CONTOUR AS TOMORPH IN ÍSÓKÓ: AN AUTOSEGMENTAL APPROACH

Abidemi OJO
ojoabidemi9@gmail.com, +2347040039454
Department of Linguistics and Languages,
Adekunle Ajasin University, Akungba Akoko, Ondo State, Nigeria

ABSTRACT
This paper investigates the presence and grammatical significance of a rising tone morpheme—termed *tomorph*—in the Ísókó language, an Edoid language spoken in parts of Delta and Bayelsa States, Nigeria. Drawing from the theoretical framework of Autosegmental Phonology, the study argues that the rising tone, though segmentless at the underlying level, functions as a morpheme marking negation in sentence-final positions. Through detailed phonological analysis and empirical data, the research demonstrates that this floating tone associates with tone-bearing units (TBUs) via autosegmental principles such as mapping, dumping, delinking, and spreading. The study provides compelling evidence that suprasegmental features such as tone can carry morphosyntactic information, supporting the view that tone and segment reside on distinct autonomous tiers. This work contributes to the growing literature on tonal morphology in African languages and highlights the need to further explore the grammatical role of contour tones.
Keywords: Ísókó, tomorph, contour, Autosegmental Phonology, association convention.

1.0 INTRODUCTION

Ísókó is an Edoid language spoken in Ísókó South, North and part of Ndokwa East Local Government Areas of Delta State in Nigeria. It is also spoken in some parts of Bayelsa States. Elugbe (1989) classifies Ísókó to belong to the Proto South-Western Edoid (PSWE) sub-group of the Edoid language group. The speakers of the language are often referred to as the Ísókó people. Ísókó operates two registered tones, namely high and low, which are phonemic in the language, and two gliding pitch contour tones, namely rising and falling. Yul-Ifode (2022), using structural taxonomy, notes that a third level, mid exists phonetically in the language. However, my main focus in this study is that a tone, especially rising tone plays a morphological role in the grammar of the language. Therefore, the aims of this research are to:

(a) Propose rising tone as a tomorph in the language.
(b) Motivate the tomorph as a suprasegment that needs to be linked to a segment.
(c) Show how this suprasegment is linked to segments which are Tone-bearing Units (henceforth, TBUs) such as vowels at the phonetic level.
(d) Support that segments (such as vowels and consonants) and suprasegments (such as tones) are not contained in the same bundle, but rather placed on different autonomous tiers.

2.0 LITERATURE REVIEW

Numerous studies by linguists such as Williams (1971), Goldsmith (1976 and 1990), Durand (1990), Oyebade (2008) and Ibikunle and Adesope (2017) have demonstrated that segments and autosegments are not contained in the same bundle, i.e. they operate independently. However, none of the existing works by Ísókó linguists has paid attention to the existence of the floating tomorph marking sentence negation and how it could be realized at the phonetic level through association convention in the language.

Previous studies on Ísókó include Donwa (1983), who identified two level tones in the language, which are H and L. The study shows that the final L tone is raised in affirmative declaratives. Yul-Ifode (2022) that combines Structural Taxonomy, Generative and Autosegmetal Theories in the analysis of Ísókó tones notes that the language attests two contrastive level tones, which are high and low. The study shows that tonal interaction with segmental features could result in at least one or two of the following: tonal assimilation, tonal contraction/elision, tonal segmentalization, contour tone formation and or simplification.

Research on tomorph in Nigerian languages has revealed that level tones commonly function as morphemes. For instance, Ibikunle and Adesope (2017) identified a floating low tone morpheme as a question marker in Tiv, while Oladimeji (2022) discussed a high tomorph marking attribution in Ikhin, an Edoid language. However, this research seeks to investigate and establish that a contour tone, especially a rising tone can serve as a morpheme in language.

This study will adopt an autosegmental approach for data analysis. As contained in Durand (1990:249) cited in Oyebade (2008), the association convention that links different autonomous segmental and autosegmental tiers together to produce Well-Formedness condition is presented in the next section.

