

## Acoustic Evidence for a Tonal Negative Marker in Edo

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### Abstract

This paper investigates an aspect of negation in Edo language, using primary data obtained from native speakers. Three overt morphemes: *í*, *má*, and *ghẹ* have been identified as markers of negation in the language. This study focuses on negative utterances which lack the *í*-morphemes in overt realizations. The utterances were extracted and analysed with PRAAT 6.0.30. Data analyses reveal that negative constructions which lack an overt marker typically contain underlying *í*-marker which can be deleted. The high tone it bears is left to float regressively or progressively, depending on the morphophonological environment. In cases deletion is suspended, vowel height reduction applies, in which case, the segment of the negative morpheme changes from a tense to a lax vowel. Since tone is observed to be used to negate utterances in Edo, the study concludes that it should be recognized as a strategy for negation in the language.

**Keywords:** Edo language, Morphophonology, Negation, Acoustics, Phonosyntax

### Introduction

Negation is a process or construction in grammatical and semantic analysis which typically expresses the contradiction of some or all of a sentence's meaning (Crystal 2008). This paper examines negation in Edo with the aim of delineating the function of tones in the process. The language of the study has been classified as part of the Edoid group (Elugbe 1979), which falls under the Kwa branch of the Niger-Congo family (Greenberg 1966). Edo is spoken natively in seven (Egor, Ikpoba-Okha, Oredo, Orhionmwon, Ovia North East, Ovia South West and Uhumwonde) of the eighteen local government areas in Edo State, South-South Nigeria. The language has lexically distinct tones: High and Low (Omozuwa 2010). The language also manifests a downstepped High tone, which is a result of certain phonological processes (see Hyman, 1979, for what determines a downstepped tone). The basic order of constituents in a sentence is Subject-Verb-Object (Omogbe 2012).

Although negation is a well-researched topic, there are not many studies concerned with how the process works in Edo. Previous studies (Omogbe 1983; Agheyisi (1986); Omoruyi 1989; Imasuen 1997a and 1997b) identify three negative markers: *í*, *má*, and *ghẹ*.; and discuss morpho-syntactic strategies for deriving negatives from affirmative constructions. None of them explicitly mention the possibility of using tone as a negator, but synchronic data in the language leads one to believe that negation can be achieved without the use of the negative morphemes. If indeed the language employs negation strategies besides those already identified in the literature, then there is need for a study that either re-examines negation in the language, or investigates the problem from a different analytical perspective.

This paper opts for the second alternative and investigates the subject in terms of the interaction between the phonology, morphology and syntax of negative utterances. The aim is to explicate the role of tone in differentiating negative utterances from their affirmative counterparts. In line with this aim, the paper will try to answer three research questions.

- How is negation realized in utterances which lack an overt negative marker?
- What morpho-phonological processes are involved in the derivation of such utterances?
- What is the role of tone in marking negation in Edo constructions?

## Negation

Negation is a universal feature of human language but the strategies differ from one language to another. While some languages have negative markers which precede the main verb, other languages negate via affixation, or by placing the negative marker post-verbally (Yuka & Osime 2006). In Edo language, negation is achieved by placing a negative marker before the first verbal element of a clause. As already stated in section 1.0, above, there are three negative morphemes in Edo, we will closely consider the *í* negative marker in this section given that this *i*-negator alone is observed to be optionally deleted leaving its tone as the only negative indicator in the utterance. This morpheme is used in clauses where tense is non-past and/or the action of the verb considered habitual. For example;

- |       |               |             |   |
|-------|---------------|-------------|---|
|       | INPUT         |             |   |
| 4 (a) | Ì yó èkì      | èdégbèdégbè | (adapted from Imasuen 1996:50)                  |
|       | 1SG go market | everyday    | 'I go to the market every day'.                 |
|       |               |             |   |
|       | OUTPUT        |             |   |
| (b)   | Ì í yó èkì    | èdégbèdégbè |   |
|       | 1SG NEG go    | market      | everyday 'I do not go to the market every day'. |

Examples 4(a) and (b) illustrate sentential negation using the morpheme *í*, but it is pertinent to note that negation is not entirely morphological. Omoruyi (1989:134) states that “the sentence may be negated via morpho-phonemic processes conditioned by the use of the morpheme *i*.” The paper cites the example of an obligatory suppletion rule for third person singular pronouns in the language.

- |  |       |     |     |                 |                                     |
|--|-------|-----|-----|-----------------|-------------------------------------|
|  | 5 (a) | ò   | ø   | bò-ø            | òwá                                 |
|  |       | 3SG | COP | build-pres/prog | house 'He is building a house.'     |
|  |       |     |     |                 |                                     |
|  | (b)   | è   | é   | ø               | bò-ø                                |
|  |       | 3SG | NEG | COP             | build-pres/prog                     |
|  |       |     |     |                 | house 'He is not building a house.' |

From the above examples, one would observe that negation affects the phonological shape of the subject pronoun; this change in form also affects the marker, which is realized as *è* in 5(b). The change in vowel quality from /i/ to /e/ is caused by vowel height reduction/assimilation that applies in 5b, and not in 4b. This process suspends the deletion of the negative marker as we will discuss further in section 2 of this paper. The *í*-negative marker occurs as single constituents as shown in examples 6(a) and (b).



toned morpheme, which copies the phonological shape of the preceding vowel as exemplified in 11 and 12.

11a.	Olú	yú	(b)	Olú	ù	yú			
	Olu	go		Olu	NEG	go			
	‘Olu	went’		‘Olu	did	not	go’		
12a.	Dàdà	ra	Ìlèmú	(b)	Dàdà	à	ra	Ìlèmú	
	Dada	buy	orange		Dada	NEG	buy	orange	
	‘Dada	bought	orange’		‘Dada	did	not	buy	orange’

These studies show that other languages in the KWA family derive negation via tones and tonal processes. Based on genetic relatedness, it is quite possible that negation in Èdo is similar to what obtains in these languages.

However, unlike morphological markers, which are stored in the Lexicon and can readily be verified, morphophonological negative markers require evidence which prove their use in the language. As native speakers, the authors know how Èdo language speakers use tone and phonological processes to derive negative clauses. This paper is thus an attempt to transfer knowledge using empirically verifiable data and methods of analyses.

## **Methodology**

This study relies on utterances gathered from primary sources. The data sample comprises eighty-two (82) negative sentences and their affirmative counterparts. The data was collected from twenty-five (25) native speakers who originate from and live in different communities (urban and rural) spread across the seven local government areas where the language is indigenous. The informants were selected based on the differences in age range, sex, place of early childhood and level of formal education. The collection procedures engaged informants in different forms of interaction such as interviews and informal discussions on several issues. The issues did not center on the present study, but were topical enough to make informants use Èdo freely. The speeches were recorded with the aid of a digital voice recorder in .wav format for better voice quality.

