Tense parameters and serial verbs

[2nd draft, last modified 12 July 2005, 34 pp. A4]

Invited in 2002 to a project originally entitled *Studies in the Syntax of Kwa; a generative perspective*, edited by E. Aboh & J. Essegbey. Second draft, much revised in response to substantive comments from the editors, was withdrawn 9 May 2007 after the (technically anonymous) external reviewer refused to even read it on the creative excuse that it's "dense" and "flowery" — if he meant "al dente" and "floury" he may be pardoned on orthodontic and dietary grounds although he should nevertheless have been ethical enough to disqualify himself instead of shirking the job while accepting the reviewer's honorarium! Less excusable was the decision of the editors not to insist that the publisher obtain an actual review of the chapter, in the absence of which I was unfairly placed in the position of having to guess how much of the reviewer's problem was due to his delicate stylistic sensibilities and how much was an unwillingness to read substantive criticism of his own work and that of his close *cumpari*. (No empirical or theoretical errors were indicated in the non-review which he provided.) Another debilitating confusion on the part of the editors was their concept of "Kwa" whose descriptive coverage doesn't coincide with any proposed historical use of this term (e.g. Greenberg 1963; Williamson 1989), conforming instead more or less to Westermann's lexico-typological sense of those "Sudanic" languages which tend to monosyllabic roots (1927, 20). In this way the project lost its coherence as a comparative syntax handbook, and the volume which eventually appeared (*chez* Springer, with the title *Topics in Kwa Syntax*, ISBN 978-90-481-3188-4) would have been more transparently titled *Syntactic studies in some of the more isolating Benue-Kwa clusters, namely Gbè, Àkan & Yorùbá, with special reference to Gùn-Gbè* (cf. review by M. Dakubu, *Studies in Language* **34**, 442-52).

UPDATE: Ọmọruyi (1991) — a lucid article which has belatedly come to my attention — presents further massive evidence of the inflection of Ẹ̀dó finite predicates by prosodic morphology. It confirms and clarifies cited observations (Melzian 1942; Aikhionbare 1988) which were already enough to falsify the view of Stewart (1998a, 2001; cf. Baker & Stewart 1991, 199b, 2002) as to the position of Ẹdó in the parametric division of Benue-Kwa. To be clear, no one disputes that both finite inflection and serialization differ structurally across the vast and complex Benue-Kwa group. The controversy concerns (i) *what counts* as finite inflection as well as serialization and (ii) how these two nonuniform states of the human language faculty are *causally related to each other*. A revised version of my manuscript should integrate Ọmọruyi's generalizations about inflection, plus those of Ogie (2009) about possible serializations in the language. Both Ọmọruyi's and Ogie's studies also falsify the subsidiary claim that Ẹ̀dó needs to distinguish *bare predicate roots* with the diacritic labels "verb" versus "adjective" (*pace* Baker 2003).

Baker, M. [2003]. *Lexical Categories; verbs, nouns & adjectives.* Cambridge University Press.

Ogie, O. [2009]. *Multi-verb constructions in Ẹ̀dó.* Dissertation, Norwegian University of Science & Technology, Trondheim.

Ọmọruyi, T. [1991]. Tense, aspect and modality in Ẹ̀dó. *Afrika und Übersee* 74, 1-19.

Tense parameters and serial verbs[*]
second draft
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1. Fuzzy definition, uneven spread

For Stahlke (1970, 60, 80), a serial construction consists of multiple finite roots ("verbs") in one clause—sharing one grammatical subject and one tense value. Some definitions are narrower, banning conjunctions or multi-events (see §2 and §5); others are more inclusive, dropping the finiteness requirement and allowing a change of subject (Law & Veenstra 1992).[1]

Finite inflection in Benue-Kwa is relatively light, lacking person/number features and barely denoting tense.[2] Most Benue-Kwa infinitives are set apart by the presence of a quasi-nominalizing proclitic or "prefix" (Schadeberg 2003, 80). In most Ìgbo varieties, this item is pronounced *í-* or *ị́-* and adds a downstep—the prosodic cue for a phrasal edge—before an accented (H tone-bearing) root. *Ị́-zụ́* (tonally H!H) is indifferent to aspectuo-temporal context, whether past-telic (1a) or nonpast-generic (1c), but other affixes co-vary: telic (1b) has serial suffixes *jè-re… zụ́-ọ*, generic (1d) has serial prefixes *è-jé… à-zụ́*.[3] In Yorùbá the infinitive begins with an accented (H-bearing) vocalic mora of unspecified quality—historically probably *í* as in modern Ìgbo (Bámgbóṣé 1966, 76 citing Crowther 1852).[4] It appears twice in (2a) and is necessarily absent in (2b). The extra mora before *-bọ̀* 'return' in (2c) is different: it acts like an allomorph of *ń*, the progressive aux which always accompanies *-bọ̀*. If the *ń* is dropped, no extra mora occurs before *-wá* (2d).[5] In Gbè, nonfinite morphology can be inferred from object shift which implicates a nominalizing proclitic.[6]

Ìgbo (Swift *& al.* 1962, 229, Éménanjọ 1985, 199)

(1) a. Ḿ jè-re áhya ị-zụ́ anụ.
1S go-AFF market INF-buy animal
'I went to market in order to buy meat'

b. Ḿ jè-re áhya zụ-ọ anụ́.
1S go-AFF market buy-AFF animal.GEN
'I went to the market and bought [some] meat'

c. Ḿ nà e-jé ahyá ị-zụ́ anụ.
1S DUR NOM-go market.GEN INF-buy animal
'I usually go to market in order to buy meat'

d. Ḿ nà e-jé ahyá à-zụ anụ́.
1S DUR NOM-go market.GEN NOM-buy animal.GEN
'I usually go to market and buy meat'

Yorùbá (Abraham 1958, 113, 433; Awóyalé 1988b, 29)

(2) a. Wọ́n fẹ́ ẹ́ kọ́ọkọ̀ ọ́ wà.
3P.AFF want INF learn vehicle INF paddle/propel
'They want to learn to drive a car'

b. Wọ́n wẹ̀ (* ẹ́) lọ.
3P.AFF swim/bathe INF go
'They swam away/bathed before going'

c. Wọ́n ń gbé kèǹgbè é bọ̀.
3P.AFF PROG carry keg ASP return
'They're bringing the keg'

d. Wọ́n gbé kèǹgbè (* é) wá.
3P.AFF carry keg come
'I brought the keg'

On the semantic side, a finite form entails a temporally interpreted aspect. It can be deduced from (1b,d), but not from (1a,c), that meat-buying occurred. Similarly, (2b) entails that some going-away took place, (2c) that the keg approached and (2d) that it arrived, but (2a) doesn't mean that anyone has learned how to drive. Tense-matching requirement follows from this entailment (see §5.3).

By the above reasoning, (1b,d) and (2b-d) are all Stahlkean serial constructions, and serial verbs so defined are abundant in western Benue-Kwa. The precise extent in a given language may, however, be masked by morphological quirks such as root "splitting" and "compounding" (§3.3) as well as by irregular inflection of certain stative roots occupying initial serial position (§3.2 and §3.4). Serial verbs are relatively sparse in eastern Benue-Kwa, e.g. in Bantu.[7] Outside Niger-Congo they occur in typologically diverse language families (Muysken 1977; Craig & Hale 1988; Li 1990; Lee 1992) and even marginally in Germanic and Romance (§5.4). This uneven spread suggests that serial verbs have no special *raison d'être*, but appear automatically in the absence of a heterogeneous list of blocking factors (Manfredi 1988). Serial verbs may therefore be less interesting in themselves than as a backdrop against which to observe substantive parameters.

