

TONAL OPACITY, ALLOMORPHIC CONSTRAINTS, AND THE DISTRIBUTION OF POLAR
QUESTION MARKERS IN ARÁRÒMÍ-UGBÉȘI YORÙBÁ

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Abstract

This study investigates the interaction between tone, negation, and polar question formation in Aráròmí-Ugbéși Yorùbá, a Central Yorùbá dialect spoken in southwestern Nigeria. The paper focuses on the clause-internal polar question marker [rà], which exhibits a striking restriction against co-occurring with the negative marker [é], despite the grammaticality of negative polar questions formed with the clause-initial marker [jàki]. Drawing on original dialect data, the study demonstrates that the restriction is fundamentally phonological rather than purely syntactic or semantic. The analysis shows that [rà] cannot be immediately followed by an unrepaired high-tone syllable. While high-toned verbs and preverbal tense-aspect markers satisfy this requirement through tonal modification or allomorphic alternation, the negative marker [é] remains tonally opaque and lacks a low-tone allomorphic variant. As a result, the tonal conflict created by the sequence [rà + é] cannot be repaired, leading to ungrammaticality. An Optimality-Theoretic account is proposed in which the interaction of markedness, faithfulness, and allomorph-selection constraints derives the observed pattern. The study contributes to ongoing discussions of tonal opacity, allomorphy, and the phonology–morphology interface, providing new evidence that phonological constraints can shape the distribution of grammatical morphemes in Yorùbá.

Keywords: Aráròmí-Ugbéși Yorùbá; tonal opacity; allomorphy; polar question markers, negation; Optimality Theory.

1. Introduction

Tone plays a central role in the grammar of Yorùbá and its dialects, functioning not only as a lexical contrastive feature but also as an important marker of grammatical distinctions. The interaction between tonal processes and morphosyntactic structure has therefore occupied a prominent position in Yorùbá linguistics for several decades (Bamgboșe, 1966, 1990; Awobuluyi, 1978; Pulleyblank, 1986, 1988; Akinlabi, 1985, 1996). Numerous studies have shown that tonal patterns in Yorùbá are sensitive to syntactic configuration, morphological structure, and the presence of functional elements such as tense, aspect, focus, negation, and interrogative markers. Consequently, the language provides a fertile testing ground for theories of tone–morphology interaction and the interface between phonology and morphosyntax.

Within the Yorùbá linguistic system, interrogative constructions constitute an important domain for investigating the relationship between grammatical structure and tonal realization. Previous research has documented a variety of strategies employed across Yorùbá dialects for forming polar questions, including clause-initial particles, clause-final particles, clause-internal particles, and intonational marking (Bamgboșe, 1990; Ajíbóyè, 2005, 2013; Akíntóyè & Adéoyè, 2014; Ìlòrí, 2017). These interrogative markers differ not only in their syntactic distribution but also in their semantic and pragmatic functions. Recent work on Aráròmí-Ugbéși Yorùbá demonstrates that the dialect employs two genuine polar question markers—clause-initial [jàki] and clause-internal [rà]—while the clause-final particle [à] functions primarily as a verum marker rather than a polar question particle (Ibikunle, 2026). This system offers a unique opportunity to investigate how interrogative morphology interacts with phonological constraints in a tonal language.

Negation represents another grammatical domain in which tone and morphosyntax interact in significant ways. Across Yorùbá varieties, negative constructions frequently involve tonal alternations and interactions between tonal morphology and clause structure (Awobuluyi, 1978; Bamgboșe, 1990; Pulleyblank, 1986). The negative marker often occupies a preverbal position and participates in tonal processes that distinguish negative from affirmative clauses. Such interactions have attracted considerable attention in theoretical phonology because they

provide evidence for the role of tonal specifications in shaping morphosyntactic distributions. In particular, studies of Yorùbá tone have shown that certain morphemes exhibit tonal opacity, resisting otherwise productive phonological processes such as tone spreading and tonal assimilation (Pulleyblank, 1986). These observations raise important questions concerning the extent to which tonal properties can determine the grammatical compatibility of morphemes within a clause.

The interaction between interrogative particles and negation has received relatively little attention in Yorùbá linguistics despite its potential theoretical significance. Existing analyses of Aràròmí-Ugbéṣì suggest that the clause-internal polar question marker [rà] cannot co-occur with the negative marker [é], whereas the clause-initial marker [jàki] freely combines with negation (Ibikunle, 2026). Two explanations have been proposed for this restriction. Ibikunle (2026) proposes that the restriction is related to the semantic and pragmatic properties of the clause-internal polar marker. While this account provides important insights into the phenomenon, it leaves open the possibility that the incompatibility may also be grounded in phonological and morphological constraints.

Evidence from the tonal behaviour of [rà] suggests that phonology plays a crucial role in determining its distribution. The particle systematically interacts with following morphemes in ways that prevent direct adjacency between [rà] and a following high-tone syllable. High-tone verbs and preverbal markers undergo tonal modification when they follow [rà], often surfacing with lowered or contour tones. However, unlike future, continuous, and perfective markers, the negative marker [é] fails to exhibit the tonal alternations necessary to satisfy these phonological requirements. This asymmetry suggests that the incompatibility between the polar question marker (henceforth PQM) [rà] and negation may stem from the inability of the negative marker to participate in the tonal accommodation processes that characterize other preverbal elements.

As shown in example (1) below, the Aràròmí-Ugbéṣì dialect provides particularly valuable data for addressing these questions because it exhibits a rich interaction among tone, allomorphy, negation, and interrogative morphology. The dialect belongs to the Central Yorùbá group spoken in Ekiti State, Nigeria (Oyelaran, 1976; Adetugbo, 1982), and displays a polar question system that differs in important respects from Standard Yorùbá and other Central Yorùbá varieties. Most notably, the clause-internal marker [rà] appears to be governed by a categorical tonal restriction prohibiting a following high-tone syllable. At the same time, several preverbal morphemes display high-tone and low-tone allomorphic alternations, whereas the negative marker lacks a corresponding low-tone allomorph. This combination of properties makes the dialect an ideal testing ground for examining how tonal opacity and allomorphic constraints interact to shape grammatical distributions.