From the recorded speeches, utterances with negative semantic implications were extracted. These utterances were organized into groups based on the presence/absence of an overt negative marker. The sentences were transcribed using the IPA standards for phonetic/phonological representations, and then coded in orthographic forms using the phonetic-based orthography proposed in Omozuwa (2003, 2007, and 2010).

For the analyses, the study employed PRAAT (version 6.0.30.) - a free speech analysis tool developed by Boersma Paul and David Weenink. This programme is useful for representing pitch and several other acoustic properties of speech on spectrograms for visibility and analysis. Our adoption of this tool is due to its relevance for the study of tonal alternations.

In the presentation of data, utterances are first presented in their full forms so as to show the expected negative marker before they are presented in the actual realized forms in which the

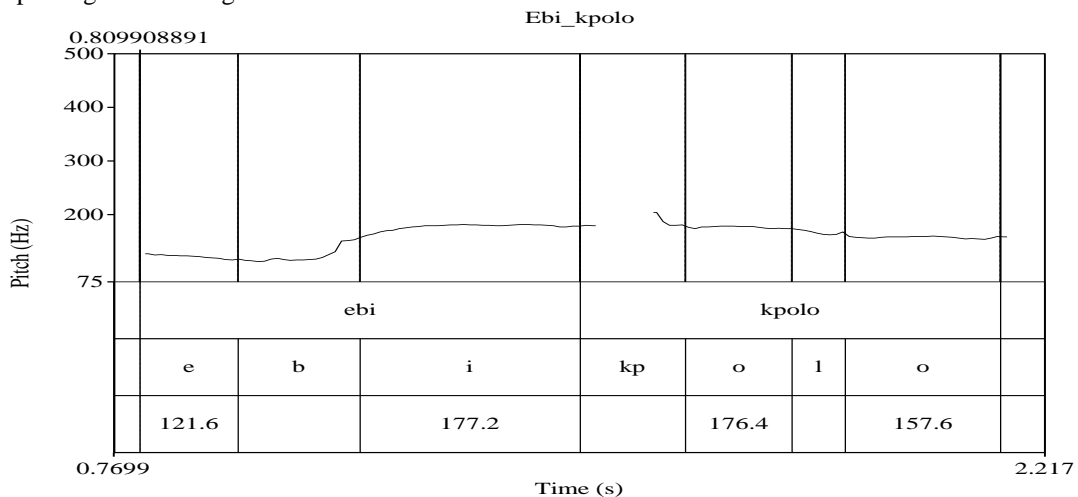
*i* negative morpheme has been optionally deleted or modified in its form by the environment in which it occurs. The full form serves, therefore, as the input into the linguistic process while the modified form serves as the output of the process. The pitch contours outputs are further represented on spectrograms that serve as visible proofs. In addition, some vowels are realized as toneless on the surface due to the presence of glide formation in those forms. When a high vowel immediately precedes a low vowel in Edo, the high vowel is realized as a glide, in which case /i/ becomes /j/ while /u/ becomes /w/.

**On the reality of a tonal negative marker**

The previous section has shown that the *i*-negative marker is used for both constituent and clausal negation. From acoustic analyses of negative sentences, this study observed that tonal alternations are also used for the purpose of negation. Consider the following examples;

13(a)       $\overset{\acute{}}{E}b\acute{i} \acute{i} \text{ kp}\acute{o}l\acute{o}$        $\longrightarrow$        $\overset{\grave{}}{E}b\grave{i} \text{ kp}\acute{o}!l\acute{o}$   
 Ebi NOT sweep      Ebi-NOT sweep  
 ‘Ebi is not sweeping.’      ‘Ebi is not sweeping.’

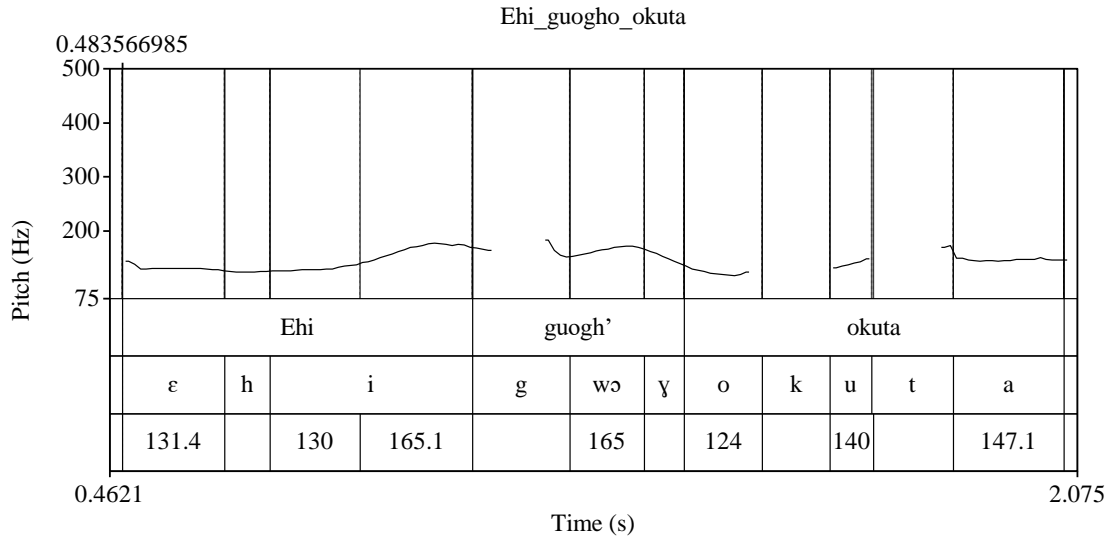
(b) Spectrogram showing the realization of 13a.



Here, it is observed, after the deletion of the negative marker, that the high pitched final syllable of the subject of the sentence  $\overset{\acute{}}{E}b\acute{i}$  becomes elongated in its final realization. Also, the low pitched first syllable of the verb  $\text{kp}\acute{o}l\acute{o}$  becomes high pitched at 176.4Hz. What this means is that the high tone of the deleted *i* negative morpheme is left to floats and subsequently moves progressively to the next tone bearing unit. The elongation of the final segment of the subject noun also shows a regressive effect of the floating tone borne by the deleted segment.

14(a)       $\overset{\acute{}}{E}h\acute{i} \acute{i} \text{ gu}\acute{o}gh\acute{o} \acute{o}k\acute{u}t\acute{a}$        $\longrightarrow$        $\overset{\grave{}}{E}h\grave{i} \text{ gu}\acute{o}gh\acute{o} \acute{o}k\acute{u}t\acute{a}$   
 Ehi NOT crush stone      Ehi-NOT crush stone  
 ‘Ehi does not crushes stones.’      ‘Ehi does not crush stones.’