1.1 Frege and Aristotle on safari

One reason serial verbs aren't universal is categorial skewing related to inflection (Larson 1991; Déchaine 1993b, 297). Roots that resist finite inflection in Indo-European are traditionally labeled predicate adjectives, prepositions, particles, adverbs or nouns, but in Benue-Kwa on distributional grounds many closely synonymous items are called verbs (Bámgbóṣé 1972; Ụ̀walá̀ka 1983). For example, Benue-Kwa inflection needs no copula in order to combine with roots translatable as adjectives like 'broken' (Ìgbo *-wá*, Yorùbá *-fọ́*) or as prepositions like 'off' (Ìgbo *-gbọ́*, Yorùbá *-wọ́*).[8] This crosslinguistic asymmetry is grist for theorizing.

Baker holds that "all natural human languages have the same three lexical categories [V, N, A]… [but] differ… in some details about how they are packaged" (2003, 302). If so, how exotic of Ẹ̀dó to have packaged the counterparts of English *beautiful* and *down* as lexical verbs—Baker glosses them as "beautiful$_V$" and "fall" (2003, 228)—or how dull of English not to have figured out how to do the same.[9] Alternatively, "substantive listemes… are devoid of any syntactic properties… and… lexical projections are characterized [only] via functional structure" (Borer 2005, 27; cf. Marantz 1997).[10] Each premise leads to a different analysis of serial constructions. If serial verbs are 'verbs all the way down' i.e. Fregean unsaturated lexical functions, then serial constructions are the means by which "the lexical ϑ-role-assigning properties of [several] verbs are satisfied" within one phrase (Baker 1989, 521). But if serial verbs are category-neutral Aristotelian predicates i.e. *rhemes* (cf. Moro 1997, 248-61), the task is to

> "…look beyond the argument structure of individual verbs to some principle or principles which relate these argument structures to each other. …The 'lexical' approach seems to imply that verb serialization is required just in order to license a complex argument structure. The approach we take to these issues is different: it is the verbs themselves that are licensed in the formation of complex predicates. (Awóyalé 1988b, 6, 8)

To accommodate multiple finite verbs in one clause, both frameworks use predicate adjunction, but in contrary formats: projected up from the lexicon as a "double-headed verbal phrase" (Baker) or licensed top-down in an aspectual "template" (Awóyalé).[11] Subsequently, Baker's ϑ-roles have been enriched with event arguments and matching Event Phrases (Stewart 2001, cf. Travis 1994), and Awóyalé's template reduced to aspectual quantification at LF (Déchaine 1993a, 1997; cf. Krifka 1989; Verkuyl 1993).

Conceptual divergences aside, both camps accept that the language-particular form of inflection is an independent variable determining, in part, which kinds of serial strings occur where. This chapter joins the consensus, but proposes a different internal parametrization of Benue-Kwa (§1.3) based on different assumptions about inflectional prosody (§4).

1.2 Benue-Kwa until further notice

Westermann's Kwa subgroup includes the Kru, Àkán, Gbè, Yorùbá, Nupe, Ẹ̀dó, Ìgbo and Ịzọ̌n clusters (1927, 20); he could have added Ìdomà among others. Greenberg however voiced "legitimate doubts… concerning the validity of the division between" Kwa and Benue-Congo, the subgroup containing Bantu (1963a, 39; cf. 1963b) and 40 years later it's still "impossible to draw a clear line between Bantu, however defined, and non-Bantu Niger-Congo" (Nurse & Philippson 2003, 5).

Mindful of these penumbras, the 15th (1982) West African Languages Congress endorsed Elugbe & Williamson's cautious stance that "pending the production of new types of evidence, Benue-Congo and Kwa form a single subfamily of Niger-Congo" (1977, 351), namely Benue-Kwa.[12] Soon thereafter, Williamson (1989) proposed to shift the Kwa border from east of Ìgbo to west of Yorùbá by recalculating Bennett & Sterk's (1977) lexicostatistics. Her "New Kwa" was reduced to the Àkán and Gbè clusters (= Westermann's Ewe-Tschi-Gruppe), relegating Yorùbá, Nupe, Ìdomà, Ẹ̀dó and Ìgbo to "New Benue-Congo" and setting Ịzọ̌n and Kru apart in other branches. But the New labels are fragile: their lexicostatistical support does not exceed the method's margin of error (Armstrong 1983, 146*f.;* Capo 1985), and New Kwa unity is split by the fact that Àkán shares more sound correspondences with Bantu than it does with Gbè (Stewart 1994, 176). Recently Old Benue-Congo was restored as "East Benue-Congo" coordinate with "West Benue-Congo" (Yorùbá, Nupe, Ẹ̀dó, Ìdomà, Ìgbo) and "Kwa" (Àkán, Gbè) all in a "dialect continuum" called "East Volta-Congo=Proto Benue-Kwa" (Williamson & Blench 2000, 17*f.*, 27). Back to 1963, for the time being.

Old or New, Kwa also lacks typological coherence. Number-inflecting nounclasses are a Benue-Congo hallmark, but Welmers (1973a) finds "vestigial" classes (prefix alternations without matching agreement) in Kru, Àkán, Yorùbá and Ìgbo; he could have added Ìdomà and Ẹ̀dó. As for serial verbs, these may be ubiquitous in Old Kwa (Stewart 1971, 181) but by anyone's definition they also appear in Old (and therefore in New) Benue-Congo: in Lower Cross, in Jukun (Welmers 1973b) and in "Grassfields Bantu" (Hyman 1971).[13] The New labels face yet another potential challenge: they straddle a fourfold phonosyntactic parameter.

1.3 A fourfold surprise

Benue-Kwa languages divide according to four logically independent descriptions, which can be stated privatively as follows:

(3)

	BK1	BK2	
a.	–	+	A finite eventive predicate with minimal inflection allows a present perfect reading in addition to a past one.
b.	–	+	Aspectually unrelated events are excluded from a single clause.
c.	–	+	Minimal finite inflection is an aux/proclitic particle (as opposed to a suffix or root-borne tone pattern).
d.	–	+	At least three surface tones contrast on roots of the same category (as opposed to two tones plus downstep).

Remarkably, the features corelate: it's enough to know the choice made by a language for any one of them, to deduce the other three. Put another way: of 2^4=16 possible languages in the parametric space, only two apparently exist: BK1={Àkán, Ẹ̀dó, Ìgbo, Bantu…} and BK2={Gbè, Yorùbá…}.[14] Viewed on such a large demographic scale, this tentative result seems beyond chance.

Either (3) is wrong or it's been wrongly overlooked, and the latter is not implausible. Properties (3a) and (3b), both semantic, are easily lost in translation or hidden behind traditional construction labels. (3a) is observed by Déchaine & Manfredi (2000); (3b) is presented in §2. (3c) and (3d) are both audible; their correlation is not predicted by autosegmental phonology, the standard Africanist framework (Williams 1971; Goldsmith 1976), but a relationship between tone and affixation can be deduced from a morphosyntactic, accentual analysis of surface tone contrasts in which tonemes are epiphenomena (Manfredi 2003, 2004).[15]

Why the two kinds of features—semantic (3a,b) and phonetic (3c,d)—go together (if they do) is a another question for another day. Meanwhile the parameter as stated has consequences. *For history:* neither BK1 nor BK2 is contained in either New Kwa or New Benue-Congo. BK2 being geographically contiguous, it could be the innovation, with BK1 the archaic remnant. *For synchronic analysis:* (3c) is incompatible with Collins' (2002) checking-theoretic analysis of root-root compounds (§3.3), and contradicts O. Stewart's (2001) description of inflection in Ẹ̀dó and Ìgbo (§4).

1.4 Data format

All data are cited orthographically but with some glosses simplified or resegmented (at my risk). I've also used streamlined or more familiar labels for most of the clusters—e.g. Ìgbo/ Yorùbá/ Àkán instead of Ìgboid/Defoid/Nyo.

To establish (3c-d) demands surface tonemarking. All BK2 languages enjoy settled conventions for transcribing lexical tones on individual syllables, though grammatical tones are rarely indicated or glossed. In Yorùbá, every unmarked syllable is mid (toneless, neutral). In Gbè, unmarked syllables are low or mid; some sources also mark low or superlow. For many BK1 languages, tone orthography is less well established, in part perhaps because of more extensive tonal underspecification and grammatical tone effects. Here I adopt the accentual notation of Christaller, Swift, Welmers and Nwáchukwu comprising two rules:

(4) a. In any string of syllables sharing one pitch level, only the first syllable is marked with an accent.

b. Every H tonemark (acute accent) is downstepped (F_0 cumulatively lowered about 10 Hz) with respect to the preceding H; if an L tonemark (grave accent) intervenes, this downstep is called "automatic" (Stewart 1965) or "downdrift".

