications (Goldsmith (1990), the ideas expressed in WFCs 9a and b are modified to imply that:

5.

a. All vowels and tones need not be compulsorily associated.
b. Vowels need not be the only tone bearing units.
c. One – to – many mapping can only be realized as a language specific rule.

We will assume in this research work following Pulleyblank (1986) that:

6a. Association conventions be as follows: map a sequence of tone onto a sequence of tone bearing units.
i. from left to right
ii. in a one –to – one relation
b. Well formedness condition – Association lines do not cross. Pulleyblank's (1986) *Morphological Encoding and Association Conventions* discusses the interaction of morphology and phonology especially in relation to tone. He argues that tonal association in many languages is predictable and determined by the morphological structure of the string and the phonological conventions for linking tones to segments. Using a number of languages, Pulleyblank (1986) illustrates that for many languages, cyclic tone association should be employed. The lexical rule application in this work will also apply cyclically.

2.2 Pitch, Tone and the Syllable

Pitch is the extent to which a sound is high or low and it depends on the rate of vibration of the vocal cords. The tauter the vocal cords are, the faster they vibrate and the higher the pitch of the perceived sound (Katamba (1989:186). The speed at which the vocal cords vibrate can be measured in terms of the number of times they complete cycles of opening and closing per hundred millisecond. The unit is called the fundamental frequency (f_o). It is also the rate at which the speech pressure waveforms repeat. Ladeforged (1982) and Donwa-Ifode(1995) and Ashby and Maidment(2005) agree that the rate of vibration of the vocal cords determines the F_o and the higher the pitch, the higher the F_o and the higher the pitch perceived by the hearer. The unit of measurement for the F_o is the Hertz (Hz). It is not the absolute Hz values of a fundamental frequency contour that matters but the relative values because female speakers generally produce sounds with higher pitch than males. This is because typically women have smaller larynx and shorter vocal cords than men (Ashby and Maidment (2005:154).

Languages utilize pitch in different ways. Pitch may mark words in tone languages or categories higher than the word such as sentences, clauses et cetera. In such a case, the language is said to be an intonation language. In intonation languages, pitch may also perform other functions such as accentuation (allocation of primary stress to the most salient syllable of a word) and syntactic functions. It could also be used to convey attitudinal meanings and structure discourse (Uguru (2006). On the other hand, pitch may function mainly on the domain of the syllable. Within the lexicon, every syllable is marked for a relative contrastive pitch height. Such a language is said to be a tone language. To this extent, Igbo is a tone language (Izii and Ezaa dialects inclusive).

In the words of Choy (2015), syllables are chunks and beats of sound while for (Ashby and Maidment (2005), syllables correspond to natural breaks during the production of speech. Clark et al (2007), Zec (2007) and Ashby and Maidment (2005) agree that languages differ in how the universal principles of segment sequencing are manifested but that they do so in constrained and predictable ways. The simplest syllable structures would consist of a nucleus which is nearly always a vowel (or the most sonorant part) and the two margins, the onset and the coda which are usually consonants. Below is the representation of the most basic types of syllables:

CVC – a syllable with all the principal parts
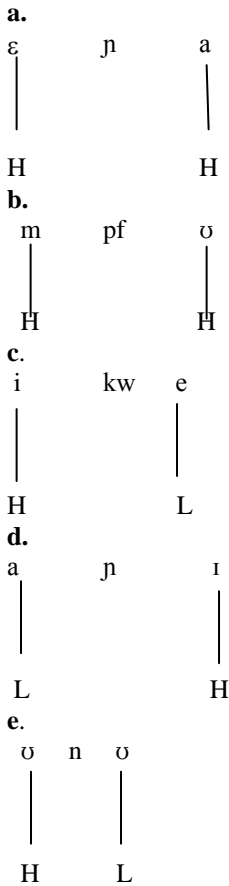CV – a syllable that contains only the onset and the nucleus
VC – a syllable that contains only the nucleus and the coda
V – a syllable that contains only the nucleus.

