The referential prosody of bare arguments[*]

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"No Article has yet been discovered; and probably there is none…" (Crowther 1843, 4)

Abstract

Argument *nP* freely accesses unlexicalized referential D in certain languages (Cantonese, Wenzhou, Yorùbá, Gbè) but not in others (Mandarin, Taiwanese, Ìgbo, Haitian) which are pairwise closely similar but whose lexical roots fall below a ternary threshold of prosodic complexity (§1). Consequences of this unexpected generalization are independently necessary.

At PF (§2), if 'more tones' cue 'more structure' then lexical tone is not phonology (*pace* Pike 1948; Goldsmith 1976; Ladd 1996) and/or phonology is not 'different' (*pace* Bromberger *&* Halle 1989). Instead, lexical tone is the pitch effect of metrical accent with phrasal distribution (Idsardi *&* Purnell 1997; Déchaine 2001) i.e. lexemes are phrases (Hale *&* Keyser 1993) and ternary tone makes available an 'extra' level of phrasal branching beyond what is required to host segmental material of the numeration.

At LF (§3), the minimal free form in Yorùbá, e.g. a notional noun like *ajá* 'dog', is at least *nP* (cf. Welmers 1973a, 189*f*.). But argument *ajá* is not a bare singular: it can refer to indefinite plural individuals, which its counterpart the Ìgbo animate *nP* cannot (Welmers 1973b, 220). In object position, the Mandarin *nP* (sortal classifer plus root) can only be indefinite singular, whereas root N (without SORT) is definite singular or (in)definite plural but not indefinite singular (Yang 2001, 29). The foregoing differences follow if little *n* of an Ìgbo animate count noun like *òké* 'rat' is featurally singular, whereas Yorùbá little *n* is defective, being the pure spellout of an empty phrasal node but still with the status of a typed category, and Mandarin root N exploits pseudo-incorporation and object *pro* drop. Yorùbá allows generic readings in episodic contexts with phonetic elision of semantics-less little *n* as a pseudo-incorporation cue, just as in Mandarin a similar interpretive effect is blocked by an overt classifier (Huang 2005). Ìgbo little *n* is not elidable under any circumstances, but Ìgbo makes episodic generics in a different way: in caseless configurations, *nP* is pseudo-incorporated and not indefinite singular (Déchaine *&* Manfredi 1998). In addition to the foregoing, unadorned *nP* can be definite in the ternary languages independently defined in §1. No alternative account of these generalizations is currently available.

As to learnability (§4), the varied conditions for free null D resist encoding as an abstract invariance/isomorphism of the computational system alias UG, but such failure is no loss, because the factorization of syntactic differences as (micro or macro) I-language parameters is unfeasible on general grounds (Keenan *&* Stabler 1994, 2003). In Sinitic and Benue-Kwa, the limits of possible mapping between referential and prosodic type in argument expressions can be modeled in the left-peripheral prosodic template known as "the initial site" (Lowenstamm 1999), consistent with "inter-modular argumentation" (Scheer 2010).

Contents

1. Echoes of empty D[1]

In topological mapping theory (Longobardi 2001, 2005), reference by an argument expression to a semantic 'individual' (an object or a Carlsonian kind) activates a dedicated syntactic shell—the D layer—via a range of language-particular options. In Italian these are: merge a referential constant such as the pronoun-like definite article *il*, in D (1a), or else displace the lexical head N to the locality of D—an overt movement diagnosed by crossing phrasal modifiers such as the possessive adjective *mio* (1b). The movement solution is possible iff the lexical N has a unique referent like *Silvio*, but fails for 'common' (kind-denoting) nouns like *tavolo* 'table'.[2]

(1)a. [il [mio tavolo]]   b. *[tavolo$_i$ [mio ___$_i$]]   c. *[∅ [mio tavolo]]
       [il [mio Silvio]]   [Silvio$_i$ [mio ___$_i$]]   *[∅ [mio Silvio]]

More puzzling is why Italian proper names must move to D as a last resort, i.e. why *Silvio* is bad *in situ* (1c) whereas English *my Silvio* is OK. This contrast can be abstractly restated as a parameter: "[I]n Romance a D empty at PF always gives rise to a variable, in Germanic it need not" (Longobardi 2001, 362). Despite this descriptive coverage, however, the learning path from primary data is unclear: null D is theory-internal in Germanic bare plurals (Crisma 1999 cited by Longobardi 2008, 195, *fn.* 9) and more generally in Slavic and Latin (Longobardi & Rigon 2008, 430). This paper pursues a prosodic explanation. Longobardi mentions a pitch rule of Modern Greek (*staurós* 'cross' → *Staúros* 'Mr. Cross') as a remnant of anciently productive type-shifting (2001, 362 *fn.* 29 citing Lazzeroni 1995), and other comparisons internal to Indo-European suggest that empty D is more freely interpretable in languages with freer prosody. Delfitto & Schroeten (1991) link the greater availability of generic bare plurals in Germanic than in Romance to the greater independence of the number affix from its lexical host. Within English, Germanic suffixes are both stressed and interpreted more independently than their Latinate counterparts (Scheer 2008, 381). So, what about 'tone'?

1.1 Against diacritic null numeral

As widely observed, a bare singular argument—i.e. a count noun preceded by a sortal classifier, here glossed SORT—can take definite reference in Cantonese (2) but not in Mandarin (3).

Cantonese

(2)a. Zoengsaam maai-zo zek ngau.
             sell-PERF SORT cow
        'Z. sold {a/the} cow'

b. Zek   ngau sei-zo.
    SORT cow   die-PERF
    '{#A/the} cow died'

Mandarin

(3)a. Zhangsan mai-le   tou   niu.
                sell-PERF SORT cow
        'Z. sold {a/#the} cow'

b. *Tou niu si-le.
   SORT cow die-PERF

c. (Nar) si-le   tou   niu.
    there die-PERF SORT cow
    '{A certain/#the} cow died (over there)'

Addressing similar facts, Cheng & Sybesma define SORT as intrinsically definite—encoding an *iota*-like "individualization function"—and coerce Mandarin bare singulars to be *in*definite by positing an "empty numeral" above SORT with "the effect of undoing the definiteness" (1999, 524, 528-30). This diacritic saves the traditional claim that Chinese belongs to the set of "article-less languages" by maintaining that " 'A book' in Chinese languages is literally '[one [the book]]' " and that "To get an indefinite reading, a Nume[ral]P is required" (2005, 284, cf. Bisang 1999). But expediency exacts a price: the descriptive contrast of (2) versus (3) becomes entrenched as the mystery that the null numeral is optional in Cantonese but obligatory in Mandarin. And the contrast is not rare. Other languages diverge in a similar way in Chinese (§1.2 below) and elsewhere in Asia: referential bare singular is reported to be possible in Vietnamese, Miao (Hmong) and Nung, but not in (southern/standard) Thai, Khmer, Burmese or Indonesian (Simpson 2005, 823).

Encoding indefiniteness in NumeralP also creates new mysteries. In its indefinite use, the Mandarin item romanized as *yi* or *i* has neither the distribution nor the prosody of cardinal 'one'. It's optional in immediate postverb position (4a), recalling the asymmetry of Japanese accusative case (Lamontagne & Travis 1986). As a numeral it's "stressed" (4b), but as an indefinite it has "neutral tone" notated .i_o (4c). Such facts can be explained if the article merges in D, whereas the numeral is a modifier.[3]

Mandarin (Yang 2001, 67)

(4)a. Yuehan mai-le   (yi) ben   shu.
        Y.   buy-PERF yi SORT book
        'Yuehan bought a book'

Mandarin (Chao 1968, 568)

b. ...只 喝 了 一 杯 酒
    jyy hele   i-bei jeou
    '...drank only one cup of wine'

c. ...喝 了 一 杯 酒
    hele   .i_o-bei jeou
    '...drank a cup of wine'

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1. Cf. Lowenstamm (2007) of which the working title was "The loud noise of *n*".

2. Vocative coercion of *mensa* 'table' to a proper name in his Latin primer provoked Churchill's "genuine curiosity" (1930, 25).

3. Cf. Cheng (1973, 63), Li & Thompson (1981, 132), Chen & Xu (2006). In Beijing, indefinite *yi*, with "frozen" sandhi pitch [35] instead of the numeral's [55], allows omission of SORT yielding reduced phrases like *yi taor* 'a peach' (Tao 2006, 114, cf. Di 2009).

As noted by Chao (1968, 567*f.*), mere cognation of the indefinite and the cardinal doesn't force them to be indentical in Mandarin any more than etymology dictates a numeral analysis for Modern English indefinite *a(n)*, which is a(n) historical variant of the "Old English numeral *ān* 'one'… when unstressed in proclitic use" (*Oxford English Dictionary*). That the cardinal and the indefinite are near-homophonous in many languages plausibly reflects the contrast of the intrinsically positive value of 'one' with the singular denotation of the number feature [-plural], whose polarity is opposite (Jespersen 1949, 420, cf. Barbiers 2005; Kayne 2009).[4]

Neutral tone is marginal in Cantonese (Chao 1968, 38), but elsewhere in southern China pitch tracks referentiality reliably. In Wenzhou (Cheng *&* Sybesma 2005, 266), SORT has systematically lower pitch in a referential interpretation of a bare singular (5a) than in the corresponding indefinite (5b). The phonetically opposite contrast (6) is found in a Miao language (Gerner *&* Bisang 2008, 728; Gerner 2009, 46).[5]

Wenzhou

(5)a. $\dot{\eta}^{24}$ ςi^{45} ma^{24} **$pa\eta^{23}$** $s\dot{i}^{44}$.
1S want buy SORT book
'I want to buy the book'

b. $\dot{\eta}^{24}$ ςi^{45} ma^{24} **$pa\eta^{45}$** $s\dot{i}^{44}$.
1S want buy SORT book
'I want to buy a book'

Weining Ahmao

(6)a. Ku^{55} la^{31} **lu^{55}** $t\textipa{\:s}ho^{33}$ $v\textipa{\t{h}}ai^{35}$…
1S like SORT garment DEM
'I like that garment…'

b. …ma^{31} $m\textipa{\t{h}}ia^{35}$ **lu^{33}** $t\textipa{\:s}ho^{33}$…
NEG have SORT garment
'…there is no garment…'

In (5a), Cheng *&* Sybesma posit that *Wenzhou*'s uniqueness morpheme is a low tone, merged in SORT and supported by the segmental string [paŋ] via DM "fusion" (2005, 282). Epenthesis of [paŋ] is forced by output economy thanks to "Chierchia's hypothesis that definiteness is preferably expressed overtly" plus a proviso that "tone does not count as 'overt' " (2005, 287). By coincidence, however, just in this circumstance, the null NUM responsible for the indefinite readings in (2) and (3), and presumably also (5b), must be blocked in (5a), although this restriction is *ad hoc* and contradicts Wenzhou's null numeral parameter setting (2005, 289).[6]

Here's a less arbitrary analysis: the pitch lowering in (5a) is prosodic reduction similar to Mandarin neutral tone except that the reduced item is not cardinal 'one' merged in D (4c) but SORT (= *n*) raised to D (5a).[7] The effect in (6) is the reverse: the pitch of SORT in definite (6a) is *higher* than in indefinite (6b). Note in (6a) that the Hmong demonstrative *v$\textipa{\t{h}}$ai^{35}* follows *n*P, suggesting that *n*P has fronted to the D-layer (e.g. to its specifier), whereas Chinese demonstratives are always *pre*nominal (Yang 2001, 58). Perhaps the pitch of *n* is raised in (6a) as a concomitant of crossing the demonstrative, which apparently always has a [5] component.

1.2 A ternary bootstrap in Chinese

The null numeral's defects, reviewed above, look like artefacts of some venerable predilections which persist in philosophical and typological literature: (i) translation-based word-for-word isomorphism of Mandarin *niu* and English *cow*, and (ii) treatment of lexical tone as narrow phonology. Let's try taking the opposite tack in both respects, affirming (i′) that even monomorphemic listemes i.e. taxonomic 'words' decompose into syntactically relevant lexical substructures in diverse ways (Hale *&* Keyser 1993; Hale 1995) and (ii′) that some PF alternations reflect the cyclic spellout of syntax (Scheer 2010, cf. Chomsky 2001). By those lights, it's conceivable that the Mandarin counterpart of English bare singular *cow* is not the Nroot *niu* alone but the entire phrase [$_{nP}$ *tou* [$_{\sqrt{}}$ *niu*]], since number is transparently encoded in SORT (cf. Borer 2001).

But even if all these puzzles can be so neatly solved, the initial question remains: why Cantonese bare singulars as in (2) freely allow a referential interpretation in addition to the (nonspecific) indefinite one they share with Mandarin as in (3). How else do these varieties differ—especially with (i′) and (ii′) in mind? The following table plots lexical tone inventories against the *analytic ↔ synthetic* cline which Huang (2005) applies to Chinese. Now something new appears: languages where a bare singular can be definite happen to surpass a certain threshold of tonal inventory, which is not crossed by languages lacking this referential ability.[8]

(7)

	Cantonese	Wenzhou	Taiwanese	Mandarin
definite bare singular	+	+	−	−
contrasting tones in coda-less roots	6	6	4 or 5	4
contrasting tones in roots with a coda	3	n/a	2	2

4. German has "no clearcut [PF] distinction between the [obligatory indefinite] determiner and the numeral *ein*" (Umbach 2004, 308 *fn.* 5) but *ein* nevertheless contrasts more felicitously with a numeral than with the definite article. In the latter context, *irgendein X* 'any X' is preferred (C. Mayr, *p.c.*).

5. In the Asianist numerical scale, a higher number denotes higher pitch. In (5), the numbers are filled in from Cheng *&* Sybesma (2005, 265), who note that Chen (2000, 476) reports slightly different values: their [45], [23], [44] are Chen's [35], [313], [33] respectively. In (6), the interlinear glosses have been simplified from the source.

6. Cheng *&* Sybesma's defense of Chierchia's morphological economy of determiners is also puzzling, given their explicit rejection (1999, 517; 2005, 273) of his view that sortal classifiers are semantic operators type-lifting kinds to individuals. Instead they adopt a syntactic treatment of sortal classifiers as counting units (Doetjes 1996; cf. Cheng *&* al. 2008), which is close to the *n*P analysis.

7. The lack of a similar tone change in Cantonese may disfavor Wu *&* Bodomo's *n*-to-D analysis of definite bare singulars in that variety (2009, 499), but it doesn't defuse their other arguments against localizing definiteness in SORT in Chinese more generally, such as the universal interpretation of Mandarin [*yi* SORT Nroot] (2009, 492).

