Phono-semantic substitution
Victor Manfredi, Boston University

Abstract
The device of “tonal morphemes” (Welmers 1959), a type of “factual affixation” (Akinlabí 1996), has been much
depicted as applying in taxonomic and generative analyses of Niger-Congo languages, but it can’t express nonlocal prosody.
For example in Igbo object relative clauses, an obligatory and lexically spurious H tone points the right edge of the
crossed-over remnant subject: the Igbo [í]in “what Ugo [í] did” (Swift & al. 1962, 247f., 303f.; Green & Ígwú 1963, 88; Welmers & Welmers 1968a, 152; Nwáichúkú 1976a, 102f.)
In a constructional analysis, this token of H has no conceivable morphological mechanism, but the matter appears differently in the architecture of
Minimalism (Chomsky 1993), where representational levels are restricted to bare interfaces mapping internal syntax (i-language) to phoneme
concept of tones as exotic, phonemic quanta of paradigmatic minimal pitch contrast (Chomsky 1964, 68; cf. Halle 1959). The 60’s are back in style.

1. Typology meets blowback

It is at times objected that we do not know all the languages of the world, so that exceptions may exist. Neither does the zoologist know whether in
the virgin forests of Brazil a freak such as a five-legged cat may not one day turn up. Nevertheless, if he says that cats have four legs, this at least
carries considerable statistical value...

Typology—synchronic comparison—relies on reliable sampling of diverse languages, but in Niger-Congo the sample is blurred by blowback from missionary and colonial wordlists which underanalyzed native grammatical categories and birthed the stereotype of “tone languages” (Pike 1948, cf. Dediu & Ladd 2007, Everett & al. 2015), to enduring obscurantist effect.2

In Féè-feè (Benue-Kwa, NW Cameroun), translated English nouns choose among three levels of relative pitch, but sister languages make just a binary distinction and the respective high tones are etymologically mismatched (Hyman 1972, 129f.; 1976, 127).

2. Blowback, in the sense of unintended/own-goal feedback of deinformation from ostensibly external sources, is discussed by historians of espionage (Simpson 1988, Johnson 2008).
3. To appreciate the difference between generative (i-language) and taxonomic (e-language) approaches to accretion in such data, it suffices to compare Liberman’s analysis with Pike’s (1945).
4. Bennett-Kwa (Bk), alias Tano-Congo (Stewart 1983, 20) or East Volta-Congo, is a “dialect continuum” (Williamson & Blech 2000, 17) whose substructure was debated at the 15th West African Languages Congress (Port Harcourt, 1982) “as a consequence of the abandonment of the Kwa/Benue-Congo dichotomy” (Willamson 1989, 17, cf. Westermann 1927, 20, Greenberg 1963, 39f. 13, de Wolf 1971). Igbo and Féè-feè belong to the conservative side of Bk, within the “Semi-Bantu” peninsula (Johnson 1917, Talbot 1926, 87).
by the millennial arrival of “Optimality Theory” (OT), a grammar-external (e-language) procedure emulating outputs with lists of “static” (Cheng & Downing 2016) preference rules. OT is not a theory but a mere compiling procedure, computationally easier than Markovian derivations (E. Keenan p.c., cf. Fodor & Pylyshyn 1988, Idsardi 2006, Scheer 2010b, 214). Its theory-neutrality permits the revival of lexical phonology (Pesetsky 1979) as “stratal OT” (Kiparsky 2015), recapitulating syntax in post-spellout epicycles with logical circularity (Giegerich 1985, Kaye 1988, 1995, Scheer 2012, Lowenstamm 2013). Output-only purists may be correct that some regularities of the speech signal dissolve elegantly into parallel processing as gradient, “emergent” epiphenomena (McCarthy & Prince 1994), but other sound patterns still need to be captured categorially, as i-language, and either way, tonemes play no part. Even some front-line autosegmentalists now deprecate tones to a more modest role of “monodimensional… scales. directly interpreted in the phonetics” where “observed patterns of alternation… are typically random and arbitrary (Clements & al. 2010, 20 f., cf. Hyman 2010, pace Hyman & Schuh 1974). Their retreat from tonemes belatedly vindicates McCawley’s abstraction of tone as pitch accent (1964, pace Poser 1984, Hyman 2009).