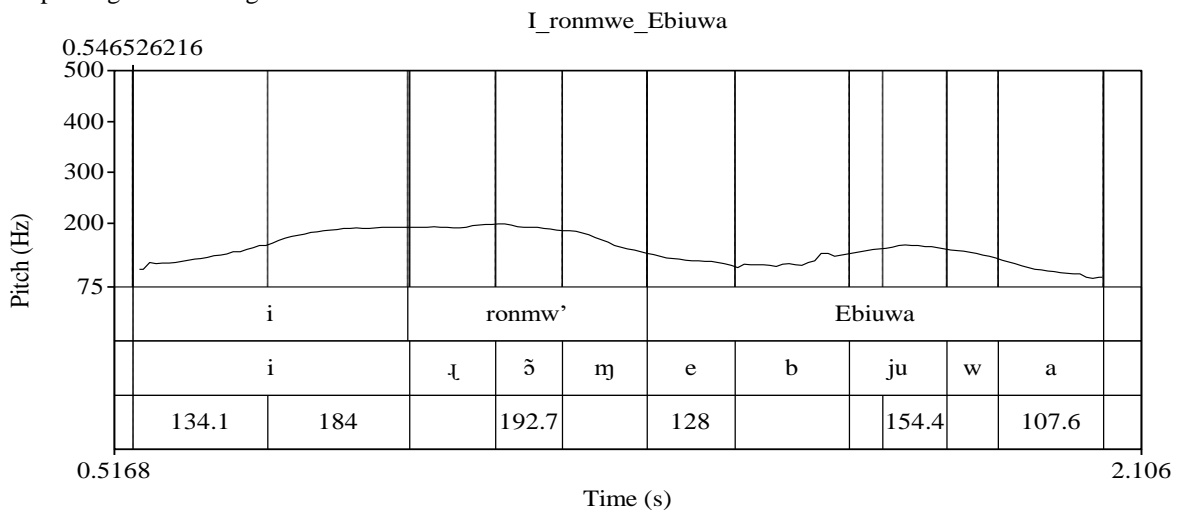
(b) Spectrogram showing the realization of 14a.



In 14, the negative morpheme is observed to have been deleted in the final realized form of the utterance. 15b shows that the final segment of the subject noun of the utterance is realized on a rising pitch (rising from 130Hz to 165.1Hz) as a result of the deletion of the negative morpheme. This shows a regressive effect of the high tone of the deleted negative segment that was left to float.

15(a)  $\dot{I}$  í rònṃwè Èbíúwà →  $\dot{I}$  rònṃwè Èbíúwà  
 I not marry Ebiuwa I-NOT marry Ebiuwa  
 'I will not get married to Ebiuwa.' 'I will not get married to Ebiuwa.'

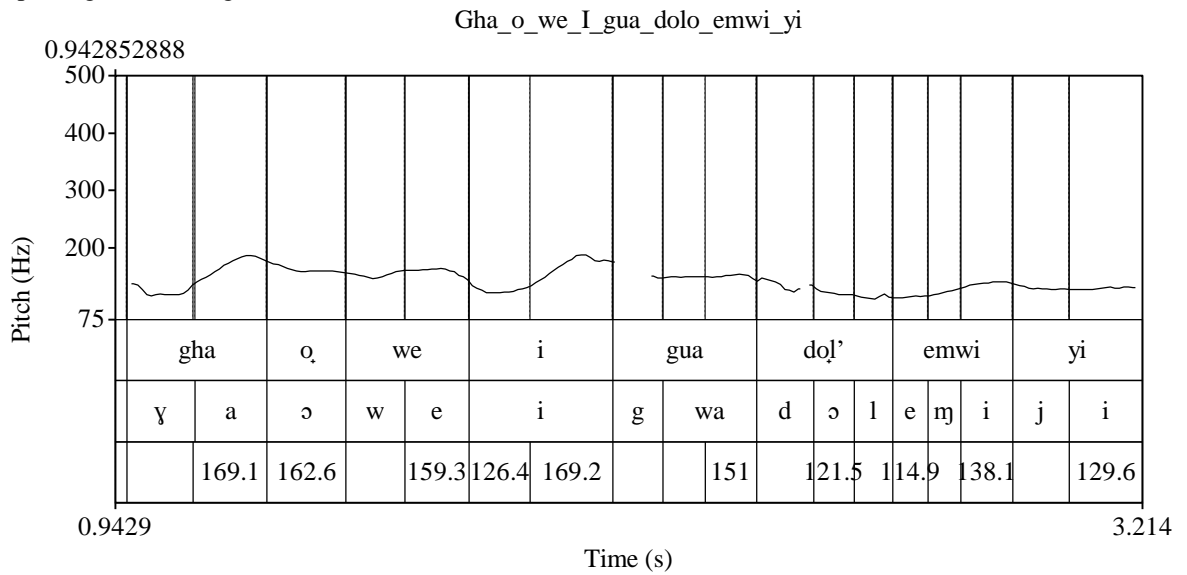
(b) Spectrogram showing the realization of 15a.



Example 15 shows that the pitch of the subject pronoun  $\dot{I}$  'I' becomes a rising one from about 134.1Hz to 184Hz, after the deletion of the negative morpheme  $\dot{i}$ . Like the example in 14, this shows a situation in which the effect of the tone on the deleted morpheme is regressively felt on the previous segment.

16(a) Ghá ọ wẹ Ì í guá dọ̀lọ̀ èmwí yí?      Ghá ọ wẹ Ì í guá dọ̀lọ̀ èmwí yí?  
 Q pron say I NOT know-how repair thing Q      Q pron say I-NOT know-how repair thing Q  
 ‘Who said that I cannot preserve/repair things?’      ‘Who said that I cannot preserve/repair things?’

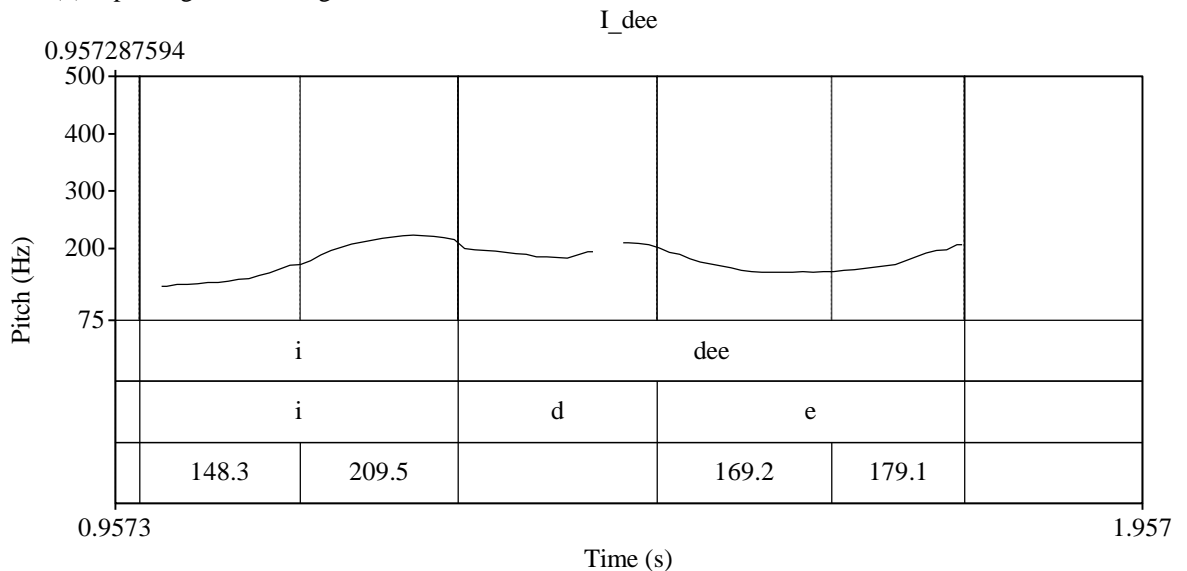
(b) Spectrogram showing the realization of 16a.