8. (7) inventories "tonal expressions" in the sense of Kaye (2001a,b). All the counts but one are from Chen (2000, 13-19, 431, 476*f.*). The analysis of codaless roots in Taiwanese with only 4 lexical tones depends on a view of "tone sandhi" (Duanmu 2007, 305*f.* citing Hashimoto 1982; Ting 1982; Yue-Hashimoto 1986; Yuan 1989, 244*f.*). The idea that "Taiwanese is a little more analytic than Mandarin" (Huang 2005) is consistent with its having 'a little' more complexity of lexical tone but still within the binary limit.

A correlation is not a solution. To link logical type directly to raw score of phonetic primes would require a magical theory of sound symbolism, so unless the pattern in (7) is noise it must be mediated somehow. Parameters of meaning postulates (Chierchia 1998) can't work, because the interpretive side of the mapping in (7) crucially covers two morphemes together—SORT plus Nroot jointly forming *n*P, the Chinese bare singular. The remaining possibility is that (7) reflects ordinary syntax diagnosed normally by PF and LF traits.

To get off the ground, a derivational analysis has to find a quantal difference among tone inventories. One exists: in almost all Chinese varieties, open-class morphemes necessarily possess a branching rime (Duanmu 2000), therefore a descriptive maximum of 4 lexically contrasting pitch contours on a coda-less syllable reflects a binary upper bound on pitch contrasts per mora/tone-bearing unit. This result fits the observed maximum of 2 lexical tones on a coda-ful syllable in these same languages, if codas are moraic but not tone-bearing. Conversely, any language with at least 5 lexically contrasting patterns on a coda-less syllable—up to a theoretical maximum of 9—must possess ternary complexity, and this is confirmed in (7) by the observed maximum of 3 tones on a coda-ful syllable.[9] With these constraints, the grammar space divides: a language has either ternary or binary tone and then, remarkably enough, tonal arity predicts referential activation:

(8)   Ternary lexical tone contrast (per tone bearing unit) $\rightarrow$ freely referential null D.

(8) helps, because it spares Chinese children the need to invoke null NUM as a semantic diacritic or to guess which surface tones are exempt from Full Interpretation. To be sure, (8) goes well beyond what's been countenanced as "prosodic bootstrapping" (e.g. Christophe *&* al. 2003; Nespor *&* al. 2008), but it can take comfort in Niger-Congo parallels (§1.3) as well as looser analogies at greater typological distance (§1.4).

1.3 BK2

Benue-Kwa (BK), the main branch of the Niger-Congo family (Williamson *&* Blench 2000, 17*f.*), bifurcates prosodically (Manfredi 2005, 2009). As sampled in §2 below, lexical tone is ternary in BK2—an innovative subgroup including the adjacent Gbè, Yorùbá, Nupe and Ìdo̩mà clusters—but only binary in BK1—the remnant and partly discontinuous aggregate of Àkan, È̩dó, Ìgbo, Cross, Plateau and Bantoid. With that in mind, note that arguments without articles have freer reference in Yorùbá than in Ìgbo.[10]

Yorùbá (BK2)	*Ìgbo (BK1)*
(9)a. Wó̩n pa òkété.	(10)a. Há gbù-ru oké.
3P.T hit giant.rat	3P cut-ASP rat
'They (have) killed {a/the} giant rat'	'They killed {a/the} rat'
'They (have) killed some giant rats'	#'They killed some rats'
b. Òkété yo̩.	b. Òké gba-fù-ru a-gbá-fù.
giant.rat.T emerge	rat run-away-ASP NOM-run-away
'{A/the} giant rat (has) escaped'	'{A/#the} rat escaped'
'Some giant rats (have) escaped'	#'Some rats escaped'

(10) lacks all the plural interpretations of (9), and (10b) also lacks (9b)'s option of a definite singular subject. The plural gap has an separate explanation: Ìgbo animate nouns possess a vestigial number feature which is absent in Yorùbá (see §3 below). Null D is active in both languages in direct object position (9a, 10a), recalling the lexical government amnesty for null D in Romance (Longobardi 1994 citing Contreras 1986). This leaves the subject contrast of (9b) versus (10b) as a genuine explanendum, and as grist for (8).

Another potentially relevant comparison is made by Aboh *&* DeGraff (2009, 12, 19). In both Gùngbè (BK2) and Haitian (non Niger-Congo), a bare singular argument can refer to a specific definite (11a, 12a), but Gùngbè extends this privilege to bare singulars with restrictive modifiers, e.g. to ordinals and relative clauses (11b-c), while in Haitian the same dependencies need *la*, a D-linked phrasal affix (12b-c).[11] Gùngbè's overt inflections for definiteness and specificity being obligatory in other contexts (Aboh 2004, 76*ff.*), their absence in (11b-c) calls for independent explanation—again giving (8) some useful work to do.[12]

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9. Woo makes a similar claim and extends it to Thai (1969, 70, 93), cf. also Kaye (2001a,b). An informative exception is New Shanghai, whose "loss of tonal patterns… [wa]s ultimately triggered by the loss of complex rimes" (Duanmu 2008, 146).

10. BK tone conventions: [́] = high, [̀] = low. In BK2, no mark = mid, in BK1 no mark = same as preceding mark. The item *-gbá*, glossed 'run' in (10b), recovers unergative *-gbá o̩ s o̩* 'make haste/an escape' (Ígwè 1999, 697, cf. Lord 1975, 33; Hale *&* al. 1995). Igbo transitive verbs demand a deictic marker with referential bare singular subjects, but not objects. This was noticed while preparing Hale *&* al. (1995) and is not contradicted by Déchaine *&* Manfredi (1998, 80) although the latter study is less concerned with referentiality than with specificity—an orthogonal property driven by structural case as in Turkish (cf. Heusinger 2008).

11. The definite subject in Haitian (12a) may be an example of situation-linked 'protagonist' coercion as in folktales (*One day, Rat visited Cat's house…*). This effect has no phonetic correlate in Haitian, whereas it is marked by prosody vestigially in Modern Greek (as noted above in passing) and systematically for nominal modifiers in Ìgbo, cf. §2.4 below.

12. Templatic analysis of Gbè's definiteness and specificity markers runs into trouble: to get from an assumed cartography (i-a) to the observed order (i-b) requires a mysterious feature separating "cyclic" from "snowballing" (remnant) movement (Aboh 2004, 114). This diacritic is avoidable, assuming that the observed string contains not one DP but two (ii), standing in a deictic relationship of "equative apposition" (Lyons 1975, 69) as in the analysis of Greek polydefinites by Panagiotidis (2008, 451) or more conservatively Lekakou *&* Szendrői (2014). Then, thanks to (8), Gbè unlike Greek has the further option of referentially free null D in DP1.

(i)a.   [DP {DEF/SPECIF} [PLUR [DEIC [NP]]]]   (ii) [DP1 ∅ [NP DEIC]] [DP2 {DEF/SPECIF} [PLUR [∅]]]

   b.   …NP DEIC {DEF/SPECIF} PLUR…

Gùngbè (BK2)

(11)a. Àlwɛ́   zɔ̀n plínplínplín…
nightingale fly gently
'The (specific) nightingale flew gently…'

  b. Súrù ɖù yòvózɛ̀n títán sɔ̀.
S. eat orange first yesterday
'S. ate the first orange yesterday'

  c. …mɛ́ ɖé ɖín…
person REL pass
'{anyone/the person} who passes (the exam)'

Haitian

(12)a. Wosiyòl   te   renmen kowosol.
nightingale ANT like   soursop
'The (specific) nightingale loved soursop'

  b. Bouki manje premye zoranj *(la) yè.
B.   eat   first   orange the yesterday
'B. ate the first orange yesterday'

  c. …kandida ki   pral bat McCain *(la)…
candidate REL FUT beat M.   DET
'{any/the} candidate who will beat McCain'

Although Gbè's superficially ternary lexical tone reduces to a binary contrast plus phonation effects (Ansre 1961), the reduction depends on footing (Stahlke 1971b, cf. §2.3 below). As Kaye (2001a,b) could equivalently say, Gbè—like the rest of BK2—needs two positively specified tones, but BK1 only one. Stated in whichever format, the difference matters for null D reference and the question remains why.

1.4 Slavic

Prosodic activation of null D also arguably occurs in Slavic languages, which lack morphological D altogether (Bošković 2008). In Czech for example, definite D-less nonpronominal arguments are obligatorily fronted out of any sentential domain containing a nongiven item. The word order shift in (13), called "G[ivenness]-movement" (Kučerová 2007), is somewhat parallel to the dislocation of antifocal items away from nuclear stress, a characteristic of Romance languages (Vallduví 1990; Cinque 1991) e.g. as in (14).[13]

Czech (Kučerová 2007, 7)

(13)a. Chlapec našel lízátko.
boy.NOM found lollipop.ACC
'The boy found a/the lollipop'
'A boy found a/#the lollipop'

  b. Lízátko   našel chlapec.
lollipop.ACC found boy.NOM
'A boy found the lollipop'

Italian (V. Samek-Lodovici, *p.c.*)

(14)a. Un bambino ha   mangiato la torta.
D boychild AUX eat.PERF D cake
'A boy ate the cake'
[= broad-focus answer to *What happened?*]

  b. La torta, l'ha   mangiata   un bambino.
D cake   D-AUX eat.PERF.AGR D boychild
'A boy ate the cake'
[= partial answer to *Who ate the pastries?*]

(13b) has no lesser claim than (14b) to be an instance of "p[rosodic]-movement" (Zubizarreta 1998). Both examples show noncanonical word order which is discourse-driven, correlated to prosody and yet seemingly syntax-neutral (cf. Stjepanović 2003). Kučerová notes the *prima facie* similarity but rejects the idea that G-movement is triggered by avoidance of information-related stress; instead she invokes a PF-blind, global pragmatic filter that "compares derivations with respect to the Maximize Presupposition maxim of Heim" (2007, 132). Kučerová's stated qualm is to avoid "inter-modular interaction" (2007, 131) as would be required by a prosodic account of (13) under the assumption that phrasal accent is "phonology" (Nespor & Vogel 1986; Ladd 1996) and therefore invisible to the LF branch of grammar. The same scruple, to save "the classical view according to which syntax is phonology-free" (Costa 2010, 109), has pointed others to a symmetrical economy procedure, aligning new information focus with audible "prominence" (Truckenbrodt 1995; Reinhart 1997, 2006; Szendrői 2001). Both of these versions of syntactic OT share the need to exempt p-movement from Markovian computation—but that step would be premature, if it turned out that core cases of information-related prosody are not narrow 'phonology' after all. Which appears likely.

Sentential stress literature (Chomsky & Halle 1968; Bresnan 1971; Cinque 1993) holds that certain pitch features related to information-structure are directly assigned in the syntax, and Wagner (2005) renovates this idea in minimalist terms, calculating phrasal accents from the cyclic linearization of predicates and modifiers. Given some such "sophisticated abstract version of the nuclear stress rule" (Kučerová 2007, 131), suppose that every Czech sentence contains at least one instance of null D—roughly identical to the G-operator except that it's part of narrow syntax, neither PF-blind nor in need of OT-arbitration. Slavic sentential D would then be activated as in (1b), by raising an argument out of its initially merged position on the recursive side and without deaccenting the remnant. The effect in (13) is not identical to (8) and there's no question of abstract isomorphism between Slavic, Romance, Sinitic and Benue-Kwa. For some reason the mapping of null Ds to arguments is one-to-many in Slavic, nevertheless the referential activation of null D in Slavic shares with Sinitic and Benue-Kwa a bias towards prosodic complexity, which is the problem at hand.

The rest of this paper supports the generalization in (8) on independent grounds. So-called lexical tone has to be reanalyzed as phrasal accent (§2). Certain referential and generic interpretations are distinguished only by prosodic means (§3). These two dimensions intersect in null structure at "the beginning of" *nP* (§4).

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13. The displacement in (13b) is distinct from the deaccenting and leftward shift of indefinites and inherently unstressable items (Kučerová 2007, 130). In both (14a) and (14b) main stress falls on *bambino* (cf. Brunetti 2009, 773), whereas using the word order of (14b) without the clitic (Antinucci & Cinque 1977, 121) would require *torta* to bear focal stress with the remnant topically de-accented (V. Samek-Lodovici, *p.c.*), which is also the focus fronting prosody of Hungarian (Kornai & Kálmán 1988).

2. All prosody is phrasal

The finding that referential null D is systematically more active in languages with ternary than binary lexical tone, sits uneasily with the representation of tone as narrow phonology. If the inference in (8) is less odd than a hypothetical link between lingual retroflection and ergative case, then tone is not a string of atomic elements on a melodic tier, but probably just the impression created by phonetic linearization of accents in a particular word structure. In McCawley's words: "A pitch-accent system becomes a tonal system at the point of the derivation at which rules apply assigning pitches to specific syllables or moras…" (1978, 128). 9 out of 10 phonologists may disagree, but "McCawley's misguided desire to make the Japanese accentual system behave like English stress" (Poser 1985, 101) would be welcome in Sinitic and Benue-Kwa. That tonal complexity should have an intrinsically syntagmatic dimension, contributes to an analysis of the definiteness effect in (8). Such benefit apart, the reduction of tone to metrics is also useful because tonal analysis is incoherent on its own terms.[14]

2.1 Toneme trouble

The toneme is a taxon of paradigmatic pitch based on the inductive procedural requirement of phonetic biuniqueness, discredited long ago (Halle 1959, 21-24). Originally it was adapted from numeric transcriptions of English stress (15) to the rapid training of U.S. pentacostal missionaries (Pike 1947, 131). After decades of incubation among tropical languages, the toneme was theoretically reborn as the alphabetic element of supra- and auto-segmental generative notation (Leben 1973; Goldsmith 1976). Eventually the toneme came full circle back to English intonation, as the standard quantum of the ToBI framework (Pierrehumbert 1980, cf. Leben 1976, Goldsmith 1978), which bears uncanny resemblance to its biunique, behaviorist ancestor.[15]

Pike (1945, 27-30)

(15) a. *He wanted to do it.*   [°2-4]
　　 b. *I want to go home.*   [3-°24]
　　 c. *The boy in the house is eating peanuts rapidly.*   [3-°23-3-°23-3-°23-°23-°24]

In Niger-Congo, the toneme faces two descriptive problems—nonphonological distribution and nonlocal dependency—which are familiar enough to have earned technical nicknames: "incomplete tonification" (Hyman 1982) and "predictable tone" (Odden 1988). In most if not all BK1 languages, these effects combine to yield category-specific underspecification, e.g. in Kimatuumbi:

(16) "In contrast to the situation with lexical nouns and adjectives, verbs and deverbal nouns and adjectives have no underlying tonal information. Here, the placement of H-tone is totally predictable from syllabic structure and morphological information."　　(Odden 1996, 191)

The reasonableness of (16) can be gauged by a thought experiment: a language whose nouns but not verbs may contain, say, velar consonants or back vowels. It also begs descriptive questions. No hint of (16) appears in BK1's sister subgroup. BK2 children build if anything more tones per mora into predicate roots than into argument-type expressions, which makes the reluctance of BK1 children to do likewise either a funny accident of phonology or else a syntactic constraint in search of analysis. BK2 on its part has consistent trouble—shown directly below—'completely tonifying' domains larger than the root, which don't cause BK1 to blink. And this difference correlates with the same ternary versus binary bias encountered already in (8).