The foregoing history echoes Jakobson’s (1953) verdict quoted above against the proverbial butterfly collector romping blithely through foreign fields (cf. Leach 1959). Much subsequent research points in a similar direction. Long before Government Phonology posed “the notion of a possible phonological system” (Kaye et al. 1985, 327, cf. Kaye 1988), Greenberg had begun to specify the limits of possible syntax, publishing 45 universals of a mainly statistical, implicational character (1966), presumptively reflecting a blend of formal and functional constraints (Kuno 1987, Keenan & Stabler 2003). Anticipating the best possible result of such inquiry on the formal side, Kayne’s Antisymmetry of Syntax concludes as follows:

To a significant extent, the L[inear]C[orrespondence]A(xiom)-based theory of syntax proposed here allows us to have the all-too-infrequent pleasure of seeing the theory choose the analysis. (1994, 132)

The utopian outcome defines typology as an isomorphism between the structures allowed by a given theory and the actual analyses of individual languages. In these terms, dissolving “tone languages” into phrasal accent would amount to progress, and the job is half done already. Greenberg (1970) aligned the prosodies of Japanese, Karok (NW California) and Slavic (Indo-European), while McCawley proposed a derivational source for the many similarities of Japanese with Igbo, Tiv and other BK languages (1970a,b, 1973, cf. Clark 1978). Such concessions are still insufficient, because tones are inadequate even as raw acoustical models, whether in “tone languages” or in Pierrehubert’s (1980) ad hoc ToBI format for English intonation (Dilley 2005, 2008).

6. Doctrinally functionalist typology is self-limited to “surface structure… universals which require only a minimum of abstract analysis”—ostensibly because more abstract analysis is “not feasible” given “limitations on resources devoted to linguistic research”, but more plausibly due to ideological “rejection” of generative grammar (Comrie 1981, 4). Such pessimism is belied by productive formal research conducted in African universities like Legon and Ìbàdàn by speakers of the languages under study. 7. Less insightfully, Greenberg repeated the urban myth that, in “a tonal language of the usual type, for example Yorùbà… [a]syllable in the word may have any tone.” (1970, 157). This was already disproved by Ward’s finding that “no noun vowel-prefix occurs on a high tone” (1952, 37, cf. Stahlke 1975), soon followed by an open list of further counterexamples, all implicating phrasal syntax in the missionaries’ translated “words” (see Akintábi 1985, Manfredi 1995, Harrison 2000, Déchaine 2001, Akinlabí & Liberman 2001, 2013).

1.1 Tonemarking convention

To write surface tones, I adopt the syntagmatic system first invented for Àkàn by Christaller (1875), later adopted and adapted for Igbo by non-Ìbàdàn scholars such as Swift, Welmers and Nwachukwu. In this approach, pitch diacritics track, not isolated syllables or orthographic words, but the entire spans between punctuation marks. For each such sequence, an acute accent (’) indicates the start of an H domain, a grave accent (”) begins an L domain and an unmarked syllable continues the domain to its left. A classmate sequence of H marks is downstepped, whether or not L intervenes (cf. Stewart 1965).

Ìbàdàn-based linguists were influenced by the structuralist “tone language” mindset of which Christaller was innocent, and for this reason they chose a different convention for Igbo, treating each syllable individually so as to show only paradigmatic pitch contrasts. Accordingly each L syllable is individually marked grave (”) while each H syllable is left unmarked, except that the first H syllable after a downstep juncture needs a special mark, which is either (’) (for Green & Ìgwè) or (”) (for Williamson, Êménànjò and Òwàlådàkà). Unfortunately however, it’s tricky to distinguish these special symbols from the grave accent in handwriting, and a second, more conceptual problem confronts users of this convention as well: how to mark the second H syllable after downstep. An imperative spelled Alàghá ahyà! meaning ‘Don’t leave the market!’ has phonetic tones H!HH H!H, but learners of the Ìbàdàn system usually write *Alàghá ahya! instead of the correct Alàghá ahyà. The same example is easier in the non-Ìbàdàn system with one acute per H span: Alàghá ahyà/

A third drawback of the Ìbàdàn system appears when an Igbo word appears in isolation, whether on a signboard or interspersed in English text, with no tone mark. Such a word can be read either as having all high tones or else as not tonemarked at all. This ambiguity doesn’t arise in the non-Ìbàdàn system, for which every stretch of Igbo text necessarily starts with some tonemark, either acute or grave, otherwise we know that tones aren’t marked at all. 8