Words could be classified based on the number of syllables that constitute them. We may therefore have monosyllabic (for one syllable word), disyllabic (for two syllable word), trisyllabic (for three syllable word) or multisyllabic (for more than three syllable word) words across languages. We would consider words of more than one syllables in the analysis that follows.

i. Disyllabic words

7. /ɛɲa/ 'eye' /ḿpfʊ́ / 'palm' /ikwè/ 'mortar' /àɲí / 'we' /ʊ́nʊ̀ / 'you(pl)'

a.

```
ε       ɲ       a
|               |
H               H
```

b.

```
 m      pf      ʊ
 |              |
 H              H
```

c.

```
i       kw      e
|               |
H               L
```

d.

```
a       ɲ       ɪ
|               |
L               H
```

e.

```
 ʊ      n      ʊ
 |             |
 H             L
```
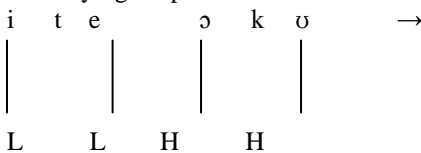
In the disyllabic examples in 7 above, we observe that there are no structural changes from the underlying to the surface structures.
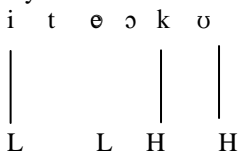
ii.Trisyllabic Words

The following example of a trisyllabic word shows that there is a structural change from the underlying to the surface structure
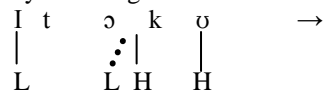
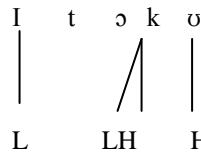**8.** ìtókú   /ìtɔkʊ/ cooking pot

Underlying Representation

```
i   t   e       ɔ   k   ʊ      →
|       |       |       |
L       L       H       H
```

By vowel deletion

```
i   t   e  ɔ   k   ʊ
|       |      |
L       L      H   H
```

By relinking

```
I   t   ɔ   k   ʊ      →
|       ·:|
L       L   H   H
```

surface structure

```
I   t   ɔ   k   ʊ
|       /|      |
L       LH      H
```
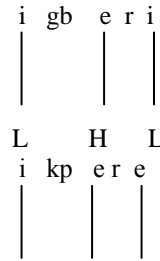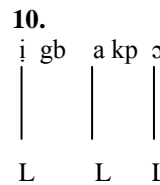
The word is formed from two separate words ìtè+ókú. At the formation of the new word, the last vowel of the first word is deleted but the tone is left floating. The floating tone is then relinked to the vowel on the right forming a rising glide. The examples in 9-10 below do not undergo any structural change to get to their surface structures.

9. / ìgbérì/ guinea corn /íkpèrè/ knee / ìgbàkpɔ̀/ pepper

```
i   gb   e   r   i
|        |       |
L        H       L
```

```
i   kp   e   r   e
|        |       |
H        L       L
```

10.

```
i   gb   a kp   ɔ
|        |       |
L        L       L
```
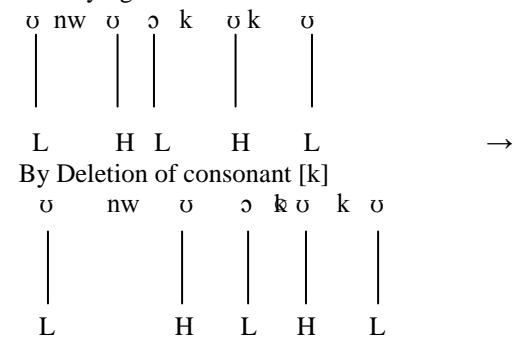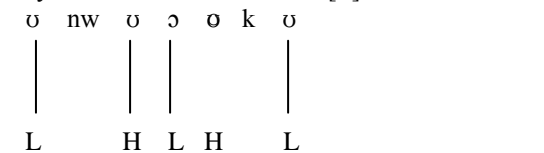
ii.Multisyllabic Words