Besides failing descriptive generality, the toneme also faces formal embarrassments, such as the need for global (nonmarkovian) association rules (Idsardi & Purnell 1997) and the inability to define melodic intervals in connected speech (Dilley 2005).[16] Both glitches can be patched by bolting on metrical domains in a hybrid "Autosegmental-Metrical Theory" (Ladd 1996), but this only vindicates McCawley's "misguided" view.

2.2 Yorùbá (BK2)

In Yorùbá, a monomoraic CV root can appear by itself in a predicate-type expression ('verb') or else 'prefixed'—in a sense to be clarified—in an argument-type expression ('noun'). In principle it can bear one of three pitches {H, M, L}. The contrast sets in (17), sampled from Awóyalé (2007), are broadly representative.

(17) a. *-gbá* 'blow/sway/sweep/hem/slap/heat (tr.)'　　*i-gbá* 'calabash'　　*ì-gbá* 'locust bean; eggplant'
　　　 (gap)　　　　　　　　　　　　　　　　　　　*i-gba* '200'　　　　　(gap)
　　　 -gbà 'contain/receive/agree/grab/ignite (intr.)'　*i-gbà* 'climbing rope'　*ì-gbà* 'time'

　 b. *-kọ́* 'be dizzy/hang/build/teach/learn'　　　*ọ-kọ́* 'shovel'　　　*ò-kọ́* 'dogmeat [dialectal]'
　　　 -kọ 'sing/cultivate/weave/write'　　　　　*ọ-kọ* 'husband'　　　(gap) cf. *è-kọ* 'corn pap'
　　　 -kọ̀ 'reject'　　　　　　　　　　　　　　*ọ-kọ̀* 'vehicle; plant name'　*ọ̀-kọ̀* 'spear'

---

14. Reduction of tone is also a goal of government phonology: "H is a melodic property, while length is a structural one. …Obviously, once H is gone as a melodic prime, high tone in nuclei will also have to be expressed structurally" (Pöchtrager 2006, 28, *fn*.12).

15. In Pike's notation, higher number = lower pitch, [°] = stress and uncoded syllables are left for interpolation. Pike's numerical system could have been inspired by Chao (1930), except that the respective scales are opposite.

16. Dilley & al. (2006) show that online coding of English pitch is more efficient if pitch is factored apart from rhythmic information, whereas ToBI's tonemes blend the two together. Similarly, Cabrera (1997) critiques ToBI's reliance on equipollent tone features.

Tonal gaps in Yorùbá roots are historical accidents of development from a binary system. For example, few minimal contrasts involve just the two non-H tones (Stahlke 1974), and more than 20 H/L minimal pairs are related by (anti)causativization (Manfredi 1991, 127 *fn.* 37), such as *-gbá* 'heat (tr.)'/*-gbà* 'ignite (intr.)' in (17a). By contrast, synchronic tone asymmetries in Yorùbá are systematic and syntagmatic, as shown in a rich literature from Ward (1952) and Bámgbóṣé (1966b) to Akinlabí (1985) and Harrison (2005). For explicitness in the following illustrations, lexically spurious tones are underlined and bolded in the toneme transcription.[17]

(i) H and L each spread rightward onto the other automatically, but M neither spreads nor is spread upon (Akinlabí & Liberman 2001).

(18)   *ìrúnmọ̀lẹ̀*   LHHL 'crushing to the ground'   *irúnmọlẹ̀*   MHML 'earth-spirits'
   → [ìrùn-únmọ́lẹ́ẹ̀] L**L**HH**H**L   → [irúnmọlẹ̀] MHML

(ii) No vowel-initial noun starts with H (Ward 1952, 37) and in adjunct position a consonant-initial noun sprouts a underspecified, M-bearing initial mora (Awóyalé 1974; Awóbùlúyì 1978a, 148; 2004; Ajíbóyè 2005).

(19)   *ìyá* LH 'mother'   *ọtí* MH 'intoxicating beverage'
   Kúnlé HH 'Mr. K'   *bíríkilà* HHML 'bricklayer'

   → [ìyá [a Kúnlé]] LH **M** HH   → [ọtí [i bíríkilà]] MH **M** HHML
   'Mr. K's mother'[18]   'cheap beer, typically offered to construction crews'

(iii) One lexically spurious H appears per cyclic domain as evidenced for each bracket pair in (20a-d). For example, cyclic (20c) displays two tokens of H (Bámgbóṣé 1966a, 1971; Awóbùlúyì 1975; Awóyalé 1983). Both of these H tones are absent from (20c′), which is a-cyclic but otherwise lexically identical to (20c).

(iv) L can't be parsed on a monosyllabic root before an overt, branching complement (Carstens 1987; Déchaine 2001), e.g. the lexical L of *wù* 'please, appeal to' is pronounced in (20a) but not in (20b).

(20)a. [TP Iṣ ú   [VP wù   wọ́n]].   [M**H** [L **H**]]
      yam.AFF   please 3P.ACC
      '(The) yam appetizes them'

   b. [TP Iṣ ú   wu ọmọ [CP ọ́n jẹ _]].   [M**H** **M** MM [**H** M]]
      yam.AFF please child   COMP eat
      '(The) yam appetizes a/the child'

   c. iṣ u [CP tí   [TP wọ́n jẹ _]]   MM [**H** [**H** M]]
      yam   NOM.REL   3P.AFF eat
      'the yam which they ate'

   c.′ iṣ u ti wọn   MM M M
      yam NOM 3P
      'their yam'

   d. iṣ u [DP jí- jẹ _]   MM [**H** M]
      yam   GER-eat
      'yam-eating'

These and other productive patterns are not randomly clustered, but converge on a single structural claim, that Yorùbá {H, M, L} are not 'melodic' computational atoms but mere phonetic labels for the terminals of a language-particular metrical foot (Manfredi 1995). In (19), H is the head of a trochee to which L adjoins on the left, respecting the structural invisibility of M (Akinlabí 1985, *pace* Pulleyblank 1983, 2004) and the theoretical imperative of strict head-complement adjacency (Kaye, Lowenstamm & Vergnaud 1990).[19]

(21)

The four effects follow from (21) in conjunction with independently needed assumptions about metrics: (i) strong positions branch (Liberman 1975, 204*f.*; Liberman & Prince 1977, 257); (ii) a noncyclic prefix is weak; (iii) a phase is strong (Kahnemuyipour 2004) and (iv) syntactic branching entails prosodic branching, so a root with lexical L, a prosodic *adjunct* in (21), can't take an overt phrasal *complement* (Déchaine 2001, 114).[20]

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17. Some of these phenomena have been studied instrumentally in controlled experiments (Connell & Ladd 1990; Láníran 1992).

18. The string [ìyá kún'lé] is independently possible as a finite predication meaning 'The house/home (*ilé*) is full (*kún*) of mother(s)'.

19. My adoption of arboreal metrics does not preclude reformulation in bracketed grids *à la* Halle & Vergnaud (1987).

20. A matched branching effect similar to (iv) shows up in Èdó-Bìní, a binary and trochaic language of BK1 (Manfredi 2005, 16).

2.3 Gbè (BK2)

In Gbè languages, ternary pitch in lexical entries reduces to a basic binary contrast plus phonation and phrasing effects, with both of these factors implicating foot structure. (22) lists three trochaic tests which are valid at least within BK. Gbè fails all three and so is learnably iambic, consistent with the structure in (23).[21]

trochaic diagnostics

(22)a. automatic raising of phrase-initial L (e.g. Ẹ̀dó, Ìgbo)
   b. automatic spreading of H onto following L (e.g. Yorùbá, Ẹ̀dó, some western Ìgbo varieties)
   c. some downstep junctures are not reducible to a recoverable, elided L (e.g. Ẹ̀dó, Ìgbo)

(23)
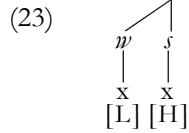
If L is the pronunciation of the [*w*] of (23), then M can only occur on a stray (unfooted) syllable, and this prediction is borne out. In the Pɛ̀cí-Àŋlɔ̀ variety of Èʋègbè (Ansre 1961; Stahlke 1971a,b), the initial vowel of a nominal has L iff the root C is an obstruent, and this L spreads to the root iff the obstruent is voiced (24a), but in compounds the L deletes entirely along with the vowel (24b). Parallel deletion of L occurs even in a nominal that lacks an initial vowel, e.g. 'metal' in (25), and this follows if 'metal' has an abstract prefix.[22]

(24)a. *àvùú* 'dog' L**L**H
   b. à-dè-vú   L-L-H
     NOM-chase-dog
     'hunting dog'

(25)a. *gà* 'metal/money' **L**
   b. nú-*f*le-ga   H-M-M
     thing-buy-metal
     'shopping money'

Stahlke also highlights Ansre's observation that the items for both 'stone' and 'worm' lack an initial vowel, but in direct object position both are preceded by a blank timing unit glossed μ in (26), whose pitch matches what would occur for an item with an initial vowel and a root consonant of the same type, as in the items for 'tree' and 'bee' respectively (27). The general rule is that μM appears before a sonorant, otherwise μL.[23]

(26)a. É kpɔ́ [ɔ̀ [kpé]].   …[**L** [H]]
     3s see μ stone
     'S/he saw a stone'

(27)a. *kpé* 'stone' H
     àtí 'tree' L̲H

(26)b. É kpɔ́ [ɔ [ŋɔ́]].   …[**M** [H]]
     3s see μ worm
     'S/he saw a worm'

(27)b. *ŋɔ́* 'worm' H
     anyí 'bee' MH

These and other patterns reduce to two generalizations: footing applies to phrases, assuming that nominals are at least as big as *nP*; and alignment of [*w*] is sensitive to local laryngeal features.[24]

(28)a. A phrase must be footed: stray *x* is pronounced L in a sentence-final noun.
   b. Footing is recursive on the branching (left) side: *x* is pronounced L before L.

(29)a. Phrase-initial [*w*] links to the second timing unit if [+sonorant], else to the initial timing unit.
   b. Linked [*w*] spreads locally across [+obstruent, +voiced].

2.4 Cantonese

Besides the option of free reference by bare singular arguments, Cantonese also has *pinn'iam* 'modified tone'—a rule of prosodic typeshifting that applies to a range of syntactic categories. Consistent with standard assumptions that lexically contrastive pitch is tone, and tone is phonology, *pinn'iam* has been formalized autosegmentally as a "floating high tone" (Yip 1980, 63, cf. Voorhorve 1971; Goldsmith 1976; Hyman & Tadadjeu 1976) and analyzed as a "purely tonal morpheme" (Chen 2000, 32-38, cf. Welmers 1959) but both sides of this claim must be rejected. Based on available evidence, *pinn'iam* is metrical not tonal, and its semantic effects are generated once in narrow syntax not multiple times in lexical morphology.

On the phonetic side, *pinn'iam* is claimed by autosegmental phonologists to produce the sound changes notated numerically as well as alphabetically in (30). But these rules are in several ways discrepant from their own primary sources, some of which give the impressionistic transcriptions and graphs in (31).[25]

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21. The tests also fail in Gbè's neighbor Àkan (BK1, Schachter & Fromkin 1968; Dolphyne 1994) and in Hausa (Afro-Asiatic).

22. Example (25b) is apparently due not to Ansre but to Stahlke (1971a, 177).

23. The tones in (26) are typographically blurred in Ansre (1961, 63*f.*) and retranscribed more clearly by Stahlke (1971b, 144).
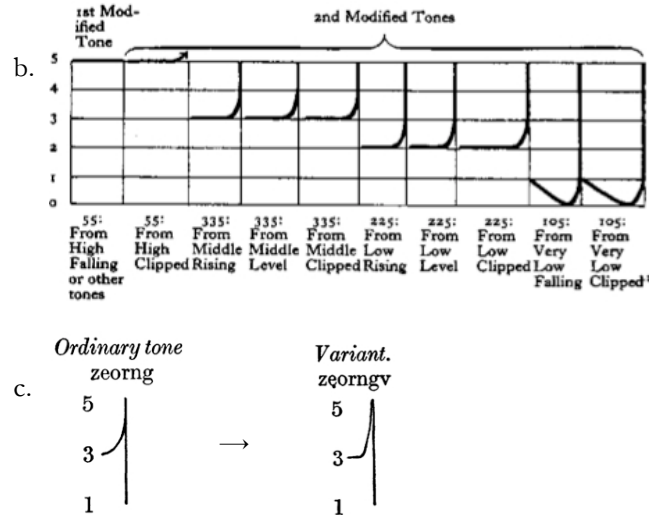
24. The phonation effects in (29) have a physiological basis (Halle & Stevens 1971; Nissenbaum & al. 2002). Details vary across the Gbè-speaking zone, cf. Rouget (1962, 1964, 1965, 1975) and Gbéto (1995, 1997, 1999, 2002, 2003, 2004a,b, 2005, 2006a,b). The analysis of Gbè footing given here slightly revises Manfredi (2004b). Westermann's dictionary of Èʋègbè explicitly treats the initial vowels of argument-type expressions as "nicht zum Stamm gehörig" (1905, *vi*) and so disregards them in alphabetical order; similar listing economy not adopted in Fɔ̀ngbè, whose counterpart vowels are far more restricted (Höftmann & Ahohounkpanzon (2003).