Observe, here, that the pronoun Ì ‘I’ is the subject of the complementizer clause, Ì guá dọ̀lọ̀ èmwí ‘that I cannot preserve/repair things’. In the final realization of the utterance in which the negative morpheme is deleted, the pitch of the pronoun rises from 126.4Hz to 169.2Hz irrespective of the position of the negative clause in the sentence.

17(a)      Ì i dèé      →      Ì dèé  
 I NOT come      I-NOT come  
 ‘I am not coming.’      ‘I am not coming.’

(b) Spectrogram showing the realization of 17a.



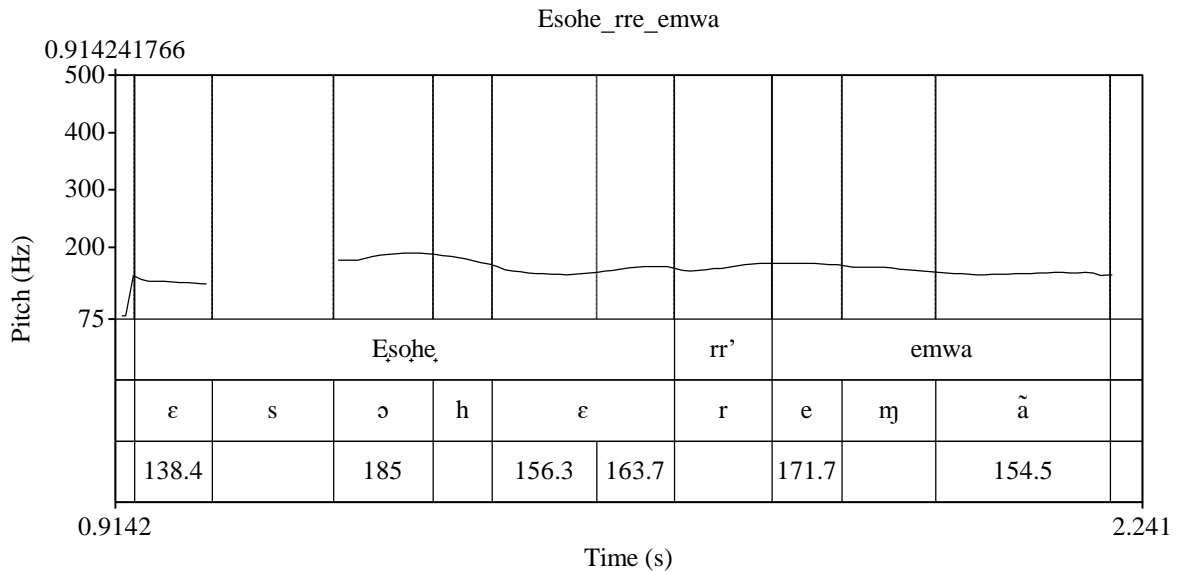




overall pitch contour of the utterance, as shown in the spectrograms below. Consider the following examples.

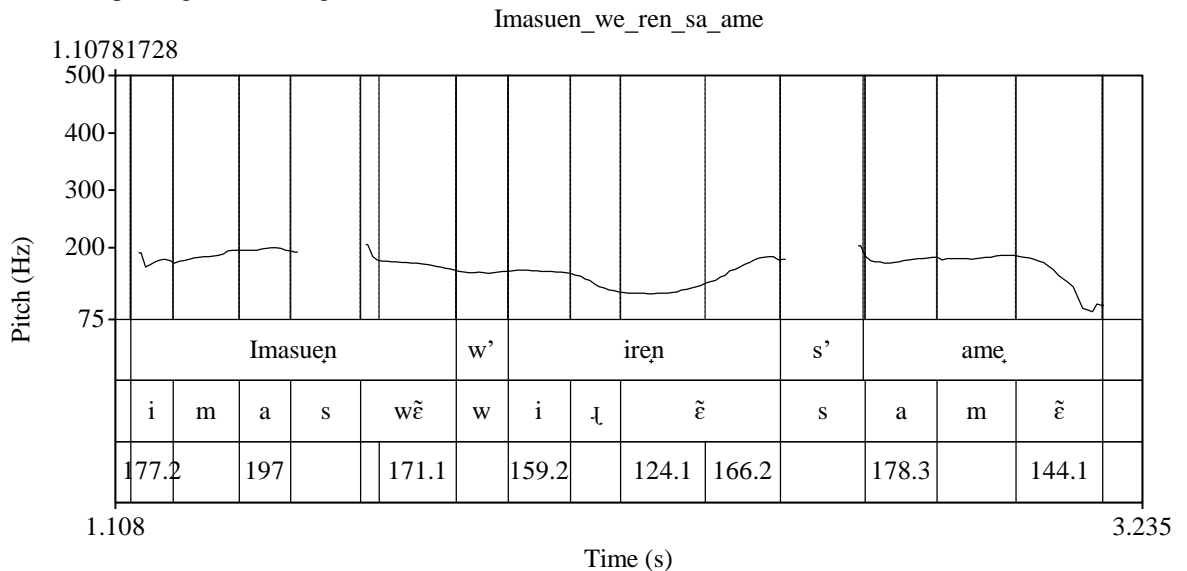
- 19(a) Èsòhḗ í rre èmwá → Èsòhḗ rre èmwá  
 Esohe NOT be here Esohe-NOT be here  
 ‘Esohe is not here.’ ‘Esohe is not here.’

(b) Spectrogram showing the realization of 19a.