In the following example, there is a structural change from the underlying to the surface structure.
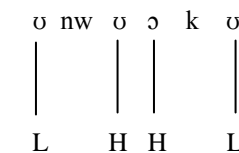
11. ùnwúókù /ʊnwʊɔkʊ/ chickens

Underlying structure:

```
 ʊ  nw   ʊ   ɔ  k   ʊ k   ʊ
 |       |   |      |      |
 L       H   L      H      L          →
```

By Deletion of consonant [k]

```
 ʊ    nw    ʊ   ɔ  k ʊ  k   ʊ
 |          |   |      |     |
 L          H   L      H     L
```

By the deletion of the vowel [ʊ]   →

```
 ʊ  nw   ʊ   ɔ  k   ʊ
 |       |   |      |
 L       H   L H    L
```

By relinking of H tone

```
 ʊ  nw   ʊ   ɔ  k   ʊ
 |       |    \     |
 L       H   L H L          →
```

surface structure.

```
 ʊ  nw   ʊ   ɔ  k   ʊ
 |       |   |      |
 L       H   H      L
```
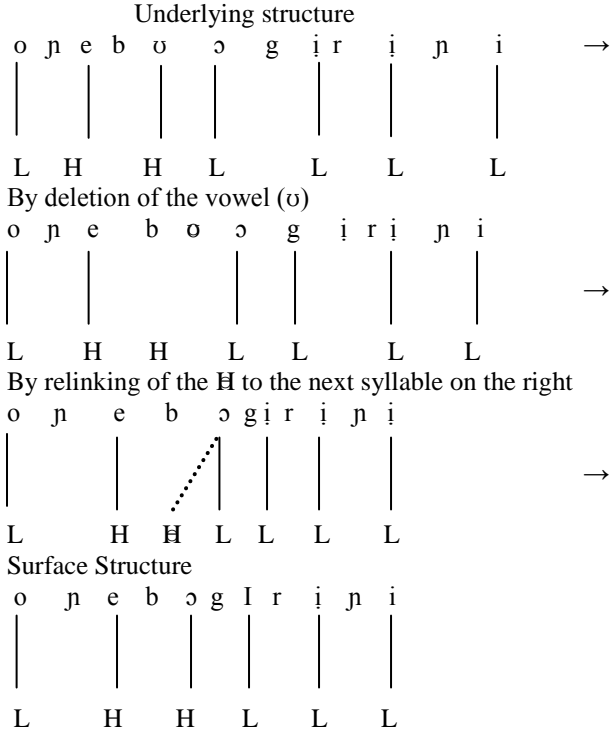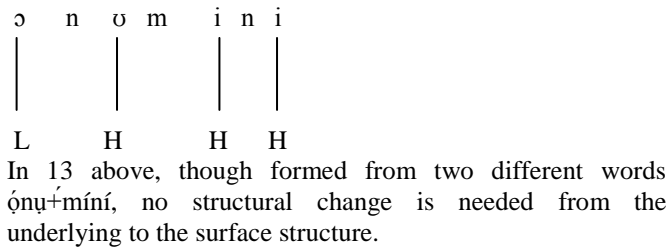
In the example in 11 above, the word is formed from two separate words underlyingly. First, the consonant [k] is deleted then [ʊ] is also deleted leaving the H tone floating. The floating tone is then relinked to the syllable on the left.
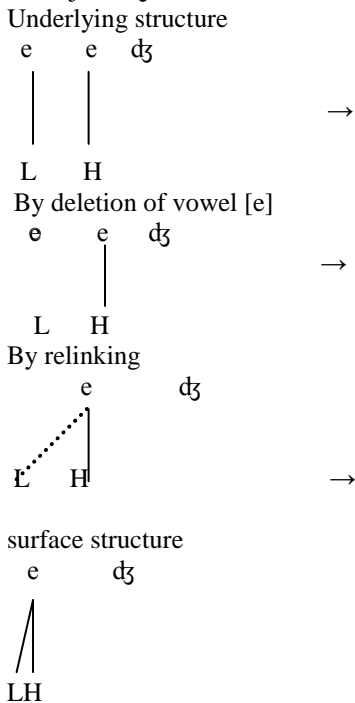
12. ònyébɔ́grìnyì /oɲebɔgiriɲi/ elderly person