25. The suggestion to treat *pinn'iam* as suffixed H tone is credited to Li Fang-Kuei (*p.c.*) by Kao (1971, 111).

(Yip 1980, 61)	(Chen 2000, 33)	(Whitaker 1956, 193*f.*; Barnett 1950, 741)

(30) 5 → 55   H → H   (31)a. 5 → 56 (for CVC)
       55 → 55   HH → H   55 → 55 (for CVV)
       53 → 55   HM → H   53 → 55
       35 → 35   MH → MH   35 → 335
       33 → 35   MM → MH   33 → 335
       24 → 35   LM → MH   23 → 225
       22 → 35   LL → MH   22 → 225
       21 → 35   ML → MH   21 → 105

b.

| 55: From High Falling or other tones | 55: From High Clipped | 335: From Middle Rising | 335: From Middle Level | 335: From Middle Clipped | 225: From Low Rising | 225: From Low Level | 225: From Low Clipped | 105: From Very Low Falling | 105: From Very Low Clipped[1] |

c.

Ordinary tone
zeorng

→

Variant.
zeorngv

The autosegmental treatment (30) portrays the base and *pinn'iam* forms of mid-rising tone as identical [35], but in (31c) they're described as distinct: the pitch rise of the *pinn'iam* starts later and has steeper slope than the "ordinary tone" curve. Pending precise phonetic measurements, this difference is logically beyond the reach of a floating H morpheme, but it can be described as the realignment of pitch features and timing units. Another observation that gets lost in (30) is the extra-high pitch excursion in the *pinn'iam* version of a high tone CVC root, transcribed in (29a) as [5] → [56] and marked with an up arrow at the top of the second column in (31b). This too defies autosegmental explanation.

Turning to semantics, the *pinn'iam* morpheme is said to have "a number of uses" (Yip 1980, 63), opening the door of unconstrained homophony. Williams admits this risk in his autosegmental account of Ìgbo, which labels floating H both as a suffix of present perfect aspect and as an *ezafe*-like prefix of genitive case, but he excuses the double life of H as "a tolerable result when we consider that these tonal morphemes are spelled in a binary alphabet" (1976, 481).[26] Maybe so, but the risk to floating-tone 'tolerability'—learnability—is much worse in Cantonese, judging from the examples collected by Whitaker (1955/1956).

The *pinn'iam* form flagged diacritically as [*] in (32a) marks elision of a contextually recoverable noun meaning 'time, occasion' (p. 206). In (32b), *pinn'iam* shifts a place name to the name of a pragmatically related object (pp. 20, 192), and in (32c) it cues a missing argument in an exocentric compound: a cardinal numeral shifts to an ordinal name (p. 15), a physical trait shifts to its possessor—a classic *bahuvrihi* (p. 16), the name of a workplace shifts to the worker (p. 28) and a color name shifts to an object intrinsically possessing that color (p. 189). In (32d), the pitch change diagrammed in (31c) turns a personal name into a specific individual (p. 193*f.*), and a medical symptom becomes the name of a disease (p. 22), possibly like the difference in English between *John has measles on his arm* and *John has the measles* (**#**…*on his arm*). In (32e), *pinn'iam* replaces *-zor*, a suffix of present perfect aspect (p. 203*f.*, cf. Ball 1908, 37 cited by Cheung 1997, 139, 147).[27]

(32)a. *xraa jhat ci* 'the next time' → *xraa* ci*
       shinn jhat ci 'the previous time' → *shinn* ci*

   b. *Gworngzhaw* 'Canton [place name]' → 'the Canton ["the name of a familiar shop or restaurant"]'
      Xrohnraamm 'province of Honan' → 'place near Canton' OR 'boat from Hong Cong to Canton'

   c. *srapsei* '14' → '14th person or thing'
      bhanq 'harelip' → *a bhanq** 'harelipped person'
      cryh 'kitchen' → 'cook'
      woang 'yellow' → 'eggyolk' (i.e. the yellow part of an egg)

   d. *Zeorng Wae-jrynnzeorng* 'Chairman Chiang Kai-Shek' → *Lroo Zeorng** 'Old Chiang'
      cheot mraah 'measles' → 'having the measles'

   e. *mraee-zor* 'has bought' → *mraee**

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26. In her comprehensive autosegmental treatment of Ìgbo in a lexicalist, level ordering framework, Clark (1989) posited four different morphemes whose PF is H. Déchaine (1993) presents a metrical alternative based on syntactic affixation.

27. Whitaker uses the same Cantonese-specific romanization as Chao and Barnett.

That *pinn'iam* can be the functional equivalent of a suffix (32e) is consistent with its pitch effect being realized on the operand's right edge (31). The same matchup is reinforced by diachronic *pinn'iam*-to-suffix correspondences: Mandarin translations of the items in (32c) systematically end in -*r* (Chao 1947, 36), and the familiar form of proper names in (32d) "might be the Cantonese counterpart of the cerebralization which can be found in lieu of [Mandarin] 兒 in Shantung dialects and the nasalization which is to be observed in the Popei Dialect" (Whitaker 1956, 194 citing Simon 1935). But plurimorphemic autosegmental analysis can only regard *pinn'iam*'s consistent suffix-relatedness as a coincidence, because derivational morphemes aren't forced to combine with their operands just from the right, e.g. all operators in Yorùbá are prefixes (proclitics).

In some examples *pinn'iam* is apparently even recursive, although this remarkable fact goes unmentioned in autosegmental literature. In (33a), the first application of *pinn'iam* adds a deictic scalar meaning, then the second time around it creates a higher-order degree implicature (Whitaker 1956, 197). In (33b), a kinship term exists with lexically intrinsic, primary *pinn'iam* which is not surprising for a relational noun, then secondary *pinn'iam* coins an independently listed item (p. 198). While the productivity of *pinn'iam* recursion, as well as its precise phonetics, remain to be established, any examples like (33) already falsify a tonal morpheme analysis of *pinn'iam*, because the addition of floating H to itself is obviously string vacuous.

(33)a. *creonq* 'long' → **1st cycle** → 'only so long' → **2nd cycle** → 'very short'
    b. (no underived form) → **1st cycle** → *mruuì** 'younger sister' → **2nd cycle** → 'little girl/slave girl'

Syntax is apt to resolve these puzzles, given independent assumptions about pragmatics and phonetics. Homophony is not an issue, if *pinn'iam* does not concatenate a morpheme but merges null D, whose semantic contribution is syntactically typed: either as the implicit argument of an argument-taking expression, or as a specific interpretation of an overt argument—"that familiar thing one often speaks of" (Chao 1947, 35). The line between these options is blurred by the need to accommodate presuppositions online, as in (30b) where the literal meaning of a province or city name is metonymically coerced by context to another lexical domain (Fauconnier 1985). Empty D also explains the replacement of an aspect suffix by *pinn'iam* (30e), because present perfect typically absorbs accusative case and marks a syntactically inert argument (cf. Ambar 2000).

As to phonetics, linearization of null D on the right edge of the operand works as Longobardian raising as in (1b). Because metrical strength is "relational" (Liberman 1975, 51), it can explain why null D is in certain contexts pronounced extra-H [6], and in others why it compresses the lexical pitch contour as in (29c). The presence of *pinn'iam* in Cantonese but not Mandarin is consistent with the implication in (8), that binary systems can't freely activate null D as a typeshifting operator. Although the *pinn'iam* effect is pure prosody, it is nevertheless not reducible to "prominence" as in the OT treatment of focus (Truckenbrodt 1995), because the set of meanings in (32) is not pure topichood, but is in many cases contentful and able to be lexicalized.

2.5 Binary languages (BK1)

Pitch-driven typeshifting also occurs in Ìgbo, though less freely than in Cantonese. As first described by Ward (1936, 28), a prosodic change converts a construct state modifier from generic (34a) to referential (35a). The tone rule is that L substitutes for initial H (35b), then normal phrasal prosody applies, so in (35) where the head noun is lexically HL, footing causes the appearance of spurious H preceded by a downstep (35c).[28]

(34)a. ụ́lọ̀ ézè   HL HL   (35)a. ụ́lọ́ èze   H**!H L**L[29]
     house chief   house chief.specific
     'a chiefly/lavish house'   'a house belonging to the chief/Mr. Ézè'

    b. ụ́lọ̀ ézè áhụ̀   HL HL HL   b. *ézè* HL 'chief/Mr. Ézè' → *èze* **L**L
      house chief DEIC
      'the lavish house over there/under discussion'   c. *ụ́lọ̀* HL 'house' → *ụ́lọ́* H**!H**

Note that (35a) presents no specificity 'marker' as such, just specificity-related pitch, and so specificity is accidentally masked if the modifier happens to be lexically L-initial, e.g. *ànị* LL 'earth' is ambiguously generic or referential in (34a). The special prosody is available only to modifiers: explicit specificity of the head noun must be achieved periphrastically, as with the deictic element *áhụ̀* in (34b) and (36b).[30]

(36)a. ụ́lọ́ ànị   H**!H** LL
     house earth
     'a low house' OR 'a house belonging to the Earth divinity/Mr. Ànị'

    b. ụ́lọ́ ànị áhụ̀   H**!H** LL HL
      house earth DEIC
      'the low house over there/under discussion' OR
      'the house over there/under discussion belonging to the Earth divinity/Mr. Ànị'
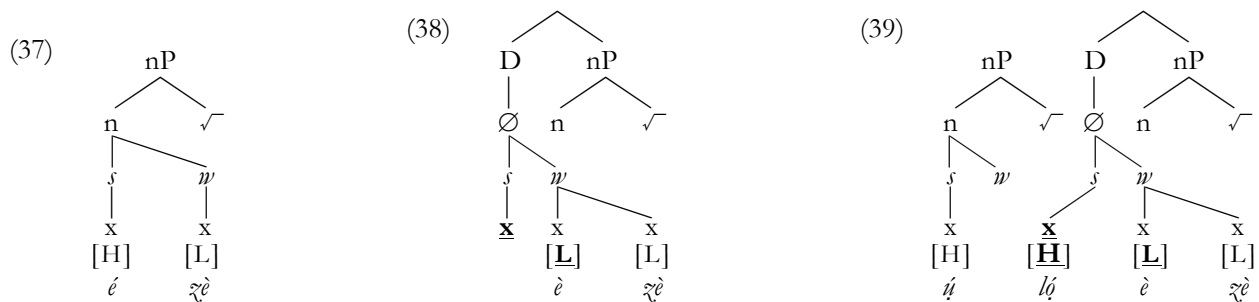
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28. The forms in (34a) and (35a) are usually called "associative" (Welmers 1963) and "specific" (Éménanjọ 1978, 39), respectively.

29. In tone transcription, [!] = nonautomatic downstep (a downward pitch juncture of approximately 10 Hz).

30. The restriction of prosodic specificity to modifiers explains why the construction was initially called a "*genitive* of personification" (Green & Ìgwè 1963, 20, my emphasis) and a "possessive" (Williamson 1972, *lx*), cf. Éménanjọ 1978, 208 *fn* 7). In argument position, a proper noun 'protagonist' interpretation is always available for animates, as in examples (63) and (64) below.

Despite her commitment to synchronically abstract floating tones, Williamson (1986, 200-03) admits that they can't obtain the phonetic outcomes from the lexical inputs without circularity. Earlier and more sanguine attempts along the same lines (Voorhoeve & al. 1968; Welmers 1970b; Williamson 1970; Williams 1971; Hyman 1974; Goldsmith 1976; Clark 1989) failed to reach consensus as to which extra tones are involved, how they get into the string or why floaters 'dock' sometimes rightward (35a), sometimes leftward (36a). In retrospect, the confusion stems from the familiar twin assumptions: (i) that the lexical items are 'nouns' (X^0s, heads, unanalyzable words), and (ii) that the changes to citation tones are caused by phonological processing. If those premises were true, the lack of dedicated, obligatory determiners in BK languages would be an exotic quirk, but on the contrary, Ìgbo children have ample synchronic evidence for number inflection—reviewed in §3.1 below—which forces them to parse notional, translational nouns as branching phrases. Therefore footing is the null hypothesis for the pitch effect in (35a) and the absence of overt D in Ìgbo is expected.[31]

The tests in (22) diagnose Ìgbo as trochaic, so *ézè* HL 'chief' is intrinsically foot-initial (37). The L-initial effect in (35a) shows that a referential modifier is not foot-initial; instead the foot must begin one timing unit to the left of the initial vowel. Were this extra skeletal slot mere phonology, no semantic consequences would arise, but (35a) shows that refooting entails referential activation of empty D, so the derived structure is at least as big as (38). Two more outcomes follow from structure preservation over feet: (i) lexically spurious H appears on the final syllable of a head noun like *ụ́ lọ̀* HL 'house' and (ii) downstep appears before this spurious H. Tone-specific rules can emulate (39), but only at the price of treating the correlated DP reading as an accident, and of inventing 'register tones' to mimic metrical nodes (Clements 1981).[32]

(37)
```
        nP
       /  \
      n    √
     /|    |\
    s w    s w
    |        |
    x        x
   [H]      [L]
    é        zè
```

(38)
```
      D    nP
      |   /  \
      ∅  n    √
         /|   |\
        s w   s w
        |        |
        x        x
       [L]      [L]
        è        zè
```
(underline on x and [L])

(39)
```
      nP     D    nP
     /  \    |   /  \
    n    √   ∅  n    √
   /|   |\     /|   |\
  s w   s w   s w   s w
  |     |     |        |
  x     x     x        x
 [H]   [H]   [L]      [L]
  ụ́     lọ́    è        zè
```

Superficially similar lowering occurs in agent/instrument nominalizations, but only if the verb root has lexical H like *-gbú* 'cut' in (40) whereas no lowering occurs in (41) after an L root like *-kpà* 'pinch' (Ìgwè 1999, 583, 667, cf. Green & Ígwè 1963, 27*f.*). Agentive (41) has the same lexical tone ingredients as specific (42), but it gets the same contour as generic (43). This shows that what counts is not phonology but logical type: by the hypothesis that referentiality is contributed by prosodically activated null D, generic nominal modifiers as in (40), (41) and (43) are structurally, thus prosodically, different from referential ones as in (39) and (42).[33]

(40)a. ò-gbú   ède   L-H **LL**
  AGENT-cut taro
  '(expert) taro-cultivator'

  b. *-gbú* H 'cut'

  c. *édè* HL 'taro' → *ède* **LL**

(41)a. ọ̀-kpa   ákwà   L-L HL
  AGENT-pinch cloth
  '(professional) cloth-weaver'

  b. *-kpà* L 'pinch'

  c. *ákwà* HL 'cloth'

(42)a. ànị̀ èze   L**H LL**
  land chief.specific
  'land belonging to the chief/Mr. Ézè'

  b. *ànị* LL 'earth'

  c. *éżè* HL 'chief'

(43) ànị ézè   LL HL
  land chief
  'kingdom, i.e royal territory'

Minimal contrasts like (41) vs. (42) show that activation of null D in Ìgbo, a binary language, is limited to the opportunistic context of nominal modifiers, whereas in ternary languages the inference in (8) is valid for all bare arguments. Ternary tone is therefore not a necessary condition for free null D, but it remains a sufficient one, and that's still a phenomenon in search of a theory.