1. [olú rà sù]?
Olu PQM sleep
'Did Olu sleep?'
- a. *[olú rà é sù]?
Olu PQM Neg. sleep
'Didn't Olu sleep?'
- b. [jàkOlú é sù]?
PQM-Olu Neg. sleep
'Didn't Olu sleep?'

Example (1a) is ungrammatical using the clause-internal PQM [rà] along with negation marker [é] within a clause while (1b) is grammatical using the same negation marker with the clause-initial PQM [jàki]. Against this background, the present study investigates the exclusion of the clause-internal PQM [rà] from negative polar interrogatives in Aràròmí-Ugbéṣì Yorùbá. We argue that the restriction is not solely syntactic or semantic in nature but is fundamentally rooted in the interaction between tonal opacity and morphological allomorphy. Specifically, we propose that the high-tone negative marker [é] constitutes an opaque morpheme that resists the tonal accommodation processes required by [rà], while the absence of a low-tone allomorphic variant prevents the grammar from repairing the resulting tonal conflict. By examining the phonological, morphological, and distributional evidence, this study contributes to broader discussions of tone–morphology interactions, opacity, and the role of phonological constraints in shaping morphosyntactic distributions.

2. The Tonal System of Aràròmí-Ugbéṣì

Tone is one of the most important phonological features of Yorùbá and its dialects. Like Standard Yorùbá,

Aráròmí-Ugbéṣì Yorùbá operates a three-way contrastive level-tone system consisting of High (H), Mid (M), and Low (L) tones. These tones are lexically distinctive and contribute directly to differences in meaning. The tonal system therefore serves both lexical and grammatical functions, making tone a central component of the phonology and morphosyntax of the dialect.

2.1 Level Tones

Aráròmí-Ugbéṣì distinguishes three phonemic level tones: High (H), Mid (M), and Low (L). These tones occur independently and contrast meaningfully on lexical items. Examples are provided in (2).

(2) Level tone contrasts

High (H) [kú]	‘die’
Mid (M) [ku]	‘butcher (of animal)’
Low (L) [kù]	‘remain’

The contrastive function of tone is further illustrated in disyllabic words. For example, the Mid-High sequence in [uǰě] ‘work’ contrasts with the Low-High sequence in [ùǰě] ‘poverty’. Although the segmental structure of the two words is identical, the tonal differences alone distinguish their meanings. Such examples demonstrate that tone in Aráròmí-Ugbéṣì is phonemic and must be represented independently in the grammar.

The three-level tonal inventory aligns the dialect with the general tonal pattern observed throughout Yorùbá (Bamgboṣe, 1966, 1990; Pulleyblank, 1986). However, as will be shown later in this study, the interaction of these tones with grammatical morphemes produces a number of morphophonological effects that are crucial for understanding the distribution of polar question markers and negation.

2.2 Contour Tones

In addition to the three level tones, Aráròmí-Ugbéṣì exhibits two contour tones: a rising tone [ˀ] and a falling tone [ˁ]. Unlike the level tones, these contours are not phonemic but are derived through tonal interactions. Consequently, they are analysed as allotonic realizations of underlying level tones.

The rising contour is considerably more common than the falling contour. It emerges when a low tone precedes a high tone within a word. In this environment, the low tone spreads onto the following high-toned syllable, producing a rising contour on the final syllable. This process may be represented schematically as /L H/ → [L LH]. Examples are provided in (3).

(3) Rising contour formation

- a. /ùgbá/ → [ùgbǎ] ‘garden egg’
- b. /òré/ → [òrě] ‘friend’

In both examples, the low tone associated with the initial syllable extends onto the final high-toned syllable, creating a rising pitch movement. The contour therefore reflects the simultaneous presence of both low and high tonal specifications on the final syllable.

The falling contour, by contrast, is relatively rare. It occurs when a high tone is followed by a low tone, producing a falling pitch movement on the final syllable. This process may be represented as /H L/ → [H HL]. An example is shown in (4).

(4) Falling contour formation

- a. /nójà/ → [nójǎ] ‘have a wife’
- b. /tífǎ/ → [tífǎ] ‘teacher’

Here, the high tone of the first syllable spreads onto the following low-toned syllable, resulting in a falling contour.

An important characteristic of contour tones in Aráròmí-Ugbéṣì is their positional restriction. Both rising and falling contours are realized exclusively in word-final position. This restriction suggests that contour formation is not an arbitrary phonetic phenomenon but rather a consequence of language-specific tonal well-formedness conditions governing the realization of tonal sequences at prosodic boundaries.

2.3 Tonal Processes

The occurrence of contour tones in Aráròmí-Ugbéṣì reflects the operation of broader tonal processes that

characterize the phonology of the dialect. Two of the most important processes are tone spreading and tone assimilation.

2.3.1 Tone Spreading

Tone spreading refers to a process whereby the tonal specification of one syllable extends onto an adjacent syllable. In Aráròmí-Ugbéṣì, spreading is responsible for the formation of contour tones. When a low tone precedes a high tone, the low tone spreads rightward onto the high-toned syllable, yielding a rising contour. Conversely, when a high tone precedes a low tone, the high tone may spread onto the following syllable, producing a falling contour.

The examples in (3) and (4) above, repeated as (5) below illustrate these processes. In each case, the tonal feature of one syllable extends beyond its original domain and affects the realization of a neighbouring tone. The result is a contour tone that preserves information from both tonal targets.

(5) Tone spreading formation

- a. /ùgbá/ → [ùgbǎ] ‘garden egg’
- b. /òrě/ → [òrě̃] ‘friend’
- c. /nójà/ → [nójâ] ‘have a wife’
- d. /tífǎ/ → [tífǎ̃] ‘teacher’

2.3.2 Tone Assimilation

Closely related to tone spreading is tone assimilation, a process whereby a tone becomes more similar to an adjacent tone. Rather than being realized as abrupt changes in pitch, adjacent tones interact with one another, producing intermediate phonetic forms. As illustrated in (6) below, the PQM [rà] has an underlying low tone while the following preverbal elements are underlyingly high. At the output level, the high tone on the preverbal elements changes to low by assimilating the preceding low tone on the PQM [rà].