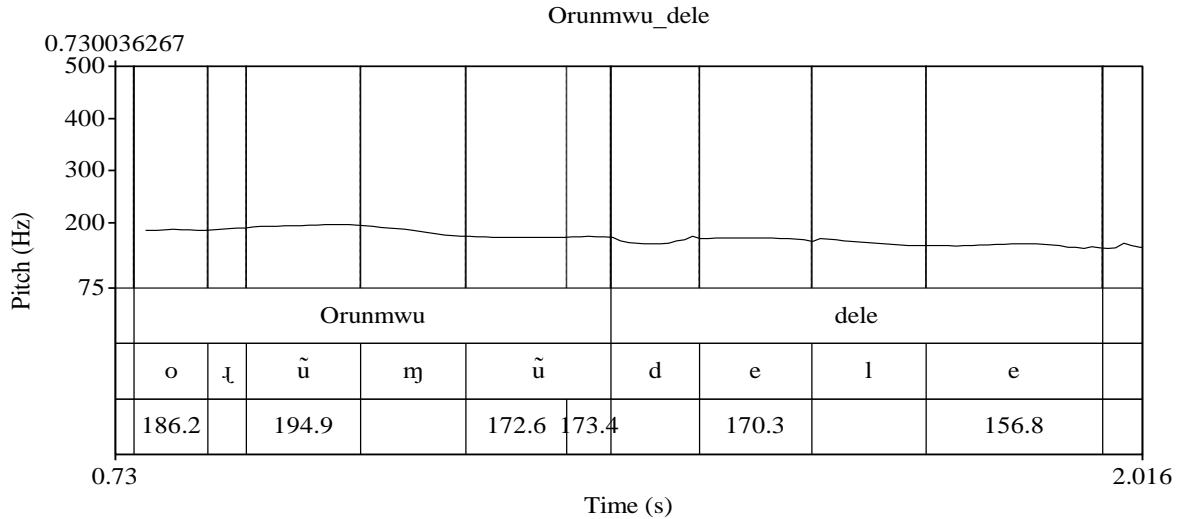
- 20(a) Ímásuḗn wḗ irèn í sà àmè → Ímásuḗn wḗ irèn sá àmè.  
 Imasuen say pron NOT fetch water Imasuen say pron-NOT fetch water  
 ‘Imasuen said that he is not fetching water.’ ‘Imasuen said that he is not fetching water.’

(b) Spectrogram showing the realization of 20a.



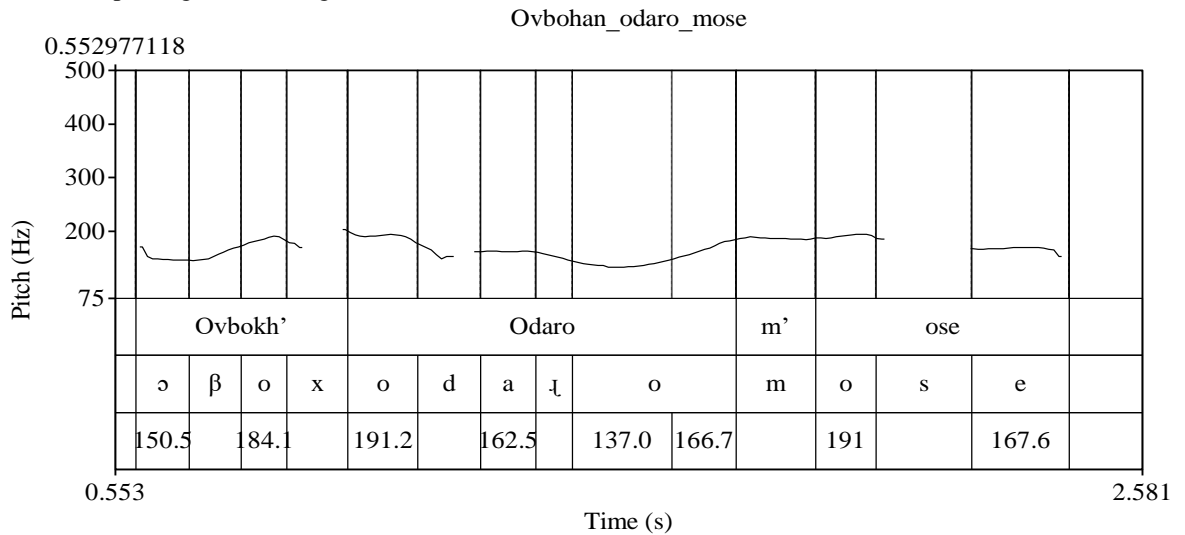
- 21(a) Órúnmwù í dèlé → Órúnmwù dé'lé  
 pear NOT fall-pl pear-NOT fall-pl  
 ‘Pears are not falling.’ ‘Pears are not falling.’

(b) Spectrogram showing the realization of 21a.



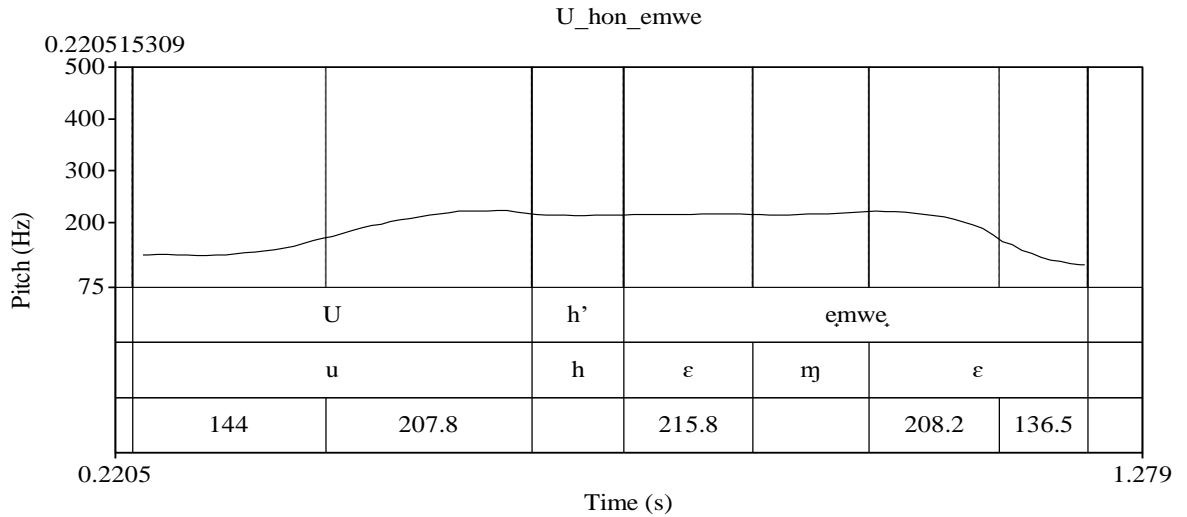
22(a) Òvbókhan Òdàrò í mòsé                      →                      Òvbókhan Òdàrò mó'sé  
 wife                      Odaro NOT fine                      wife                      Odaro-NOT fine  
 'Odaro's wife is not beautiful.'                      'Odaro's wife is not beautiful.'

(b) Spectrogram showing the realization of 22a.