BK1 literature helpfully paves the way for accentual analysis with the notion of "privative tone", reducing the phonetic contrast {H, L} to the formal opposition {H, ∅}. Even tone advocate Hyman (1990, 2001) endorses this step for some BK1 languages, although for Nande/Yiira he insists on a ternary lexical contrast {H, L, ∅}. Yet his L does no other work than to repel phrase-final accent from certain items, mainly group D of Kambale (1978, 9) comprising about 19% of total nominals. (44) lists the four main prosodic classes of Nande nominals and compares an accentual analysis with the morpho-tonal diacritics previously proposed.

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31. The X^0 homology was inevitable for missionary and colonial research conducted via translated English wordlists.

32. The foot-based analysis in (37) dispenses with the transitional concept of 'tonal government' (Bamba 1991; Manfredi 1993).

33. Based on forms like (40), standard literature repeats the blanket claim that in the "noun agent… the tone pattern… is the specific construction" (Williamson 1984, *xxxix*, cf. 1972, *xlvii*, *lxi* and Éménanjọ 1978, 39), but (41) and (42) aren't pronounced the same.

				Kambale (1978)	Valinande (1984)	Mutaka & al. (2008)	Jones (2008) n = 1178
(44)a.	*unaccented*	[nP ku [√ gulu]]	'leg'	group A	[√ LL]	[√ ∅∅]	297 = 25%
b.	*accented*	[nP kú [√ boko]]	'arm'	group B	[√ HL]	[√ H∅]	179 = 15%
c.	*double-accented*	[nP ká [√ húka]]	'insect'	group C	[√ LH]	[√ HH]	63 = 5%
d.	*opaque, accented*	[nP kíkere]	'toad'	group D	[√ HH]	[√ HL]	221 = 19%

Though differing in detail, the underlying representations proposed by Valinande and Mutaka share the traditional premise that lexical contrasts are encoded on roots. If so, the distribution of tones with respect to root syllables is expected to be free, and Valinande (1984) implements this at a high cost of abstractness for the HH class plus reliance on "global" rule features (cf. Hyman & Valinande 1985). By contrast, Mutaka & al. (2008) attain more natural phonetics and rule application, thanks however to an improbably marked, ternary lexical inventory of prosodic objects. If those are the only choices, then Nande may be unlearnable.

As in other examples previously discussed, syntactic and semantic evidence undermines the assumption that the listed form of the noun—and therefore the unique home of unpredictable prosodic information—is the nominal root. The alternative, that the lexical entry is the bare singular (= *nP*), seems inevitable in BK1 anyway because nounclass membership is significantly unpredictable and is obligatorily expressed *outside* root in the prefix. But once the prefix is admitted to the lexical entry, there's no way to keep Nande children from encoding prosodic information on it, in which case a simple accentual theory can take off. An immediate gain is to dismiss the typologically odd and autosegmentally anomalous rule of "H-tone anticipation" needed by all tonological studies of Nande so as to push an allegedly root-initial H leftward onto the nounclass prefix, where it invariably gets pronounced in classes (44b-d).[34]

Nande being clearly trochaic by (22), if the lexical domain is *nP* then nothing prevents accent on the prefix. Double accent (44c) though rare (5%) is also expected, given the independent existence of nuclear stress—known to Nande tonologists as "phrasal H assignment"—which "assigns a H-L pattern before pause on the final two vowels" (Valinande 1984, 345) in the context of an "end of assertion e.g. citation" (Hyman 2001, 247). Nuclear stress applies to classes (44a-b) to yield citation *òkùgúlù* LLHL and *òkúbókò* LHHL, and vacuously *àkáhúkà* LHHL in (44c), so the question is why the citation tone of (44d) is *èkíkèrè* LHLL and not *èkíkérè* LHHL. External evidence long ago assigned the blame to domain opacity: "Hyman and Valinande (1983, 19) suggest that many of the nouns subject to this exception rule are borrowings or reduplications (or compounds)" (Valinande 1984, 373). Metrics can express this as bracket erasure i.e. defective internal structure such that trochaic footing can't separately target the root, producing the observed [nP *sww*].[35]

Once again, the conclusion is that lexically contrastive pitch can't be segregated from phrasal accent on formal grounds. The end of tone-accent *apartheid* can of course be accommodated in more than one way, and the demise of the toneme can be forestalled by a notational move which has proved popular to phoneticians and phonologists alike: recoding phrasally assigned accents as "boundary tones" (Pierrehumbert 1980). Much of the time this is descriptively equivalent to accent, but boundary tones are inherently less constrained and so pose the "phonologist's dilemma" that they're unfalsifiable (Kaye 1988). But certain accentual rules can't be simulated by adding a boundary tone or even three: if the rule deletes—not adds—a phonemic, lexically inherent tone in a phrasal context. Here's a representative example.

In Rundi, default inflection *-a* contrasts with finite perfect aspect *-ye* (Meinhof 1906, 66-68; Schadeberg 2003, 71). The two suffixes define two focus paradigms described by Meeussen (1959, 121*f*.) as respectively "conjoint" (45) and "disjoint" (46) with reference to their c-selection properties. As approximately conveyed by the glosses below, the internal argument is obligatory and informationally new in conjoint (45), but in disjoint (46) it is given and can be dropped.[36]

(45)a. Tù-**á**   bàr-iir-a   impuúzù.
1PL-AUX sew-APPL-INFL clothing
'We sewed some clothes (recently)'

b. Tù-**á**   kùb-uur-a   urugó.
1PL-AUX sweep-APPL-INFL yard
'We swept the yard (recently)'

(46)a. Tù-a   bar-ir-iye.
1PL-AUX sew-APPL-INFL
'We have sewn (some pertinent clothes)'

b. Tù-a   k**ú**b-ùu-ye.
1PL-AUX sweep-APPL-INFL
'We have swept (some pertinent place)'

The lexical pitch contrast between *-bàr* 'sew' and *-kúb* 'sweep' is audible in (46) but not in (45). The apparent deletion of the H of 'sweep' after the H of the inflected aux should not occur unless the two H's belong to the same formal type, therefore if the H of the aux is by definition phrasal in origin, then so by parity is the lexical H of the verb root. The effect is pervasive in BK1 (cf. Odden 1984; Chebanne & al. 1997) and has inspired various *ad hoc* devices like Welmers' "low tone replacive" (1970a, 51) process morpheme in Ìgbo. In all these cases, tonal notation is intrinsically unsuited to express a syntagmatic dependency which is "relational" in precisely the sense which Liberman (1975, 51) considered to be definitive of metrical structure.

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34. Bantuists assume that noun prefixes are "toneless" or at any rate not H-bearing (Valinande 1984, 371 citing Hyman 1975, 213).

35. In (44d), agreement can still target class and number features in the prefix, which is *nP*'s phase edge (cf. Chomsky 2001, 14).

36. Some phonology happens to the suffixes in (46). This can be handled by a mix of OT and rewrite rules (Hyman 2003a,b), but the label "imbrication" (Bastin 1983) suggests a simpler account in terms of epenthesis (Chikane & Manfredi 1995).

2.6 Prelinking crosslinguistically

Reducing tone to pitch accent while also "allowing multiple accents to appear in a word" makes it possible to express the prosodic similarity of some Japanese varieties with certain languages of the BK1 and Mandeng clusters of Niger-Congo (McCawley 1978, 125*f.*; Clark 1978, 81; Liberman 1995, 83). This step depends on a diacritic of accentual prelinking, which seems reasonable because the need for this device is category-specific, and does not extend to predicate-type items either in Japanese (McCawley 1978, 119) or in various BK1 languages (Odden 1988; Mtenje 1993; Kimenyi 2002).[37]

Tonemes by themselves can easily encode any given arity, but accomplish this an arbitrary way—affording no special status to the linguistically significant difference between binary and ternary lexical pitch contrast and offering no insight into the latter's limited crosslinguistic distribution. Tonemes are thus 'too strong' as paradigmatic representations of pitch, but at the same time they're also 'too weak' to express the syntagmatic property of headedness, which is an orthogonal parameter of variation. Among binary languages, Standard Japanese is uniformly trochaic [HL], but central Honshu dialects (Kyo̅to, O̅saka) also need iambic [LH] accents, subject to a tonally inexpressible restriction that a trochaic accent can't precede an iambic one within a noun, and the same is true for Tonga in BK1 (McCawley 1978, 123-27). Still other binary languages are either uniformly trochaic (Èdó, Ìgbo) or uniformly iambic (Àkan, Hausa), going by the tests in (22) above. Ternary languages also divide by headedness, for example trochaic Yorùbá (§2.2) versus iambic Gbè (§2.3).[38]

Although prosodic arity and headedness are orthogonal, each trait indvidually may depend on contextual factors of syllable and word structure attested in patterns of onset phonation, coda restrictions, derivational compounding and inflectional suffixation. Given so many potential sources of diversity, prosodic typological space is presumptively large, but the evident fact that it's not reducible to a linear cline of 'tonal density' does not logically demand formal independence of "the tone and stress prototypes" (*pace* Hyman 2009). On the contrary, learnability would be more easily satisfied by assuming only one format of prosodic structure, which combines with different lexical codings to yield many phonetic profiles like tone and stress. Lexical structures can only be acquired in particular syntactic frames, and this dependency is a clear source for the widespread prosodic asymmetry between predicates and arguments (cf. Kaye 2003). For example, even though Chinese is trochaic (Duanmu 2000), one reason that its prosody fails to overlap the trochaic part of Benue-Kwa is that all Chinese lexical roots possess branching rimes (either CVV or CVC), whereas Benue-Kwa roots respect no such template. Prosodic nonisomorphism also has a developmental aspect: since the medieval Tang dynasty, northern Chinese has evolved from ternary to binary (Huang 2005) but BK2 has followed the opposite direction during roughly the same interval (Manfredi 2009). These paths probably don't intersect.

Across Benue-Kwa, tonal arity correlates positively with freedom of prelinking in roots (predicate-type expressions). In BK2, lexicalization in principle fully exploits the ternary option, e.g. in Yorùbá prelinking is free because roots are monomoraic, cf. (17). All polysyllabic roots are forced into branching syntax, either as "splitting verbs" (Awóbùlúyì 1969) or as opaque VN phrases assigning Genitive (Elimelech 1982). But in BK1, polysyllabic roots abound and lexicalized pitch contrast in roots is correspondingly marginal, cf. (16). Examples abound in BK1 of metrical overdetermination. In Èdó, lexical pitch exceptionlessly correlates with mora count (Melzian 1937, *xii*; Ámayo 1976, 230), cf. (47a). In Ìgbo, all analyzable polysyllabic roots fit into an accentual compounding template requiring at least one H and favoring trochaic outcomes (Green & Ígwè 1963, 188; Welmers 1970b, 265*f.*; Williamson 1972, *xxiii*; Éménanjọ 1978, 138*f.*), cf. (47b).[39]

(47)a. Èdó   [⌐ CV]   ↔   H   e.g. *-dé* H 'fall'

            [⌐ CV(C)V]   ↔   LH   e.g. *-dèé* LH 'tie', *-kpòló* LH 'sweep'

   b. Ìgbo   [⌐ L [⌐ L]]   →   [⌐ H [⌐ L]]   e.g. *-wé-fù̀* HL 'take out'

            [⌐ X [⌐ H [⌐ L]]] →   [⌐ H [⌐ L [⌐ L]]]   e.g. *-wé-tà-fụ̀* HLL 'bring out'

The prelinking asymmetry between the roots of BK1 and BK2 is mysterious if the coding unit for lexical pitch contrast is the alphabetic toneme, but expected if tones are the phonetic realization of prosodic feet.[40]

This section has also shown that ternary languages display more prosodic asymmetries on the nominal left edge, than binary languages do. It remains to show that the structure relevant to this pitch difference is part of narrow syntax, specifically the D-layer in the nominal left periphery. To this end, the next section reports properly semantic consequences, whose existence supports the implication from tone to referentiality in (8) and therefore brings Benue-Kwa and Sinitic within topological mapping theory.

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37. Prelinked accent figured in hybrid accent-tone analyses in the form of a non-branching "star" (Haraguchi 1975, 23; Goldsmith 1982; Odden 1985) then was nonaccentually recast as a "prelinked tone" (Pulleyblank 1983; Hyman & Byarushengo 1984) as part of a move to dismiss automatic tone mapping, which had been a foundational premise of autosegmental theory (Williams 1971; Leben 1973; Goldsmith 1976; cf. Zoll 2003). For some BK1 languages, Odden (1987, 1996) manages without prelinking, but only by permitting tones to be initially mapped by syntax-sensitive rules, which seems largely equivalent. Haraguchi (1991, 88*f.*) argues that tone prelinking in the version of Archangeli & Pulleyblank (1983) is less adequate than accent in the analysis of Japanese.

38. Leben (2001) surveys numerous proposals for "tonal feet" but without showing that these differ from the metrical kind. He proposes that Hausa is trochaic, but may be referring to English since his evidence comprises the tones of English loanwords.

39. The 'compound stress' effects in (47b) are all the more remarkable because these are not true morphosyntactic compounds, but complex predicates which preserve and do not reverse the linear order of corresponding serial constructions (Manfredi 2005). Ìgbo possesses only one bisyllabic root which is iambic, and it is morphologically opaque: *-kèlé/-kèlá* LH 'greet'. Bisylllabic roots formed by reduplication are all trochaic: *-chụ́chọ̀* 'twitter', *- gbúghè* 'act sluggishly', *-gbúgbù* 'wave', *-lị́lị̀* 'struggle' &c. (Ígwè 1999, *xvi*).

40. Feet can be coded equivalently as metrical trees (adopted here) or bracketed grids (Halle & Vergnaud 1987; Idsardi & Kim 1997).

3. On the compositionality of the nonspecifics

In Sinitic and Benue-Kwa, nonspecific—including generic—interpretations display a compositional pattern which parallels—and interacts with—aspect and case (cf. Verkuyl 1972; Bittner & Hale 1996). This finding confirms the hypothesis that "functioning object referentially… is a derivational property of arguments and… cannot always be predicted just from the lexical features of the head noun" (Longobardi 2005, 13*f.*).

