

A Syntactic Reappraisal of Polar Question Constructions in Igbo

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Abstract

Assumptions in the literature (Nwachukwu 1976, Emenanjo 1987, Uwalaaka 1997, Amaechi 2018, etc.) suggest that Igbo language employs a combination of a low-tone and a resumptive pronoun which agrees with R-expression subjects of question clauses to derive polar questions. This study, however, additionally identifies a high-pitch intonation, apparently missed out in the earlier studies, as a crucial functional item in Igbo polar questions (IPQs henceforth). This informs a reappraisal of the syntactic projection of IPQ constructions undertaken in this paper. Relying on insights from minimalist grammar (Chomsky 1995 to 2016) and other works within the generative tradition (Pollock's 1989; Kayne 1994; Rizzi's 1997, 2001; Cheng's 1991; Abney's 1987, etc.) alongside acoustic investigation of pitch tracks of relevant speech samples on Praat (Boersma & Weenink 2014), the paper proposes a complex but split pre-clausal functional morpheme which subcategorizes for declarative TPs as complement and subsequently, via internal merge, optionally sandwiches either the Pronominal/R-expression subject of IPQs or the whole of the declarative TP of IPQs having clause-final particles to derive convergent polar question constructions in the language.

Keywords: polar questions; syntactic projection; phono-syntax; high-pitch intonation; pitch tracking; Igbo

1. Introduction

Previous works on the syntax of Igbo polar questions (Emenanjo 1987; Uwalaka 1997; Amaechi 2018, etc.) identified a low-tone and a resumptive pronoun claimed to agree with the subject as markers of polar questions in the language. This study however hold that there is more to what have been said on Igbo polar questions (IPQs) as those analyses still leave some questions begging. For instance, how does a polar question construction project given the purported role played by the low-tone on the one hand and the resumptive pronoun on the other? Are these two items, i.e. the low-tone and the resumptive pronoun, separate morphemes or should they be treated as a single interrogative morpheme? What is the function of the pervasive high-pitch intonation, apparently missed out in earlier studies but identified in this study, in the construction of IPQs? This study attempts both descriptive and theoretical answers to these and other related issues. The work is organised in five sections: section two is devoted to profiling the structural types of IPQs; section three is a discussion on IPQ markers; section four is an exposition on the syntactic projection of IPQs; and section five is the conclusion of the study.

1.1. Theoretical Assumptions

This study employs the assumptions of generative grammar as espoused in minimalist program (MP) of Chomsky (1995 up to 2016) and other relevant works within the tradition, especially those related to the syntax of the left periphery where non-basic constructions such as questions, focus, relative clauses, etc. are projected (Pollock's 1989 Split-Infl hypothesis; Kayne's 1994 universal

word order; Rizzi's 1997, 2001 split-CP hypothesis and cartography of the left periphery; Cheng's 1991 clause-typing hypothesis; and Abney's 1987 DP hypothesis; among others.).

MP favours minimal but basic syntactic structure-building operations namely *merge* (which subsumes *select*) and *agree* (termed *move* in some versions because it is assumed to be responsible for feature movement).

Merge: is a binary operation assumed to be of two types, external and internal. External merge takes care of new merge operations of independent tokens from the numeration while internal merge takes care of combining two dependent elements already introduced in a constructed syntactic object (Chomsky 1995, 2016; Collins 2013; Collins & Stabler 2016)

Agree: is an operation that holds between a *goal* and a *probe* given matching features/relations between the two. *Probe* is the highest head which searches for a matching *goal* in its syntactic scope or c-command domain. *Goal* is the constituent which gets attracted by a higher head (*probe*) for feature-checking in the bid to yield convergent outputs (see Chomsky 2000; Radford 2009).

Split Projections: are the proposals advanced for the theoretical splits of canonical clausal projections - IP, CP and VP - into their embedded smaller functional morphemes in works like Pollock (1989), Chomsky (1995), and Rizzi (1997, 2001). The motivation was to do away with the vagueness that previously characterized syntactic representations of those clauses which evidently negate the inclusiveness principle of Kayne (1994) and the symmetrical nature of syntactic projections in natural language. For instance, split-Infl hypothesis produces projections such as TP, NegP, AgrP, FinP, etc. just as split-CP and cartography of the left periphery of Rizzi (1997, 2001) produce RelP, InterP, TopP, FocP, etc. (see Aboh 2004, 2007; Chomsky 2000; Radford 2004, 2009; etc. for more details). The latter assumes that interrogative force is a specification of the function head Inter^0 which encodes the feature [Interrogative] that projects between ForceP and FinP thus: Force... > Inter... > Topic... > Focus... > Finiteness. Split-VP produces the VP shell analysis which assumes that VP has inner and outer shells. The inner (core) shell is headed and projected by a lexical verb while the outer shell is assumed to be headed by a thematic/functional light verb.

Clause-Typing Hypothesis: assumes that the complementizer system codes information that indicate whether a sentence is a question, declarative, or relative construction, i.e. the specification of Force which implies that complementizer codes information that indicate whether a clause is a question, declarative, relative, etc. (Chomsky 1995). The hypothesis assumes that every clause in natural language is typed (Cheng 1991:30). In the case of typing a wh-question, either a wh-particle in C^0 is used or else fronting of a wh-word to the Spec of C^0 is used, thereby typing a clause through C^0 by Spec-head agreement. On this basis, Cheng categorizes all the languages of the world into two: Wh-in situ languages and Wh-movement languages. She claims that in Wh-in situ languages, wh-particles are used to type a clause as interrogative, while in Wh-movement languages, wh-questions are typed by the movement of wh-word/phrase to the Spec-CP because such languages lack the kind of wh-particles (which she called typing particles) found in wh-in situ languages.

Aboh and Pfau (2011) however argue against the claim that wh-items are question markers. They show with cross-linguistic evidence that most of the items that clause type questions (whether polar or content question) are functional items which may even be prosodic in nature. Contra Cheng (1991), they argue that interrogative constructions are clause typed by a functional syntactic

category, Inter⁰, which projects InterP (cf. Nkemji 1995). They also claim that wh-items are not involved in the clause typing of content questions but only participate in the derivation of such constructions to interpret the focus of the interrogative force. This claim was demonstrated to be valid for Yoruboid languages by Ilori (2017).

These and other relevant hypotheses in the generative-minimalist literature form the body of assumptions relied upon for the analysis carried out in this study.

2. Patterns in Igbo Polar Questions

Based on subject type and the interaction of tone with the subject and other elements involved in the syntactic projection of the clauses, two basic patterns are identifiable in the structural make up of IPQs. These are IPQs having pronoun subjects and IPQs with R-expression subjects.

2.1. IPQ with Pronoun Subject

This IPQ type takes a pronoun/pronominal subject which carries a low tone (e.g. ò, ò̄, ì in 1b, 2b, 3b) in contrast to its declarative counterpart which carries a high-tone (e.g. ó, ó̄, í in 1a, 2a, 3a)¹.

1a. Ó siri jí.
3SG cook-PST yam
'He/she cooked yam.'

b. Ò siri jí ?
3SG cook-PST yam
'Did he/she cook yam?'

2a. Ó gàrà Àbá.
3SG go-PST Àbá
'He/She went to Aba'.

b. Ò gàrà Àbá?
3SG go-PST Àbá
'Did he/she go to Aba?'

3a. Í nwèrè éḡō.
2SG have money
'You(SG) have money'.

b. Ì nwèrè éḡō?
2SG have money
'Do you(SG) have money?'

4a. Í gà-èjé úkà échí.
2SG FUT-go church tomorrow
'You(SG) will go to church tomorrow.'

¹ This fact is well documented in the literature (see (Nwachukwu 1976, Emenanjo 1987, Uwalaaka 1997, Amaechi 2018, among others).

b. **Ì** gà-èjé ùkà échí?
 2SG FUT-go church tomorrow
 ‘Will you go to church tomorrow?’

5a. **Ụnụ** chòrò ázù.
 2PL want fish
 ‘You want fish.’