(6) Tone assimilation

- a. /olú rà á ńǔ/? → [olú rà à ńǔ]?
Olu PQM fut. go Olu PQM fut. go
‘Will Olu go?’ ‘Will Olu go?’
- b. /olú rà í ńǔ/? → [olú rà ì ńǔ]?
Olu PQM cont. go Olu PQM cont. go
‘Is Olu going?’ ‘Is Olu going?’
- c. /olú rà ká ńǔ/? → [olú rà kà ńǔ]?
Olu PQM perf. go Olu PQM perf. go
‘Has Olu gone?’ ‘Has Olu gone?’

The interaction between spreading and assimilation is particularly important for understanding morphophonological alternations in the dialect. As later sections of this article demonstrate, grammatical morphemes may undergo tonal modification when they occur next to specific tonal environments. In particular, the clause-internal [rà] imposes restrictions on the tonal properties of following elements, triggering tonal alternations in several preverbal morphemes.

Taken together, the tonal inventory and tonal processes of Aráròmí-Ugbéṣì reveal a highly dynamic tonal system in which lexical tones interact with phonological and grammatical structures. Understanding these tonal mechanisms is essential for explaining the distributional asymmetries observed among polar question markers and for accounting for the interaction between tone, allomorphy, and negation examined in subsequent sections. Having presented the background for tone in the dialect, we now turn to an overview of its polar question formation.

3. Overview of Polar Question Formation in Aráròmí-Ugbéṣì

Polar questions are interrogative constructions that seek confirmation or denial of a proposition and typically require a yes/no response. Cross-linguistically, languages employ a variety of strategies to form polar questions, including changes in word order, interrogative particles, verbal morphology, and intonation (Krifka, 2015). Aráròmí-Ugbéṣì Yorùbá exhibits a particularly rich system of polar question formation, utilizing both

morphosyntactic and prosodic means to encode interrogative force and speaker stance.

Recent work by Ibikunle (2026) identifies three particles associated with polar interrogatives in the dialect: the clause-internal particle [rà], the clause-initial particle [jàki], and the clause-final particle [à]. However, detailed syntactic and pragmatic evidence demonstrates that only [rà] and [jàki] function as genuine polar question markers. The clause-final particle [à] is better analysed as a verum marker that contributes emphasis and speaker commitment rather than interrogative force (Ibikunle, 2026). Consequently, the present study focuses on the two true polar question markers, [rà] and [jàki], whose distinct distributions and grammatical behaviours are directly relevant to the tonal and morphosyntactic issues investigated here.

As shown in the examples below, the two particles differ considerably in their structural positions and discourse functions. The particle [jàki] occurs at the left edge of the clause and is associated with biased polar questions, while [rà] appears within the clause, immediately following the subject, and is used in neutral information-seeking questions (Ibikunle, 2026). This positional asymmetry provides important evidence for understanding the syntax of interrogative constructions in the dialect and serves as the basis for the tonal restrictions discussed later in this article. Examples in (7) (from Ibikunle 2026) illustrate the distribution of the PQMs.

- (7) a. [olú rà dʒɛ ɯfɯ]?
Olu PQM eat yam
‘Did Olu eat yam?’
b. [jàkolú dʒɛ ɯfɯ]?
PQM-Olu eat yam
‘Did Olu eat yam?’

Although both [rà] and [jàki] function as polar question markers, they differ substantially in their syntactic position, semantic scope, and interaction with other grammatical elements. The most important distinction that concerns this paper involves their interaction with tense, aspect, and negation. Ibikunle (2026) demonstrates that [rà] precedes the verbal element and therefore occurs adjacent to preverbal tense and aspect markers. This structural relationship is crucial because the particle participates in tonal interactions with following grammatical morphemes. The present study argues that these tonal interactions are responsible for the distributional restrictions observed in negative polar interrogatives. In contrast, [jàki], which occupies a much higher position in the clause, remains structurally separated from preverbal tense and aspect morphology and does not exhibit comparable restrictions.

Most significantly, [jàki] freely combines with the negative marker [é], whereas [rà] does not. Previous analyses have attributed this asymmetry to syntactic or semantic factors (Ibikunle, 2026). The argument developed in this article extends these observations by proposing a morphophonological analysis of the restriction. The distributional contrast between [rà] and [jàki] therefore provides an important window into the interaction between tone, allomorphy, and morphosyntactic structure in Aráròmí-Ugbéṣi Yorùbá.

4. Negation in Aráròmí-Ugbéṣi

Negation in Aráròmí-Ugbéṣi Yorùbá is primarily expressed through the preverbal negative marker [é]. Like other Yorùbá dialects, the dialect employs a dedicated negative morpheme that precedes the verbal complex and reverses the truth value of the proposition. However, unlike several other preverbal elements in the language, the negative marker exhibits a remarkably stable tonal form. Examples from the dialect illustrate the use of the negative marker in declarative clauses.

- (8) a. [olú é mà].
Olu NEG know
‘Olu did not know.’
b. [àgbà é dẽ].
elder NEG arrive
‘An elder did not arrive.’
c. [olú é dʒɛũ núnúulé].
Olu NEG eat-something at-room
‘Olu did not eat in the room.’

As these examples show, [é] consistently occurs before the verbal domain and contributes sentential negation. Importantly, the morpheme retains its high-tone specification regardless of the phonological environment in which it occurs. This behaviour distinguishes it from several tense and aspect markers in the dialect that alternate between High- and Low-toned variants depending on the grammatical context.

Whereas neighbouring morphemes may undergo tonal accommodation processes, [é] does not. Even at the compulsory elision of the negative marker's vowel when it is used with a subject pronoun in the dialect, its high tone is impervious to deletion. In this case, the tone bearing unit of the negation marker deletes while its high tone survives and kicks off the low tone on the preceding subject pronoun. This claim is shown in (9) below.