By (4), the syntagmatic relationship between two acutes efficiently indicates one downstep, without introducing special symbols like a macron (the Ìbàdàn convention), a raised exclamation point (phonetic juncture notation) or a vertical arrow.

2. The aspectual restriction

One phenomenon thrown into relief by the uneven distribution of serial verbs across Benue-Kwa is described in (3b). For example, multi-event serial verb constructions exist in both BK1 and BK2, but Ìgbo has more and the question is why. Ìgbo (BK1) examples like (5), in which a single subject is predicated over random consecutive events, don't translate directly into Yorùbá (BK2), cf. (6). To render (5), Yorùbá needs a fully biclausal structure (8) with two overt subjects (possibly referentially distinct) and two independent instances of inflection (glossed here as AFF or NEG)—the second one optionally followed by an auxiliary like *sì* or *dẹ̀* (Bámgbóṣé 1966, 70*f.*). Conversely, adding a second subject to Ìgbo (5) renders it ungrammatical, cf. (7).[16]

Ìgbo

(5) a. Ḿ rè–re jí (wè–é) bya.
1S sell-AFF yam take-AFF come.AFF
'I sold [the] yams and (then) came'

b. Ḿ shì–ri ánụ (wè–é) re-e shuù.
1S boil-AFF meat take-AFF sell-AFF shoe
'I boiled [the] meat and (then) sold [the] shoes'

(7) a. *Ḿ rè–re jí; mụ́/há bya.
1S sell-AFF yam 1S 3P come.AFF

b. *Ḿ shì–ri ánụ; mụ́/há re-e shuù.
1S boil-AFF meat 1S 3P sell-AFF shoe

Yorùbá (Abraham 1958, 589; cf. Bámgbóṣé 1974, 28)

(6) a. *Mo ta iṣu wá.
1S sell yam come

b. *Mo se ẹran ta bàtà.
1S boil meat sell shoes

(8) a. Mo ta iṣu; mo/ wọ́n (sì) wá.
1S sell yam 1S /3P.AFF also come
'I sold [the] yams; I/they (also) came'

b. Mo se ẹran; mo/ wọ́n (sì) ta bàtà.
1S boil meat 1S /3P.AFF also sell shoe
'I boiled [the] meat; I/they (also) sold [the] shoes'

Bámgbóṣé's asterisk upon (6a) is endorsed by other speaker-linguists ('S. Oyèláràn, Ọ. Yusuf *p.c.*) who add that the context can be fixed as in example (16) below. The contrast of (5) and (6) is nevertheless sharp, because accepting (5) requires no pragmatic exertions.

To exclude (6) while allowing (5) would be easier if (5) and (8) could both be treated as realizations of a multiclausal (i.e. non-serial) structure. Consistent with that premise, an English translator may be tempted to gloss *wè-é*, *sì* or *dẹ̀* as temporal conjunctions, but in fact none of these items demands an event sequence. Nonsequential examples of *sì* are cited by Abraham (1958, 589). The expletive nature of *wè-é* is clear in examples from Ọ̀nịcha oral literature. In (9a), the progressive actions introduced by *wè-é* are simultaneous, the second *wè-é* merely marking change of subject. In telic (9b) the tokens of *wè-é* all translate temporally but the third one does not block internal argument sharing, thereby violating O. Stewart's definition of covert coordination. Similarly in the Àkán cluster, the examples in (10), with and without *fa* 'take', differ in the tone of the last root but not in the published translations.

Ìgbo (Williamson 1984, lxi*f.*)

(9) a. Ḿgbá wè-é na à-gá, Èbunu we-é na è-nwó-de ọ́tụtụ ndị́ na à-kpụ́-lụ.
wrestling take-AFF DUR NOM-go ram take-AFF DUR NOM-pull-press multitude plural.GEN DUR NOM-drag-APPL
'As [the] wrestling was going on, Èbunu continued pinning many individuals and dragging them off'

b. Fà we-é pụ́-tá n'ụzọ̀, ò we-é bè-lụ́ ntị ẹ́wu afụ́ ó nwò-de-lụ we-é rụ-a n'ọkụ.
3P take-AFF exit-DEIC at path 3S take-AFF cut-APPL ear goat that 3S pull-press-AFF take-AFF roast-AFF at fire
'[When] they emerged on the road, he cut off the ears of that goat which he had pinned [and] roasted [them] on the fire'

Ànyí (Van Leynseele 1979, 196*ff*., see also ex. (46) below)

(10) a. Àájo tɔ̀ alié fa má Kàsí.
A. cook food take give K.

b. Àájo tɔ̀ alié mà Kasí.
A. cook food give K

'Àájo cooks food for Kasí' [same translation for both examples]

With respect to possible event participants, (8) is closer to (11) than it is to (5). (11), just like (8), needs a second overt subject, and in neither (8) nor (11) are the two overt subjects required to match or even to corefer.

Ìgbo (Green & Ígwè 1963, 176; Ụ̀walá̀à̀ka 1982, 64, cf. Swift *& al.* 1962, 283)

(11) a. Yá nà nwánné ya gà-ra áhya; há à-zụ́-ọ anụ́.
3S and sibling 3S.GEN go-AFF market 3P NOM-buy-AFF meat.GEN
'S/he and her/his sibling reached the market; [then] they bought meat'

b. Ányị́ ru–ru áhya; há à-zụ́-ọ úwe.
1S reach-AFF market 3P NOM-buy-AFF dress
'We reached the market; [then] they bought clothes'

Sentential negation parallels the other clausehood diagnostics already mentioned. Only the first predicate root in (5) can be negated, cf. (12), but in (8) as well as (11), negation can mark either root independently of the other, cf. (13) and (14).

Ìgbo

(12) a. È-ré–ghị́ m ji bya.
PRO-sell-NEG 1S yam come.AFF
'I didn't sell [the] yams and (then) come'

b. *Mí rè–re jí a-byá-ghị.
1S sell-AFF yam PRO-come-NEG

(13) a. Ányị́ é-rú–ghị ahya; há à-zụ́-ọ úwe.
1S PRO-reach-NEG market 3P PRO-buy-AFF dress
'We didn't reach the market; [then] they bought clothes'

b. Ányị́ ru–ru áhya; há a-zụ́-ghị úwe.
1S reach-AFF market 3P PRO-buy-NEG dress
'We reached the market; [then] they didn't buy clothes'

Yorùbá

(14) a. N kò ta iṣu; wọ́n (sì) wá.
1S NEG sell yam 3P.AFF also come
'I didn't sell yams; they (also/thereafter) came'

b Mo ta iṣu; wọn kò (sì) wá.
1S sell yam 3P NEG also come
'I sold yams; they (also/thereafter) didn't come'

Concerning the asterisk on (6a), and with grammatical examples like (5) implicitly in mind, Bámgbóṣé wrote as follows:

> "[T]here is nothing wrong with the sequence of actions… One could say that the… transformations deriving serial verb constructions will not be constrained from producing ill-formed sentences such as [(6a)]. This is the attitude taken by Awóbùlúyì (1967, 93 *f.*). On the other hand, one could attempt to find sequences of classes of verbs which admit of serialization… (Williamson 1963). Perhaps this is another question which will depend on the nature of the language being described: It may be easier in some languages than others to build in syntactic constraints." (1974, 28 and *fn.* 18)

In other words, there's no logical necessity to compare (5) and (6), but it's also possible to argue that they must be compared.