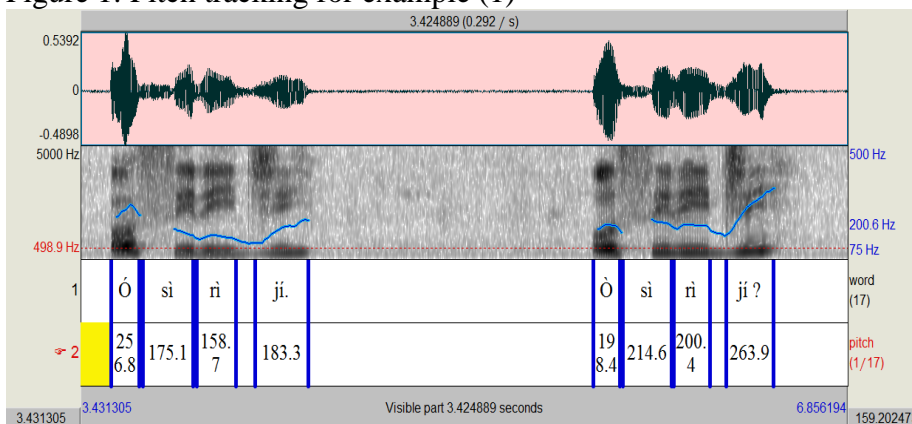
b. **Ụnụ** chòrò ázù ?
 2PL want fish
 ‘Do you want fish?’

6a. **Há** gà-èté ófē nā mgbèdè.
 3PL FUT-cook soup in evening
 ‘They will cook soup in the evening.’

b. **Hà** gà-èté ófē nā mgbèdè?.
 3PL FUT-cook soup in evening
 ‘Will they cook soup in the evening?’

One interesting thing to note in examples (1-6) is that, beside the pronominal tone switch from high to low in the IPQ, there is a pervasive prosodic effect coming from a high-pitch intonation which superimposes on the interrogative clause such that the whole of the polar construction is realized at a higher pitch level in contrast to its declarative counterpart. This fact is evident in the acoustics of examples (1) and (5) on praat, as captured in figures 1 and 2.

Figure 1: Pitch tracking for example (1)



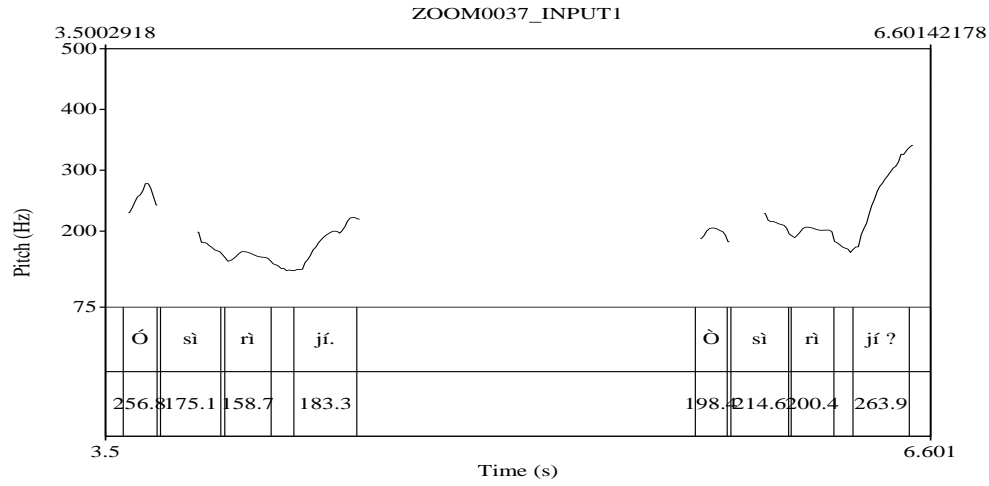
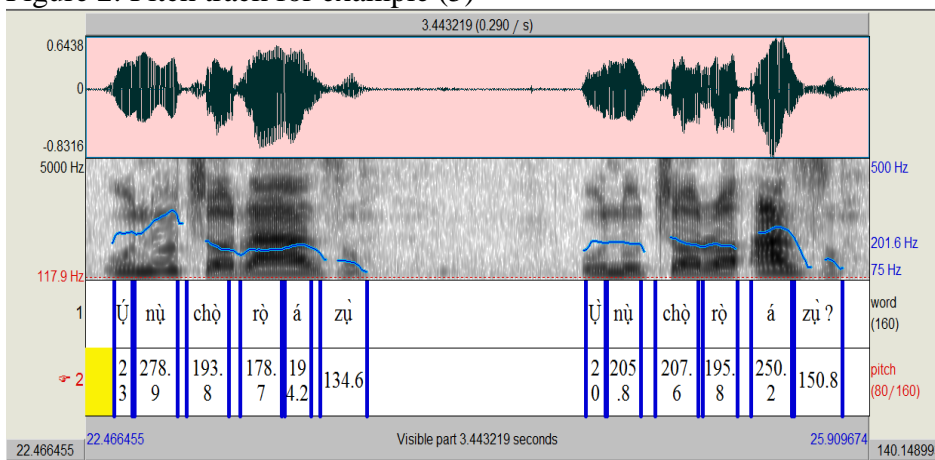


Table 1: Pitch contour figures for 1a & 1b

Item	Declarative	IPQ	Difference
Subject Pronoun	ó: 256.8	ò: 198.4	58.4
Sì	175.1	214.6	39.5
Rì	158.7	200.4	41.7
Jí	183.3	263.9	80.6

Figure 2: Pitch track for example (5)



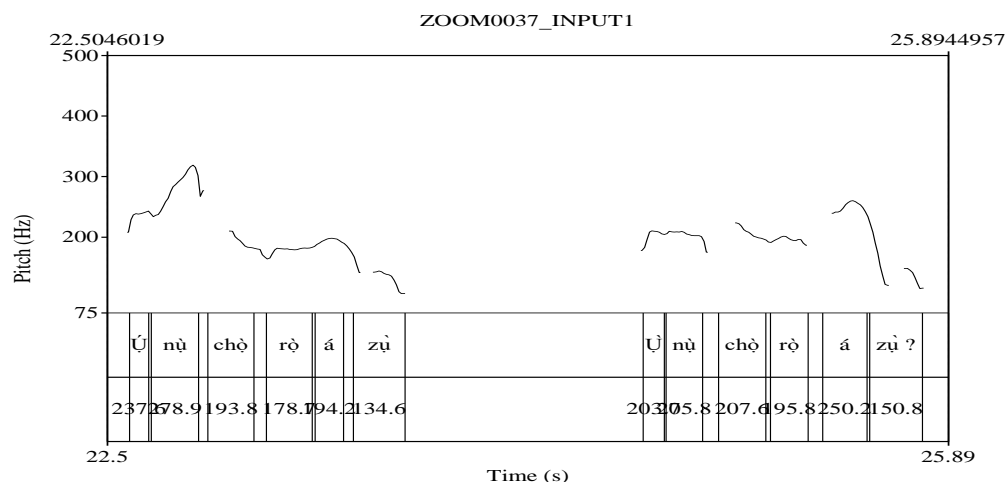


Table 2: Pitch contour figures for 5a & 5b

Item	Declarative	IPQ	Difference
Subject	ú: 23	ù: 20	3
Pronoun	nù: 278.9	nù: 205.8	73.1
Chò	193.8	207.6	13.8
Rò	178.7	195.8	17.1
Á	194.2	250.2	56
Zù	134.6	150.8	16.2

In (5a), which is a simple declarative, the first syllable (**ú**) of the bi-syllabic pronominal subject, **únù** ‘2pl’, carries a high-tone. However, this same first syllable of the same word becomes a high-pitched low-toned vowel (**ù**) in the polar interrogative form in (5b), **ùnù**. Similar behaviour is noticeable in IPQs like (6) where the subject (**há**→**hà**) is a CV monosyllabic pronoun.

Our conclusion on IPQs having pronoun/pronominal subject, therefore, is that (a) there is a switch from high-tone to a high-pitched low-tone on the subject pronoun (i.e. *H* → *L* *apophony*); and (b) there is an occurrence of a high-pitched intonation which prosodically raises the pitch of all the words that follow the pronoun/pronominal subject in such IPQs.

2.2. IPQs with R-Expression Subject

This IPQ type contains a lexical bare-N/NP subject and a pronoun-like item carrying a low-tone, occurring after it (precisely after a brief pause orthographically marked by a comma, which immediately follows the subject). The pronoun-like item is called resumptive pronoun in the literature given that it often anaphorically refers to the R-expression subject. (7b) to (12b) are examples of IPQs in this subcategory.