3.1 Welmers saw dog

Welmers cites (48a) as an "explicit demonstration of the generic character of simple nouns in Yorùbá" (1973b, 220). Strictly that's false because (48a) is episodic, but his proto-Chierchian remark may have been prompted by the fact that (48a) is grammatical without the kind of kind-coercion that's required to save its literal English counterpart (49a). Cheng *& al.* (2008) discuss similar data in Mandarin, Gbè and Brazilian Portuguese— languages which, like Yorùbá, lack inflectional number and practice periphrastic pluralization (Wiltschko 2008, 647-72) or what Welmers more subtly calls "individuation" (cf. Borer 2001; 2005, 93). Although by itself Yorùbá *àwọn* is the 3P tonic ('strong') pronoun, in (48b) it can also be indefinite (though maybe still specific). To cover the same interpretive ground as (48b), English needs both a bare plural and a definite plural (49b).[41]

(48)a. Mo   rí   ajá. → *morájá* MHH
    1S.NOM see dog
    'I saw a dog/some dogs'
    'I saw the dog(#s) in question'

   b. Mo   rí   àwọn ajá.
     1S.NOM see 3P   dog
     'I saw some (individual) dogs'
     'I saw the dogs in question'

(49)a. #I saw dog.
    I saw dog listed on the menu.
    I saw dog smeared on the pavement.

   b. I saw (some/certain) dogs.
     I saw the dogs.

Somehow Yorùbá says more than meets the English ear, and the question is whether the nonisomorphism of (48) and (49) is evidence for a parameter of the metaphysics of 'dog'. Alternatively, the contrast could be grammar-internal in origin, because it holds at both PF and LF simultaneously, e.g. speakers may know that the 'noun' part of *ajá* is just the *-já* part, and that the initial vowel signals the presence of closed-class material. To decide the issue it's relevant that numerous other mappings also exist, whose multiplicity could be modeled by proliferating semantic parameters only by duplicating the syntactic engine's indispensable work.

Ìgbo (50a) corresponding to Yorùbá (48a) lacks its indefinite plural interpretation, but switching from *ńkị́ tá* 'dog' to *óche* 'chair' the crosslinguistic situation is partly reversed: the inanimate plural is not only possible in Ìgbo (50b) but—as Welmers remarked—it includes one more interpretation than the Yorùbá counterpart (52), namely definite plural. Mandarin (Yang 2001, 29) has yet a different pattern, at least for animates: out of the four logical possibilities, a bare N object excludes only the indefinite singular (51).

(50)a. Ó   hù-rụ ńkị tá.
    3S.NOM see-INFL dog
    'S/he saw a dog'
    'S/he saw the dog in question'
    #'S/he saw some dogs/the dogs in question'

   b. Ó   hù-rụ óche.
     1S.NOM see-INFL chair
     'S/he saw a chair/some chairs'
     'S/he saw the chair(s) in question'

(51) Wo kanjian gou le.
    1S   see   dog ASP
    #'I saw a dog'
    'I saw some dogs'
    'I saw the dog(s) in question'

(52) Mo   rí àga.
    1S.NOM see chair
    'I saw a chair/some chairs'
    'I saw the chair(#s) in question'

Four languages, four distinct mappings of referentiality in the minimal free form. Syntactic analysis of this diversity can build on language-internal observations about little *n*, despite Welmers' cautious view that "the noun prefixes have no grammatical function" (1973a, 190). Mandarin *gou* is an unanalyzable root, whose number is expressed in a sortal classifier. Yorùbá *ajá* 'dog' is phrasally complex, as Welmers himself almost concluded from "the fact that [Yorùbá] nouns may be derived from verbs by the addition of an initial syllabic" as well as from the restriction that "the tone of Yorùbá prefixes may be low or mid, but not high" (1973a, 190, cf. Ward 1952, 37). Ìgbo nouns have no tone restriction—indeed, bi- and trisyllables display more patterns than the number of tones raised to the number of syllables, respectively 5 and 11 versus $2^2=4$ and $2^3=8$ (Green & Ígwè 1963, 17*f.*)—but some Ìgbo noun prefixes are analyzable and do encode number.[42]

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41. By excluding the definite plural 'the dogs', the gloss of (48a) corrects an empirical error in Manfredi (1997, 104). Concerning (48b), the Ṣàbẹ́ , Idàíṣà and Kétu dialects of Yorùbá have been reported to render the pluralizer as an enclitic, giving *ajá wọ n* instead of *àwọ n ajá* (Palau-Marti 1992, 13), but any interpretive differences between these two patterns remain to be investigated. For more considerations against metaphysical parameters—including some allowed by Chierchia himself—see Doron *& * Müller (2014).

42. Yorùbá *ajá* 'dog' is not analyzable, but *a-* is a productive prefix in agentive nominals like *a-jẹ X* 'eater of X' (cf. *-jẹ* 'eat'). Ìgbo *ńkị tá* 'dog' is diachronically the nominalization of **-kị́* 'collect' (*ń*)*ta* 'wild game' (Clark 1989, 245). As a free root, **-kị́ > -chị́* in most dialects, cf. Nande *-kʊ́m* 'collect' (Kambale 1978, 63). As in Gbè (26) above, Ìgbo requires superficially monosyllabic nominals to have an audible prefix in certain contexts. Thus when modifying *ákpụ̀* 'HL 'lump, hump, bump', *jí* H 'yam (*Dioscorea*)' sprouts an H-bearing prothetic mora μ-, but the treatment is nonparallel if the modifier is a CVCV item like *námá* HL 'zebu cow (*Bos indicus*)'.

(i)   [*ákpụ̀* [*ụ́ -jí*]]   HL **H**-ᴵH
     hump μ-yam
     'yam hump/root ball'
     (Green & Ígwè 1963, 20)

(ii)   [*ákpụ̀* [*námá*]]   HL HL
      hump cow
      'hump of zebu cow'
      (Ígwè 1999, 49)

The missing readings of (50a) show that Ìgbo animates need overt pluralization, and this requirement is reflected in numerous primary language data. Irregular number inflection is found in a handful of closed lexical classes (53), then the remainder divides predictably according to whether the lexical content is intrinsically animate (54a) or else a descriptive modifier X of a bound head *ónye/ńdị* 'someone(s) of X' (54b). Inanimates, by contrast, pluralize only optionally and always periphrastically (55).[43]

		sg.	pl.	
(53)a.	'adult male'	*ó-kènye*	*í-kènye*	
	'adult female'	*ò-kporó*	*ì-kporó*	
	'adolescent male'	*ò-kórobị a*	*ì-kórobị a*	
	'domestic servant'	*ò-dibọ*	*ì-dibọ*	
	'brass rod currency unit'	*ò-kpogho*	*ì-kpeghe*	
b.	'offspring'	*nwá*	*ụ́ mụ̀*	
	'infant/young child'	*nwátà*	*ụ́ mụ̀ áká*	(cf. *-ká* 'mature')
	'sibling'	*nwánné*	*ụ́ mụ̀ ńné*	(cf. *ńne* 'mother')
c.	'human being'	(*nwá*) *mmádụ̀*	*ụ́ mụ́ mmádụ̀*, *ńdị mmadụ̀*	
	'woman'	(*nwá*) *nwáànyị*	*ụ́ mụ̀ nwáànyị*, *ńdị nwaànyị*	
	'man'	(*nwá*) *nwoké*	*ụ́ mụ̀ nwóké*, *ńdị nwoké* (cf. *óke* 'male/large')	
d.	'European'	(*nwá/ónye*) *Bèkéê*	*ńdị Bèkéê*	
e.	'senior titleholder'	(*ónye*) *ìchîe*	(*ńdị*) *ìchîe*	
	'ancestor'	(*ónye*) *mụ ọ́*	*ńdị mụ ọ́*	
	'visitor/stranger'	(*ónye*) *ọ bị̀ a*	*ńdị ọ bị̀ a*[44]	
(54)a.	'adolescent male'	(*nwá*) *òkóro*	*ụ́ mụ́ ókoro*	
	'adolescent female'	(*nwá*) *àgbọ́ ghọ̀*	*ụ́ mụ́ ágbọ́ ghọ̀*	
	'twin'	(*nwá*) *èjima*	*ụ́ mụ́ èjima*	
	'oraclist'	(*nwá*) *dibị̀ a*	*ụ́ mụ̀ díbị̀ a*	
	'matrilineal descendant'	(*nwá*) *dí àla*	*ụ́ mụ̀ dí àla*	
	'palmwine tapper'	((*nwá*) *dí*) *òchi*	*ụ́ mụ̀* (*dí*) *òchi*	
	'dog'	(*nwá*) *ńkị tá*	*ụ́ mụ̀ ńkị tá*	
	'antelope'	(*nwá*) *mgbada*	*ụ́ mụ́ mgbada*	
b.	'wife'/'household members'	*ónye bé*	*ńdị bé*	(cf. *bé* 'homestead')
	'aged person'	*ónye ochìe*	*ńdị ochìe*	(cf. *óchìe* 'old')
	'boss'	*ónye isí*	*ńdị isí*	(cf. *ísí* 'head')
	'trader, customer'	*ónye ahị á*	*ńdị ahị á*	(cf. *áhị a* 'market')
	'white person'	*ónye ọ cha*	*ńdị ọ cha*	(cf. *ọ́ cha* 'white/dry')
	'Ìgbo person'	*ónye Ìgbo*	*ńdị Ìgbo*	
	'Yorùbá person'	*ónye Yọ̀ rọ bá*	*ńdị Yọ̀ rọ bá*	
	'person who went to market'	*ónye gára ahị á*	*ńdị gára ahị á*	
(55)	'chair [indefinite, nonspecific]'	*óche*	*óche* (*ụ̀ fọ́ dụ̀*)	(cf. *-fọ́* 'appear', *-dụ́* '∃')
	'chair [definite, specific]'	*óche* (*ahụ̀*)	*óche* ((*ńdị*) *ahụ̀*)	
	'chair [definite, proximate]'	*óche à*	*óche* (*ńdị*) *à*	

3.2 Pseudo-incorporation

If the minimal free form in both Ìgbo and Yorùbá is *nP*, acquisition cues for this inference nonetheless differ between the two languages, with interpretive consequences. In Ìgbo, the morphological exponence of *n* is never elidable: no segmental contraction can occur between a predicate root and a nominal complement, nor does a prefix ever assimilate to the preceding vowel (Welmers & Welmers 1968, 30). But the phonetic resilience of little *n* in Ìgbo doesn't always suffice for its edge features to be interpretable; structural Case is also required, failing which generic readings default. One example is adjoined nominal modifiers (34), which fail to allow independent reference unless the string is compatible with null D, in the so-called specific construction (35), reminiscent of a Romance partitive. Here is a second type of case-related nonreferentiality.

A range of language-internal evidence distinguishes the Ìgbo versions of the Rundi conjoint and disjoint forms in (45) and (46) above, and these contrast in the interpretation of an animate bare singular subject (Déchaine & Manfredi 1998). Setting aside the protagonist interpretation ('Mr. Rat') which is possible in any argument position, *òké* 'rat' as an ergative subject can be a nonspecific indefinite with free scope (56), but in (57) where the subject is caseless (nominative), its interpretation reduces to a kind of adverbial.[45]

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43. The plurals in (53a) are, with one exception, limited to western dialects; elsewhere these items pluralise with *ụ́ mụ̀*. The exception is the only inanimate item in this set, denoting 'brass rod' (q.v. Ígwè 1999, 254, 598), which is limited to the southeast. The dual status of *nwá* and *ụ́ mụ̀* as independent lexical items and as sortal classifiers makes the singulars and plurals in (53c) and (54a) systematically ambiguous—pragmatics permitting—as genitive phrases 'child(ren) of X'. With LH tone, *ònyé* is the free interrogative form 'who?'

44. In dialect forms like *áhị a(-mị̀)* 'visitor(s)', "the suffix *-mị̀* as a pluralising element" (Nwáọ̀ga 1984, 60) is historically related to the freestanding animate pluralizer *ụ́ mụ̀* as in (53c) or (54a).

45. Bare *nP* can also be referential as an accusative object (50a), recalling the lexical government amnesty for null D in Romance (Longobardi 1994). *Caveat lector:* Déchaine & Manfredi (1998) wrongly give a referential plural gloss for cased, bare animate *nP*s in Ìgbo, thus the interpretation 'rats' is erroneous in examples (18b), (19b,c), (20a), (22a,c), (25a), (28), (29), (36a), (40a) of that paper.

(56) Òké tà-ra   ọ́kà áhùn.
    rat chew-ASP corn DEIC
    'A rat/some rat chewed that corn'
    'Mr. Rat chewed that corn'

(57) Òké á-ta-a-la   ọkà áhùn.
    rat *pro*-chew-ASP-ASP corn DEIC
    'That corn has suffered rat-damage'
    'Mr. Rat has chewed that corn'

In Yorùbá, by contrast and as already mentioned, *n* stands apart from the root on prosodic grounds: it can't head a foot, as shown by the *H constraint on initial vowels (§2.2 above). Effectively then, Yorùbá *n* is proclitic and freely drops in a context where edge features aren't probed. Mandarin takes this a step further: root N is directly interpretable as an adverb (or adjunct) unless preceded by overt *n* (SORT). Taking Mandarin first, the lack of a singular indefinite reading of bare root N without SORT as in (51) suggests that referential interpretations of the bare root are parasitic on object *pro* drop. The same pattern continues in the paradigm of resultative compounds (Huang 2005). In (58a), *ma* 'horse' is optionally "non-referential" and if it is then "the result [= 'tired'] is predicated on the subject", but the subject reading disappears as soon as *ma* is accompanied by left edge (referential) material as in (59).[46]

(58)a. Zhangsan qi-lei-e   ma le.
    Z.   ride-tired-PERF horse 'INC'
    'Z. rode the horse until it was tired'
    'Z. rode a horse and himself got tired'

(59)a. Zhangsan qi-lei-e   na4 pi   ma.
    Z.   ride-tired-PERF that SORT horse
    'Z. rode that horse until it was tired'
    #'Z. rode that horse and got tired'

b. Zhangsan qi-lei-le   san ci ma.
    Z.   ride-tired-PERF 3 time horse
    'Z did horse-riding three times'
    (either same horse or different ones)

b. …san pi   ma.
    3   SORT horse
    'Z. rode three horses until they were tired'
    #'Z. rode three horses and got tired'

BK languages don't have subject-oriented transitive resultative compounds like (58), but pseudo-incorporation does occur in Yorùbá V-N compounds (Oyèláràn 1971, 1972; cf. Stahlke 1976; Awóyalé 1995). An idiomatic subject-oriented reading is evident in (60) where the prefix elides, in contrast to (61) where the vowel prefix is preserved. The contrast in the (b) examples is minimal, as the lexical numeration is identical.