Following Hyman (1971), Lord calls (5) a "consecutive construction" 1977, 145). Applying Givón's theory of "diachronic drift along universal semantic rivers" (1975, 93), she lets the Ìgbo consecutive express "unspecified meaning relationships" whose "interpretation [is] left to pragmatic inference" (1975, 38). Similarly for Stewart, (5) is an example of "covert coordination" with "quantification over two completely separate events", i.e. "separate VPs which are dominated by separate (symmetric) projections of E[vent] P[hrase]s, and …separate Voice P[hrase]s…" (2001, 30, 168). Having set (5) aside based on interpretation, both authors can then give the ungrammatical (6) a different label, "serial verbs", whose definition requires "two connected events" (Stewart 2001, 169). For Lord, "serial verbs in a language like Yorùbá require an action-result interpretation, while in Mandarin the interpretation is not specified… and possible inferences include consecutive actions, simultaneous actions, alternating actions or purposive action" (1975, 38). For Stewart, "S[erial] V[erb] C[onstruction]s are those constructions in which a single E[vent] head quantifies over… one macro-event which may be resultative or consequential" (2001, 19). Problem gone… except that the theoretical price of defining (5) into a different phrase-structural basket from (6) approaches circularity.

3. Covert coordination at what cost

3.1 Whorfian events

Whatever diachronic river may have robbed Yorùbá of "consecutive/covert coordinate" constructions like (6), an analysis is still needed for well-formed Yorùbá multi-event examples like (16) which have direct Ìgbo counterparts (15).

Ìgbo

(15) a. Mí gà-ra skúù (we-é) gụ́-ọ akwụkwo.
1s go-AFF school take-AFF read-AFF book.GEN
'I went to school and read/became literate'

b. Mí rí-ri ji (wè-é) nyụ-ọ nshị́.
1s eat-AFF yam take-AFF excrete-AFF shit.GEN
'I ate [the] yam and [then] passed stool'

Yorùbá (Awóyalé 1988b, 14 *f.*)

(16) a. Mo gba oyè kọ ìwé.
1s receive title write paper
'I graduated and [thereby] became literate'

b. Mo jẹ ìṣu ya ìgbẹ́.
1s eat yam divide shit
'I ate [the] yam and [then] passed stool'

For Lord, (16) is presumably serial, and therefore grammatical in Yorùbá, because unlike (6) it permits an action-result interpretation. But then some other reason must be responsible for the failure of the closely synonymous examples in (15) to be expressed in Ìgbo as a root-root compound—Ìgbo's preferred structure for action-result sequences according to Lord's analysis. A plausible excuse could be the transitivity of the first root, but Lord excludes this possibility by citing well-formed compounds in which the first root is independently transitive. For example, the simplex predicates in (17a-b) are formed from semantically lightweight *-gbá* plus a thematically contentful noun complement (*ọ́sọ, égbè*…). (18) shows that suppression of the noun occurs when forming a compound with either of the roots in (17c-d), even though major ambiguity can result as in (18a):[17]

Ìgbo (Lord 1975, 34; Ụ̀walá̀àka 1981; Úchèchúkwu 2005)

(17) a. Ọ́ gbà-ra ọ́sọ.
3s *gbá*-AFF escape
'S/he ran [somewhere]'

b. Ọ́ gbà-ra (Úchè) égbè.
3s *gbá*-AFF U. gun
'S/he shot (Úchè)'

c. Ó fù-ru é-fù.
3s lost-AFF NOM-lost
'3s got lost'

d. Ó gbù-ru Úchè.
3s cut-AFF U.
'S/he killed Úchè' OR 'It [= the knife] cut Úchè'

(18) a. Ọ́ gbá-fù-ru (**ọ́sọ*/**égbè*…).
3s *gbá*-lost-AFF escape/gun
'S/he ran away' OR '…shot wastefully/indiscriminately'

b. Ọ́ gbà-gbu-ru Úchè (* égbè).
3s *gbá*-cut/kill-AFF U. gun
'S/he shot Úchè to death' [*not:* '…ran and killed Úchè']

Lord understood her own discovery to show that compounds are derived templatically in the lexicon:

> "Because of the special action-result meaning of compounds… they are not derivable by transformational rules. … But since the compounding process appears to be productive in Ìgbo, and new compounds are readily created and understood, the grammar should also account for this… by setting up combinatory rules…" (1975, 47)

Taken literally, Lord's solution overgenerates: some action-result sequences, expressible in Ìgbo as "consecutive" constructions, fail as compounds, e.g. **-dà-nwụ́* 'fall-die' and **-nwụ́-re* 'die-rot'. The string *-dà-nwụ́* does actually occur in a phrase *Ọ́ dà-nwụ́-ọ-na* which refers to the shriveling of a contact-sensitive wild plant known in Nigerian English as *Touch-and-Die* (C. Úchèchúkwu, *p.c.*). But as is clear from the context, the plant's death or withering is not the *result of falling*, as should be the case if compounds use an action-result template. Instead, *-dà* in this and similar strings (e.g. *-dà-pú* 'cause to leak', cf. *-pú* 'perforate', Ẹ́ménanjo 1984) is a pure causative operator, and the phrase *Ọ́ dà-nwụ́-ọ-na* is therefore anticausative, not a spontaneous inchoative event. Causative *-dà* also occurs apart from compounds, as a light verb in expressions like *-dà ọ́chụ̀* 'cause [a] vendetta' and *-dà ọgụ* 'cause [a] fight' (Ígwè 1999, 134). To express the fact that intransitive resultative compounds are systematically absent in Ìgbo, a lexical analysis could stipulate a root like **-dà* 'fall' to be intrinsically nonagentive, but then the problem becomes how to analyze (16a) as an action-result sequence in Yorùbá, since it seems forced to classify as agentive the expression *gba oyè* 'graduate' (literally, 'receive a degree'). A last ditch way to deny uniform treatment of (15) and (16) would be to let event structure itself differ between languages, with Ìgbo insisting that "actions" be agentive while Yorùbá has no preference in the matter. At best, the Whorfian expedient restates the problem abstractly.

The issues are similar for Stewart: (16) could not be a "consequential" serial construction, in his terms, since it has no "object sharing mediated by an empty category" (2001, 54). For example he calls (19a) "a typical illustration of the C[overt] C[oordination] where each verb has its own distinct object" (2001, 71), no less than (19b).

Ẹ̀dó (Stewart 2001, 71, 49)

(19) a. Òzó hìín èrhán kpàẹ̀n ivìn.
O. climb.AFF tree detach.AFF coconut
'Òzó climbed [the] tree and picked [a] coconut'

b. Òzó bòlóó ọkà gbọọ́ ivìn.
O. peel.AFF corn plant.AFF coconut
'Òzó peeled [some] corn and planted [some] coconut'

Treating (19a) as covert coordination compels Stewart to do the same for (16), but then the only way to rule out (6) is to posit an event-ological restriction in Yorùbá which Èdó lacks. Using a semantic parameter kills any hope to correlate aspectual types and phrase structures by syntacticizing events—failing which the event phrases just echo observational data.