- 7a. Nonyé gàrà ọ́rú.
Nonye go-PST work
'Nonye went to work.'
- b. Nonyé_i, ọ́_i gàrà ọ́rú ?
Nonye 3SG go-PST work
'Did Nonye went to work?'
- 8a. Ngózí mùrù nwá.
Ngozi deliver-PST child
'Ngozi delivered a baby.'
- b. Ngózí_i, ọ́_i mùrù nwá?
Ngozi 3SG deliver-PST child
'Did Ngozi delivered a baby?'
- 9a. Nná gị bì nà Ghánà.
Father 2SG-GEN live LOC Ghana
'Your father lives in Ghana.'
- b. [Nná gị]_i, ọ́_i bì nà Ghánà?
Father 2SG-GEN 3SG live LOC Ghana
'Does your father live in Ghana?'
- 10a. Ụmùákwúkwọ nà-ámụ̀ Ìgbò n'ùlọ́ ákwúkwọ́.
students be-learn Igbo LOC-house book
'Students learn Igbo in school.'
- b. Ụmùákwúkwọ_i, hà_i nà-ámụ̀ Ìgbò n'ùlọ́ ákwúkwọ́.
students 3PL be-learn Igbo LOC-house book
'Do students learn Igbo in school?'
- 11a. Ụmùákā nà-égwù égwū n'ùlọ́.
children be-playing play LOC-house
'The children are playing at home.'
- b. Ụmùákā_i, hà_i nà-égwù égwū n'ùlọ́?
children 3PL be-playing play LOC-house
'Are the children playing at home?'
- 12a. Ndí óhī áhù tàrà áhùhù.
PL thief that eat-PST suffering
'Those thieves suffered.'

- b. [Ńdí óhī]_i áhù, hà_i tàrà áhùhú?
 PL thief that 3PL eat-PST suffering
 ‘Did those thieves suffer?’

However, there are instances of IPQ constructions, such as (13b), where the pronoun-like element does not agree in phi-feature with the subject (see Emenanjo 2015).

- 13a. Èméká nà Úchè bìàrà ébé à
 Emeka and Uche come-PST place this
 ‘Emeka and Uche came here.’
- b. Èméká nà Úchè, ò bìàrà ébé à?
 Emeka and Uche 3SG come-PST place this
 ‘Did Emeka and Uche come here?’

Apart from this, some studies have also shown that the item behaves like a harmonising verbal prefix in that it takes its shape via vowel harmony from the vowel of the main verb. Evidence for this abound in Aguata, Njikoka and Idemili dialects in examples like (14) and (15), as adapted from Emenanjo (2015: 270).

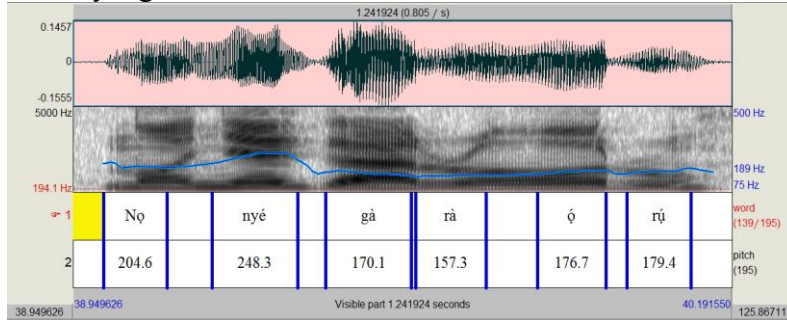
- 14a. Úkà, è- jèrè áhíá?
 Ụka PREF go-past market
 ‘Ụka, did she go to the market?’
- b. Gí nà Úkà, è- jèrè áhíá?
 2SG CONJ Ụka, PREF go-past market
 ‘Did you and Ụka go to the market?’
- 15a. Úkà, à- zàrà úlò?
 Ụka PREF sweep-past house
 ‘Ụka, did she sweep the house?’
- b. Gí nà Úkà, à- zàrà úlò
 2SG CONJ Ụka, PREF sweep-past house
 ‘Did you and Ụka sweep the house?’

These pieces of evidence render the resumptive pronoun claim of the pronoun-like item suspect.

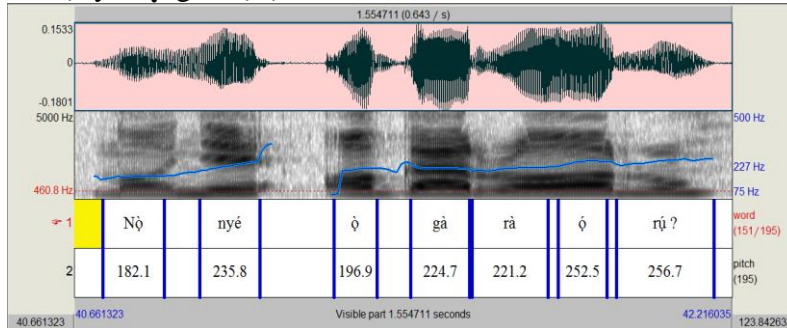
Another observable fact in the data set, 7-12, is that the prosodic effects of both the high-pitch intonation and the low-tone on the pronoun-like item impact the whole of the IPQ constructions. The R-expression subject is lowered in pitch while the rest of the construction, right from the pronoun-like item, are higher in pitch compared to their counterparts in the declarative clause. The pitch tracks of examples (7a and 7b) as represented in figures 3a-c confirm this observation.

Figure 3: Pitch tracking for (7a) and (7b)

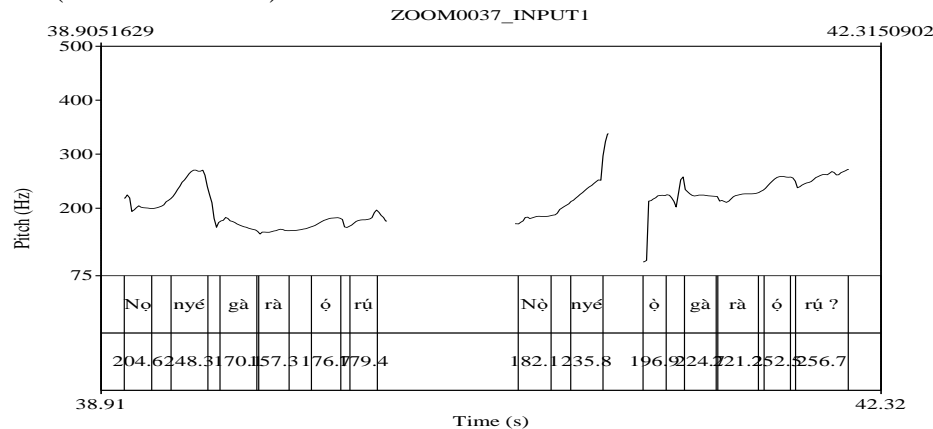
a. Nònyé gàrà órú.



b. Nònyé, ò; gàrà órú?