(9)	Positive declarative	Negative declarative
a.	[mò sù] I sleep 'I slept'	[mí sù] I-Neg. sleep 'I did not sleep'
b.	[ò sù] You (sy) sleep 'You slept'	[ó sù] you(sg)-Neg sleep 'You did not sleep'
c.	[Ø ó sù] - HTS sleep 'He/she/it slept'	[Ø é sù] - Neg. sleep 'He/she/it did not sleep'
d.	[à sù] We sleep 'We slept'	[á sù] We-Neg sleep 'We did not sleep'
e.	[è sù] You(pl) sleep 'You slept'	[é sù] You(pl)-Neg. sleep 'You did not sleep'
f.	[ò sù] They sleep 'They slept'	[ó sù] They-Neg sleep 'They did not sleep'

From the examples above, all overt subject pronouns surface with a low tone under positive declarative sentences. However, under negative declarative, the subject pronouns take a high tone to indicate negative constructions. The high tone is from an underlying negation marker [é] whose vowel has been elided. In example (9c) the 3rd person singular subject pronoun is phonologically null. Under the positive declarative construction, the high tone syllable (HTS), which is a non-future marker, is what shows up. This HTS has traditionally been mistakenly regarded as the 3rd person singular pronoun (see Awobuluyi 1978, 2008, 2017, 2025 for more on HTS). Since there is no phonologically realized 3rd person singular subject pronoun in (9c), the negation marker shows up in its full form under the negative declarative construction.

As will be shown below, this resistance to tonal modification by the negation marker plays an important role in explaining its interaction with polar question markers.

4.1 The Position of Negation in Clause Structure

Syntactically, the negative marker occupies a preverbal position within the inflectional domain of the clause. Evidence from word order indicates that [é] occurs between the subject and the lexical verb, a position commonly associated with functional material such as tense, and aspect, in Yorùbá and related Kwa languages (Awobuluyi, 1978; Bamgboṣe, 1990; Aboh, 2004). The structure of a typical negative clause is illustrated in (10).

(10) [Subject DP + NEG + Verb Phrase]

- a. [olú é mà].
Olu Neg. know
'Olu did not know.'
- b. [òḍḍò é ì rò]
rain Neg. cont. fall
'Rain is not falling.'

The placement of [é] immediately before the verbal complex demonstrates that it occupies a dedicated functional position within the clause. This position places it in close structural proximity to tense and aspect markers. In many cases, negation co-occurs with aspectual morphology, as shown in (10b), where the negative marker precedes the continuous marker.

The relationship between negation and other preverbal elements becomes particularly important in interrogative constructions. Because [é] occupies the same general morphosyntactic domain as tense and aspect markers, it enters into direct interaction with polar question particles that occur within or adjacent to this domain. The clause-internal interrogative marker [rà], for example, occurs immediately before preverbal material and therefore stands in a structurally local relationship with negation. By contrast, the clause-initial particle [jàki] occupies a higher position in the left periphery and remains structurally separated from the polarity domain (Ibikunle, 2026). This asymmetry in structural position provides an initial explanation for why the two interrogative particles behave differently with respect to negation. However, as argued later in this article, syntactic proximity alone cannot fully account for the observed patterns. Instead, the tonal properties of the morphemes involved must also be considered.

4.2 Negation and Polar Questions

One of the most intriguing properties of the Aráròmí-Ugbéṣì interrogative system concerns the interaction between negation and polar question particles. While negation freely combines with the clause-initial particle [jàki] as shown in (11a), it is systematically excluded from constructions containing the clause-internal particle [rà] in (11b).

(11) Negation with the polar question markers

- a. [jàkolú é mà]?
PQM-olu Neg. know
'Didn't Olu know?'
- b. *[olú rà é mà]?
Olu PQM Neg. know
'Didn't Olu know?'

In example (11a), negation combines naturally with [jàki] to express the speaker's surprise at the mismatch between prior expectations and available evidence. Similar patterns are found throughout the dialect, demonstrating that there is no grammatical incompatibility between [jàki] and the negative marker.

The grammaticality of such constructions follows straightforwardly from their syntax. Since [jàki] occupies a clause-initial position in the left periphery, it remains structurally distant from the polarity domain in which [é] is realized. Consequently, the two morphemes do not enter into the close phonological relationship observed in clause-internal interrogatives.

The situation is markedly different for the clause-internal polar question marker [rà]. As discussed by Ibikunle (2026), [rà] is the default marker of neutral bipolar questions and appears immediately after the subject. Despite its productive use in affirmative interrogatives, speakers consistently reject constructions in which [rà] co-occurs with the negative marker [é] as in (11b) above.

Ibikunle (2026) proposes that the incompatibility between [rà] and [é] is related to the special grammatical properties of the clause-internal interrogative marker. Building on this observation, the present study argues that the restriction is also phonological in nature. Specifically, [rà] imposes a requirement that the immediately following preverbal element surface with a low-tone specification. This requirement is satisfied by tense and aspect markers. The negative marker [é], however, lacks this satisfaction and remains obligatorily high-toned in all environments.

The asymmetrical behaviour of [jàki] and [rà] in negative interrogatives thus provides the first indication that the distribution of polar question markers in Aráròmí-Ugbéṣì cannot be explained solely by syntax or semantics. Rather, it points to a deeper interaction between tone, allomorphy, and morphosyntactic structure, an interaction that forms the central focus of the present study. We now turn to the generalization that captures the restriction on [rà] with negation.

5. Empirical Generalization: The Restriction on [rà]

The distribution of the clause-internal polar question marker [rà] reveals an important generalization that has not been fully recognized in previous analyses of Aràròmí-Ugbéṣì polar questions. While earlier discussions have focused primarily on the semantic incompatibility between [rà] and the negative marker [é] (Ibikunle, 2026), a closer examination of the data suggests that the restriction is broader and fundamentally tonal in nature. Specifically, the evidence indicates that [rà] cannot be immediately followed by a syllable bearing an underlying high tone unless an independent phonological process modifies that tonal specification.

This observation emerges from the interaction of [rà] with high-toned verbs, aspectual markers, and negation. In affirmative interrogatives, [rà] freely combines with lexical verbs regardless of their lexical tone because the tonal configuration can be repaired through regular phonological processes such as tone spreading and tonal assimilation. However, when [rà] is followed by the negative marker [é], the construction becomes unacceptable. Since [é] is obligatorily high-toned and lacks an alternative tonal realization, the resulting tonal conflict cannot be resolved. The contrast between these environments forms the empirical basis of the analysis developed in this article.

5.1 [rà] in Affirmative Polar Questions

The clause-internal particle [rà] functions as the default marker of neutral polar questions in Aràròmí-Ugbéṣì (Ibikunle, 2026). Examples from the dialect show that [rà] readily combines with affirmative predicates. Examples involving verbs with different lexical tonal specifications are presented in examples (12-14) below.