3.2 Endless diacritic homophony

A second reason not to put different constructional labels on (5) and (6) is that Ìgbo has examples like (20a) denoting a single event but morphologically resembing (5=20b). The overt inflection of the first root in telic multi-root sentences (20a-b) is identical to that in simplex (20c-d), and the same thing holds for the progressive counterparts in (21).[18] In single-event (20a) the first inflection is optional, whereas it's obligatory in two-event (20b), but this is not a peculiarity of the item *-jì*, it's a general property of single-event serialization in the language (Nwáchukwu 1976b, 134*ff.*). Therefore any attempt to deny *jì* the status of a full root ("verb") in (20a) is destined to drown in homophony.[19]

Ìgbo (Welmers & Welmers 1968, 163; Ụ̀walá̀à̀ka 1982, 66)

(20) a. Ó jì(-ri) ḿmà bá–a jí.
3S hold-AFFknife peel-AFF yam.GEN
'S/he peeled [the] yams with a knife'

b. Ó rè–re jí bya.
3S sell-AFF yam come.AFF
'S/he sold [the] yams and (then) came'

c. Ó jì-ri égo.
3S hold-AFF money
'S/he was holding [some] money'
(i.e. '…had money in possession')

d. Ó rè–re jí.
1S sell-AFF yam
'S/he sold [some] yams'

(21) a. Ó jì ḿmà a–bá jí.
3S hold knife NOM-peel yam.GEN
'S/he is peeling [the] yams with a knife'

b. Ó rè–ghe jí à-yá.
3S sell-PROG yam NOM-come
'S/he is selling [the] yams and (then) coming'

c. Ó jì égo.
3S hold money
'3s is holding [some] money'
(i.e. '…has money in possession')

d. Ó rè–ghe jí.
3S sell-PROG yam
'S/he is selling [some] yams'

If one ignores the variant in which *jì* bears a suffix, *-bá* 'peel' would be the only inflected item in (20a). This impression—enhanced by English rendering of the phrase *jì ḿmà* as 'with a knife'—encourages the idea that *-jì* in (20a) marks a grammaticalized "case relationship… [of] Instrumental" (Lord 1973, 270), i.e. "a fixed instrumental construction" (Baker & Stewart 2002, 39 *fn* 17). If so, then (20a) is no serial construction, (20a) and (20b) have different syntax and (5) and (6) different structures. End of problem again, except for two facts. (i) Suffixed *jì* is indeed possible in (20a), nor is a Case-like translation of *jì* inevitable: Nigerian English most often expresses (20a) as 'S/he used a knife to peel [the] yams'. Moreover, as noted by Stahlke (1970, 83-87), an abstract noun like *ọ̀hụhụ* 'haste' or *nwáyọ̀ọ̀* 'tranquility' can replace *ḿmà* 'knife' in either (20a) or (21a) to render a subject-oriented circumstancial manner adverb 'hurriedly', 'gently' etc. (ii) The optionality of inflection in (20a) is not the idiosyncrasy of one lexical item *jì* which happens to have two homophonous variants 'with' (20a) and 'hold' (20c). The same effect occurs for two large sets of predicates, which can be called inherent and derived subject depictives. The former may be listable, but the latter definitely not. For either type, when used in a single-event serial construction like (20a), there is an optional inflection of a special kind; otherwise, when used either in a non-serial context to describe a freestanding eventuality or in a multi-event construction, an obligatory inflectional pattern takes over.[20]

Inherent subject depictives, denoting a subject's location, stance, wearing and holding properties, include the following items:

Ìgbo (Welmers & Welmers 1968: 162*f.*; Winston 1973, 151*f.*; Nwáchukwu 1976b, 135; 1984, 84*ff.*)

(22)

-bí 'inhabit'	*-má akwà* 'wear a loincloth'	*-jì* 'hold [something in one hand]'
-nọ̀ 'stay'	*-tí traụzà* 'wear long pants'	*-kpụ̀ ọmụ́* 'carry *ọ̀mụ́* in the mouth'
-kwụ ọtọ 'stand up'	*-yì uwé* 'wear a dress'	*-kù nwá* 'hold a child in the arms'
-gbá aka 'be empty-handed'	*-sí* 'come from/via [a location]'	*-kwọ̀ nwá* 'carry a child on the back'
-gbà ọ́là 'wear a ring'	*-sò* 'follow [a moving entity]'	*-pá* 'carry [something in both hands]'
-kpú òkpú 'wear a hat'	*-bú* 'carry [something on the head]'	*-(k)pụ́ eghu* 'have a goat in tow'

The inherent set sampled in (22) may be finite, but the derived set can't be, because it includes all possible manner expressions, including all manner of motion predicates: *-gbá ọsọ* 'run', *-gbá motò* 'ride in [a car]', *-nyà* [*mótò*] 'steer/drive [a car]' *ad aeternitatem*.

(23) shows that both types of subject depictive resemble *jì* in (20a) in optionally dropping inflection in a single-event serial construction. The difference between the two classes emerges in simplex predication: by itself, an inherent subject depictive needs no inflection and returns a nonpast interpretation (24a) whereas a derived subject depictive does need a suffix (24b-c).[21]

Ìgbo (Welmers & Welmers 1968, 162)

(23) a. Ọ́ kwụ̀(-ụ-rụ) ọ́tọ kwu-e okwú.
3S V-AFF-AFF straightness talk-AFF speech.GEN
'S/he spoke standing up'

b. Ọ́ nyà(-a-ra) mótò gá-a ahyá.
3S turn-AFF-AFF car go-AFF market.GEN
'S/he drove to market' ('…got to market while driving')

Ìgbo (Nwáchukwu 1984)

(24) a. Ọ́ kwụ̀ ọ́tọ
3S V straightness
'S/he is in a standing posture'

b. Ọ́ nyà-ra mótò.
3S turn -AFFcar
'S/he drove [a] car'

c. *Ọ́ nyà mótò.
3S turn car

This correlation of (un)necessary inflection with serial context is impossible to express by generalizing Lord's hunch that *jì* in (20a) is a closed-class item rather than a token of the 'hold' root. Maybe UG can tolerate twinning every inherent subject depictive, listing one as a fixed construction, but no lexicon can enumerate all possible manner expressions. That's what syntax is for, and the only viable analysis is one which generates subject depictives compositionally (Awóyalé 1988a,b; Déchaine 1993a, 1997).

Subtler data reinforce the conclusion that the inflectional pattern in (23) is syntactically derived and not a lexical feature. The option of taking either *-V-rV* or zero as in (23) is reserved for a single-event serializations like (25a); in multi-event (25b) only single *-rV* is possible.[22] In a non-serial clause, a derived subject depictive takes *-V-rV* only with an extra event-related feature: either either 'emphatic past' or 'pluperfect' (26b), or else in the presence of an 'applied' (ethical dative) argument (26c).

Ìgbo (Nwáchukwu 1976b, 137; Íhìọ́nụ́ 1988)

(25) a. Ọ́ gbá(-a-ra) ọsọ bịa.
3S V-AFF-AFF escape come.AFF
'S/he came running [and is still here]' OR
'S/he is here as a refugee'

b. Ọ́ gbá(*-a)-ra ọsọ bịa.
3S V-AFF-AFF escape come.AFF
'S/he came running [but is no longer here]' OR
'S/he ran [somewhere] and [then] came [here]'

Ìgbo (Nwáchukwu 1976a, 136; Williamson 1982)

(26) a. Ọ́ gbá(*-a)-ra ọsọ.
3S V-AFF-AFFescape
'S/he ran [somewhere]'

b. Ọ́ gbá-a-ra ọsọ.
3S V-AFF-AFF escape
'S/he *did* run' OR
'S/he had previously run [somewhere]'

c. Ọ́ gbá-a-ra m ọsọ.
3S V-AFF-AFF 1S escape
'S/he escaped from me' OR
'S/he ran [somewhere] on my behalf'

The foregoing casts doubt on the idea that an aspectual-pragmatic property like the relationship between two events (§3.1), or the difference between one and many events (§3.2), is directly encoded in a grammatical construction-type. This negative conclusion arrives back at the initial question: why Ìgbo allows event sequences like (5) which are excluded from Yorùbá. Before answering, there's another reason not to define serialization so narrowly.

3.3 Homeless compounds

In divorcing "serializing" Yorùbá from "consecutivizing/covert coordinating" Ìgbo, Lord and Stewart assert the absence of resultative serial constructions in Ìgbo. Yet Baker & Stewart candidly remark that "Ìgbo does seem to have R[esultative] SVCs underlyingly…" (2002, 15 *fn.* 6), posing the empirical quesiton of what produces the linear order of Ìgbo compounds, and the theoretical question of whether that disqualifies them as serial verbs (cf. Nishiyama 1998). Furthermore, all Ìgbo compounds are not resultative: some are applicative, and the latter have Yorùbá serial counterparts too. Ìgbo resultative (or causative) compounds don't reverse the Yorùbá order of roots, but Ìgbo applicative compounds do. All inflect uniformly in each language, so the fact that both types exist means that inflectional differences between Ìgbo and Yorùbá can't explain the two different Ìgbo linearizations.