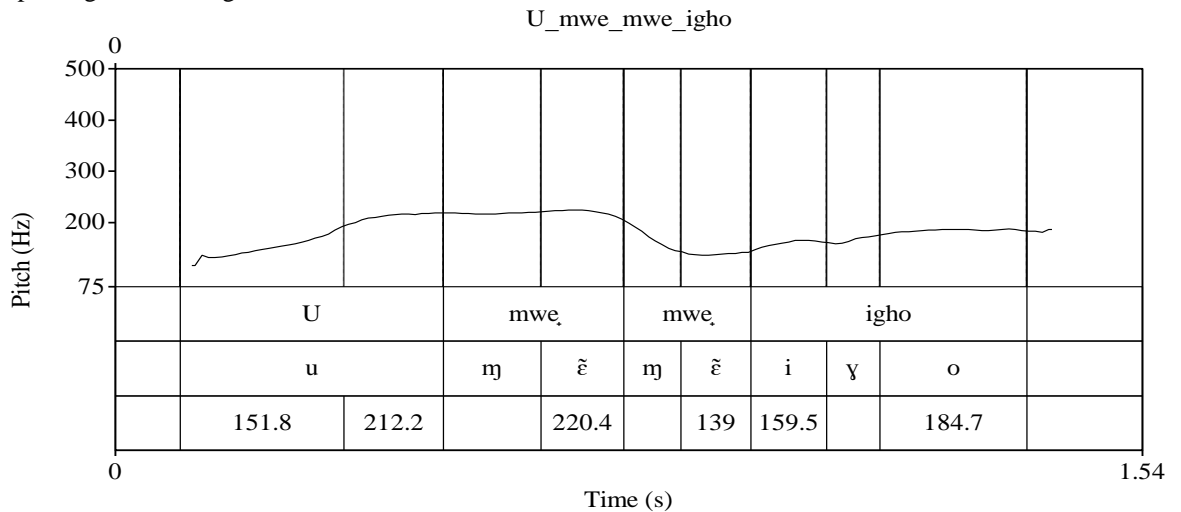
23(a) Û í họn émwẹ                      →                      Û họn émwẹ  
 you NOT hear word                      you-NOT hear word  
 'You take advise.'                      'You do not take advise.'

(b) Spectrogram showing the realization of 23a.



24(a)    Û í mwè mwè íghó                      Û    mwè mwè íghó  
 you NOT owe me money                      you-NOT owe me money  
 ‘You owe me money.’                            ‘You do not owe me money.’

(b)    Spectrogram showing the realization of 24a.



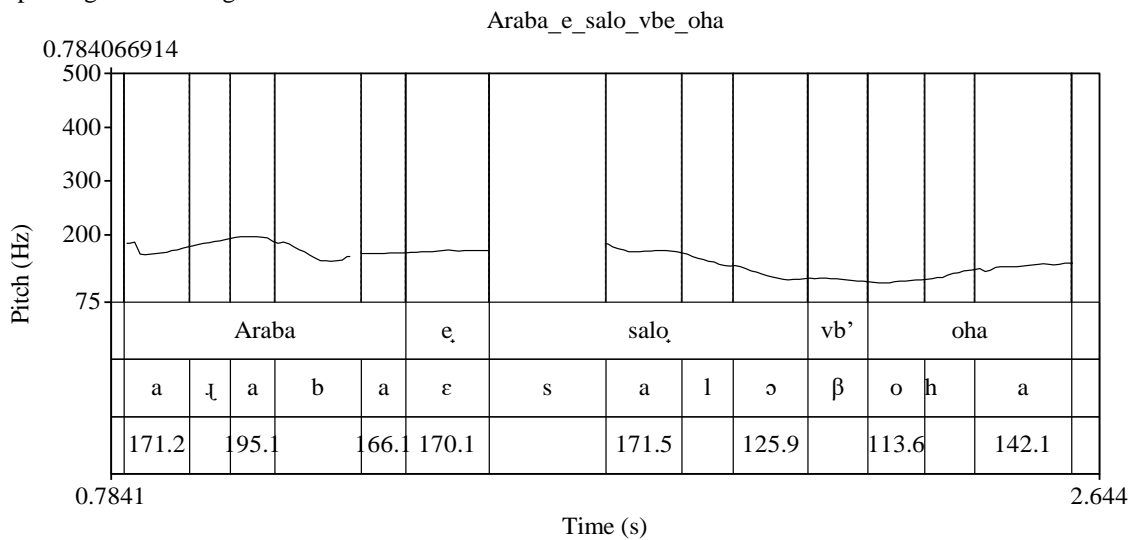
These examples in 19 – 24 demonstrate is that the negative morpheme deletion process is a morpho-phonemic one that affects a vowel. In spite of the differences in phonological environment, the *i*-negative marker is elided but the effect of its tone is visible on segments of linearly adjacent constituents. As already noted, above, although the high tone of the negative marker affects the final vowel of the preceding constituent and results in a rising pitch, the effects of this pitch is also observed on those of the next segment(s). The effects of the pitch of the negative morpheme, after its elision is therefore felt in both directions. The direction in which it floats before finding the next tone bearing unit is, largely, not predictable.

**Vowel height reduction**

It was argued earlier that the negative marker loses its form when it is preceded by a constituent that ends in a vowel. This *i*-negative marker loss is observed in the case of all other Edo vowel, except in the environment of the open front unrounded vowel /a/ and the half-open back rounded vowel /ɔ/. In the first instance, where the subject ends with /a/, the study finds morpho-phonological modification of the negative morpheme: the shape of the maker changes from /i/ to /é/ as shown in examples 25 - 29, below.

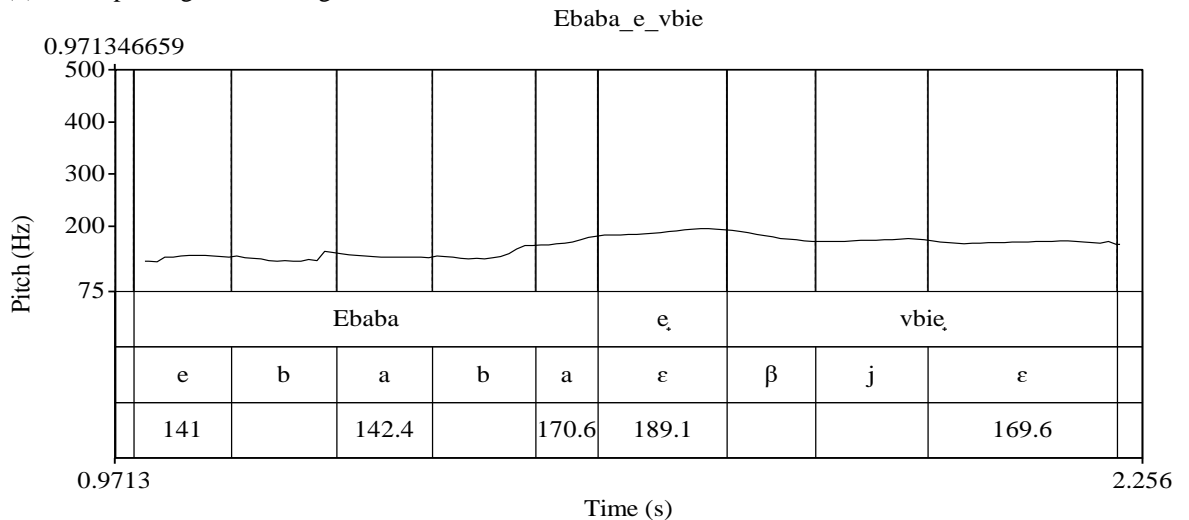
25(a) *Árábà í sàlò vbè òhá* → *Árábá é sàlò vbè òhá*  
 Rubber NOT bust in bush rubber NOT bust in bush  
 ‘Rubber seeds are not exploding in the farm’ ‘Rubber seeds are not exploding in the bush.’