(12) High-toned verb

Declarative	Interrogative
a. i. [olú nǔ́] Olu go 'Olu went'	ii. [olú rà nǔ́]? Olu PQM go 'Did Olu go?'
b. i. [olú ké] Olu shout 'Olu shouted'	ii. [olú rà ké]? Olu PQM shout 'Did Olu shout?'
c. i. [olú ɖǝ́] Olu answer 'Olu answered'	ii. [olú rà ɖǝ́] Olu PQM answer 'Did Olu answer?'
d. i. [olú dé] Olu arrive 'Olu arrived'	ii. [olú rà dé]? Olu PQM arrive 'Did Olu arrive?'
e. i. [olú há] Olu come 'Olu came'	ii. [olú rà há]? Olu PQM come 'Did Olu come?'

(13) Mid-toned verb

a. i. [olú lɛ] Olu be-lazy 'Olu is lazy'	ii. [olú rà lɛ] Olu PQM be-lazy 'Is Olu lazy?'
b. i. [olú fɛ] Olu do 'Olu did'	ii. [olú rà fɛ]? Olu PQM do 'Did Olu do?'

(14) Low-toned verb

a. i. [olú mà] Olu know 'Olu knew'	ii. [olú rà mà]? Olu PQM know 'Did Olu know?'
b. i. [olú kə]	ii. [olú rà kə]? 110

Olu refuse
'Olu refused'

Olu PQM refuse
'Did Olu refuse?'

The grammaticality of these constructions demonstrates that [rà] is not inherently incompatible with verbal predicates of different tonal classes. Native speakers readily accept such examples.

Nevertheless, a closer inspection of the phonological realization of these constructions reveals that apparent surface compatibility often involves tonal adjustment. As discussed in Section 2, Aràròmí-Ugbéṣì exhibits extensive tone spreading and tonal assimilation processes. These processes allow potentially problematic tonal sequences to be repaired through phonological modification. Consequently, the grammaticality of affirmative [rà]-questions does not necessarily imply unrestricted tonal compatibility. Rather, it suggests that the grammar possesses mechanisms capable of resolving tonal conflicts when suitable phonological resources are available.

Additional evidence comes from the interaction of [rà] with preverbal tense and aspect markers. When these elements occur after [rà], the low-toned variant is selected, thereby avoiding an immediate High-tone sequence. This pattern suggests that the grammar actively disfavors a configuration in which [rà] is directly followed by a high-toned syllable. This is exemplified in (15) below.

- | | |
|--|---|
| <p>(15) Declarative</p> <p>a. i. [olú á ɲǔ]
Olu fut. go
'Olu will go.'</p> <p>b. i. [olú í ɲǔ]
Olu cont. go
'Olu is going.'</p> <p>c. i. [olú ká ɲǔ]
Olu perf. go
'Olu has gone.'</p> | <p>Interrogative</p> <p>ii. [olú rà à ɲǔ]?
Olu PQM fut. go
'Will Olu go?'</p> <p>ii. [olú rà ì ɲǔ]?
Olu PQM cont. go
'Is Olu going?'</p> <p>ii. [olú rà kà ɲǔ]?
Olu PQM perf. go
'Has Olu gone?'</p> |
|--|---|

5.2 [rà] and Negation

The clearest evidence for the restriction on [rà] comes from its interaction with negation. Unlike affirmative predicates, the negative marker [é] cannot occur immediately after [rà] in its bare form as in (16a) neither can it occur with a low tone in that context as in (16b) below.

- | | |
|---|--|
| <p>(16) Negative declarative</p> <p>a. i. [olú é mà]
Olu Neg. know
'Olu did not know'</p> <p>b. i. [olú é mà]
Olu Neg. know
'Olu did not know'</p> | <p>Negative interrogative</p> <p>ii. *[olú rà é mà]?
Olu PQM Neg. know
'Didn't Olu know?'</p> <p>ii. *[olú rà è mà]?
Olu PQM Neg. know
'Didn't Olu know?'</p> |
|---|--|

Unlike the high-toned verbs, tense and aspectual markers, negation marker does not change its high tone. Speakers consistently reject negation marker after [rà] either the negation marker surfaces with its underlying high tone as in (16aii) or shows up with a low tone by assimilating the preceding low tone on [rà] as in (16bii). The ungrammaticality is particularly striking because negative polar questions are otherwise well-formed in the dialect. When the clause-initial polar question marker [ʃàki] is used instead of [rà], the construction becomes fully grammatical. Example (17) below demonstrates the claim.

- | | |
|---|---|
| <p>(17) Negative declarative</p> <p>i. [olú é mà]
Olu Neg. know
'Olu did not know'</p> | <p>Negative interrogative</p> <p>ii. [ʃàkolú é mà]?
PQM-Olu Neg. know
'Didn't Olu know?'</p> |
|---|---|

The contrast between (16) and (17) demonstrates that the source of ungrammaticality cannot be negation itself. Nor can it be attributed to the semantics of negative interrogation alone, since the language clearly permits

negative polar questions. Rather, the problem arises specifically from the adjacency of [rà] and [é].

This observation becomes particularly significant when the tonal properties of the two morphemes are considered. The interrogative marker [rà] bears a low tone, while the negative marker [é] bears a high tone. Unlike tense and aspect markers, [é] does not change its high tone. Consequently, the grammar has no mechanism for avoiding the sequence [rà + é].

The resulting pattern suggests that the incompatibility between [rà] and negation reflects a more general phonological restriction rather than an arbitrary lexical prohibition. The restriction becomes visible in the negative domain because negation provides the clearest example of a high-toned morpheme that resists tonal accommodation. The next subsection summarizes the facts about the distribution.

5.3 Summary of the Distributional Facts

The discussion above reveals a consistent pattern in the distribution of the clause-internal polar question marker [rà]. Although [rà] appears with a wide range of affirmative predicates, it systematically fails to co-occur with the negative marker [é]. At the same time, the clause-initial particle [jàki] freely combines with negation. These facts are summarized in Table 1.