2. A relevant paradigm

In Standard Igbo, any L-final, finite subject that’s descriptively ‘crossed’ by an A-bar path obligatorily adds a lexically spurious H tone at the end (Swift & al. 1962, 247f., 303ff.; Green & Ìgwè 1963, 88; Welmers & Welmers 1968a, 152; Nwachukwu 1976a, 102ff.; 1995). Thus the name Ígù (‘eagle/chieftaincy title’) keeps its LL citation pitch in (1), but in (2) its final syllable must be pronounced with either H or LH (Lexically spurious tones are underlined). 9

8. A hybrid approach enriches the syntagmatic system with a special paradigmatic symbol for post-downstep H: [“] (Swift) or [”] (Nwachukwu 1976a,b). It’s debatable if this amounts to the best or worst of both worlds. 9. In data like (2), Green & Ìgwè transcribe mostly final LH but occasionally plain H (e.g. 1963, 88, 192). In the same context Swift and Welmers consistently write H and Nwachukwu consistently writes LH. Clark treats the LH rising contour as abstractly “hirmoric” ([1989, 27f & 2]. The pitch of ‘house’ in (Za) is discussed below.

Glosses in this paper include the following. [!] = downstep. CL = a toneless argument-type clitic, sensitive to aspectuo-temporal structure (cf. Manfredi 2005b). Q = a yes/no polarity operator pronounced as lexically spurious L. fn. = pronic finite inflection, sometimes pronounced as lexically spurious L cf. (13 below).

Pitch tracks and audio of all examples will be posted at people.bu.edu/manfredi/PhonowSubcode.html.
This nonlexical H is not some trivial, local morpheme: it appears uniformly, across dialects, to understand if òtú 1pl 3s be U.-H establish.FIN-CL house ‘The antelope that climbed uphill’

Each example in (5) shows three tone changes at once: (i) subject LLL—LLL [LL L L LL HL L L] (ii) predicate head L—H [HL LL HH LL] (iii) internal argument HH—H [HH HH HH HH]. Observing the same rules ceteris paribus in the genitive phrase alias “associative construction”, Òwàchùkù [1976a, 154-61] unifies both patterns as restrictive adnominal modification, but reduction to a single format is incomplete without identifying a shared motivation for the triple prosody. The issue is complicated further because the same H mark shows up optionally in a nonsubject relative (6a) yielding (6b), “an intonational variant” conveying “added emotional force” (Green & Ògù 1963, 89) before any tone other than lexical H i.e. before either lexical L or derived H (Williamson 1986). Mysterious as in (5b), cf. Swift & al. (1962, 380f.) The shift li—li fixes the general pattern that the right edge of the head possesses a genitive phrase, if not lexically H, becomes H before any tone other than lexical H i.e. before either lexical L or derived H (Williamson 1986). Mysterious as phonology, the shift evokes bankal syntax that a genitive modifier occupies a separate cyclic node (DP or KP), the fact that Ógu built a/the house is useful!

To my knowledge and with one brief exception—see §3 below—the prosody of Òbò object relatives has never been contemplated as syntax. Subject relatives are a different matter.12

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10. For the distinction in Òbò, cf. Robinson (1974) and Goldsmith (1981a). Some Niger-Congo languages have been argued to allow only one or the other but not both (Adéqù 2004, Torrænse 2013) cf. fn. 11 below.

11. (3a) is modeled on Òwàchùkù [1976a, 257, cf. 1985]. (3c) contrasts with subject clcf, a structure that’s grammatical in Òbò with or without a resumptive clcf: *(3a) Ògu ka (ò) 3s be u.-H establish.FIN-CL house ‘That’s that house that Ógu built’ *(3c) Ògu built a/the house ‘The fact that Ógu built a/the house is useful!’

12. In (5a) as in (2)—cf. fn. 9 above—final H is a dialect variant of (downstepped) final H on an L-final subject. The 1 of rule (ii) deletes following ‘ks’ as in (5b), cf. Swift & al. (1962, 380f.) The shift kè—kè fixes the general pattern that the right edge of the head possesses a genitive phrase, if not lexically H, becomes H before any tone other than lexical H i.e. before either lexical L or derived H (Williamson 1986). Mysterious as phonology, the shift evokes bankal syntax that a genitive modifier occupies a separate cyclic node (DP or KP), the fact that Ógu built a/the house is useful!