First, the diachronic story. Following Givón (1975) and Hyman (1975), Lord assumes that "Niger-Congo, including Benue-Kwa, was SOV [and] non-serializing at some earlier stage" (1977, 146).[23] Then the alleged lack of serial verbs in Ìgbo arose with

> "…the SOV → SVO shift first affecting Bantu and Yorùbá *but not Ịjọ and Ìgbo*, which meanwhile develop serialization while still SOV. Later, Yorùbá takes up serialization, and Ìgbo acquires verb compounds [by virtue of] shifting to SVO [i.e. SOVV→ SVVO]." (Lord 1977, 153, emphasis in original, emendations by VM)

This scenario generates Ìgbo "VVO" strings, followed by lexicalization of "VV compounds", but says nothing about how Yorùbá managed to acquire at least two dozen discontinuous, bisyllabic idiomatic expressions (27). Many of these have Ìgbo counterparts (28), all of which presumably qualify as compounds since they're both idiomatic and adjacent.[24]

Yorùbá "splitting verbs"
(Bowen 1858, 11, 32; Awóbùlúyì 1969, 152)

(27) a. Ó ba kẹ̀kẹ́ jẹ́.
3S touch bicycle [?]
'S/he ruined the bicycle'

b. Ó pa mí mọ́n.
3S hit 1S vanish
'S/he hid me'

c. Ó bá mi wí.
3S meet 1S talk
'S/he scolded me'

d. Ó bá mi mu.
3S meet 1S [?]
'It fits me'

e. Ó rẹ́/ dẹ̀/ tọ̀n/ yọ̀n mí jẹ.
3S cut/soften/examine/choose 1S eat
'S/he cheated me'

f. Ó gbà mí gbọ́.
3S accept 1S hear
'S/he believes me'

Ìgbo "verb compounds"
(cf. Lord 1975; Nwáchukwu 1987; Hale *& al.* 1995)

(28) a. Ọ́ gbà-ju-ru mótò.
3S pour-full-AFF car
'S/he fueled [the] car, i.e. filled the car [with fuel]'

b. Ó zò-fụ-rụ ḿ.
3S hide-out-AFF 1S
'S/he hid me away'

c. Ó kwù-gide-re ḿ.
3S talk-[hold]-AFF 1S
'S/he criticized me'

d. Ó kwè-sị-rị ḿ.
3S agree-against-AFF 1S
'It fits me'

e. Ó rì-gbu-ru ḿ.
3S eat-cut-AFF 1S
'S/he cheated me'

f. Ó mè-jọ-rọ ḿ
3S do-bad-AFF 1S
'S/he offended me'

In synchronic terms, Stewart calls both (27a) and (28a) "resultative secondary predication" (2001, 151, 170). The linear order of (28a) can be derived from that of (27a) by raising the second root across the internal argument, and Stewart ties this to an inflectional property (2001, 155); by (29b), the two roots *-gbá* and *-jú* in (28a) can't remain discontinuous. Yorùbá inflection lacks this requirement, so the hypothetical base order in (27a) is unperturbed.

(29) a. *The serial verb parameter* (Stewart 2001, 188, 206)
"A verb serializing language is one in which Tense (or other Infl-type category) does not need to be checked: i.e. T has no V-feature." [*Fn.*, p. 206: "So, *Attract* is not relevant, even at LF."]

b. *The serial verb… typology* (Stewart 2001, 193)
"T with strong V-feature {French, Ìgbo, Chinese}… no SVC
"T with weak V-feature {English} no SVC
"T with no V-feature {Ẹ̀dó, Yorùbá, Ɛ̀ʋè…} SVC possible"
[*Fn.*, p. 206: "…While… Ìgbo and Mandarin Chinese both have resultative V-V compounding, French… does not. …French is like Ẹ̀dó in having a morphological filter …that prevents the forming of V-V compound structures."]

c. *Bare Stem Condition* (Stewart 2001, 179)
"No verb in [a] serial verb construction can bear morphological tense inflection."
[*Fn.*, p. 205: "According to this generalization, tone marking is not inflectional…"]

To do the job, (29) needs three more assumptions. (i) The moved root in Ìgbo must have a V-feature—even for adjective- or preposition-ish items like *-jú* 'full' in (28a) and *-fụ̀* 'out' in (28b). (ii) Roots must be licensed across-the-board in Ìgbo, or else the second root could stay *in situ*. (iii) Compounds must separately be banned in Yorùbá, as for Ẹ̀dó (29b). Notice that all three addenda pertain to lexical categories not to inflection. There is independent evidence that compounding is not caused by inflection as a general matter. Standard Yorùbá has neither inflectional suffixes nor inflectional tone patterns pronounced on the root, but nonetheless uses compound order for some bisyllabic roots which "split" into serial monosyllables in eastern Yorùbá dialects (31).

Standard Yorùbá (Awóbùlúyì 1969)

(30) a. Mo gbàgbé e Mọ̀súùdì.
1S forget GEN M.
'I forgot about Moshood'

b. Mo gbàgbé e rẹ̀.
1S forget GEN 3S
'I forgot about him/her/it'

Ọ̀ghọ̀/Onìdó/Àkúrẹ́ Yorùbá (Awóyalé 1996)

(31) a. Mo gba Mọ̀súùdì gbé.
1S *gbà* M. *gbé*
'I forgot about Moshood'

b. Mo gbà á gbé.
1S *gbà* 3S *gbé*
'I forgot about him/her/it'

A more plausible factor in generating these variants is prosodic ambiguity of V/VP. Standard Yorùbá bisyllabic roots mimic noun incorporation insofar as any free internal argument (*Mọ̀súùdì* or '3S') needs genitive case, realized before a consonant-initial item as a toneless (M tone-bearing) mora (Elimelech 1982), cf. (30). Only if the predicate splits into a discontinuous sequence of two CV roots as in (31) can the first root assign structural accusative.[25] The categorial ambiguity of CVCV roots is more general: in Standard Yorùbá, if vowel elision yields a predicate of the shape [CV_XCV], V_X can in principle be lexically related either to the C of the preceding root, or to the CV of the following noun. The former option (call it prodelision) is usually associated with semantic opacity and is best analyzed as a bisyllabic root i.e. a true compound (32), while the latter tends to have a literal interpretation and full phrasal syntax (33).

Standard Yorùbá (Bámgbóṣé 1966, 85; Oyèlárǎn 1972, 163)

(32) a. gbé <ẹ>sẹ̀ (= [gbésẹ̀])
lift leg
'walk briskly'

b. fẹ́ <ọ>wọ́ (= [fẹ́wó])
want hand
'commit theft'

(33) a. gb<é> ẹsẹ̀ (→ [gbẹ́sẹ̀])
lift leg
'remove foot'

b. f<ẹ́> owó (→ [fówó])
want money
'desire money'

In Ìgbo, lexical factors are crucial in compounds sofar as linear order is concerned. For Ìgbo 'cheat *x*' = 'eat cut *x*' (28e), derivational reversal of the roots is suggested by comparison with Yorùbá 'cheat *x*' = 'cut *x* eat' (27e). This implies raising Ìgbo 'eat' to the left of 'cut'. Similarly for Ìgbo 'criticize *x*' = 'talk hold *x*' (28c) versus Yorùbá 'scold *x*' = 'meet *x*…talk' (27c).[26] Both examples defy the *communis opinio* that

(34) "[t]he order of verbs in a verbal compound is the same as the order of verbs in a corresponding serial construction. …As far as I know, there are no exceptions…" (Collins 2002, 5).

Unless the reversing compounds in (28c) and (28e) are random accidents, we need a computationally friendly way to distinguish them from the order-preserving paradigm expected by (29) and exemplified by (28a=36a) and (36e). Both types inflect exactly the same, so a mere property of inflection can't suffice.