(b) Spectrogram showing the realization of 25a.



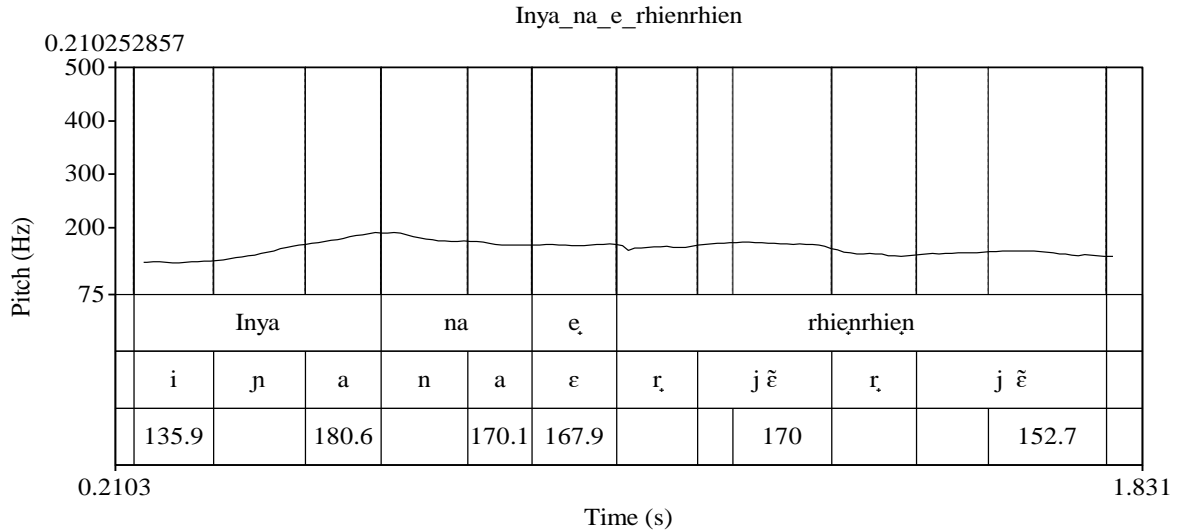
26(a) *Èbàbá í vbiè* → *Èbàbá é vbiè*  
 father NOT sleep father NOT sleep  
 ‘Father is not asleep.’ ‘Father is not asleep.’

(b) Spectrogram showing the realization of 26a.



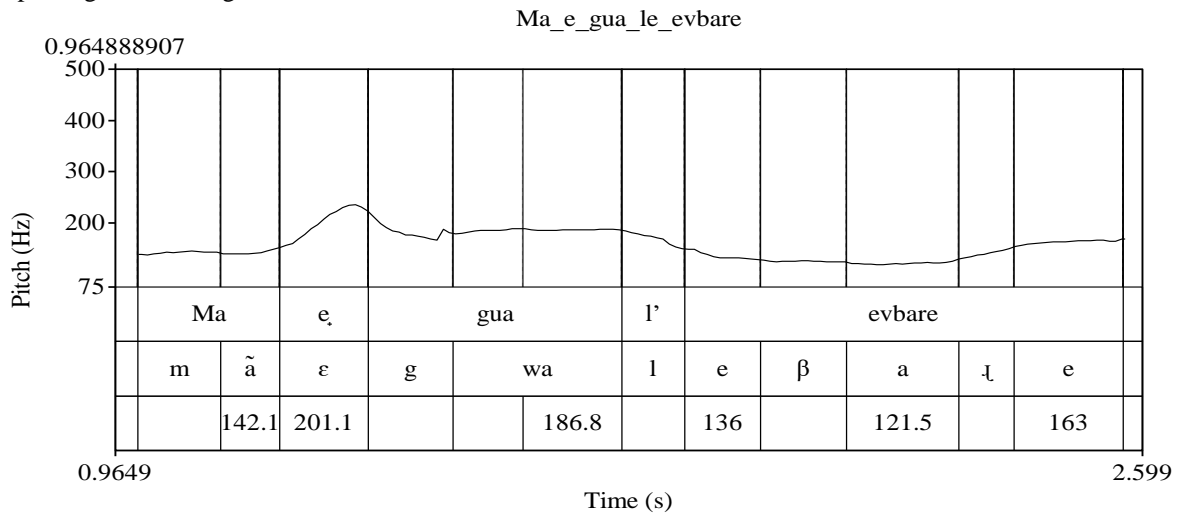
27(a) Ìnyá nâ í rriènrrièn → Ìnyá ná é rriènrrièn  
yam this NOT sweet yam this NOT sweet  
'This yam is not sweet.' 'This yam is not sweet.'

(b) Spectrogram showing the realization of 27a.



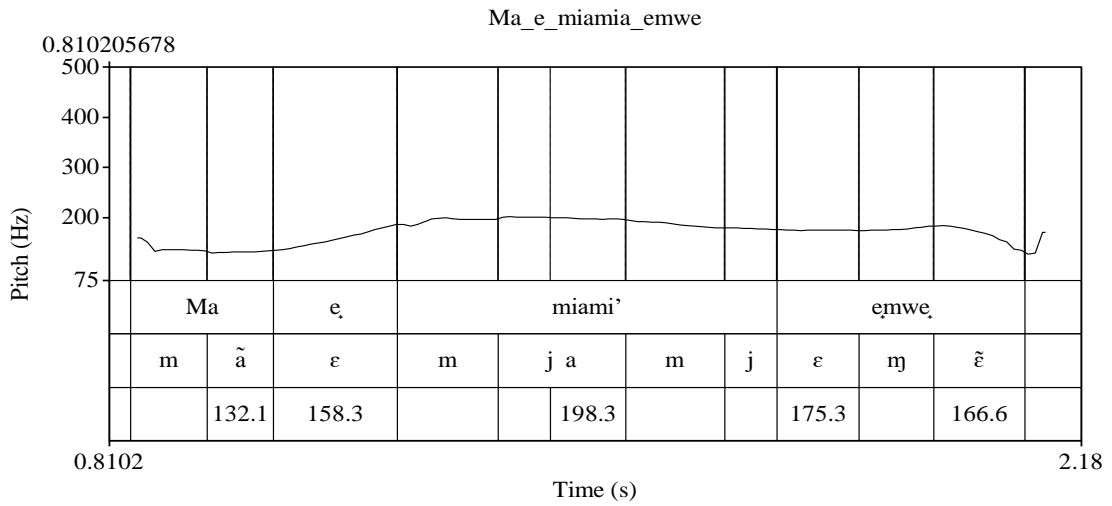
28(a) Mà í guá lè èvbàré → Mà é guá lè èvbàré  
we NOT know-how cook food we NOT know-how cook food  
'We cannot cook.' 'We cannot cook.'