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The SVO order of (5) leaves triple nonlexical H as the sole audible cue of modifier syntax.\(^{15}\) In (2) by contrast, the linear order O\(V\) [S V \_] makes spurious H cue strictly redundant in functional or taxonomic terms, nor is it the only pitch redundancy that object relatives display. In a pregnant footnote, Green & Ígwè disclose a decision to “conventionalize”—descriptively suppress—a tone change that’s heard in topic positions including object relative antecedents:

> In constructions of this type, an inherent high tone final syllable of the first noun [sc. dislocated object] will have the same tone level as an inherent low tone initial syllable of the second noun [sc. subject of the relative clause]. Thus if \(ji\) is the first noun and \(áɓ\) the second we get:
> 
> \[
> \begin{align*}
> áɓ & \quad \text{áɓá ɓá} \\
> \text{anym. i. pears} & \quad \text{cut-out FIN-CL}
> \end{align*}
> \]
> 
> “The yam plant that the peartree smoothed”

...For convenience of tone notation, however, we conventionalize by writing the final syllable of the first noun and the initial one of the second with their inherent [sc. citation/lexical] tones. ...Analogous examples will be found on p. 106, 134 sq. and pp. 192, 194, 196...

All A-bar pitch effects are not equal: the spurious Es above are absent “[in slow speech] (Green & Ígwè 1963, 91) whereas the spurious H in (2) is obligatory at any tempo. This asymmetry is mysterious if couched in terms of tones, but easier to comprehend if high tone is the phonetic output of a pitch accent, while spurious L is deaccenting.\(^{17}\)

In sum, the spurious H of (2) is neither construction-specific morphology, nor an edge effect but makes no intrinsic connection to syntax or to relational prominence of information structure in discourse, uniform across the Igbo-speaking area, but is observed in many localities including Ígbọzú, Ówéré, Nínè́wé and Ónjá (Eménrọ 1985, 79, 121, 155, as well as Ígwé’s own Òmà́yáhù, although not in Ìbàsíä (P. Ígwaάèhû 1989).\(^{18}\)

...The complementary context

Green & Ígwé hint that the obligatory prosodic signal in (2) is not arbitrary:

\[
\text{Subject verb form I, Subordinate, Relative B} \\
\text{Noun subjects of tense group I [\(\text{\textbullet} \text{ending in H}\)] keep their inherent tones and those of tone group II [\(\text{\textbullet} \text{ending in L}\)] have non-inherent tones in which their high final is relative to the tone of the verb. The tonal behaviour of noun subjects [sc. in object relative clauses] is thus the reverse of that for the main [nonrelative] form. In the main form... we had Òghụ rí \(ji\)). The tone at the yams. In this form we have \(ji\) eghu rí \(ji\) ýíyì. Since “The yams the goat ate were many”. (1963, 87f.)
\]

To restate: obligatory, spurious final H on the subject of an object relative clause blocks anticipatory spreading to the subject of the surface L of a finite verb. The latter rule is not

15. In Ìbàsíä, intrasitive subject relatives add a segmental cue: toneless final n\(j\) (Nwáchukwu 1976a, 353 fn5).

16. In Green & Ígwé’s “analogous examples” above, both syllables of a dislocated HH argument are lowered. The spurious \(\text{\textbullet} \) of “stew” is explicitly flagged by them, while the H(\(\text{\textbullet}\)) of “farm basket” is implied by their quoted text. Presumably also, \(\text{\textbullet} \) “house” in (2a) and \(\text{\textbullet} \) “race” in (6a) lose their H tones in fast speech.

17. “Privative tone” (Hyman 2001) being accentual in all but name. Clark keeps track of the \(\text{\textbullet} \) data (1999, 48-51) but make no intrinsic connection to syntax or to relational prominence of information structure in discourse.

18. In Ónjá (\(\text{\textbullet} \) “colonial “Onitsha”), the anticipated finite L is salient in hypocoristic names like Chúùdî and Chúùdîni, reduced from Chúùjú-u ma “K. knows” and Chúùjú-u di “C. exists” (Nwáchukwu 1976b, 138).

19. Much of the literature copies Green’s “colonial-era practice of naming the geographical Òmà́yáhù dialect after an ethnic fraction, in this case Rev. Ígwé’s own Òghụ, a maximal lineage of “clan” (IGWE 1989, 657).