2.1 ASSOCIATION CONVENTION

(a) **MAPPING**: Associate vowels with tones in a one -to-one fashion from left to right until we run out of tones or vowels.
(b) **DUMPING**: If after applying (Mapping) some tones are still free (that is, unassociated), link them to the last vowel to the right.
(c) **SPREADING**: If after applying (Mapping) some vowels are still free, link them to the last tone on the right.
(d) Association lines are not allowed to cross.

3.0 METHODOLOGY

The empirical data used in this study were derived from native speakers' intuitions and structured elicitation, focusing on declarative and negative sentence constructions in Ísókó. Using carefully selected examples, the study isolates the presence of a floating rising tone at the end of negative constructions, which does not correspond to any overt segmental material. The analysis applies a series of autosegmental rules — **Mapping**, **Dumping**, **Delinking**, **Copying**, and **Spreading** — to demonstrate how the tomorph attaches to a TBU at the phonetic level. The study further employs the **Obligatory Contour Principle (OCP)** to account for restrictions on tonal sequence representation, particularly in cases of adjacent identical tones. The illustrative examples are represented both phonetically and in autosegmental format to trace the derivational process from underlying representation (UR) to phonetic realization (PR).
The analysis presented in this study is grounded in the theoretical framework of **Autosegmental Phonology**, which allows for the representation of phonological features on separate, autonomous tiers. The key principle underpinning this framework is the *Well-Formedness Condition* (Goldsmith 1976), which guides how tones (autosegments) associate with segmental material (tone-bearing units, TBUs) in a language.

4.0 SENTENCE-FINAL MID-TONE

Before analyzing how the negative tomorph operates in Ísókó, it is pertinent to discuss another observable tonal phenomenon that is peculiar to declarative sentences in the language. In Ísókó, if the tone on the last syllable of a declarative sentence in the input is a low tone, the underlying low tone is realized as a mid-tone at the phonetic level. This follows Donwa (1983) which claims that the final 'L' is raised in affirmative declarative. However, if a mid-tone occurs sentence-finally in a declarative sentence underlyingly, it remains unchanged at the surface level.

In contrast, if a sentence manifests a high tone on the last syllable underlyingly, the sentence-final high tone is impervious to tone lowering, having the same pitch level at both the input and output levels. The argument here is that there is a constraint Ísókó that forbids deletion of a sentence-final high tone in the language. This occurs in such a way that either in a declarative or negative construction in the language, an underlying sentence-final high tone is preserved at the phonetic level.

Examples of some declarative sentences in the language are presented in the data below:

1(a)	/mà ríɛ́ ùg^{w}è/ We eat salt	[mà ríúg^{w}e]	'We eat salt'
(a)	/údʒírò hɔ̀ òdʒì/ Ujiro BE thief	[údʒírò hodʒi]	'Ujiro is a thief'
(b)	/mà ríɛ́ èmù/ We eat food	[mà ríému]	'We eat food'
(c)	/mɛ̀ té jã/ I FUT. go	[mɛ̀ té jã]	'I will go'
(d)	/mɛ̀ ré da ùdí gága/ I can drink(V) drink(N) strong	[mɛ̀ ré dudi gága]	'I can drink alcohol'
(e)	/mɛ̀ tí sè owɛ/ I FUT. call you	[mɛ̀ tí sowɛ]	'I will call you'
(f)	/òvìè wo úzɔ́/ Ovie HAVE ear	[òvìè wózɔ́]	'Ovie has an ear'
(g)	/à nà úré/ They cut tree	[à nà úré]	'They cut tree'

(h)	/mà wo ègú/ We HAVE cassava	[mà wɛ́gú]	'We have cassava'
(i)	/mè wo àɣá/ I HAVE knife	[mè wô àɣá]	'I have a knife'

In 1(a, b, c) above, it can be observed that the last TBU bears a low tone underlyingly, and the low tone is raised to a mid-tone at the phonetic level. However in 1(d, e, f), the mid-tone on the last TBU of each of the declarative sentences is the same at both the underlying and phonetic levels. Meanwhile, in 1(g, h, i, j), the underlying sentence-final high tone remains unchanged at the phonetic level.