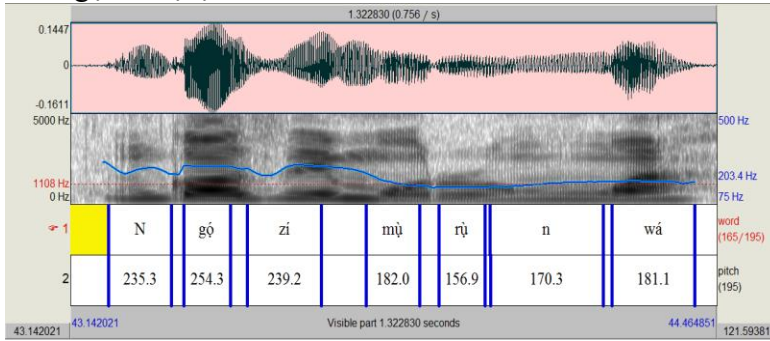
c. (7a&b combined)



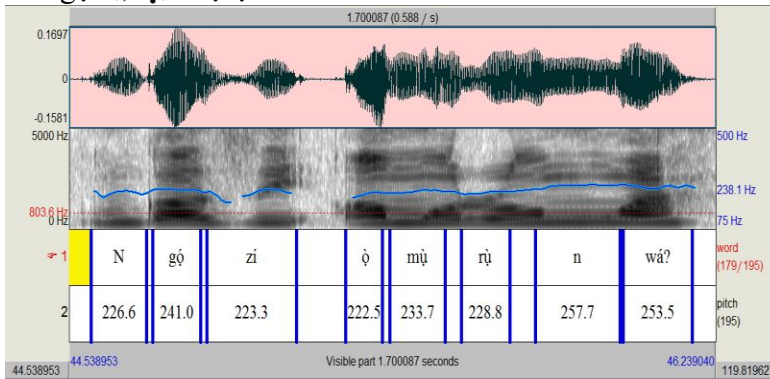
Two facts are observable in figure 3a-c. (i) The syllables of the lexical N subject of the question construction are prosodically lower in pitch (182.1Hz and 235.8Hz) in contrast to the higher pitches (204.6Hz and 248.3Hz) of their counterparts in the declarative form. We suspect and propose that this prosodic lowering effect on the subject is exerted by the low-tone. (ii) The pitches of the remaining syllables in the polar question construction, right from the resumptive pronoun to the end of the construction, are generally higher in contrast to those of their counterparts in the declarative construction. Pitch tracks of other examples, (8) and (9), in figures 4 and 5 reinforce these claims.

Figure 4: Pitch Tracks for (8a&b)

8a. *Ŋ́gọ́zì m̀r̀r̀ wá.*



b. *Ŋ́gọ́zì, ọ́ m̀r̀r̀ wá?*



c. (8a&b) combined

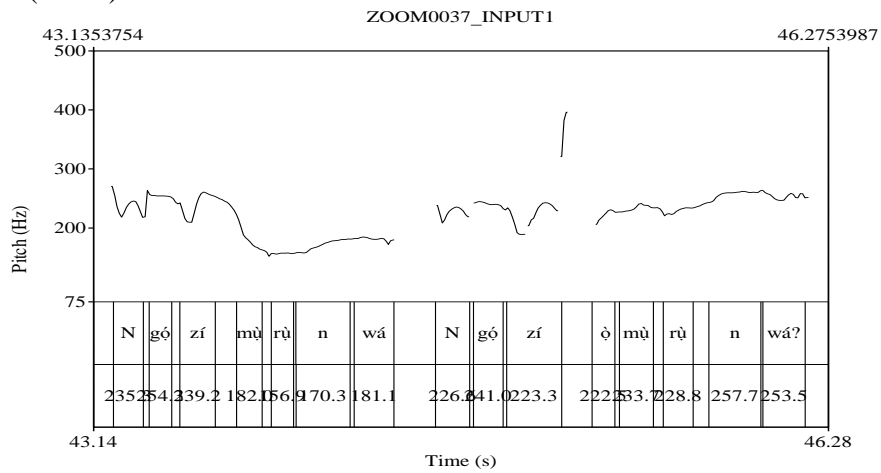
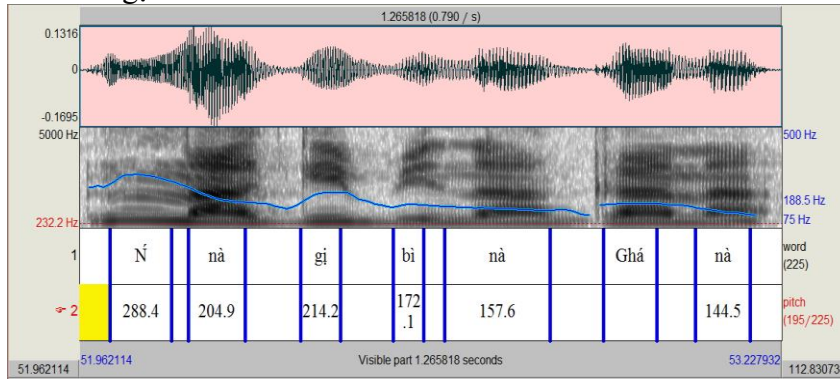
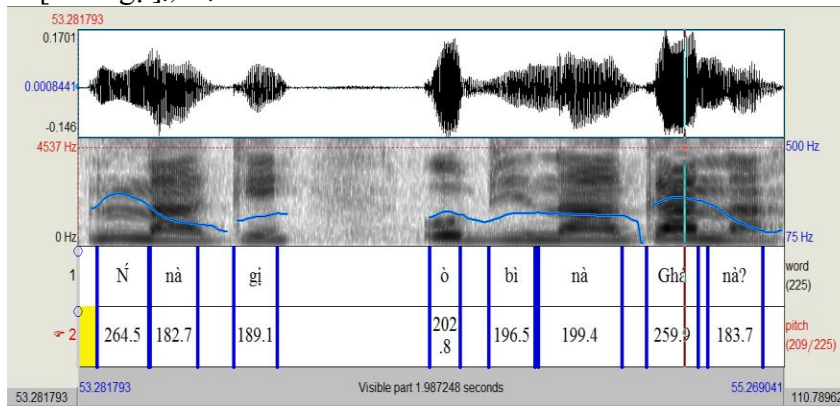


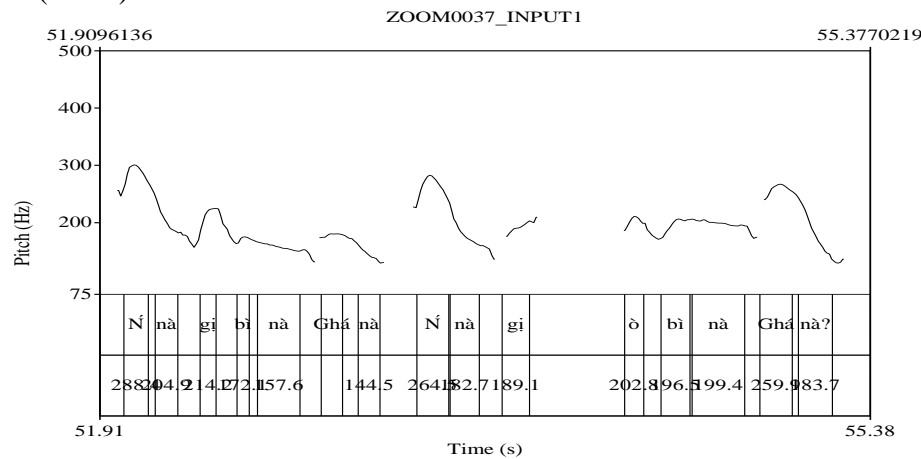
Figure 5: Pitch Tracks for (9a&b)
 9a. N'na gi bi na Ghana.



b. [N'na gi]i, o: bi na Ghana?



c. (9a&b) combined



As predicted, what is evident when the declaratives are compared to the interrogatives in (8) and (9) is that the heights of the pitch contours in the interrogatives are consistently higher than those of the declaratives. Given the fact that this prosodic difference is conspicuously significant, we conclude that the high-pitch intonation is crucial to the syntactic-semantic distinctiveness of IPQs in this category.

2.2.1. IPQs with R-expression Subject + clause-final particle

Two other forms of IPQ having R-expression subject exist in some Igbo dialects. These are IPQs containing a combination of the high pitch intonation and a clause-final particle. The particle shows up in two forms: one is a low-high vocalic glide (VV) particle, as evident in Eha-amufu dialect examples in (16) & (17).