Underlying structure

o ɲ e b ʊ ɔ g i r i ɲ i   →

L H H L L L L

By deletion of the vowel (ʊ)

o ɲ e b ɔ ɔ g i r i ɲ i   →

L H H L L L L

By relinking of the H to the next syllable on the right

o ɲ e b ɔ g i r i ɲ i   →

L H H L L L L

Surface Structure

o ɲ e b ɔ g I r i ɲ i

L H H L L L

13. ɔ́nʊ́míní /ɔnʊmini/ saliva

ɔ n ʊ m i n i

L H H H

In 13 above, though formed from two different words ɔ́nʊ̄+míní, no structural change is needed from the underlying to the surface structure.

3.2 Ezaa Dialect

15. èéj /ĕʤ/ snail

Underlying structure

e e ʤ   →

L H

By deletion of vowel [e]

e e ʤ   →

L H

By relinking

e ʤ   →

L H

surface structure

e ʤ

LH

16. /ɔk/ chicken

Underlying Structure

ɔ k ʊ k ʊ   →

L H L

by consonant deletion

ɔ k ʊ k ʊ

L H L

By final vowel deletion

ɔ ʊ k ɔ   →

L H L

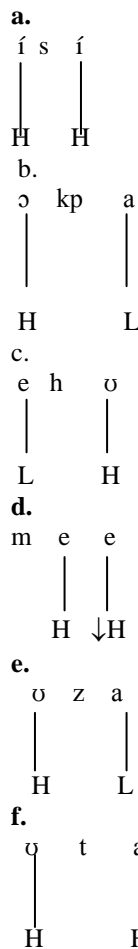By vowel deletion

ɔ ɔ k   →

L H

surface structure

ɔ k

H

Disyllabic words

17. / í s í / head, ɔ́kpà /ɔkpa/ leg, mé↓é /mé↓é/ blood, ʊ́zà /ʊzà/ pepper, ʊ́tá /ʊta/ arrow

a.

í s í

H H

b.

ɔ kp a

H L

c.

e h ʊ

L H

d.

m e e

H ↓H

e.

ʊ z a

H L

f.

ʊ t a

H H

IV. **Trisyllbic words**

18. ákwáràósh /akwaraoʃ/ root (of tree)

underlying structure

a kwa r a o sh i sh i

H   H   H H   H   H   →

By consonant Deletion

a kw a r a o sh i sh i

H   H   L   H   H   H   →

By vowel deletion

a kw a r a o sh ɸ̇ ɸ̇

H   H   L   H   H   H   →

Surface Structure

a kw a r a o sh

H   H   L   H
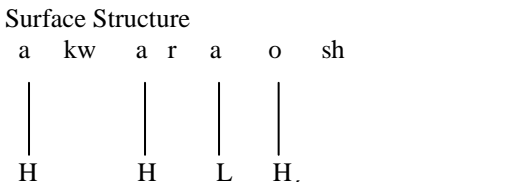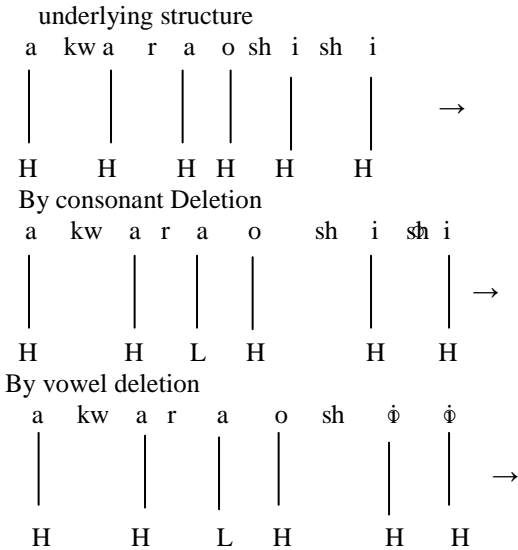
19. ótùbò /otubo/ navel, ọ̀tụ́mụ̀ /ɔtʊmʊ/ axe

a.