Table 1. Distribution of Polar Question Markers in Aráròmí-Ugbéši

Context	Grammatical?
[rà] + High-toned verb	✓
[rà] + Mid-toned verb	✓
[rà] + Low-toned verb	✓
[rà] + Future marker	✓
[rà] + Continuous marker	✓
[rà] + Perfective Marker	✓
[rà] + Negative marker é	✗
[jàki] + Negative marker é	✓

Taken together, these facts support the empirical generalization that the clause-internal polar question marker [rà] cannot be immediately followed by an unrepaired high-tone syllable. The significance of this generalization is twofold. First, it shifts the explanation of the [rà–é] restriction away from purely syntactic or semantic accounts toward a phonological one. Second, it suggests that the crucial property distinguishing negation from other preverbal elements is the absence of an alternative tonal form capable of satisfying the tonal requirements imposed by [rà]. In the next section, we now turn to the tonal opacity that characterizes/distinguishes negation marker in the dialect.

6. Tonal Opacity and the Behaviour of Negation

The preceding sections established two important empirical facts. First, the clause-internal polar question marker [rà] systematically disfavors an immediately following high tone. Second, while most high-toned elements can undergo tonal modification in order to satisfy this restriction, the negative marker [é] cannot. The purpose of this section is to explain why negation behaves differently from other grammatical morphemes in the language.

We argue that the exceptional behaviour of [é] reflects a case of tonal opacity. Specifically, the negative marker preserves its underlying high-tone specification in environments where other morphemes undergo tonal accommodation. As a result, the phonological repairs that normally resolve post-[rà] tonal conflicts are unavailable in negative interrogatives. The incompatibility between [rà] and [é] therefore follows from the interaction between tonal opacity and the well-formedness requirements of the interrogative construction.

Opacity has played an important role in analyses of Yorùbá tonal phonology. In general terms, a phonological process is opaque when the surface form fails to reveal a transparent relationship between underlying representation and phonological output (Kiparsky, 1973; McCarthy, 1999). Opaque interactions frequently arise when a phonological rule appears to be blocked, counterfed, or otherwise prevented from applying in environments where it would ordinarily be expected.

Within Yorùbá, opacity has been discussed extensively in connection with tone spreading, tonal assimilation, underspecification, and tonal stability (Pulleyblank, 1986, 1988; Akinlabi, 1985, 1996). Pulleyblank (1986), in particular, demonstrates that tonal representations in Yorùbá often exhibit behaviour that cannot be explained solely by surface tonal configurations. Instead, underlying tonal specifications continue to exert grammatical effects even when surface forms appear to have undergone phonological modification.

One of the central insights of this work is that not all tones behave equally under phonological processes. Certain tonal specifications remain stable across environments and resist the kinds of modifications that affect neighbouring morphemes. Such cases are especially relevant for understanding the Aráròmí-Ugbéṣì data because the negative marker [é] exhibits precisely this kind of resistance.

Evidence presented earlier in this article showed that high-toned verbs following [rà] frequently undergo tonal modification. Likewise, several preverbal tense and aspect markers get modified when required by the tonal environment. These patterns demonstrate that the grammar normally possesses mechanisms for avoiding problematic tonal configurations. The behaviour of negation is striking precisely because it departs from this general pattern.

The notion of opacity therefore provides a useful theoretical framework for understanding why [é] behaves differently from other high-toned elements. Rather than participating in the repair strategies available elsewhere in the grammar, the negative marker retains its underlying tonal specification, effectively blocking phonological accommodation.

The resistance to tonal modification is the hallmark of opacity. The negative marker behaves as though its tonal specification is protected from the phonological processes that affect neighbouring morphemes. Consequently, it remains inaccessible to the repair mechanisms that normally operate in post-[rà] environments.

Additional evidence comes from the absence of low-tone spreading. Earlier sections showed that low tones associated with [rà] frequently extend onto following high-toned elements, yielding contour realizations or lowered tonal outputs. Such spreading is entirely absent with negation. The sequence [rà + é] never surfaces with a contour tone, or a lowered tone. Instead, speakers reject the construction altogether.

The inability of the negative marker [é] to participate in low-tone spreading therefore provides direct evidence for its opaque status within the tonal grammar of the dialect. The marker, [é], displays two properties that distinguish it from other preverbal morphemes in Aráròmí-Ugbéṣì. First, it is underlyingly specified for a high tone. Second, it lacks the tonal alternations observed elsewhere in the preverbal system. The second property is our concern in the next section.

7. Allomorphy and Morphological Constraints

The argument developed thus far has shown that the incompatibility between the clause-internal polar question marker [rà] and the negative marker [é] cannot be explained solely in syntactic or semantic terms. We have demonstrated that [rà] imposes a restriction on the tonal properties of immediately following material and that the negative marker behaves as a tonally opaque element that resists the phonological accommodation processes available elsewhere in the grammar. However, tonal opacity alone does not fully explain why the grammar rejects [rà + é] rather than repairing the sequence through some alternative strategy. To answer this question, it is necessary to examine the role of allomorphy in the morphophonology of Aráròmí-Ugbéṣì.

A striking characteristic of the dialect is that many lexical and grammatical morphemes possess alternative tonal realizations. These alternations allow the grammar to resolve tonal conflicts by selecting a form that better satisfies phonological well-formedness conditions. The negative marker [é] differs from these elements because it lacks a corresponding low-toned variant. We argue that this absence constitutes a "missing allomorph problem" that ultimately accounts for the exclusion of negation from [rà]-questions.

Aráròmí-Ugbéṣì exhibits numerous cases of tonal allomorphy in both lexical and grammatical domains. All high-toned verbs display an alternative contour-toned realization when they occur in environments involving the clause-internal interrogative marker [rà]. These alternations provide evidence that the grammar actively modifies underlying tonal specifications in order to satisfy phonological requirements. The high-toned verbs' allomorphic realization is represented in (18) below.

(18)	High-tone verb		Rising-tone counterpart	Gloss
a.	[nǔ]	~	[nǔ̃]	‘go’
b.	[ké]	~	[kě̃]	‘shout’
c.	[dʒé]	~	[dʒě̃]	‘answer’
d.	[dé]	~	[dě̃]	‘arrive’
e.	[há]	~	[hǎ̃]	‘come’

The contour realizations in the right-hand column result from the interaction between the Low tone of [rà] and the high tone of the following verb. Rather than preserving the underlying high tone unchanged, the grammar permits low-tone spreading, producing a rising contour. As argued in the previous section, these alternations function as repair mechanisms that prevent the faithful realization of an immediately following high tone.