(b) Spectrogram showing the realization of 28a.



29(a) Mà í miámíá émwè → Mà é miámíá émwè  
pron NOT forget word pron NOT forget word  
'We do not usually forget.' 'We do not usually forget.'

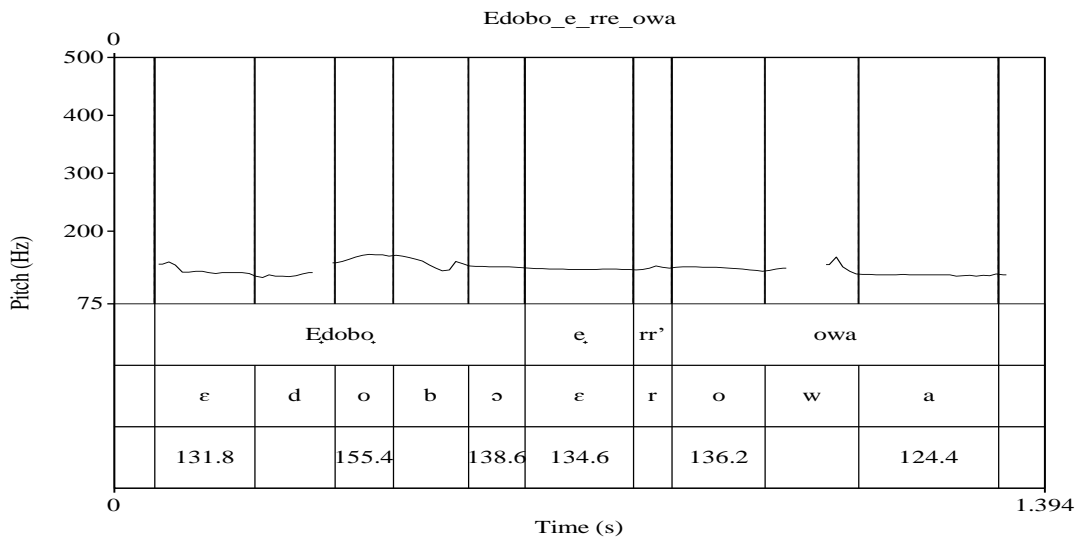
(b) Spectrogram showing the realization of 29a.



In the examples above, one observes that the negative morpheme *i* becomes *é*, thereby suspending the deletion of the *i*-negative morpheme. This way, there is vowel height reduction from /i/, resulting in the realization of the marker as a lax form /ε/. In addition to the reduction in tongue height, the analysis shows that the pitch of the realized negative morpheme is high: 170.1Hz in 25, 189.1Hz in 26, 167.9Hz in 27, 201.1Hz in 28 and 158.3Hz in 29. The second instance in which the deletion of the *i*-negative morpheme is suspended is when it is preceded by /ɔ/. Consider the following, for example.

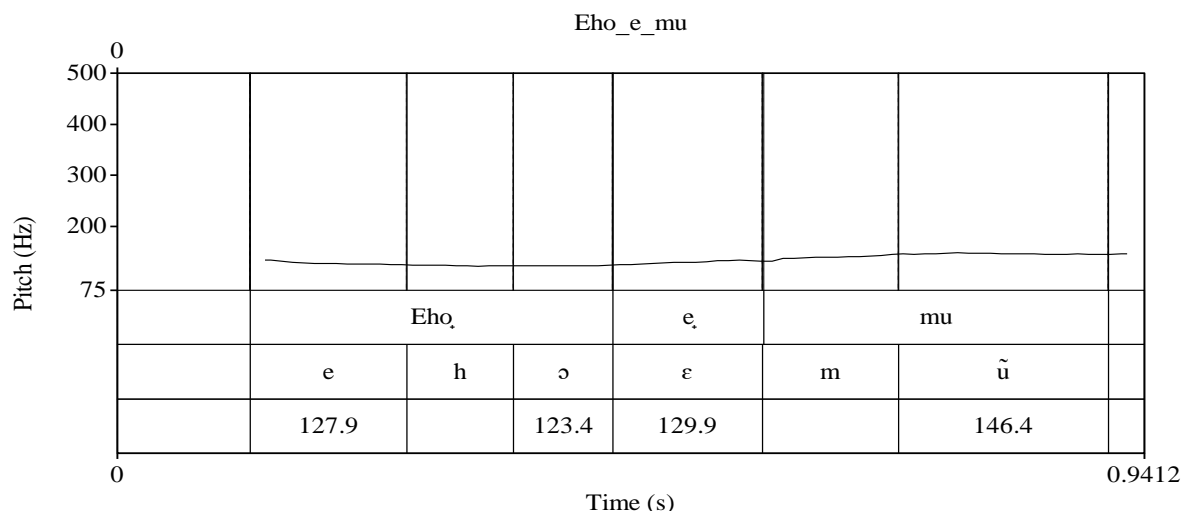
30(a) Èdóbò í rré òwá → Èdóbò é rré òwá  
 Edobo NOT be-in house Edobo NOT be-in house  
 'Edobo is not at home.' 'Edobo is not at home.'

(b) Spectrogram showing the realization of 30a.



31(a) Èhò í mú → Èhò é mú  
 knife NOT sharp knife NOT sharp  
 'The knife is not sharp' 'The knife is not sharp'

(b) Spectrogram showing the realization of 31a.



In examples 30 -31, as already observed in examples 25 - 29 above, there is a change in the vowel quality of the negative morpheme from *í* to *é*. In addition to the change in vowel quality, it is also observed in examples 30 and 31 that the on which modified negative marker *é* is produced is lower than those in 25 – 29, above: 134.6Hz and 129.9Hz, respectively. It is worthy of note that this modification is optional, given that the utterances, in this case, does not change in terms of its meaning and acceptability. The modification, again, suspends the deletion of the morpheme. The occurrence of *é* in these modified forms can be associated with the *ghé* negative marker that are typically found in negative imperatives such as *Ghé yo!* ‘Do not go!’ in Edo language.

### Summary and conclusion

This paper discussed negation in Edo using synchronic data. The foci of its investigation are the morpho-phonological interactions involved in derivation of negative sentences. The data analyses reveal that one of the three Edo negative markers can be deleted. In such utterances, the high tone hitherto associated with the marker remains as the sole indicator of negation. Besides, elision, the analyses show that vowel height reduction plays a role in the negation of certain utterances in this language. Based on its findings, this study concludes the high tone is a strategy for negation in the language, and should be given recognition in the general literature.

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