

Tonal phenomena in Igala



Liam C. Rinehart – BA Linguistics

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1 Introduction

Goals of the project:

- Describe observed tonal patterns with the help of acoustic analysis
- Identify possible correlations between tonal patterns and syntactic structure

Important concepts

- Tone** in language is the use of pitch to indicate meaning
- Tonological operation** is a phonological operation that changes tone between the underlying input and the pronounced output (Rolle 2018:18)
- Grammatical tone** is a tonological operation restricted to a specific morpheme, construction, or natural class of morphemes or constructions (Rolle 2018:19)
- Syntax-Phonology interface** refers to the ways syntax and phonology interact as syntactic input becomes phonological output
- The **Igala language** is spoken in Central Nigeria and is part of the Volta-Niger branch of the Niger-Congo language family

2 Tone inventory

- There are five lexical tones which distinguish morphemes in Igala:
 - High(H), Mid(M), Low(L), Rising(LH), and Falling(HL)**
 - bó* ‘mould’, *kpā* ‘kill’, *tà* ‘sell’, *òkà* ‘one’
- The distribution of the Mid-tone is limited, never appearing on a word-initial vowels
- There are also two additional, non-lexical tones which derive from the High-tone:
 - Extra-high** ([†]*á*) appears with negation and at the left-periphery in certain contexts (see section 5)
 - Downstepped-high** ([†]*á*) is phonologically predictable in certain contexts
- Downdrift** is a phonological process whereby the pitch range of a sentence will become gradually lower

Downdrift does not occur on

consecutive High-tones, as in Fig. 1

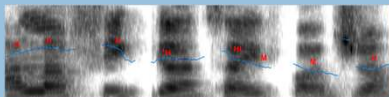


Fig. 1

3 Tonal interactions

Tonal changes at syntactic junctures following correction of vowel hiatus by elision

Noun + Noun

T1	T2			
	H	HS/H	L	LH
H	H	HS/H	H	H
M	M	M	ML	MH
L	M	M	L	LH
LH	LH	LH	LH	-
HL	HM/M	HM/M	H	H

- (1) HM HM → HMM (Èjèbá 2016:71)
 /ómī ómī/ → [óm]ómī
 water water → ‘watery’
 (Èjèbá 2016:68)

Verb + Noun

T1	T2			
	H	H	L	LH
H	H	H	H	H
M	M	M	L	LH
L	M	M	L	LH
LH	LH	LH	LH	LH
HL	HM/H	HM/H	H	H

- (2) LL L HH → LL MH (Èjèbá 2016:76)
 /idù tà álá/ → [idù tàlá]
 lion sell sheep → ‘A lion sold a sheep’

- The fact that this tonological operation depends the semantic class of the word suggests that is not a purely phonological operation
- It is possible though that this is still one uniform phonological operation, and the slight differences result from V + N being within a VP constituent and N + N in a DP constituent
 - This would indicate that tonological operations really are sensitive to syntactic hierarchy and constituency
- Advancing Downstep:** When a Low-tone is replaced by High-tone at a syntactic juncture, any following consecutive High-tones are downstepped:

- (3) LHH LHH → LHH[†]H[†]H (Èjèbá 2016:67)
 /ápáká ápáká/ → [ápáká[†]já[†]ká]
 smile smile → ‘smile’
- (4) L H LH → L H[†]H
 /ù né igá/ → [ù ní[†]gá]
 I rear estate → ‘I rear an estate’

4 High-tone spreading

- A High-tone on the last syllable of the subject will spread across a monosyllabic verb and onto the first syllable of the object
- (5) HH L LL → HH HL
 /á lá tà ùjò/ → [á lá tújò]
 sheep sell joy → ‘A sheep sells joy’
- (6) HM L LL → HM LL
 /ómā tà ùjò/ → [ómā tújò]
 child sell joy → ‘A child sells joy’
- Advancing downstep also occurs when a Low-tone is replaced by High-tone spreading:
- (7) HH L LH → HH H[†]H
 /á lá tà igá/ → [á lá tí[†]gá]
 sheep rear estate → ‘I rear an estate’

5 Focused subjects in the left-periphery

- There are two contexts where the subject is **focused** and High-tone spreading is subsequently blocked
- I. When focused with or without the focus particle *í*
- (8) HH L LL H → HH LL H > Compare with (5)
 /á lá tà ùjò í/ → [á lá tújò í]
 sheep sell joy FOC → ‘A sheep sells joy’
- II. In response to a subject question (‘Who did something?’)
- Plain narration:
- (9) HHH L LLL LHH → HHH HL LHH
 /úg^uúnú tà òbàlá ònàlé/ → [úg^uúnú t òbàl ònàlé]
 vulture sell cat yesterday → ‘A vulture sold a cat yesterday.’

- In response to a subject question (‘Who sold a cat yesterday?’):

(10) HHH L LLL LHH → HHH LL LHH
 /úg^uúnú tà òbàlá ònàlé/ → [úg^uúnú t òbàl ònàlé]
 vulture sell cat yesterday → ‘A vulture sold a cat yesterday.’

- When a High-toned subject is followed by a High-toned syllable, the subject has a visibly higher pitch when responding to a subject question, as in (11) and Fig. 2, compared to plain narration in (12) and Fig. 3

(11) HHH L LLL LHH → [†]H[†]H[†]H HL LHH
 /úg^uúnú bó òbàlá ònàlé/ → [[†]úg^uúnú[†] b òbàl ònàlé]
 vulture sell cat yesterday → ‘A vulture sold a cat yesterday.’

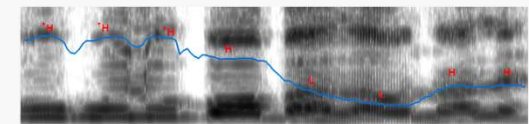


Fig. 2

(12) HHH L LLL LHH → HHH HL LHH
 /úg^uúnú bó òbàlá ònàlé/ → [úg^uúnú b òbàl ònàlé]

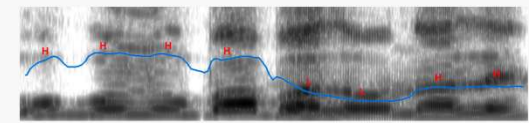


Fig. 3

- The High-tones in both Fig. 3 and Fig. 4 are ~250Hz, while the Extra-high tones in Fig. 3 are ~310Hz
- Many languages indicate focus by fronting constituents, moving them high up the syntax tree to the **left-periphery**; therefore, it could be that a focused subject in Igala moves from a lower position to a position where a High-tone can no longer spread rightward
- The contrast between Fig. 2 and Fig. 3 also suggests that focused elements are marked by Extra-high pitch, but this must be tested further

6. Main takeaways

- Juncture tone interactions are not purely phonological, they depend on either semantic class or distinct syntactic structures
- High-tone spreading is restricted by certain focus constructions
- If tone in Igala is sensitive to syntactic structure, then future research could improve our understanding of the syntax-phonology interface

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