Comparable patterns are found among preverbal grammatical morphemes. Several tense and aspect markers exhibit high-tone and low-tone allomorphs whose distribution is sensitive to the surrounding tonal environment. Examples include those in (19) below.

(19)	Category	High-tone form		Low-tone form
	Future	[á]	~	[à]
	Continuous	[í]	~	[ì]
	Perfective	[ká]	~	[kà]
	Negation	[é]	~	Ø

These alternations are particularly important because they demonstrate that the grammar possesses a mechanism for avoiding problematic tonal sequences. When a high-toned variant would create an undesirable tonal configuration after [rà], the low-toned variant is selected instead. Thus, tonal accommodation is achieved not only through phonological spreading and contour formation but also through allomorphic choice. However, negation lacks the alternation among other preverbs as shown in (19) above.

This pattern is consistent with broader observations in Yorùbá morphophonology, where grammatical morphemes frequently exhibit context-sensitive tonal realizations (Akinlabi, 1996; Pulleyblank, 1986). In Aràròmí-Ugbéṣì, tonal allomorphy therefore serves as an important interface mechanism linking phonological well-formedness and morphological realization. Given the behaviour of other preverbal morphemes, one might reasonably expect negation to pattern in the same way. If the grammar regularly resolves tonal conflicts through allomorphic selection, then a natural prediction would be that the negative marker should possess both high- and low-toned variants. Under this expectation, the negative marker would have the form shown in (20).

(20) Hypothetical tonal allomorphy of negation				
Category	High-tone form		Low-tone form	
Negation	[é]	~	[è]	

If such an alternation existed, the grammar could simply select the low-toned variant after [rà], just as it does with future, continuous, and perfective markers. The resulting sequence would avoid the tonal conflict associated with an immediately following high tone and would therefore be expected to be grammatical. Under this scenario, the phonological restriction identified would be satisfied, and no incompatibility between negation and the clause-internal interrogative marker would arise. However, the empirical facts show that this prediction is not borne out.

The absence of a low-toned allomorph for negation has direct consequences for the distribution of polar question markers. As demonstrated in earlier sections, high-toned verbs can remain grammatical after [rà] because they undergo contour formation through low-tone spreading. Likewise, future, continuous, and perfective markers remain grammatical because the grammar can select low-toned allomorphs. Negation differs because neither option is available. The negative marker resists tonal modification, and no alternative allomorph exists. Consequently, the grammar cannot satisfy the tonal requirement imposed by [rà].

Taken together, the evidence presented in this section supports the conclusion that the incompatibility between [rà] and [é] is not merely a consequence of tonal opacity. Rather, it results from the interaction between tonal opacity and a morphological gap in the allomorphic system of the dialect. While other morphemes can adapt to the phonological requirements imposed by [rà], negation cannot. The absence of a low-toned allomorph thus becomes the decisive factor that blocks the co-occurrence of negation and the clause-internal polar question marker.

The next section formalizes this insight within an Optimality-Theoretic framework. Specifically, we argue that the restriction follows from the interaction of a markedness constraint prohibiting an unrepaired high tone after [rà] with faithfulness constraints governing tonal preservation and allomorphic selection. Under this analysis, the incompatibility between [rà] and negation emerges as a natural consequence of the grammar rather than as an arbitrary lexical restriction.

8. Optimality-Theoretic Analysis

The analysis developed in this article is couched within Optimality Theory (OT) (Prince & Smolensky, 1993/2004), a constraint-based model of grammar that explains linguistic patterns through the interaction of competing constraints. Unlike rule-based approaches, which derive outputs through ordered phonological rules, OT assumes that linguistic forms emerge from the evaluation of a set of possible outputs against a hierarchy of ranked constraints. The framework has been widely applied to tone systems and morphophonological alternations because it provides a principled way of modeling conflicts between faithfulness to underlying representations and phonological well-formedness requirements (McCarthy & Prince, 1995; Pulleyblank, 2004; Yip, 2002).

The Aràròmí-Ugbèsi data examined in this article present precisely such a conflict. On the one hand, grammatical morphemes are expected to preserve their underlying tonal specifications. On the other hand, the clause-internal polar question marker [rà] imposes a restriction against the faithful realization of an immediately following high tone. In many cases, this conflict is resolved through tonal spreading, contour formation, or allomorphic substitution. However, in the case of negation, no such repair is available because the negative marker [é] lacks a low-toned allomorph and resists tonal modification. Consequently, the grammar must choose between preserving the tonal specification of negation and satisfying the tonal requirements associated with [rà]. Optimality Theory provides a natural framework for modeling this competition.

8.1 Proposed Constraints

The constraints relevant for this work and their definition are presented as follow:

1. REALIZE-Q (Question Marker): Every interrogative input must be realized at the output.
2. REALIZE-NEG(H): Negation must be realized with its high tone.
3. NO-HIGH-AFTER-RÀ: No high-tone immediately after [rà].
4. IDENT-TONE: Preserve underlying tonal specifications at the output.
5. USE-ALLOMORPH: Select an available allomorph if one avoids a marked structure.

8.2 Constraint Ranking

The markedness constrain that forbids a high tone after [rà] outranks the faithfulness constrain that requires the preservation of the input tone at the output. This is shown on tableau 1 below, using example (15a_{ii}) repeated before the tableau.

NO-HIGH-AFTER-RÀ >> IDENT-TONE

Tableau1: /olú rà á nǔ/ [olú rà à nǔ] “Will Olu go?”

/olú rà á nǔ/	NO-H-AFT-RÀ	IDENT-TONE
a. olú rà á nǔ	*!	
b. ɛ olú rà à nǔ		*

From the table above, candidate (a) incurs fatal violation on a high ranked constrain that forbids adjacency of high tone after [rà], leaving candidate (b) as the optimal.

The markedness constrain that requires the use of available allormorph dominates the faithfulness constraint that requires the preservation of the input tone at the output. This is shown in tableau 2 below.