20. Clark obtains the effect of (8) by adding a moraics floating L, “clitic” (1989, 190) under Infl in the “1 Main” form (“Wellmer’s ‘functionless’”), but she must then coincidentally delete the mora of this clitic just in case the preceding subject ends in L. Her analysis does explain the failure of (8) to apply just in case the verb has a morphologically specified, overt vowel prefix as in Green & Ígwé’s “2 Main” form, cf. (16) below. This may be the best that can be done under the standard, indirect architecture of syntax-phonology mapping.

\[(7) \text{a. } \text{Ekwé-e wu-rn} \quad \text{úló.} \text{ establish.FIN-CL house ‘E. built [a] house’}
\]

\[(7) \text{b. } \text{Amákà-á li} \quad \text{ún.} \text{ wọy.} \text{ cat.FIN food DÉIC ‘A. ate that food’}
\]

\[(7) \text{c. } \text{Dikúùjá (-z) a-rá} \quad \text{úyó.} \text{ D.-L skim.FIN-CL house ‘D. swept [the] house’}
\]

\[(7) \text{d. } \text{Jí ófe} \quad \text{gùyú-rụ} \quad \text{ú} \quad \text{ówẹ́rì.} \text{ Ontó-gùyú-rụ} \quad \text{ú} \quad \text{O. built [a] house’ (1976, 175, cf. 24, 45).}
\]

(8) \text{CV} \quad \text{vp} \quad \text{CV} \quad \text{T}

But such neatness is illusory, because crucial inflectional features are only covertly smuggled in with Green & Ígwé’s paradigm label of “1 Main”.\(^{20}\) If (8) was really phonology, how would it not also apply in (2) and (6a) where its structural description is duly met? Assuming for concreteness an autosegmental formula like (9) covering the data in (2), the question is what principle of grammar ensures that (9) and (8) are disjunctively ordered in an “elsewhere” blocking relation (Kiparsky 1975). Somehow or other, phonetic complementarity is obtained from the morphosyntactic labels themselves—a dead giveaway to direct mapping.

(9) \text{CV} \quad \text{vp} \quad \text{CV} \quad \ldots \quad \text{[p təu]} \quad \ldots \quad \ldots

\[(8) \text{faces more difficulties. Goldsmith (1976, 128-33) cites Green & Ígwé (1963, 75ff) to prove that the feature geometry in (8) ignores the particular tone content of the cover symbol “T”. Tone flop applies not only if copular -di is pronounced L (10a) but also if it’s pronounced H when compounded with -ri “remote past” (10b). Similarly, it’s indifferent whether -ji’ ‘grip’ is pronounced L (11a), or H as triggered by the L-initial complement anyi ‘I’p (11b).
\]
to known binary systems (Manfredi 2009a). Specifically for Igbo, neither Òweré nor Mbasień
nor any other variety separating the three root classes in (13) distinguishes more surface tones
than any dialect in which a three-tone-class distinction of roots is not made. Therefore
the appeal to tone features to separate the three classes in (13) is both diacritic and speculative.23

Remarkably, however, (12) can be separated from (10) and (11) in derivational terms:

(14) The 'H that flops (10b, 11b) is derived from spurious L (10a, 11a), whereas the 'H that fails
to flop (13) has no history as either L or L (13). Therefore, tone flop correlates with—is
epiphemological to—whatever causes a root to be pronounced with L or L in the finite form.

If so, the surprise in (13) is not the prosodic consistency of roots like -ri- 'eat' bearing the same
tone in both infinitive and finite forms, but the inconsistency of roots like -nye- 'give' with
infinite H but finite L. To obtain lowering with the latter set, Welmers posited a "low tone
replace" process morpheme (1970a, 51), harbingers of DM-style post-syntactic "realization
rules" (Halle & Marantz 1993), while Goldsmith indexed the "1 Main" label to an L
"melody", one of a laundry list of inflectional tone formulas (1976, 122) amounting to
"precompiled" outputs à la Hayes (1990). These analysts found on dialects like Òweré and
Mbasień where, as just noted, exceptions to finite H—L (i) constitute an open lexical class and
(ii) are also systematic exceptions to (8). Encountering similar puzzles elsewhere in Benue-
Kwa, tone mavens prefer to accept non-Markovian "globality" (Hyman 1982, Hyman &
Valinande 1985) than to contemplate direct syntax mapping. But even granting to tones such
generous allowances of theoretical opportunism, it’s still mysterious why the
J Main—H—L rule is not the inverse (L—H) not to mention why syntactic configurations should be so
finicky about tones when they’re so indifferent to vowel and consonant quality. In
retrospect, the multiple failure of rule (8) is an unanswerable argument against the alleged
"autonomy" of tone and the autosegmental notation into which that premise is hard-wired.