5.0 TOMORPH

Tomorph, according to Ibikunle and Adesope (2017) is a blend of tone and morpheme (tone + morpheme = tomorph). Elugbe (2012) in a lecture proposed two floating tones. The first one is a phonological floating tone which could be easily deleted, while the second one is tomorph, which he dubbed a grammatical floating tone not easily subject to deletion. A tomorph is a linguistic situation whereby a floating tone without TBU is morphologically significant in a language, i.e. having an independent meaning.

When a negative sentence is constructed in the syntax of Ísókó, a segmentless rising tone shows up sentence-finally, marking negation in the construction. This segmentless rising tone is a morphologically floating tone (tomorph), which carries a negative meaning, capable of changing a positive sentence to a negative one. In order to link to a TBU at the phonetic level, the floating tone could either substitute for the tone on the last syllable of a positive sentence, if the underlying sentence-final tone is a low or a mid-tone, or possibly copy the vowel of the last syllable of a positive sentence, if the underlying sentence-final tone is a high tone. Some examples from the language are given thus:

2(a)	/mà ríɛ́ ùg^{w}è (˅)/ We eat salt NEG	[mà ríúgwɛ̌]	'we do not eat salt'
(b)	/údʒírò hɔ̀ òdʒì (˅)/ Ujiro BE thief NEG	[údʒírò hòdʒǐ]	'Ujiro is not a thief'
(c)	/mà ríɛ́ èmù (˅)/ We eat food NEG	[mà ríémŭ]	'we did not eat food'
(d)	/mè té jã (˅)/ I FUT. go NEG	[mè té jǎ̃]	'I will not go'
(e)	/mè rɛ́ da ùdí gága (˅)/ I can drink(V) drink(N) strong NEG	[mè rɛ́ dùdí gágă]	'I cannot drink alcohol'
(f)	/mè tí sè owɛ (˅)/ I FUT. call you NEG	[mè tí sòwɛ̌]	'I will not call you'
(g)	/òvìè wo úzɔ́ (˅)/ Ovie HAVE ear NEG	[òvìè wózɔ́ ɔ̌]	'Ovie does not have an ear'
(h)	/à nà úré (˅)/ They cut tree NEG	[à nà úré ě]	'They do not cut tree'
(i)	/mà wo ègú (˅)/ We HAVE cassava NEG	[mà wɛ́gú ŭ]	'We do not have cassava'
(j)	/mɛ̀ wo àɣá (˅)/ I HAVE knife NEG	[mɛ̀ wô àɣá ă]	'I have a knife'

From the above data, it can be observed that at the phonetic level, the rising tomorph displaced the underlying sentence-final low tone in 2(a, b, c), likewise in 2(d, e, f), where the tomorph displaced the underlying mid-tone at the output level, associating with the last syllable. This displacement occurs because the floating tomorph is less prone to deletion compared to the underlying sentence-final tones. The presence of the tomorph at the phonetic level makes an underlyingly declarative sentence negative. However in 2(g, h, i, j), the sentence-final underlying high tone also manifests at the phonetic level. This is as a result of the constraint that forbids deleting a sentence-final high tone at the phonetic representations in the language because high tone is the strongest compared to other tones in terms of tonal strength. In order to link to a TBU, the floating tomorph then copies

the preceding vowel at the phonetic level, which makes both the underlying sentence-final high tone and the floating tomorph to occur at the phonetic representation.

5.1 AUTOSEGMENTAL ANALYSIS

Based on Autosegmental Phonology, sound segment features in an utterance are represented on separate, autonomous tiers. These autonomous tiers are associated together by a universal convention that Goldsmith (1976) referred to as Well-Formedness Condition (WFC). To analyze with sentences with underlying sentence-final low, mid, and high tones under autosegmental analysis, data in 2(b, d, and h) are selected:

	A	**B**	**C**
3.	[údʒírò hòdʒǐ]	[mɛ̀ té jã̌]	[à nà úré ě]

The underlying representation (UR) where tones and segments come together and line up for the operations of the association principle is given thus:

3(a) **UR:**	**A**	**B**	**C**
Tonal Tier:	H L L (LH)	L H M (LH)	L L H (LH)
Segmental Tier:	udʒiro hodʒi	mɛ te jã	a na ure

One would observe from the data in **B** that, apart from the floating tomorph in parentheses, the number of tones is equal to the number of TBUs. However in **A** and **C**, apart from the floating tomorph, the number of tones is not equal to the number of TBUs. It is the function of Obligatory Contour Principle (henceforth, OCP) which states that, "adjacent identical autosegments are banned from the lexical representation of a morpheme". As evident in **A**, the sequence of two high tones in [údʒírò] is represented with one 'H' on the tonal tier, and likewise, the sequence of low tones in [òdʒì] is represented with one 'L'. In **C,** the sequence of two high tones in [úré] is represented with one 'H' on the suprasegmental tier.