USE-ALLOMORPH >> IDENT-TONE

Tableau 2: /olú rà ká nǔ/ [olú rà kà nǔ] “Has Olu gone?”

/olú rà ká nǔ/	USE-ALLOMORPH	IDENT-TONE
a. ɛ olú rà kà nǔ		*
b. olú rà ká nǔ	*!	
c. olú rà ka nǔ	*!	*

Candidate (b) and (c) are knocked out for their failure to use the available allomorph to resolve unallowed tonal sequence. Candidate (a) is the winner for minimally violating the high ranked constraint. Other constraints like REALIZE-Q and REALIZE-NEG(H) are undominated the same way NO-HIGH-AFTER-RÀ is undominated. They are high ranked such that any candidate that violates them is out of competition. This is represented in the proposed cumulative ranking below.

REALIZE-Q, REALIZE-NEG(H), NO-HIGH-AFTER-RÀ >> USE-ALLOMORPH >> IDENT-TONE

8.3 Evaluation of optimal candidates using the proposed constraints ranking

In this subsection, our focus is to assess candidates on OT tableau and see how they perform within the cumulative constraint ranking established in subsection 8.2. Samples are selected to illustrate allomorphy and opacity from the data presented under interrogative constructions in (12ii) and (15ii), as well as negative interrogative constructions in (16ii) and (17ii). One sample each is taken from the groups:

The next tableau demonstrates how high-tone verbs discussed in section 5.1 (data 12ii) are modified after [rà] to select the optimal output.

Tableau 3: /olú rà pũ/ [olú rà pũ] “Did Olu go?”

/olú rà pũ/	REAL-Q	REAL-NEG(H)	NO-H-AFT-RÀ	USE-ALLOMORPH	IDENT-T
a. olú rà pũ			*!	*	
b. ɛ olú rà pũ					*
c. olú rà pũ				*!	*
d. olú rà pũ				*!	*

Candidate (a) is knocked out of the competition for violating a high ranked constraint that forbids a high tone after [rà], while both candidates (c & d) fail for violating the constraint that requires them to use the available allomorphs to resolve unallowed tonal sequence. For minimally violating the high ranked constraint, candidate (b) is the optimal candidate.

The next tableau considers the interaction between [rà], aspectual markers and tense presented in data (15ii) under section 5.1.

Tableau 4: . /olú rà í pũ/ [olú rà í pũ] “Is Olu going?”

/olú rà í pũ/	REAL-Q	REAL-NEG(H)	NO-H-AFT-RÀ	USE-ALLOMORPH	IDENT-T
a. olú rà í pũ			*!	*	
b. olú rà í pũ				*!	*
c. ɛ olú rà í pũ					*
d. olú í pũ	*!			*	*

Candidate (a) fails for incurring a fatal violation on a high ranked constraint by not repairing the forbidden tonal co-occurrence restriction. Candidate (d) is also knocked out for its failure to include question marker as required by the high ranked constraint REAL-Q. Candidate (b) incurs a fatal violation for not using the available allomorph, leaving candidate (c) as the winner.

The next tableau demonstrates the ungrammaticality in the co-occurrence of [rà] with the negation marker [é] discussed in 5.2. An example is taken from data (16ii) for illustration on the OT tableau.

Tableau 5: /olú rà é mà/ *[olú rà é mà]/*[olú rà è mà] “Didn’t Olu know?”

/olú rà é mà/	REAL-Q	REAL-NEG(H)	NO-H-AFT-RÀ	USE-ALLOMORPH	IDENT-T
a. olú rà è mà		*!			*
b. olú rà é mà			*!		
c. olú rà mà		*!			*
d. olú é mà	*!				*
e. olú rà è mà		*!			*

From the tableau above, no candidate emerges as optimal. For instance, candidate (a) fails to keep the high tone on the negation marker, thereby incurring a fatal violation on a high-ranked constraint. For also violating a high-ranked constraint, candidate (b) is not the desired grammatical output either. The grammar indicates that the high tone on the negation marker must be preserved. This requirement is in conflict with the markedness constraint that bans the adjacency of a high tone after [rà] - candidate (b) violates this latter constraint. Candidates (c) and (e) fatally violate the constraint that requires keeping the negation marker with its high tone. Like all other candidates, candidate (d) is also out of competition. It fatally violates the constraint that requires a question marker. This being the case, all candidates incur fatal violation. With the application of constraint ranking in OT, it is now glaring why [rà] cannot co-occur with negation to make a grammatical output in the dialect.

The next tableau shows that the only available repairment for question marker and negation to co-occur is to default into using the clause-initial [jàki] as discussed in 5.2, using the data in (17ii). This is demonstrated in the next tableau.

Tableau 6: /jàki olú é mà/ [jàkolú é mà] “Didn’t Olu know?”

/jàki olú é mà/	REAL-Q	REAL-NEG(H)	NO-H-AFT-RÀ	USE-ALLOMORPH	IDENT-T
a. jàkolú è mà		*!			**
b. jàkolú e mà		*!			**
c.  jàkolú é mà					*
d. olú é mà	*!				**
e. jàkolú mà		*!			**

Candidates (a, b & e) incur fatal violation because they fail to realize the negation marker with its compulsory high tone, while candidate (d) fails for violating the faithfulness constraint that requires the input question marker in the output. Candidate (c) is the winner for its minimal violation on the high ranked constraints.

9. Conclusion

This study has shown that the polar question marker [rà] in Aráròmí-Ugbéṣì Yorùbá is subject to a strict tonal restriction: it cannot occur before high-tone syllables. When this restriction is violated, high-tone verbs and or preverbal elements undergo tonal modification as a repair strategy, while the negative marker [é] remains unchanged, demonstrating tonal opacity. The analysis further reveals that negation lacks a low-tone allomorphic variant, making tonal adjustment impossible in negative prohibitive constructions. Using Optimality Theory, the study formally accounts for these patterns and demonstrates that the incompatibility between [rà] and negation is best explained through the interaction of phonological and morphological constraints rather than by syntactic or semantic factors alone. These findings contribute to our understanding of tone, allomorphy, and opacity in Yoruba grammar and highlight the usefulness of Optimality Theory in modeling complex morphophonological interactions.

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