O t u b o

H   L   L

b.

ɔ t ʊ m ʊ

L   H   L
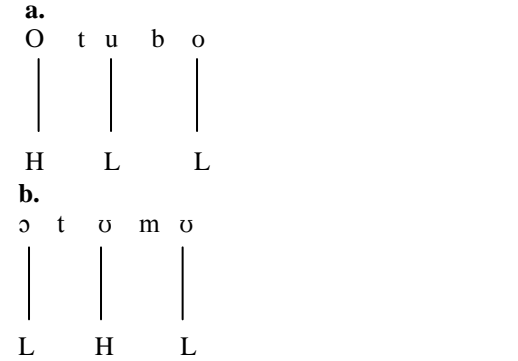
In 19a and b above, there are no structural changes.

20. pféjìré /pfedʒire/ lie(s)

pf e dʒ i r e

H   L   H
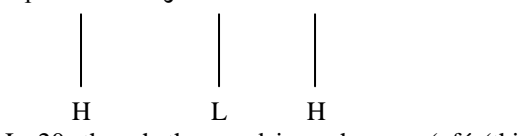
In 20, though the word is a phrase   (pfé (thing)jì (not) ré (good) there are no structural changes.

21. ísíụ̀ụ́t /isiʊt/ dawn

Underlying structure

i s i ʊ t ʊ t ʊ

H   H   L   H   L   →

By consonant Deletion

i s i ʊ ɸ ʊ t ʊ

H H L   H   L   →

H H L   H   L

By vowel Deletion

i s i o ʊ t ʊ   →

H   H L   H   L

By vowel deletion

i s i o ʊ t ʊ

H   H L   H   L

By vowel deletion

i s i ʊ t o

H   H L   H   L

By   Relinking of floating L tone

i s i ʊ t   →

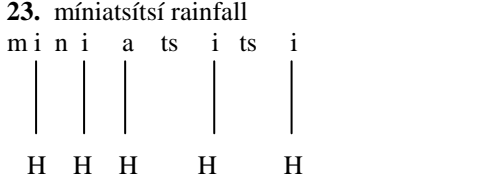H   H L H

Surface   structure

i s i ʊ t

H   H LH
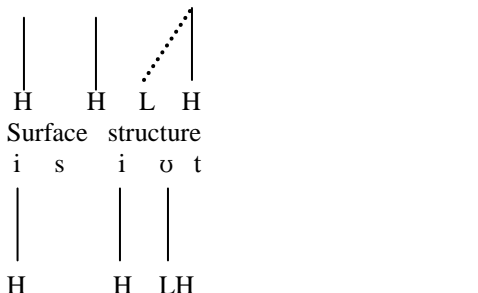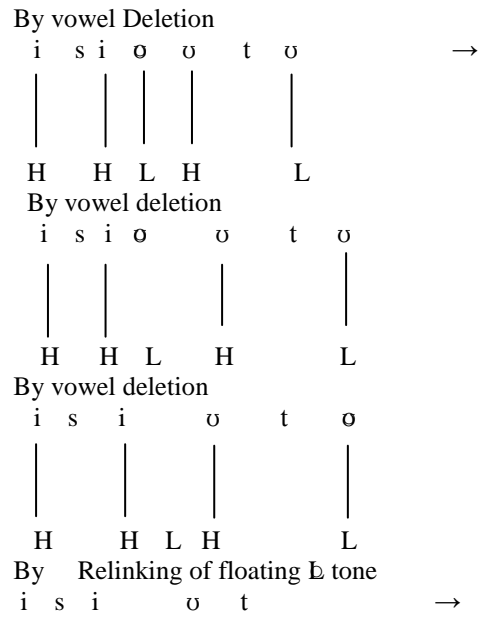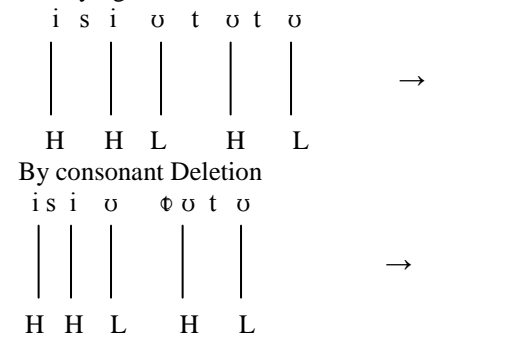
21 shows the structural changes from the underlying structure /isiʊtʊtʊ/ to the surface structure /isiʊt/.