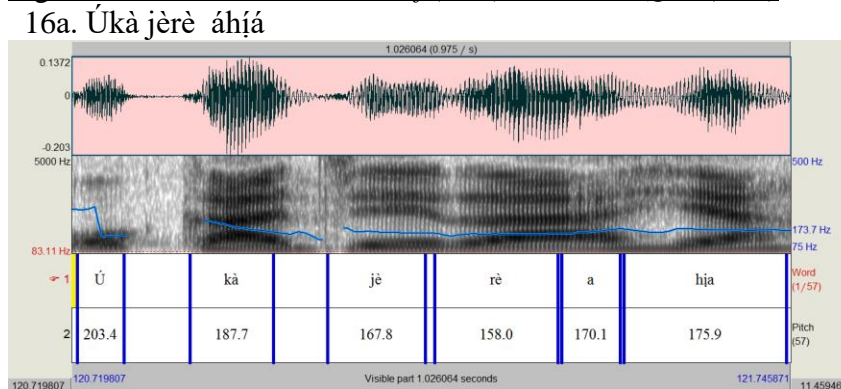
- | | |
|--|--|
| <p>16a. $\acute{U}k\grave{a}$ $j\grave{e}r\grave{e}$ $\acute{a}h\acute{í}á$
 Uka go-PST market
 ‘Uka went to the market.’</p> | <p>16b. $\acute{U}k\grave{a}$ $j\grave{e}r\grave{e}$ $\acute{a}h\acute{í}á\text{-}\grave{à}\acute{á}$
 Uka go-PST market-INTER
 ‘Uka went to the market?’ /
 ‘Uka, Did she go to the market?’</p> |
| <p>17a. $\acute{U}k\grave{a}$ $z\grave{à}r\grave{a}$ $\acute{u}l\grave{o}$
 Uka sweep-PST house
 ‘Uka swept the house.’</p> | <p>17b. $\acute{U}k\grave{a}$ $z\grave{à}r\grave{a}$ $\acute{u}l\grave{o}\text{-}\grave{o}\acute{o}$
 Uka sweep-PST house-INTER
 ‘Uka swept the house?’ /
 ‘Uka, did she sweep the house?’</p> |

The other is a CV particle, as seen in the Izii dialect example in (18).

- | | |
|--|--|
| <p>18a. $\acute{U}k\grave{a}$ $j\grave{e}r\grave{e}$ $\acute{á}h\acute{í}á$
 Uka go-PST market
 ‘Uka went to the market.’</p> | <p>18b. $\acute{U}k\grave{a}$ $\grave{e}\text{-}j\grave{e}r\grave{e}$ $\acute{á}h\acute{í}á$ $t\grave{o}$
 Uka PREF-GO-PST market INTER
 ‘Uka went to the market?’</p> |
|--|--|

One thing that is also noticeable in this IPQ subtype is the pervasive presence of the high pitch intonation impacting the constructions. This is evident in the pitch track diagram for (16) and (17) in figures 6 and 7.

Figure 6: Pitch track contours of (16a) and the IPQ in (16b)



16b. Úkà jèrè áhíá-àá

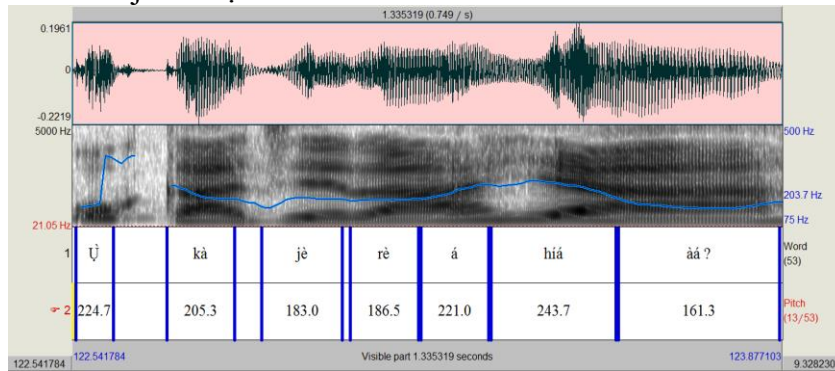
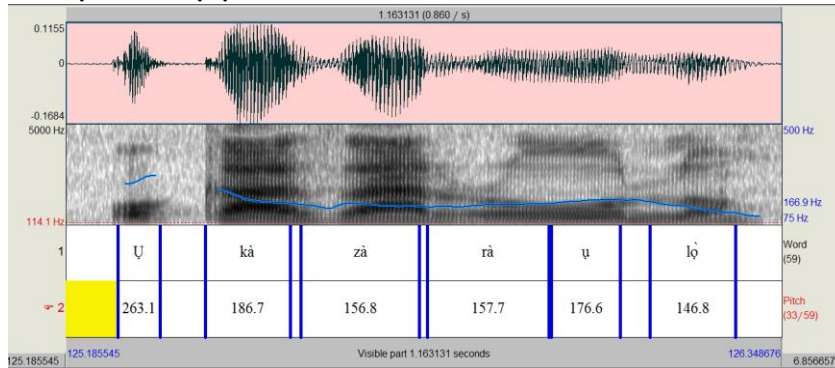
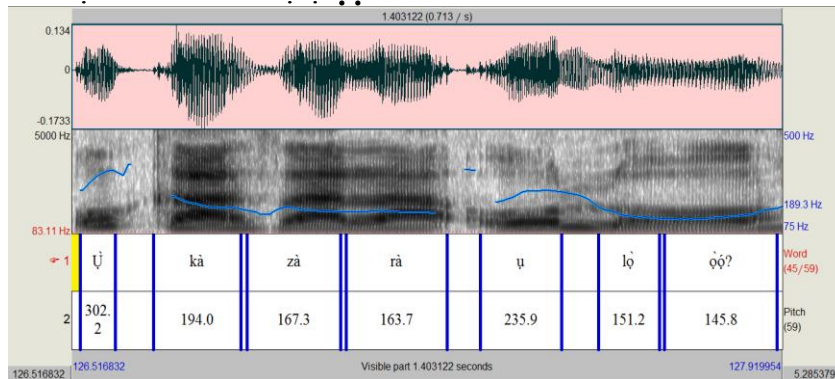


Figure 7: Pitch track contours of (17a) and the IPQ in (17b)

17a. Úkà zàrà ùlò



17b. Úkà zàrà ùlò-òò



Comparisons of pitch tracks of declaratives with those of the IPQs in this group show that the heights of pitch contours in the IPQs are consistently higher than those of their declarative bases, as differences in the pitch contours are conspicuously significant.

3. Igbo Polar Question Marker(s)

Given insights from the data samples and the pitch contour investigation of relevant constructions presented in section 2, we have strong evidence to opine that there are three discrete but connected functional items involved in marking and clause-typing polar question constructions in Igbo. These are enumerated and discussed in the following subsections.

3.1. High Pitch Intonation Prosody

This is a pervasive high pitch intonation in IPQs with an attendant phono-syntactic effect that impacts the whole of the IPQ clause. It results in high pitch frequency on all constituents in the IPQ (in contrast to those of its declarative counterpart) with the exception of the subject, which becomes lowered in pitch (see tables 1 and 2). We suspect that the prosodic effect of the floating low-tone is responsible for this pitch lowering on subjects². The implication of the ubiquitous presence of this intonation in all the IPQs investigated is that it is central to the syntactic-semantic distinctiveness of polar interrogation in Igbo. We therefore submit that this high pitch intonation is one, if not the core, of the items that clause-type polar questions in Igbo.

3.2. The Floating low-tone

This tone shows up in two different but similar ways. In the first context, it overrides the high-tone of IPQ subject pronoun/pronominal to effect a high→low tone apophonic switch evident on the subject of such IPQs (Emenanjo 1987, Uwalaka 1997, Amaechi 2018, etc.), as exemplified in (24) (cf. examples (1-4) and (5-6).

- 24a. **Ó** zùrù àlà n'Énúgū.
 3SG buy-past land LOC-Enugu
 'He/she bought piece of land in Enugu.'
- b. **Ò** zùrù àlà n'Énúgū.
 3SG buy-past land LOC-Enugu
 'Did he/she buy a piece of land in Enugu?'

In the declarative (24a), the high tone of the subject **ó** is suppressed by the immediately following interrogative floating low-tone / ` / thereby forcing the subject to become low-toned, **ò**. We assume that this is a case of tone deletion at morpheme boundary: #H# #L# → L.

The second context is found in IPQs with R-expression subject where it remains on the pronoun-like item commonly called resumptive pronoun in the literature.³ The floating low-tone interrogative marker shows up on the resumptive-pronoun/concord-marker/clitic in the IPQ output, as exemplified in (7) to (12). It is for this reason that earlier studies claim that the item **ò/ò** is a marker of polar question in Igbo. We, however, differ on that because evidence abound in Igbo to show that the item **ò/ò** in this context is a combination of the high toned **ó** and the floating interrogative low-tone / ` /, which we consider to be the actual polar question marker in that

² Further acoustic investigation can help with more detailed measurement of this lowering effect.