(60)a. Mo fẹ́ ‹ọ›wọ́ .   → …*fẹ́wọ́*
    1S want hand
    'I pilfer/have sticky fingers'
    n.b. *wọ́ 'hand'

(61)a. Mo f‹ẹ́› owó.   → …*fówó*
    1S want money
    'I'm after money'

b. Mo gbé ‹o›rí.   → …*gbérí*
    1S lift head
    'I (have) reared my head'
    n.b. *rí 'head'

b. Mo gb‹é› orí.   → …*gbórí*
    1S lift head
    'I (have) picked up {a/the} head'

An ample dictionary like Awóyalé (2007) also lists many examples of prefix elision with animate count nouns which are not inalienably possessed, such those with *ajá* 'dog' in (62). It's relevant to verify whether all bare internal arguments that undergo prefix drop also resist a referential (nonincorporated) interpretation, and whether this is not the case for nominals undergoing 'normal' backward vowel elision (63). A first, preliminary test of this expectation is fulfilled: the anaphoric reference of *ajá* 'dog' fails in (62′), but in (63′) the equivalent discourse is referentially coherent ('S. Oyèláràn *p.c.*).

(62)a. bẹ́ ‹a›já → *bẹ́ já* HH 'behead dog'
    cut

(63)a. gb‹é› ajá → *gbájá* HH 'steal dog'
    lift

b. bọ́ ‹a›já → *bọ́ já* HH 'feed dog'
    feed

b. j‹ẹ› ajá → *jajá* MH 'eat dog(meat)'
    eat

c. lu ‹a›já → *lujá* MH 'whip dog'
    beat

c. m‹ú› ajá → *májá* HH 'catch dog'
    catch

d. sin ‹a›já → sinjá MH 'keep dog as a pet'
    escort

(62′) *An oracle priest advised his client to procure a white goat and a black dog for sacrifice to the Ògún divinity. When all the ingredients were ready, the officiants assembled. #Wọ́n bẹ́ 'já.*[47]

(63′) *Some strangers came to the market. They saw a white goat and a black dog. They didn't buy, but returned later wearing different clothes. Someone began to shout and there was confusion. Wọ́n gb'ájá.*

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46. To this non-specialist anyway, the linearization of *-le* after the N root in (51) and (58a) looks like evidence of overt incorporation. Presumably the subject reading would be equally bad in (54) if the internal argument is the bare *nP*, [*pi ma*].

47. Prof. Oyèláràn's preferred continuation of (62′) uses left displacement of the referential argument *ajá* 'dog' and consequent resort to paraphrase, substituting *bọ̀ 'Gún* 'make a sacrificial offering (*ẹ bọ*) for Ògún' for the dismembered predicate *bẹ́ já* 'behead dog'. The left position is appropriate for contrastive topic, but (63′) is equally contrastive as (62′) and yet no dislocation is required.

(i) Ajá ni wọ́n fi bọ̀   'Gún.
    dog COP 3P.T use sacrificially.propitiate O.
    'The dog is what they offered to Ògún'

3.3 Generics and scope

That the Yorùbá 'bare' nominal is of category *nP* explains why it blocks generic interpretation in (48a) above as well as in episodic (64a), both of which lack the *n* elision cue found in the nonreferential examples in (62). Since "characterizing sentences are typically stative" (Krifka *& al.* 1995, 12), genericity in (64b) needs a stative operator like the durative aux (cf. Abraham 1958, 433). By contrast the Haitian 'bare nominal' is an N root, allowing genericity in (65a) because an atelic sentence in Haitian is stative automatically (Déchaine 1991). (65b) is telic because the internal argument is quantized (Verkuyl 1972), thus nonstative, and genericity is lost.

Yorùbá (cf. Ajíbóyè 2005, 176*f.*, 219)

(64)a. Mo ta ajá.   → *motajá* MMH
      1SG sell dog
      'I (have) sold a dog/some dogs'
      'I (have) sold the dog under discussion'
      #'I sell dogs'

   b. Mo ń   ta ajá.
      1SG DUR sell dog
      'I {am/was} selling a dog/some dogs'
      'I {am/was} selling the dog(s) under discussion'
      'I (used to) sell dogs habitually'

Haitian (Déchaine 1991, 37; DeGraff *p.c.*)

(65)a. Pyè vann bèf.
      sell cow
      'P. sold {#a cow/some cows}'
      'P. sold {the cow/#s} under discussion'
      'P. sells cattle'

   b. Pyè vann {yon bèf /bèf la / bèf yo}.
      sell one cow cow DEF cow DEF.PL
      'P. sold {a cow/the cow/the cows}'

Ajíbóyè (2010) shows, however, that stativity is merely a necessary condition of Yorùbá generics, not a sufficient one. Despite the stative aux, a bare *nP* subject yields episodic progressive aspect (± past) as well as a definite argument-type interpretation (66). To obtain genericity with this argument alignment requires one of Welmers' "individuated" plural subjects with *àwǫn* (67).

(66) Ajá   ń   bù mí   ję.
     dog.T DUR split 1S.ACC eat
     'The dog in question {is/was} biting me'
     #'A certain dog {is/was} biting me'
     #'Dogs {bite/usually bit} me'

(67) Àwǫn ajá ń   bù mí   ję.
     3P   dog.T DUR split 1S.ACC eat
     'The dogs in question {are/were} biting me'
     #'Certain dogs {are/were} biting me'
     'Dogs {bite/usually bit} me'

The referentiality contrast between (66) and (67) replicates in (68a) versus (68b), where this time the stativity is intrinsic to the *Aktionsart* of the lexical predicate *fę̀ràn* 'like' rather than being coerced by the durative operator *ń*. Inspecting (68b) in isolation could lead to conclude that the Yorùbá pluralizer works like the English bare plural, but the parallel breaks down in object position, where the pluralizer is not only unnecessary for a generic interpretation (69a), it actually blocks genericity (69b) as Ajíbóyè carefully notes.

(68)a. Ajá   fę̀ràn mi.
      dog.T like 1S.ABS
      'The dog in question likes me'
      #'A certain dog likes me'
      #'Dogs like me'

   b. Àwǫn ajá   fę̀ràn mi.
      3P dog.T like 1S.ABS
      'The dogs in question like me'
      #'Certain dogs like me'
      'Dogs like me'

(69)a. Mo   fę̀ràn ajá.
      1S.NOM like dog
      'I like the dog in question'
      #'I like a certain dog'
      'I like dogs'

   b. Mo   fę̀ràn àwǫn ajá.
      1S.NOM like 3P dog
      'I like the dogs in question'
      #'I like certain dogs'
      #'I like dogs'

Further observations by Ajíbóyè show several more compositional effects. Although a bare *nP* subject fails to be generic with a referential object like *mi* '1sg' (68a), genericity succeeds with the nonreferential parse of *egungun* 'bone' in (70). Similarly, although a pluralized object can't be generic by itself (69b), genericity returns before a secondary predicate (71a), parallel to Longobardi's (2000, 700) observation in (71b).

(70) Ajá   fę̀ràn egungun.
     dog.T dog.T bone
     'The dog in question likes the bone in question'
     'The dog in question likes bones'
     #'A certain dog likes the bone in question'
     #'A certain dog likes bones'
     #'Dogs like the bone in question'
     'Dogs like bones'

(71)a. Mo   fę̀ràn àwǫn ajá kékeré.
      1S.NOM like 3P dog small
      'I like the small dogs in question'
      'I like (certain) small dogs'

   b. Adoro arance *(di grande dimensioni).
      1S.adore oranges of large size
      'I love *(supersize) oranges'

Prosody tracks referential scope in a contrast first described by Abraham (1958, 438). Both (72) and (73) are *wh*-extractions of the subject of *ní*, which is the simple Yorùbá predicator translating English 'have' or 'own'. The *wh*-pronoun *ta* 'who' is separated from its resumptive (the 3S nominative clitic *ó*) by a different *ni*, namely the inverse copula ('focus marker') which happens to be toneless (bear phonetic M tone).

(72)a. Ta ni [ó ní ajá]? → *talólájá* MHHH   (73)a. Ta ni [ó n‹í› ajá]? → *talólajá* MH**M**H
    WH COP 3S.T have dog   WH COP 3S.T have dog
    'Who has a dog/is a dog-owner?'   'Who is the owner of the dog in question?'

  b. Ta ni [ó ní ẹsẹ̀]? → *talólẹ́ sẹ́ ẹ̀* MHH**H**L   b. Ta ni [ó n‹í› ẹsẹ̀]? → *talólẹ sẹ̀* MH**M**L
    WH COP 3S.T have leg   WH COP 3S.T have leg
    'Who has a leg?'[48]   'Who is the owner of the leg in question?'[49]

The facing examples form prosodic minimal pairs whose difference of referentiality hinges on the application (72) or not (73) of a tone rule pertaining to vowel elision. The rule is "quite simple: a high tone plus a mid tone is contracted in a high tone" (Bám̄gbóṣé 1966a, 162), thus in (72) the H of *ní* prevails over the initial M of the following *n*P. This rule is a trivial consequence of Akinlabí's thesis that M tone is not a unit of computation but an unspecified default. What the utterly normal phonology of (72) does not signal is the lack of a definite reading of the internal argument; indeed, no such interpretive gap accompanies other regular contractions, such as those in (50a) and (63′) above. Referentiality does fail in idiomatic (62′), but there the loss of the *n*P layer is cued by progressive elision of the initial vowel. An equivalent cue does not appear in (72), but this result is in fact overdetermined: the *i* of *ní* regularly elides in (72) no less than in (73), thanks to another general rule: "The vowel *i* whether of the verb or of the nominal is almost always elided" (Oyèláràn 1971, 174). This circumstance, befitting the status of [i] as Yorùbá's "underspecified" vowel (Pulleyblank 1988), ensures that the interpretative bifurcation of (72) and (73) hinges entirely on pitch.[50]

In (73) at least, the semantic surprise—the missing indefinite interpretation of the internal argument— comes with a phonetic signal, namely the failure to pronounce the H of *ní* 'have'. In 1994, I pinned this double absence in (73) on an unusual property of the 'have' predicate itself. Unlike most roots of Yorùbá, whose lexical pitch is intrinsic as in (17) above, the H tone of *ní* is arguably acquired in the course of its derivational history. In keeping with a widespread crosslinguistic paradigm (Freeze 1992; Kayne 1993), Yorùbá's notional verb 'have/possess' leads a double life as the predicator of "spatial... central coincidence" (Hale 1986, 239). It is also the prepositional marker of inherent case or "antifocus" (Oyèláràn 1993), and the plurifunctionality is greater still, if *ní* can be decomposed into phrasal accent (= H) plus *ni,* the focus Comp and inverse copula. Independent evidence for this analysis, discussed by Ajíbóyè (2005, 87-136), includes the parallel doublet illustrated in §2.2 above, of *tí* (H) the relative Comp (20c) and *ti* (M) the adjunct nominalizer (20c′). A simple and intuitive account of this, consistent with the accentual analysis of Yorùbá's other instances of spurious H mentioned in §2.2, is to claim that both pairs, *ti*~*tí* and *ni*~*ní*, differ in phasehood, with spurious H marking an autonomous spellout domain.

My 1994 discussion of (73) pursued this line but derailed on incomplete data. Abraham (1958, 438) provides (75a) and two other examples of apparently exceptional H-deletion in synthetic compounds of *ní*, but doesn't juxtapose them to 'regular' forms like (74a) where H is pronounced. More examples of alleged H-deletion in compounds can be found in Awóyalé's (2007) database; interestingly they all involve a nominal denoting an abstract quality—more predicate than possessum. There's even a minimal pair, where the one pronounced with H (74b) differs from its H-less counterpart (75b) in the property of animacy or perhaps metaphorical ownership, like the literal ownership in (74a) which is completely absent in (74b).

(74)a. oní- ẹpà → *ẹ lẹ́ .pà* MHL   (75)a. on‹í›- òṣì → *olòṣ ì* M**L**L
    possessor peanut   possessor destitution
    'owner/seller of peanuts'   'pauper'

  b. oní- òwò → *ọ lọ́.wọ̀* MHL   b. on‹í›- ọ̀wọ̀ → *ọ lọ̀ wọ̀* M**L**L
    possessor respect   possessor respect
    'respected person'   'respected thing'

Note that the initial formative is glossed 'possessor' in both (74) and (75), which is the standard view. But on second thought, the special semantics of (75) indirectly support the aforementioned decomposition of *ní* by suggesting that there's no H in those forms to begin with: their construction is one of pure predication (*ni*) not of possession=locative predication (*ní*). The predication analysis of (75) extends to the semantically vacuous and H-less compounds *ol-obìnrin* and *ọ̀l-ọ kùnrin* (cf. *obìnrin* '(adult) female', *ọ kùnrin* '(adult) male').[51]

If H-deletion doesn't arise in (75) because there's no H to delete, the explanation for H-deletion in (73) can be made specific to *wh*-type constructions, as indeed it *must* be in order to account for the complementary interpretive gap in (72). By itself, however, the possessum/predicate distinction does not suffice to explain the contrast between (72) and (73), because a possession meaning is equally indispensable to both. Accepting therefore that H-bearing *ní* forms part of the numeration of both sets, the only remaining possibilty (short of magic) is that the prosodic difference is indirect, with an inescapable syntactic detour.

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48. The pragmatics of (72b) remain to be investigated.

49. The obligatorily definite reading of inalienably possessed *ẹ sẹ̀* 'leg' in (73b) evokes humorous pragmatics, with the bodypart visually disconnected from its owner, imagined as a haplessly crowded bus passenger. For this reason, (73b)—in the univerbation of a dialectal variant *tañlẹ sẹ̀*—became the popular designation for a Lagos public transoport vehicle

50. Also regular is the denasalisation of the onset of *ní* to [l] whenever its [i] elides in favor of non-[i] (Abraham 1958, 438), but this rule has proved puzzling for phonological theory, whether generative or surface-oriented (Oyèláràn 1971, 219-29; Akinlabí 2007).

51. *Ol-obìnrin* and *ọl-ọ kùnrin* are typically used as vocatives, glossed by Abraham as "You woman/man there!" (1958, 469, 514).