Yorùbá (cf. Abraham 1958, 395*f*., 405)

(35) a. Mo tú kọin-kọin kún bèmbẹ́.
1S pour *kọin-kọin* fill barrel
'I filled the barrel with *kọin-kọin* (by pouring)'

b. Bèmbẹ́ kún fún kọin-kọin.
barrel full give *kọin-kọin*
'[The] barrel is full of *kọin-kọin*'

c. Kọin-kọ́in kún bèmbẹ́.
kọin-kọin.AFF full barrel
'[The] barrel is full of *kọin-kọin*'

d. Mo kún bẹ̀mbẹ́.
1S full barrel
'I filled [the] barrel [with some solid or liquid]'

e. Mo lé wọn já 'dèe. (< òde)
1S chase 3P down outside
'I chased them out'

f. Wọ́n já 'dèe.
3P.AFF down outside
'They went out'

Ìgbo (cf. Ígwè 1999, 279, 177)

(36) a. Ḿ gbà-ju-ru dr̩ọ̀m na káikai.
1S pour-full-AFF barrel CASE *káikai*
'I filled [the] barrel with *káikai* (by pouring)'

b. Dr̩ọ́m à ju-ru na káikai.
barrel DEIC full-AFF CASE *káikai*
'This barrel is full of *káikai*'

c. Káikai jù-ru dr̩ọ́m.
káikai full-AFF barrel
'*Káikai* filled [the] barrel'

d. #Ḿ jù-ru dr̩ọ́m à.
1S full-AFF barrel DEIC
[= 'I filled the barrel with myself']

e. Ḿ chụ́-fụ̀-rụ há.
1S chase-out-AFF 3P
'I chased them out'

f. Há fụ̀-rụ a-fụ́.
1S out-AFF NOM-out
'They went out'

Noting that the internal argument can externalize with order-preserving *-jú* 'full' and *-fụ̀* 'out', but not with reversing *-rí* 'eat' and *-kwú* 'talk', Hale *& al.* (1995, 89*ff.*) appeal to a trait [+ predicate] denoting an obligatory 'lexical subject'.[27] Like the English noncausative transitives which they translate, Ìgbo *-rí* 'eat' and *-kwú* lack the [+ predicate] feature but get subjects eventually, thanks to the so-called [EPP] property of 'little vee' or Tense.[28] In sum, the reversing construction (28c) and (28e) is applicative—the roots share, not a thematic relationship to the overt internal argument, but a superficial EPP-type subject—while the nonreversing construction (28a=36a) and (36e) is causative/resultative.[29]

In (28a=36a), the roots don't reverse but the internal arguments do: *dr̩ọ̀m* precedes *káikai*, which is just what den Dikken observes about double objects: "In triadic constructions, whenever incorporation of the embedded predicate takes place, the underlying Theme-Goal order is reversed" (1995, 162). A reversing root like *-rí* in (28e) has no effect on argument order because its own internal argument is suppressed—something not generally possible in isolation (37a/38a), but required in the context of narrow focus excluding the object (37b/38b).

Yorùbá (Bámgbóṣé 2000, 63)

(37) a. #Ó jẹ.
3S eat

b. Ó jẹ ẹja. Èmi náà á jẹ (*ẹ́).
3S eat fish 1S that AFF eat
'S/he ate fish [versus meat]. So did I.'

Ìgbo (Éménanjọ 1984)

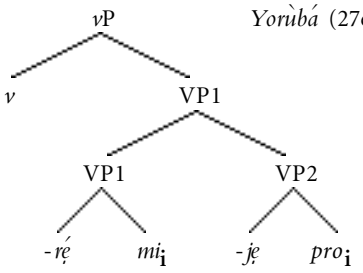
(38) a. *Ó rì-ri.
3S eat-AFF

b. Ó rì-ri e-rí.
3S eat-AFF NOM-eat
'S/he ate [something expected to be eaten]'

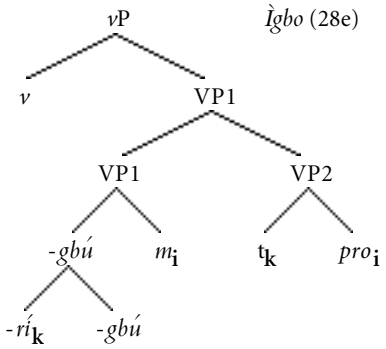
(27e/28e) also plausibly involve operator-licensing—not focus-related like (37b/38b), but supplied by a local antecedent, portrayed in (39) as coindexing between the object of VP1 and the corresponding *pro* in VP2. Root reversal is represented in (39b) as standard left-adjoining head movement (Baker 1988). Den Dikken's double object generalization applies to non-reversing forms like (36a) which arise not by head movement but by XP raising as in (40b).[30]

applicative serials/reversing compounds

(39) a. *Yorùbá* (27e)

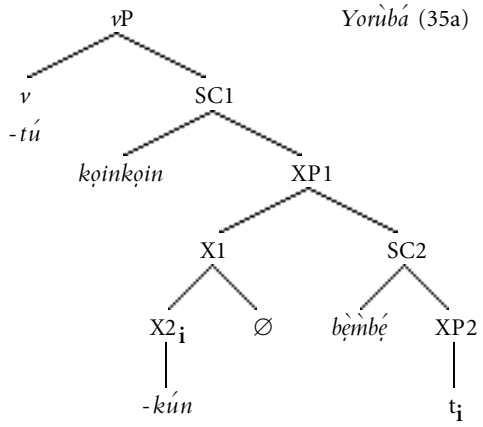


b. *Ìgbo* (28e)

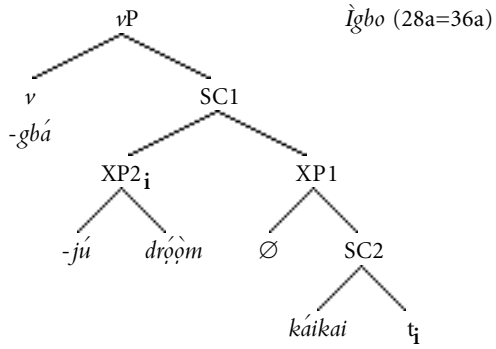


causative serials/nonreversing pseudo-compounds

(40) a. *Yorùbá* (35a)



b. *Ìgbo* (28a=36a)



The irrelevance of inflection to the reversing property is confirmed by the fact that the surface order of both types is stable in Ìgbo across all nonfinite derivatives, surveyed in (41). All are prefixed and all suffixless.

Ìgbo (cf. Émènanjọ 1978, 148 *f.*)

(41) a.	í-rí-gbu	'to cheat' (cf. 28e)	b.	ị́-gbá-ju	'to fill by pouring' (cf. 35a)
	è-rí-gbu	'cheating [bound form]'		à-gbá-ju	'filling by pouring [bound form]'
	ń-ri-gbu	'cheating [free form]'		ḿ-gba-ju	'filling by pouring [free form]'
	ò-rí-gbu	'cheater'		ọ̀-gbá-ju	'one who fills by pouring'
	ǹ-rí-gbu	'instrument/result of cheating'		m̀-gbá-ju	'instrument/result of filling by pouring'

To accommodate the foregoing observations, Collins' nonreversing rule (34) can itself be reversed:

(34′) The order of roots in a serial construction is reversed, in forming a compound, unless the second root is [+ predicate] in Hale's sense.

(34′) by itself does not say in what context compounding occurs; that is addressed in §4.1.