³ There is still divergence on the exact nomenclature for this element. While many consider it a resumptive pronoun, some have argued it is a vowel prefix functioning inside the VP at least in some dialects (see Green & Igwe 1963; Abraham 1967; Welmers 1970; Emenanjo 1973, 1987, 2015; and Nwachukwu 1976). Emenanjo (2015:271) however claims it is a clitic.

context. This logically follows given the behavior of the floating low-tone as explained in the first context which overrides the high tone of the subject pronoun via deletion: #ó# #/`/# → ò.

While the functional ability of the low-tone appears phonologically unprecedented and exceptionally phenomenal in that it suppresses even a high tone contra what we know to be the norm in the dynamics of tone systems (Yip 2000), data facts of Igbo language on the issue clearly support and establish it beyond any reasonable doubt, as evident in almost all of the examples investigated in the study, that the low-tone constantly overrides the high tone of subject pronouns/concord-marker (alias resumptive pronoun in the literature) in IPQs.

3.3. Clause-final question marking particles

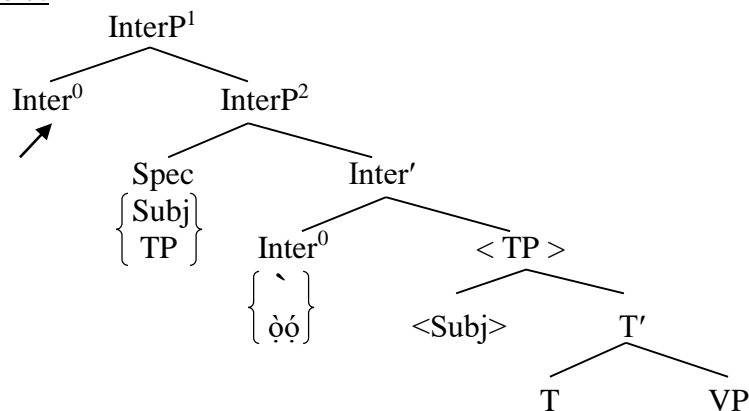
Some Igbo dialects, such as Izii and Eha-Amufu, as earlier hinted, do have clause-final polar question particles (see section 2.2.1.) combining with R-expression subjects without the floating low-tone or the clitic that houses it. Interestingly, IPQs with this structural pattern equally have the high pitch intonation (see section 3.1.) with the same impact just as it is in other IPQs so far discussed.

4. Syntactic Projection of Igbo Polar Questions: a Hypothesis

It is evident that the three items identified as polar question markers in Igbo (see section 3) work together in pairs to yield a single semantic distinctiveness of polar interrogation. We hereby hypothesise that each pair contains split parts of a single but structurally complex interrogative function morpheme having the shape {↗...`}/{↗... VV/CV}: where the upward pointing arrow stands for the high-pitch intonation; the dots represent the discontinuous nature of the morpheme; the grave accent represents the floating low-tone, and VV/CV represents the clause-final syllabic particle option, such as òó/tò, in dialects like Izii and Eha-Amufu.⁴

This complex polar interrogative function head is considered a discontinuous/splitting morpheme (a kind of circumfix) which sandwiches the subject of IPQs having pronoun/R-expression subject or the whole of the declarative clause in IPQs having R-expression subject + clause-final particles. We assume the sandwiching is a result of an internal merge operation which merges the subject/declarative TP to the discontinuous position of the morpheme, considered to be the Spec-InterP. Figure 7 is a configuration of this syntactic projection, as conceived.

Figure 7:



⁴ More dialectal studies are needed on this to ascertain the various forms of this available in the language.

The hypothetical configuration in figure 7 provides a unified account for the two patterns of polar questions identified for Igbo in this study, as it takes care of the projection of IPQs having pronoun subjects as well as those with R-expression subjects.

As indicated on the schema, each half of the polar question morpheme is an interrogative split head (Inter^0) of a single but complex interrogative phrase (InterP). To derive polar interrogative clause, Inter^0 selects TP as complement and probes it for likely items to attract to its specifier position to check off its interpretive features. In IPQs with pronoun/R-expression subject, the probe singles out the subject and gets it internally merged to Spec-InterP of the floating low-tone half of InterP . The contiguity of the raised subject and the floating low-tone Inter^0 made it possible for the low-tone to super-impose on the subject and suppress its tone via deletion. One strong piece of evidence that Inter^0 has interpretive feature in Igbo manifests in the floating low-tone overriding the tone of the raised subject even when such subject carries a high tone.⁵ On the other hand in IPQs having R-expression subject + clause-final particle, the probe singles out the TP and attracts it to Spec-InterP half of the VV/CV particle.

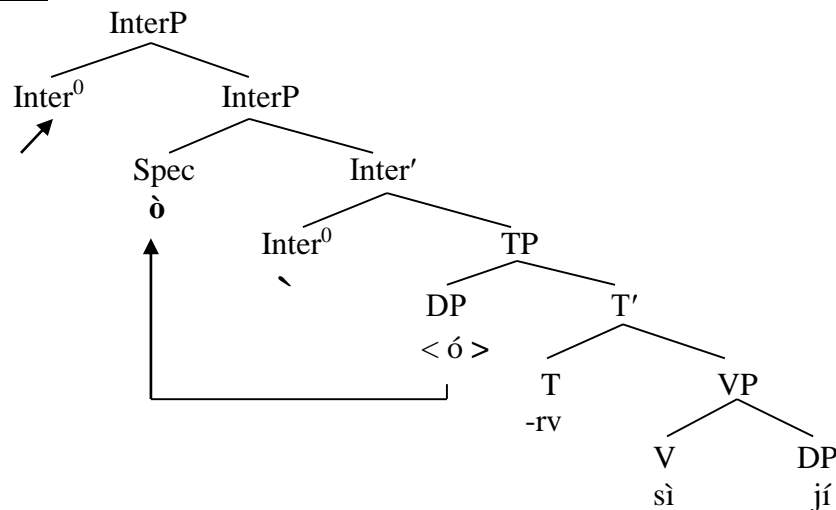
4.1. Testing the Hypothesis

In this subsection, we shall put our hypothesis on the syntactic projection of IPQs in figure 7 to test to see how it accounts for relevant data in the language. We shall begin by considering IPQs having pronoun subjects.

4.2. IPQs with Pronoun subject

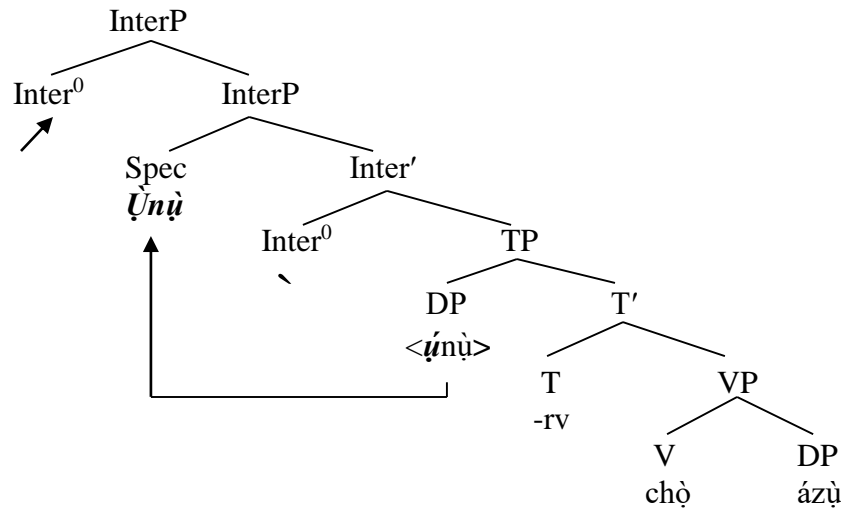
If we take examples (1), (3), and (5) as case studies, figure 8a accounts for examples (1) to (3) while figure 8b accounts for examples (5) and (6).

Figure 8a:



⁵ This is phonologically unusual, as the expected norm in tone systems is for a low-tone to get suppressed by a contiguous high-tone when both interact at the morphemic/word boundary. Surprisingly however, in this case, it is the high tone that gets suppressed by the low-tone.