The association principle yields the following derivational steps for the data in (3a).

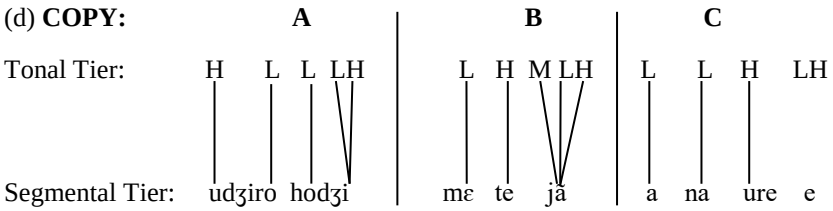
(b) **MAPPING:**	**A**	**B**	**C**
Tonal Tier:	H L L (LH)	L H M (LH)	L L H (LH)
Segmental Tier:	udʒiro hodʒi	mɛ te jã	a na ure

It can be observed that segments and tones have been linked one-to-one from left to right, leaving some tones and vowels unassociated as we either run out of tone or vowel. Dumping can now be applied as shown in 3(c) below.

(c) **DUMPING**:	**A**	**B**	**C**
Tonal Tier:	H L L LH	L H M LH	L L H LH
Segmental Tier:	udʒiro hodʒi	mɛ te jã	a na ure

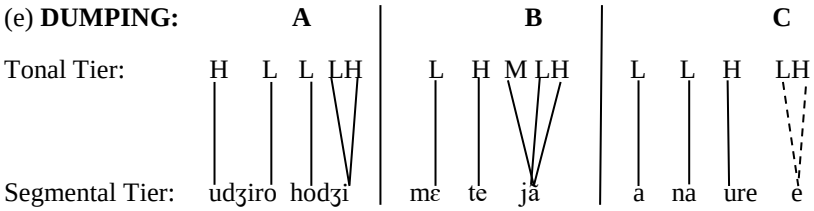
One could observe that the floating tomorph has now been linked to the last TBUs in sentences **A** and **B.** But, in **C,** the floating tomorph cannot be associated with the last TBU because the preceding high tone must be preserved at the phonetic level as argued earlier. As such, the floating tomorph in **C** needs to copy the preceding vowel to associate with as demonstrated in 3(d).

(d) **COPY:**



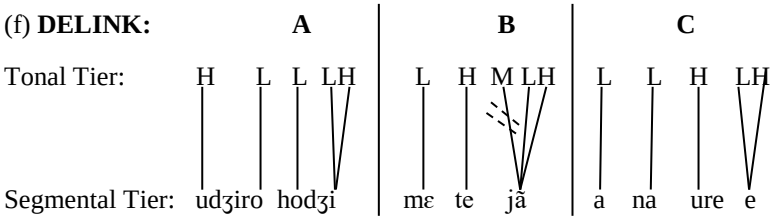
It can be observed that the floating tomorph in **C** has copied the preceding vowel [e] to associate with. Dumping can now be applied in **C**.