Syntactic analysis of the contrast of (72) and (73) starts from the intersection of two properties. First is the derived character of the H in *ní* 'have' just mentioned. Second, having set aside H-less compounds (75), the context of H-deletion (73) can be more accurately stated as a *wh*-dependency across the 'focus marker' *ni*. Although this configuration is often analyzed as direct *wh*-movement (Awóyalé 1985; Carstens 1986; Bọ̀dé 2004), the absence of weak crossover effects leads Adéṣọlá to treat the left-peripheral position—whether in a non-echo constituent question like (73) or in the similar construction of argument focus (76a)—as construed indirectly with the empty operator of a free relative, across "equative" *ni* (2005, 51). Further analysis of *ni* is needed, however, since besides being the 'focus marker' and obligatory concomitant of *wh*-elements, it occurs independently in nonequative uses like the inverse copula (76b) and the marker of pure assertion (77).[52]

(76)a. Ajá ni   wọ́n gbé.
    dog COP 3P.T lift
    'What they stole {is/was} a dog'

b. Àgbẹ̀ ni   mí.
    farmer COP 1S.ACC
    'I'm a farmer'

(77)a. Ajá ni.
    dog COP
    'It {is/was} a dog'

b. Ta ni?
    WH COP
    'Who {is/was} it?'

A pseudocleft makes two assertions, with the lower—the free relative remnant—typically presupposed by the higher copular clause (Prince 1978, 894, cf Schachter 1973). Plausibly, (73a) and (76a) presuppose that ‹someone owns the dog in question› and that ‹they stole something›. And if the lower clause counts as informationally given, the failure of the accentually-assigned H of *ní* 'have' to be pronounced in the lower clause in (73) counts as an instance of prosodic subordination (Bresnan 1971; Wagner 2005). This accounts for the minimal contrast in Bresnan's examples below, where italics mark nuclear stress and angle brackets mark deaccentuation coding the presuppositions ‹Helen wrote something› and ‹George left something›.

(78)   John asked what Helen had *written*.
    Mary liked the proposal that George *leave*.

(79)   John asked what *books* ‹Helen had written›.
    Mary liked the *proposal* ‹that George left›.

The existence of (72) shows, however, that subordination is not the only option, nor is deaccenting found in all pseudoclefts, just in those whose whose internal argument is pragmatically given. The interpretive property is called "referential" or "specificational" while the corresponding failure to deaccent is described as semantically "nonreferential" or "predicational" (Kuno 1969; Akmajian 1970; Higgins 1973). Deaccenting of the bracketed remnant is freely posssible in (81), but not—to my ear—in (80). Conversely, placement of main stress within the remnants in (81) requires contrastive interpretation, whereas (80) need not be contrastive.

predication
(80)   A friend of Bill's is what I want to *become*.
    Nixon was a guy who talked to his *dog*.
    The problem is where to keep the *documents*.

specification
(81)   A friend of Bill's is ‹who I want to meet›.
    Agnew was ‹who we sent to Mars›.
    The safe is ‹where to keep the documents›.

It's debatable whether the difference between the two types reflects a distinction between homophonous copulas, predicative versus equative (Heycock & Kroch 1999), or alternatively reduces to intrinsic properties of the associated phrases (Ruwet 1974; Moro 1997). Yorùbá evidence supports the latter view. In an indentificational sentence (76b), Yorùbá and English have opposite linearizations, and the full paradigm with two definite DPs (Abraham 1958, 435) shows that focus defaults to the position immediately before *ni*.

(82)a. Ìwé yìí ni   ti èmi.
    book this COP *pro* 1S
    '*This* book is mine'

b. Ti èmi, ìwé yìí ni.
    pro 1S   book this COP
    '*This* book is mine'

c. Ìwé ti èmi, ìyí   ni.
    pro 1S book this.one COP
    'My book is *this* one.

(83)a. Ti èmi ni   ìwé yìí.
    pro 1S COP book this
    'This book is *mine*'

b. Ìwé yìí, ti èmi ni.
    book this *pro* 1S COP
    'This book is *mine*'

c. Ìwé ti èmi ni   ìyí
    book *pro* 1S COP this.one
    'This is *my* book'

With bare *n*Ps the matter is more subtle. Ajíbóyè (2010) contrasts two proverbs: (84) needs inverse alignment of focus, but (85) prefers canonical order and the inverse is "less elegant". In the more equative (85) the two *n*Ps are semantically more parallel, but inverse is required in (84) for a predicate (*òjò* 'rain') whose metaphoric shift ("like") needs syntactic help. This suggests that inverse syntax does some semantic typing.

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52. To cover the homology of (76a) and (76b) I have proposed to label *ni* as a "compula" (1987, 110) *i.e.* an inverse copula lexicalizing Comp and to describe inverse pseudoclefts like (76) as "a clause and a half" (2004a) containing two finite predicators, the higher of which is pure assertion (cf. Adéṣọlá 1997). To capture (77) as well, a further step is necessary, unifying *ni* with affirmative finite inflection which in other contexts has the form of spurious H tone as in examples (20a) and (20b) above (cf. Déchaine 1992).

(84) a. #Owó ni òjò.   (85) a. Ìlera ni ọrọ̀.
     money COP rain   hardbody COP prosperity
     'Rain is money' [no proverbial interpretation]   'Health is wealth' [as in English]

    b. Òjò ni owó.   b. **?**Ọrọ̀   ni ìlera.
     rain COP money   prosperity COP hardbody
     'Money is [like] rain' [i.e. "it has no enemy"]   'Health is wealth' ["less elegant"]

    Bám̄gbóṣé (1967, 40) reports ambiguity in (86) and posits syntactically different derivations for each interpretation—precisely anticipating Moro's analysis: subject raising in canonical (87a), object raising in inverse (87b). But there's still an asymmetry: the canonical reading (87a) is facilitated because construal as a predicate is easier for the potentially plural entity *ọba* 'king/chief' than for the unique proper name *Ọlọ́.run* 'God/sky-owner'. Conversely, the more marked pragmatics of (87b), with a rigid designator recruited as a predicate, need and receive a crucial assist from the inverse syntax of *ni* as a Comp-based copula.[53]

(86) Ọlọ́.run ni ọba.   (87) a. Ọlọ́.run$_i$ ni ó$_i$ jẹ́ ọba.
     sky.owner COP king   sky.owner COP 3S equal king
     '(=87a)' or '(=87b)'   'It is God that is king/who rules'

                                  b. Ọlọ́.run$_i$ ni ọbá jẹ́   t$_i$.
                                  sky.owner COP king.T equal
                                  'It is God that a king is/acts like'

    Even with intrinsically definite DPs, Abraham cites two examples to show that "when the sentence expresses the fact that two persons etc. 'are equivalent to each other' then it is immaterial which of the nouns precedes *ni*" (1958, 435). It seems significant, however, that such symmetry should be observed for terms of vocative address (88) and in indirect discourse manifesting 'logophoric control' (89). The similarity of these two contexts can be abstractly stated in different ways; as being non-root (if vocatives are like subjunctives) or alternatively as having a specially-typed Comp node (if vocatives are like imperatives). Either assumption suffices to block the pragmatic force of *ni* as an inverse, C-based copula.[54]

(88) Èyin ni Ọba a   wa. = Ọba a wa ni èyin.
     2P COP king GEN 1P
     'You [+plural of respect] are our Chief'

(89) Ó fẹ́ kí   a wí pé   òun ni Ọba àwọn ènìyàn. = Ó fẹ́ kí a wí pé Ọba àwọn ènìyàn ni òun.
     3S want COMP 1P say COMP 3S COP king 3P   human
     'He$_i$ wishes us to say that he$_i$ is Chief over the people'

    Returning now to H-deletion on the 'have' predicator in (73), the inverse pseudocleft analysis motivates embedded presupposition/givenness, triggering prosodic subordination plus definite interpretation At the same time the interpretive gap in (72) is expected if it is a predicational pseudocleft, as its prosody shows it to be. The only further assumption needed to ensure this result is that the two types of pseudocleft are freely generable either as distinct structures or as different derivational histories.[55]

    More examples of H-deletion with 'have' appear in an *ọfọ̀* 'incantatory proverb'—one of many compiled by Awóyalé (2007). The context is a vegetable or mineral kind typeshifted to a nonbasic color name:

(90) Agbe l' ó n‹í› aró kìí rá'hùn aró; àlùkò l' ó n‹í› osùn   kìí   rá'hùn
     plover COP 3S have indigo never grumble indigo woodcock COP 3S have camwood never grumble

    osùn;   lèkélèké l' ó n‹í› ẹfun kìí rá'hùn ẹfun…
     camwood egret   COP 3S have chalk never grumble chalk

    'The plover, which has *the indigo color*, never lacks for indigo; the woodcock, which has *the camwood color*, never lacks for camwood; the egret, which has *the chalk color*, never lacks for chalk…'

In each parallel verse in (90), the color name in the specificational remnant ‹*which has the color* x› is a definite description anaphorically connected to the indefinite cognate mass noun that follows it 'upward' in the main clause (cf. Williams 1997, 587). As conveyed in the gloss, each reduced relative has appositive force.[56]

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53. Monotheistic *Ọlọ́.run* 'God, *lit.* sky-owner' contrasts with *òrìṣà* which broadly denotes any divinity or deified ancestor. The term *Ọlọ́.run*, which inherits unique reference from the intrinsically unique referent of 'sky', was probably invented in medieval Ilé-Ifẹ̀ in response to Islam (Manfredi 2008, cf. Verger 1966; Bám̄gbóṣé 1972). (87) shows that Yorùbá does possess an undisputed lexical predicator of equation, namely -*jẹ́* 'accept/be equal to'; there's at least one other: -*ṣe* 'do, function as' (Abraham 1958, 341*f.*, 608).

54. *Òun* is the independent 3S pronoun, whose usage is required in a so-called 'logophoric' context (Adéṣọlá 2005 and references cited there). In his glosses of (88) and (89), Abraham capitalizes *Chief*, perhaps intending uniqueness.

55. H-deletion is be assumed to fail in a version of (76) above where *ní* 'have' substitutes for -*gbé* 'lift'. If so, this shows that the domain relevant to the computation of givenness/presupposition must contain an argument-type expression.

56. This characteristic property of Yorùbá pseudoclefts was first observed by Awóbùlúyì (1978b), cf. also Williams (1983, 427).

To save the toneme and avoid a metrical treatment of H-deletion required by the deaccenting analysis, a phonological account of (73) and (90) would need to recapitulate Yorùbá syntax wholesale after spellout. Even then, there's no properly *phonological* way to distinguish the H of *ní* which deletes in specificational pseudocleft remnants, from the H of any other predicator which exceptionlessly doesn't in the same context, so phonology would also need to deploy two precompiled and segmentally homophonous lexical entries of 'have' with H and M respectively. To contemplate such an unfalsifiable theory, recalls Kaye's resigned verdict about lexical phonology, that "cross-theoretic discussion is useless" (1988, 16).

4. Ternarity is "the initial site"

Tonal footing determines the referential possibilities of nominals which lack overt articles in Benue-Kwa (Niger-Congo) and Sinitic, and does so in ways either required by or at least consistent with many independent features of these languages. But how can this be true? Either tone is not phonology (not a dedicated alphabet of phonetic primes) or else phonology is not "different" (not a module of grammar whose engine is blind to syntactic principles, *pace* Bromberger *&* Halle 1989). Even if both of these heresies would be accepted, the question remains why certain tonal inventories and footings have consequences for the left periphery of argument-type expressions and the activation of the D-layer by edge features of *nP*.

In a good illustration of "the law of uneven development" (Trotsky 1928, 19), government phonology has moved far ahead of mainstream asyntactic phonology with respect to certain types of spellout domains, to the point that it converges with the DP hypothesis (Abney 1987). Kaye, Lowenstamm *&* Vergnaud (1990) don't deploy branching metrical structure in the notation of Liberman (1975) and Giegerich (1985), but they construct a partly equivalent notion of trans-syllabic government to license empty nodes in prosodic skeleta by a condition analogous to the Empty Category Principle (Chomsky 1981, 250). Observing crosslinguistic and language internal asymmetries between word-intial and word internal syllable types, Lowenstamm argues that "an empty CV site precedes every major category" and that "[t]he initial CV site is the site of cliticization" (1999, 161, 164). For reasons unknown, languages differ as to whether this site is exploited (French) or not (Biblical Hebrew). If not, then either compensatory lengthening or gemination occurs between a proclitic article and the root, in effect pronouncing the initial site as a prosodic island, analogous to how a resumptive pronoun recovers a trace which is not configurationally licensed by the ECP.

By inspection (e.g. Crowther 1843, 4), Benue-Kwa and Sinitic lack proclitic articles, nor is there much work for an initial CV site to do regulating onset clusters because these languages' surface forms already closely approximate the CV-only ideal—the abstract pattern to which government phonology reduces surface onset clusters by subjecting empty syllabic nuclei to the prosodic counterpart of the syntactic ECP (Charette 1991; Lowenstamm 1996). An obvious move therefore is to appeal to this same "initial site" to account for the intersection in Sinitic and Benue-Kwa of the two sets of phenomena for which it's pretheoretically suited:

(91) a. 'activation' of the D layer for semantico-pragmatic interpretation
   b. arity of the metrical foot required to encode lexical roots

The implication in (8)—that which is here to be explained—infers (91a) from ternarity of (91b). Inspection of (92) makes such an inference self-evident, assuming that both domains are defined with binary branching:

(92) a.

```
        DP
      /    \
     D      nP
     |     /  \
     ∅    n    √
```

   b.

```
      /  \
     x    x
         / \
        x   x      (modulo headedness)
```
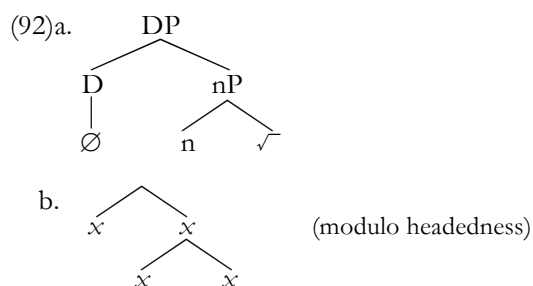
The implication in (8) counts as evidence for a correspondence in "intermodular" translation at spellout (cf. Scheer 2010), whereby duplex lexical prosody guarantees duplex phrasing.[57]

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57. An equivalent matching does not hold in the predicate domain: predicators are not free forms in either binary or ternary Benue-Kwa languages because imperatives are not "independent words" (*pace* Ọlá 1995, 276), rather they are typed clauses and so in Yorùbá a predicate root *Sleep* can't serve as the minimal answer to a question *What did you do last night?* although this is perfectly well formed in English. Sinitic may be different only because roots are minimally bimoraic (Duanmu 2000). The relevance of tbe binary/ternary distinction to Benue-Kwa predicate spellout is discussed by Manfredi (2005, 2009).

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