Figure 8b:

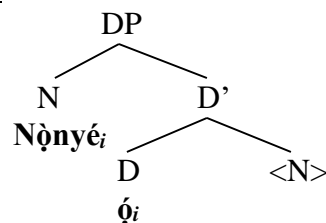


The syntactic projection illustrations in figures 8a and 8b show that, in line with our proposed projection configuration in figure 7, the polar interrogative forms of simple declarative Igbo sentences having pronoun subjects exemplified in (1) to (3), and (5) to (6) are derived by merging the polar Inter^0 morpheme $\{\uparrow \dots \}$ to each of them and subsequently raising the pronoun subject to spec-InterP where the floating low-tone Inter^0 overrides the tone of the pronoun and change it to low. In figure 8a, the subject pronoun \acute{o} is raised to spec-InterP where it eventually becomes the low-toned \grave{o} via the influence of the contiguous floating low-tone Inter^0 . The pronominal $\acute{U}nụ$ exhibits similar behaviour in figure 8b to become $\grave{u}nụ$ after being raised to spec-InterP. Our conclusion therefore is that the hypothesis in figure 7 adequately accounts for the derivation of IPQs in which pronouns exclusively function as subject.

4.3. IPQs with R-expression Subject

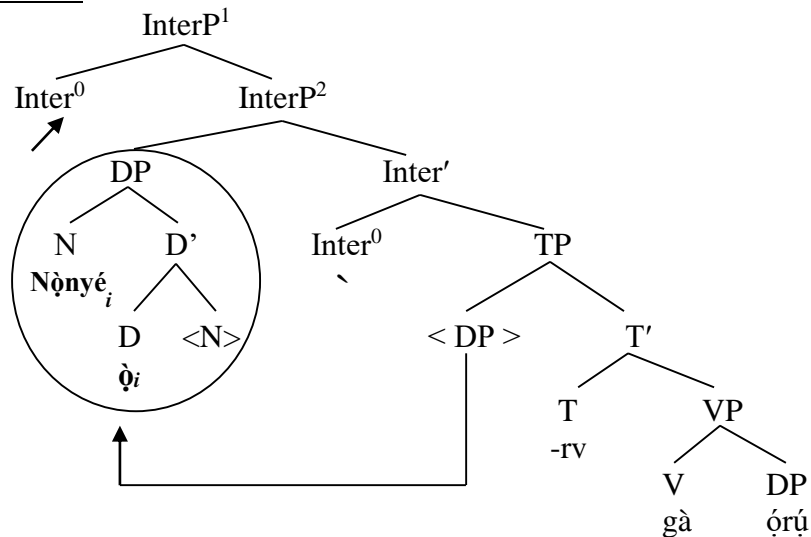
To account for the projection of IPQs having R-expression subjects, in line with the configuration proposed in figure 7, there is need to account for the source/base position of the resumptive/clitic element in the trajectory before and after the raising of the subject to Spec-InterP. We address this by recalling how resumptive pronouns are handled in the literature. Since the pronoun is not only contiguous to the subject but directly refers to it anaphorically, one option is to assume it is part and parcel of the subject such that the interaction between the lexical phrase and its resumptive reference would be like that of a concord marking clitic and its lexical host nominal phrase (cf. Emenanjo 2015:271). This makes a whole lot of sense if the subject is considered to be a DP such that the pronoun is a D head while N is its specifier, as illustrated in figure 9 using (7b) ([$\text{N}\acute{o}ny\acute{e}_i$, \acute{o}_i] g\`ara $\acute{o}r\acute{u}$?) as example.

Figure 9:



The implication of this is that the whole of the DP subject, as it is in figure 9, is the item that gets attracted by Inter^0 and raised to Spec-InterP to derive polar questions of this type. Therefore, the syntactic projection of IPQs having R-expression subjects can be accounted for using our proposed configuration in figure 7, as sketched out in figure 10.

Figure 10:



It should be reiterated at this point that it is after the DP subject of the declarative TP has been raised to spec-InterP, as illustrated in figure VIII, that the original high-tone of the clitic pronoun \acute{o}/\acute{o} changes to the low-toned \grave{o}/\grave{o} given the suppression from the floating low-tone Interrogative head (Inter^0).

4.4. IPQs with R-expression Subject + clause-final particles

Following previous works on African languages attesting to such clause-final interrogative morphemes (e.g. Nweh, Gungbe, Igala, Itshekiri, Njokoo, etc. as reported in Nkemnji 1995; Aboh & Pfau 2011; Ilori 2010, 2017; Olaogun 2018; etc.), as exemplified in (28) and (29), we consider such clause-final particles in IPQs as another halve of the complex interrogative head in the language, which combines with the high-pitch intonation (just like the floating low tone) to project InterP.

Igala

28a. Ì tákpa mé
3SG finish PERF
'It has finished.'

b. Ì tákpa mé ɛ ?
3SG finish PERF INTER
'Has it finished?'

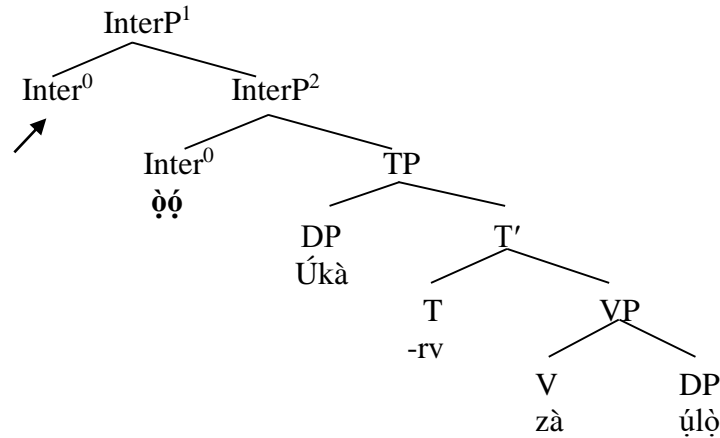
Itshekiri

29a. Akín rùlèkó
Akin-HTS go-school
'Akín went to school.'

b. Akín rùlèkó ò ?
Akin-HTS go-school INTER
'(Did) Akín go to school?'

This logically follows given that the clause-final particle is mutually exclusive of the floating low-tone. We therefore submit that the two occupy the same syntactic position which subcategorizes for the declarative TP as complement, as sketched out in Figure 11.

Figure 11:



To derive the convergent IPQ in this type of context, therefore, we propose that **InterP²** extends and its head (VV/CV) attracts the whole of the declarative TP to **Spec-InterP²** to yield the convergent output where the question particle shows up clause-finally. This process is as illustrated in figures 12a and & 12b.

Figure 12a:

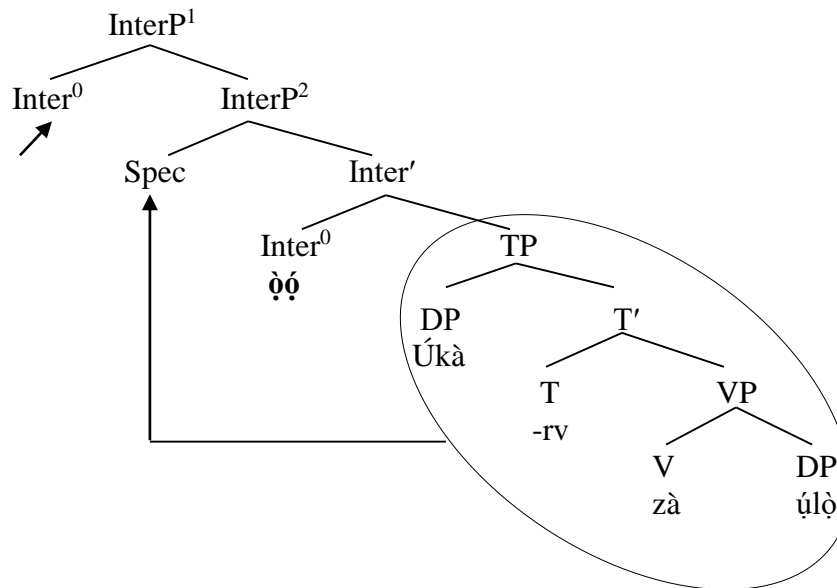
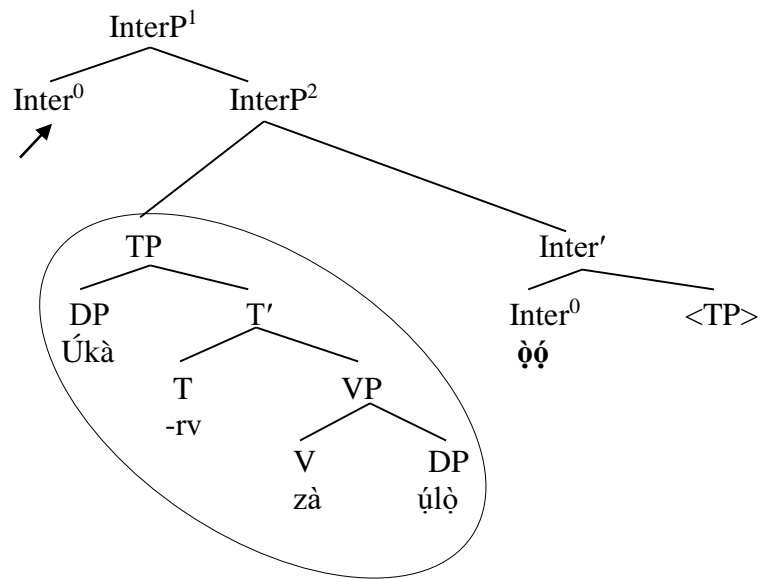