In direct syntax-prosody architecture, McCawley’s accentual theory applies to good effect.
Suppose that Igbo phonetic L is neither an autosegmental atom nor a categorial specification
of tone features but the e-language output in F0 (perceived pitch) of a metrically weak timing
slot. Then the spurious L that replaces citation H in the J Main form of a root like -ri- 'eat'
(Ómááhyá) or -nye- 'give' (all dialects) qualifies as VP-initial de-accentuation, motivated as a

22. All known varieties of Igbo are prosodically binary: only H and L contrast after L, and only H, H and L
contrast after H. Antidownstep (downstep reset) is possible only in the same phrase as a preceding downstep
(Manfredi 1992) and this makes nonsense of Šil’s "superstep" (Pike & Wiestrand 1974, Meir et al. 1975). More
confusion arrived with the resurrection of an Igbo "middlėtone" tone (Ikejeanyi 1982, 6; Anyaunwi 1998)
long after its burial by Winston (1960) in E£k, a language tonally isomorphic to Igbo (Green 1949), and by
the great grammars and dictionaries of Swift, Welmers, Williamson, Nwachukwu, Úwúalaika, Ómáánjọ and
Igwe. Green & Igwe insist that their "middlė tone" is a "relative tone" and cold Pike for boitching the Igbo face.
Dr. Pike has ultimately failed to grasp the relative nature of the méd tone in Igbo and has
altered the tone notation of the examples he has quoted from Ida Ward in his book and has thus
misrepresented the total system of the language. Nor does he in his book envisage the possibility of
such a relative tone, see Pike (1948, 31).

23. Prosodic invisibility in the domain of certain suffixes, affecting the Òweré/Mbasień ‘give’ class, also seems
to hold for the Class 3 roots of Gikyà (Harrity 1952) and for the “changing verbs” of the Chadic language
“relational” corollary of VP-final nuclear stress (Liberman 1975, 51).  Support for this idea includes the fact that 1 Main inflection—the stated, crucial context for Welmers’ “low tone replaceable” morpheme as well as for Goldsmith’s “melody” of listed L—demands a surface branching VP. Comparing (15) with (7) shows that, if the free internal argument of a 1 Main predicate is elided anaphorically in discourse, an echo copy of the CV root inside a bound defective phase head, so C0 spells out its entire TP complement all at once. This has many observable consequences. By themselves, uninflected Igbo predicates (verbs or VPs) are inflection—the stated, crucial context for Welmers’ “low tone includes the fact that 


27. (17) is drawn from Igbo/a, but the same contrast holds in almost the whole Igbo cluster. One exception is Agho (“Agbor”), which lacks a 1 Main form, while all suffixes are optional in its 2 Main correspondent.

28. As hinted in fn 20 above, Clark accounts for the absence of tone flop in 2 Main by treating tone flop itself as an empty mora attached to an L tone inserted specially in the 1 Main form (1989, 1990). This analysis “works” mechanically, so long as there is no theoretical cost attached to deleting the same abstract mora just in case (i) the subject ends in L tone or (ii) the CV predicate begins on a nonderived HL, plus (iii), changing the L to H in case the CV predicate begins on derived HL, while also deleting the immediately following downtone.
that has long puzzled the Ìgbo literature. In the subjunctive (alias "imperative" or "hortative")

property, which remarkably enough has independent support from a covert lexical property

ì

g

gh

30. Thus at worst, tone flop is an optional 'parameter' distinguishing Ò weré (yes) and M

29. Ìgbo's trochaic prosody is reflected in four independent traits: (i) strong F0 raising of domain initial L, (ii)

strong F0 drop in automatic and nonautomatic downstep, (iii) rightward spread of H onto L (in western ìgbo

and in Edo, cf. Amayo 1983) and (iv) some downsteps are scootereverable from elided L. All four of these

characteristics are jointly absent in iambic 'two tone' languages like Akan and Hausa (Manfredi 1993, 2004).