First, by consonant deletion, /t/ is deleted then, the low toned /ʊ/ is deleted leaving the tone floating. The final vowel /ʊ/ is deleted and finally, the floating tone is then relinked to the next syllable on the right to form a rising glide.

22 . ḿ↓gbo↓do wall

m gb o d o

H   ↓H   ↓H
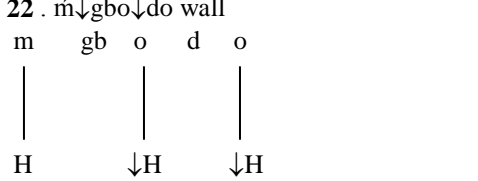
There is no structural change in 22 above.

Multisyllabic

23. míniatsítsí rainfall

m i n i a ts i ts i

H H H   H   H

There is no structural change in the multisyllabic word in 23 above.

24 òrílèmánụ́ cat

Underlying Structure

o r i l e m a n ʊ

L   H   L   H   ↓H

By Deletion of the consonant [l]

o r i ɸ e m a n ʊ
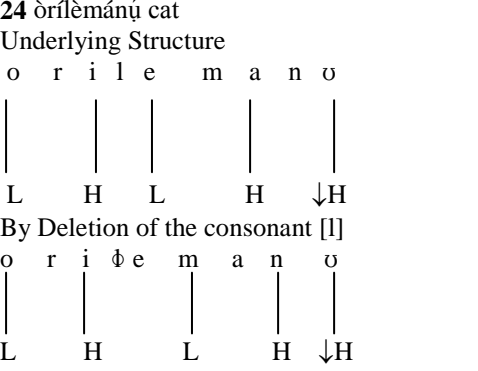
L   H   L   H ↓H   →

Surface structure

```
o    r    i    e    m    a    n    ʊ
|         |         |         |    |
|         |         |         |    |
L         H         L         H    ↓H
```

In 24 above, the consonant /l/ was deleted to get to the surface structure.

25. èjégbà /edzegba/ beard

Underlying structure

```
e    dz    i    e    gb    a
|          |    |          |          →
|          |    |          |
L          H    L          L
```

By deletion of the vowel /i/

```
e    dz    ɸ̇    e    gb    a
|                |    |          →
|                |    |
L          H          L    L
```

By vowel insertion

```
e    dz    E    e    gb    a
|          |              |
|          |              |
L          Ħ    L          L
```

By relinking of Ħ tone

```
e    dz    E    e    gb    a
|          |    |          |          →
|          |    |          |
L          H    L          L
```

Surface structure

```
e    dz    E    e    gb    a
|          |    |          |
|          |    |          |
L          H    L          L
```

In the example above, there is a deletion of the vowel /i/ and an insertion of the vowel /E/ and finally, the H tone that was left floating by the deletion of /i/ is then relinked to the vowel /E/.

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