Figure 12b:



5. Conclusion

This study has contributed to knowledge on the syntax of Igbo polar questions in three significant ways: First it shows, for the very first time with instrumental based acoustic evidence, that IPQs employ a spreading high-pitch intonation alongside a floating low-tone housed on a subject concord pro-clitic often called resumptive pronoun or vowel prefix in the literature. Second, it demonstrates with both language-internal data and theoretical evidence that Igbo polar interrogative morpheme is a complex syntactic function head consisting of the high pitch intonation that combines optionally with two other items (namely, a floating low-tone; and a clause-final particle, which may be a VV glide or a CV morpheme). While the high pitch intonation and floating low-tone combination splits to sandwich the subject of the clause with the intonation scoping over the whole question clause; the combination of the high pitch intonation and clause-final particle is such that the clause-final Inter⁰ halve takes the intonation inter halve as a subcategorized complement, and subsequently attracts it to its specifier position to derive the resultant IPQ. Our submission therefore deviates from claims in the literature which point to a low-toned pronoun subject, on the one hand, and the low-toned resumptive pronoun in IPQs having R-expression subject on the other, as the markers of IPQs. Third, though not in any way the least, and if not the most significant, the paper worked out a unified account of the syntactic projections of IPQs.

References

- Abney, S. P. (1987) *The English Noun Phrase in Its Sentential Aspect*, MIT: PhD Dissertation.
- Aboh, E. O. (2004) *The Morphosyntax of Complement-Head Sequences: Clause Structure and word Order Patterns in Kwa*. Oxford University Press, New York.
- Aboh, E. O. (2007) "Information Structuring begins with the Numeration." Unpublished ms., Universiteit van Amsterdam.
- Aboh, E. O. & R. Pfau (2011) "What's a wh-word got to do with it?" in Benincà, P. and N. Munaro (eds.) *Mapping the Left Periphery: the Cartography of Syntactic Structures*, Volume 5, 91-124. Oxford: Oxford University Press
- Abraham, R. G. (1967) *The Principle of Ibo*. Occasional Publications No. 4. Ibadan: Institute of African Studies, University of Ibadan.
- Amaechi, M. (2018) Yes-no Question Formation in Igbo: the Phono-syntax Interface, *Journal of West African Languages* 45 (1): 78-87.
- Amayo, A. (1975) The Structure of Verbal Constructions in Edo (Bini). *Journal of West African Languages*, 10:15-27.
- Boersma, P. & D. Weenik (2014) *Praat: Doing Phonetics by Computer (Version 5.4.01) [software]*. uvafon.hum.uva.nl/praat/.
- Cheng, L. (1991) On the Typology of Wh-questions. PhD Dissertation, MIT.
- Cheng, L. & J. Rooryck (2000) Licensing wh-in-situ. *Syntax* 3: 1-19.
- Chomsky, N. (1995) *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- Chomsky, N. (1998) The Minimalist Inquiries: the Framework. *MIT Occasional Papers in Linguistics*, No 15.
- Chomsky, A. (2000) Minimalist inquires: The frame-work step by step. Michaels D. and J. Uriagereka (eds.) *Essays on Minimalist syntax in Honor of Howard Lasnik*. 89-155, Cambridge Mass.: MIT Press.
- Chomsky, Noam. (2005) Three Factors in Language Design. *Linguistic Inquiry* 36: 1-22.
- Chomsky, Noam. (2013) Problems of projection. *Lingua* 130: 33-49.
- Chomsky, Noam. (2016) Minimal Computation and the Architecture of Language. *Chinese Semiotic Studies* 12 (1): 13-24
- Collins, C. (2013) Introduction to Minimalist Syntax. African Linguistics School Lecture Handout. Ibadan, Nigeria.
- Collins, C. & E. Stabler (2016) A Formalization of Minimalist Syntax. *Syntax: A Journal of Theoretical, Experimental and Interdisciplinary Research*, Volume 19 (1) 43-78.
- Emenanjo, E. N. (1973) Igbo Pronouns. *Odinani* 2, 64-75.
- Emenanjo, E. N. (1987) *Elements of Modern Igbo Grammar*. Ibadan: University Press Limited.
- Emenanjo, E. N. (1979) Some Notes on Interrogation in Igbo. *Kiabara* 2 (2):102-111.
- Emenanjo, E. N. (2015) *A Grammar of Contemporary Igbo: Constituents, Features and Processes*. Port Harcourt: The Linguistics Association of Nigeria (LAN) and M & J Grand Orbit Communications Ltd.
- Green, M. M. & G. E. Igwe (1963) *A Descriptive Grammar of Igbo*. Berlin: Akademie-Verlag & London: Oxford University Press.
- Haegeman, L. (2006) *Thinking Syntactically, A Guide to Argumentation and Analysis*. Oxford: Blackwell Publishing.

- Ilori, J. F. (2017) 'Interrogative projections in Yoruboid Languages', *Journal of West African Languages* 44 (1): 1-21.
- Ilori, J. F. (2010) Nominal Constructions in Igálà and Yorùbá. PhD Dissertation, Adekunle Ajasin University, Akungba-Akoko Ondo State, Nigeria.
- Kari, E. E. (2005) Degema Subject Markers: Prefixes or Proclitics? *Journal of West African Language xxxii*, 12:13-20.
- Larson, R. K. (2010) *Grammar as Science*. Cambridge: The MIT Press.
- Kayne, R. S. (1994) *The Antisymmetry of Syntax. Linguistic Inquiry Monograph Twenty-Five*. Cambridge: The MIT Press.
- Nkemnji, M. (1995) Heavy Pied-Pipping in Nweh. PhD Dissertation, University of California, Los Angeles.
- Nwachukwu, P. A. (1976) Noun Phrase Sentential Complementation in Igbo. Unpublished Ph.D Thesis, SOAS, London.
- Olaogun, S. O. (2018) 'Yes/No and Wh-Question in Njokoo: A Unified Analysis', *Corela: Cognition, Representation, Langage* 16 (1): 1-16.
- Pollock, J-Y. (1989) Verb movement, universal grammar, and the structure of IP. *Linguistic Inquiry* 20 (3): 365-424.
- Radford, A. (2009) *An Introduction to English Sentence Structure*. Cambridge: Cambridge University Press.
- Radford, A. (2004) *English Syntax: An Introduction*. Cambridge: Cambridge University Press.
- Rizzi, L. (1997) The Fine Structure of the Left Periphery. In Haegeman, L. (ed.) *Elements of Grammar*, Kluwer, Dordrecht, 281-337.
- Rizzi, L. (2001) On the Position 'Int(errogative)' in the Left Periphery of the Clause. In G. Cinque and G. Salvi (eds.) *Current Studies in Italian Syntax: Essays Offered to Lorenzo Renzi*. Amsterdam: Elsevier-North Holland, 287-296.
- Uwalaka, M. A. (1997) *Igbo Grammar*. Ibadan: he Pen Services.
- Welmers, W. E. (1970) Igbo Tonology. *Studies in African Linguistics* 1, 3: 255-278.
- Yip, M. 2002. *Tone*. Cambridge: Cambridge University Press.