Thus at worst, tone flop is an optional 'parameter' distinguishing Òweré (yes) and Mbasisén (no) as a near

minimal pair. But further research could still find a reason for the differing choice of these two dialects.

Goldsmith noticed Green & Ígwè's cases of tone flop from a VP that begins on downstepped

H (10b, 11b), but Êmenjío's counterexample (12) shows that the downstepped H must be

derived from a root which is pronounced L or L, then raised just because it is monosyllabic and

followed immediately by L. This conditioning factor is not easily expressed in phonology,

both because syllable-counting is an exotic restriction for an autosegmental rule—interactions

on the tone tier can't count association lines—and because a stratal ordering framework will

need to strain mightily to ensure that phrasal sandhi precedes a word formation rule.

None of these falls in the invariant H of the 'eat' class. The following hypothesis then occurs:

(21) CV roots which are lexically footed (x x) require OVS in the present perfect (2 Main) form.

At first glance, (21) holds for all 40 roots listed in the 'eat' class by Swift & al., but it would be falsified by any invariant H root in a 3-class dialect for which OVS is not obligatory.31 Pending disproof, the generalization in (21) supplies a second convergence cue for the branching accent analysis of the 'eat' class in (18), and vindicates McCawley's radical insight that phonemic tone—an inductive taxonomy of paradigmatic pitch contrasts—masks the more

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Just as we found with the -na (non-time) suffix being used to differentiate homophonous verbs, so we

find the open vowel suffix being used, apparently for the same purpose. For instance with the two

forms, a subset of CV roots require a so-called Open Vowel Suffix (OVS):

\[ \text{I bújìn-la ya?} \quad \text{Has you seen it?}, \quad \text{but} \]
\[ \text{I bújìn-ẹ̀n-la ya?} \quad \text{Have you roasted it?} \quad \text{(Green & Ígwé 1963, 53, 57f., cf. Ígwé 1973)} \]

Not only is the OVS obligatory—independently meaningless—in the present perfect (2 Main) form of roots like -h(w)jìn 'roast', but with roots like like -h(w)jìn 'see' for which it's optional, its presence in this same inflectional context adds an entailment of 'already':

It will be observed that this [open vowel suffix is consistently taken by verbs like ìgbú and ìrè ...]

i. [...].

ï.

ígbú on the other hand, consistently does not take it. But when in the [present] perfect tense and

[present] perfect tense only, ìgbú takes an open vowel suffix, a new element of meaning emerges thus:

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Have you once seen him (today)?} \]

È. \[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].

\[ \text{I ìgbú-α-ńa (t)ľa?} \quad \text{Yes. I have once seen him} \]

[...].
clause (23b) is only other instance reported in Green & Ígwè’s grammar of Òmááhýa, apart from I Main inflection, where a predicate root loses lexical H.33

In both paradigms (2a) and (23a), the spurious H of an object relative clause coincides with T0. This is unlikely to be a phonological, tonal accident, given the finding of this section that the prosody of lexically spurious tones in object relatives is syntactic and accentual under a direct mapping regime of PF spellout. With the last piece of the puzzle—the fact that a 2 Main predicate is deaccented if crossed by an A-bar chain (23b)—the superficial tone rule dissolves into the syntactic interface:

\[XP \rightarrow T \rightarrow \text{Subject T0} \rightarrow \text{VP Root} \rightarrow \text{XP}\]  

PF: T0 → x̄-r̄-phonetic H] if its complement VP is nonbranching and deaccented.

In effect, the lexically spurious H of object relatives is a last-resort spellout operation, ensuring that the remnant of movement is prosodically visible.34

(24) is presumably not the only generalization of this type across the grammars of the Benue-Kwa zone. It can be compared to the cyclic accent in Yorùbá, whose denser pattern of accents alias “grammatical H tones” would follow from the smaller size of the phrase in BK2, with VP spelled out separately from TP (cf. fn. 19 above and Manfredi in press).