(e) **DUMPING:**



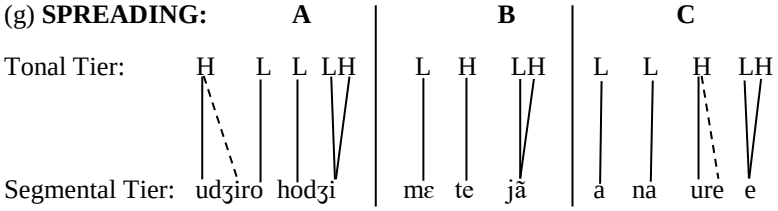
Through the operation of dumping, the floating tomorph in **C** is linked to a TBU, i.e., the preceding vowel earlier copied. However, the operation of the initial dumping has created a forbidding combination by associating a level tone (M) and a contour tone (LH) on the last TBU in **B**. Since the floating tomorph is stronger than the mid-tone and must occur at the phonetic level, the mid-tone has to delink from the TBU in order to produce an acceptable structure. Delink applies thus:

(f) **DELINK:**



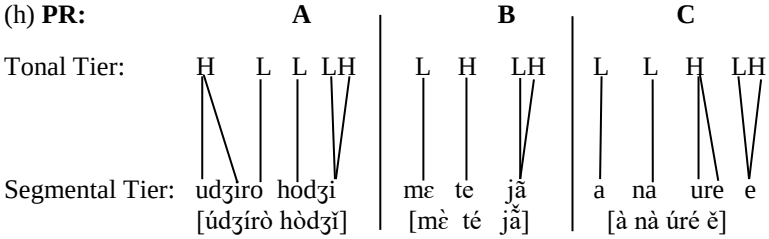
In 3(f) above, the mid-tone in **B** is delinked from the last TBU, leaving the floating tomorph behind. But, it can be observed that the initial vowel [i] in **A** and the initial vowel [e] in **C** are unassociated to tones as a result of the earlier application of OCP. In order to link to tones, spreading can now apply.

(g) **SPREADING:**



Through the application of spreading in 3(g), the unassociated vowels, [i] and [e] in **A** and **C** are linked to their respective high tones. Since all tones and vowels have been associated, using the association convention, the phonetic representation is presented thus:

(h) **PR:**



Using association convention, the floating morpheme (an autosegment) linked to a TBU (segment) either by delinking the preceding mid-tone or by copying the vowel of the preceding high tone at the phonetic level.

6. CONCLUSION

This study has demonstrated that Ísókó employs a floating rising tone morpheme (*tomorph*) that encodes negation in sentence-final positions, offering novel insights into tonal morphology in African languages. The semantic relevance of the rising floating contour makes it impervious to deletion even when it enters into conflict with high tone that is strong in terms of tonal strength. By adopting the Autosegmental Phonology framework, the research has supported existing knowledge that tones can function independently of segmental content and still carry morphosyntactic meaning. The findings underscore the need to re-evaluate the grammatical potential of contour tones, which have been underexplored in the literature compared to level tones. More broadly, this research supports that suprasegmental elements like tone deserve equal attention as segmental features in morphological and syntactic analysis. The study lays the groundwork for further cross-linguistic investigations into the typology of floating tonal morphemes, including contours, in Niger-Congo and other tonal language families.

REFERENCES

Donwa, S. O. 1983. *The Sound System of Isoko*: PhD Thesis, University of Ibadan.

Durand, J. 1990. *Generative and Non-Linear Phonology*. New York: Longman.

Elugbe, B. O. 1989. Comparative Edoid: Phonology and Lexicon. *(Delta Series, 6.) Port Harcourt: University of Port Harcourt Press.*

Goldsmith, J. 1976. *Autosegmental Phonology.* Indiana University Linguistic Club.

Goldsmith, J. 1990. *Autosegmental and Metrical Phonology.* Oxford: Blackwell Publishers.

Ibikunle, A. S. and Adesope, D. A. 2017. Tomorph and Nasal Morpheme in Tiv: An A Autosegmental Approach: *Akungba Journal of Linguistics and Literature, 8.*

Oladimeji, O. A. 2022. Grammatical- H Tomorph, a Marker of Attribution in Ikhin, an Edoid Language: *European Journal of Applied Linguistics Studies, Vol. 5 (1).*

Oyebade, F. 2008. *A Course in Phonology.*Ijebuode: Shebiotimo publications.

Williams, E. S. 1971. Underlying Tone in Margi and Igbo: *Linguistic Inquiry 1976. 7:463-484.*

Yul-Ifode, S.O. 2022. Structgenautic Study of Isoko Tones. *In: Ekpenyong, M.E., Udoh, I.I. (eds) Current Issues in Descriptive Linguistics and Digital Humanities. Springer, Singapore.*