4. Cyclic spellout and the phrasing of subjects

The cyclic character of the pattern in (2) was established by Tada (1992) who elicited a doubly cyclic embedded object cleft (25a) containing three instances of spurious H on the three crossed subjects. He compared this to French (25b) ‘stylistic’ inversion (Kayne & Pollock 1978, 606, cf. Goldsmith 1981b and the Appendix below), though a closer analogue is (25c) in Castillian subjects. He compared this to French (25b) ‘stylistic’ inversion (Kayne & Pollock 1978, 606, cf. Goldsmith 1981b and the Appendix below), though a closer analogue is (25c) in Castillian subjects. He compared this to French (25b) ‘stylistic’ inversion (Kayne & Pollock 1978, 606, cf. Goldsmith 1981b and the Appendix below), though a closer analogue is (25c) in Castillian subjects. He compared this to French (25b) ‘stylistic’ inversion (Kayne & Pollock 1978, 606, cf. Goldsmith 1981b and the Appendix below), though a closer analogue is (25c) in Castillian subjects. He compared this to French (25b) ‘stylistic’ inversion (Kayne & Pollock 1978, 606, cf. Goldsmith 1981b and the Appendix below), though a closer analogue is (25c) in Castillian subjects.

Appendix: Subject inversion in root sentences (Goldsmith 1981b; Íhìóò 1985; Èzé 1995)

(i) Ányi-i ga-ra àhiá. 
**What J. buy.PARTICIPLE**
\[\text{Je me demande que } J. \text{ a acheté.} \]
\[\text{1S-I ask what J. bought.} \]

(ii) Á gà-ra àhiá.
**proANISO-go.FIN-CL market**
\[\text{Je ne sais pas qu’Élisabeth a acheté.} \]
\[\text{I don’t know what Élisabeth bought.} \]

(iii) Á gà-ra m(y) àhiá.
**proANISO-go.FIN-CL S1 market**
\[\text{J’ai acheté tout ce qu’elle voulait.} \]
\[\text{I bought everything she wanted.} \]

(iv) Á mà m(y) a-gá ahiá.
**proANISO-DER S1.NOM-go.market**
\[\text{Maman m’a apporté de quoi elle avait besoin.} \]
\[\text{Mom brought her what she needed.} \]

(v) Mù a-mà á-gá ahiá.
**S1 NEG-NEGUT go.market**
\[\text{Je ne suis pas allé(e) à la ferme.} \]
\[\text{I didn’t go to the farm.} \]

(vi) Ó sì na [mu gà-ra áhiá].
**S1 say that IS-go.FIN-CL market**
\[\text{Il a été invité à un dîner chez les parents de sa femme.} \]
\[\text{He was invited to a dinner at his wife’s family’s home.} \]

(vii) Á à-xì go.FIN-CL market
**I usually go to [the] market**
\[\text{Je ne viens pas souvent à la boulangerie.} \]
\[\text{I don’t often go to the bakery.} \]

(viii) Ebin’ kà [mu gà-ra]?  
**where that IS-go.FIN-CL market**
\[\text{Où est-ce que tu vas?} \]
\[\text{Where are you going?} \]

(ix-a) VCV: caseless, noninverting
\[\text{ñòññ ‘1P’, ñòñ ‘2P’} \]

b. CV: caseless, inverting
\[\text{mù ‘3S’, hà ‘3P’} \]

In Òmááhýa, inversion of h₃ ‘3P’ is optional (Green & Ígwè 1963, 75, 94).

33. The literature does not report if root deaccenting applies to -á, whether in Òmááhýa or in Owerê/Mbaïsên.

34. Mainstream syntax references not PF visibility (audibility?) but “agreement” (v. Úrk & Richards 2015). As a working compromise: some “boundaries… in narrow syntax” are “prosocically active” (Richards 2016, 77).

The bad binding configuration (26b) does not arise in embedded left-peripheral interrogatives, which are grammatical in French without subject inversion (26c), thanks to a parametric deficiency in wh-words e.g. French que as compared to Spanish ¿qué? Embedded interrogatives are excluded in Ígbò (26d), as noted by Goldsmith (1981a).

(26a) *Que Jean a acheté?
**What J. AUX buy.PARTICIPLE**
\[\text{What did J. buy?} \]

(b) *ùn à’ì írò àì ìle
\[\text{[Gì [L1, Jean] [T ìle [acheté tìle]]]} \]
\[\text{‘I wonder what J. bought.} \]

c. Je me demande que Jean a acheté.
\[\text{1S-I ask what J. bought.} \]

(d) Ìnì-yì ju-ru *(muka) the ògà gò-ro.
\[\text{[L1, ask.FIN-CL about thing U-H buy.FIN-CL} \]
\[\text{‘We inquired as to what U bought.} \]