3.4 Constructions against structure

In Àkán, combinations of finite roots which Christaller (1875, 153*f.* §253a) calls "essential" (inherently linked in one event) as well as those which are "accidentally related" can be expressed in Stahlkean serial form. A recent review concludes that, while the distinction may be semantically valid if "construed as a cline" and not a dichotomy, "it still has to be emphasized that as far as patterns of aspect marking and negation go, the two construction typs behave identically…" (Hellan *& al.* 2003, 22). Consider (42), with two "accidentally related" intransitives, and (43) with two surface transitives sharing a notional object.[31]

Twì (Christaller 1875, 144; Stewart 1963, 145; van Leynseele 1979, 194)

(42) a. Ɔ̀-sɔ-ré̀è̀ gua-ré̀è̀.
1s-get.up.AFF swim.AFF
'S/he got up [and] had a bath'

b. Mè̀-sɔ-ré̀è̀ mi-gua-ré̀è̀.
1s-get.up.AFF 1s-swim.AFF
'I got up [and] had a bath'

(43) a. Àkorɔmá no kyè-ree akókɔ no wè-e.
hawk DEF catch.AFF fowl DEF eat-AFF
'The hawk caught the chicken and ate it'

b. Àkorɔmá no kyè-ree akókɔ no kum-m nó.
hawk DEF catch.AFF fowl DEF kill.AFF 3SANIM
'The hawk caught the chicken and killed it'

For some reason, the subject clitic repeats just if it's first person singular (42b) and this doesn't depend on event structure. A second potential diagnostic is the presence of an object clitic after the second root in (43b), but what does it diagnose? Translation is indeterminate: J. Stewart renders Twì (43a) as a sequence of (related) events, but van Leynseele prefers a one-event gloss for its counterpart in closely-related Ànyị̂: instead of '…catch…eat…', she interprets (44a) as '…eat…' with *-ci* 'catch' a kind of light or transitivizing head, an "epenthetic verb" (1979, 190). No single-event parapahrase is offered for the Ànyị̂ version of (43b), with two overt objects, and there object pronoun also triggers a lexical effect in the translation of (44b), where the inherent animacy of the 3s clitic shifts the interpretation of the root *-dí* from 'eat' to 'copulate'. If a very similar sequence of roots 'grab…eat' is inflected with an object gap, parallel to (44a), there is no coercion to 'copulate' and the interpretation is 'believe/trust' (45a). Van Leynseele concludes that the sequences of roots in (44a) and (45a) "constitute one single entry in the lexicon" and calls both of them "verb complexes" in contrast to the (b) examples, which she calls "consecutive coordination" (1979, 196).[32]

Ànyị̂ (van Leynseele 1979, 191*ff.*)

(44) a. Cù̀á cị̀ ákɔ dí.
dog catch.HAB fowl eat
'[The] dog (catches and) eats [a] chicken'

b. Cù̀á cị̀ ákɔ ò-di ɡ́ị̀.
dog catch.HAB fowl 3s-eat 3SANIM
'[The] dog catches [a] chicken and copulates with it'

(45) a. Kàsí dè Kofí dí.
K. grab.HAB K. eat
'Kàsí believes/trusts Kofí'

b. *Kàsí dè Kofí ò-di ɡ́ị̀.
K. grab.HAB K. 3s-eat 3SANIM

Granting that object clitic distribution distinguishes between two construction types, still these do not align with the difference between (5) and (6). Van Leynseele's "consecutive coordination" in (44b) translates successfully into Yorùbá as one serial clause, therefore it can't be "covert coordination" in Lord and O. Stewart's sense unless there's another semantic parameter, orthogonal to (29), by which the actions in (44b) count as related in Yorùbá but not in Twì, forcing Twì to pronounce the object twice in contrast to (44a). Such reasoning also founders on a more general observation (which happens to have been made in Ànyị̂'s immediate relative Baule) that "whether the pronoun is optionally or obligatorily absent in such situations differs from example to example" (Larson 2002b, 17). Yet regardless of the number of events expressed, whenever the pronoun is absent, M. Larson finds that the gap has uniform semantic properties—it can antecede a reflexive and is necessarily bound by a local antecedent. In sum the morphosyntax does not give any hint of caring about semantic consecutiveness.

Same for inflection: *both* Twì examples in (44) have suffixes on every root, so (29) can't tell them apart morphologically. In Ànyị̂, most of van Leynseele's data are cited in an unsuffixed habitual form, i.e. tenseless generics, but a rare tensed example (46) is indeed suffixed, and presumably this pattern would also hold for tensed versions of the Ànyị̂ examples in (44).

Ànyị̂ (van Leynseele 1979, 203 *fn.* 12)

(46) a. Kàsí sì̀-lị̀ suá mà-nị̀ Kofí.
K. build-AFF house give-AFF K.
'Kàsí built a house for Kòfí'

b. Kàsí sì̀-lị̀ suá fà-má-nị̀ Kofí.
K. build-AFF house take-give-AFF K.
'Kàsí built a house for Kòfí'

If the contrast in object *pro*-drop between the (a) and (b) examples of (43) and (44) does not align with the aspectual difference between (5) and (6), it may nevertheless be informative about structure. In the Àkán cluster, *pro*-drop of definite inanimate objects in simplex clause is freer than in Ìgbo and Yorùbá. (47a) contrasts directly with (36a) and (37a) repeated from above.

Twì (Stewart 1963, 149)

(47) a. Ɔ̀ ɔ pám.
3s PROG sew
'S/he is sewing [it]'

b. Ɔ̀ ɔ pàám adéɛ.
3s PROG sew thing
'S/he is sewing (something)'

Yorùbá

(36) a. #Ó jẹ.
3s eat

Ìgbo

(37) a. *Ó rí-ri.
'3s eat-AFF

Object *pro*-drop depends on more than lexical factors and animacy, cf. (48) and Larson (2002a). There is also a prosodic angle: the overt object pronoun *no*, usually reserved for animates (48b), can refer to an inanimate just in case it's nonfinal in the phrase (49b).[33]

Twì (Stewart 1963, 149; Dolphyne 1988, 94; Sáàh 1995; cf. Campbell 1988)

(48) a. Mè hún-ìi.
1S see[+nas]-AFF
'I saw/found it'

b. Mè hú-ù no.
1S see[-nas]-AFF 3SANIM
'I saw/found her/him' [* "I sawit']

c. *Mè hú-ù.
1S see[+nas]-AFF

d. Ɔ̀ de fɛm-m me.
3S take lend-AFF 1S
'S/he lent [it] to me'

(49) a. *Mè hún-ìi nnɛra
1S see[+nas]AFF yesterday

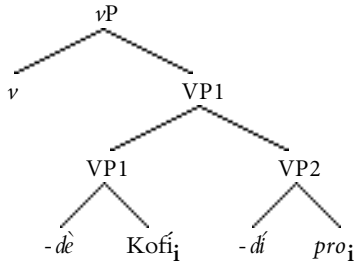
b. Mè hú-ù no nnɛra.
1S see[-nas]-AFF 3S yesterday
'I saw/found her/him/it yesterday'

c. ??Mè hú-ù nnɛra.
1S see[-nas]-AFF yesterday
['I saw yesterday']

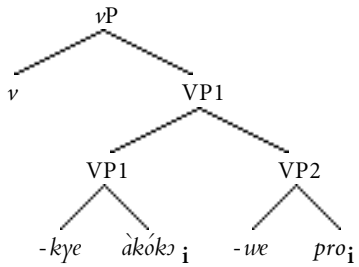
Larson (2005) shows that object *pro*-drop opens a window on the serial patterns in (43) and (44). As Van Leynseele notes, the first root in a "verb complex" does not subcategorize for the following argument: (45b) "is ungrammatical because the verb *de* cannot by itself take a human object, whereas *de…di* 'trust' [in (45a)] can only take a human object phrase" (1979, 195). This makes Ànyí "verb complexes" resemble Ìgbo and Yorùbá applicative serials insofar as the contents of the two internal argument positions are not evaluated independently. The representation in (50a), equivalent to (39a), accounts for object *pro*-drop in such cases: the internal argument of the second root is not referentially distinct from that of the first one. The same holds for other "verb complexes" like (44a) and its Twì counterpart (43a), and explains their interpretation: according to (50b) the dog doesn't literally eat the chicken, but only some inanimate entity which is referentially non-distinct from the chicken, i.e. chicken body-parts.[34] Conversely, in a VP-adjunction approach to multi-event serializations (Déchaine 1993b, 211*ff.*), the c-command relations are reversed in examples like (44b) and (43b), cf. (51), and this explains both the form of such sentences—why the object pronoun is overt—and how they are interpreted—why the animate chicken is respectively 'eaten' i.e. copulated with, and killed.

applicative serial, cf (39) above

(50) a. [= Ànyí (45a)]

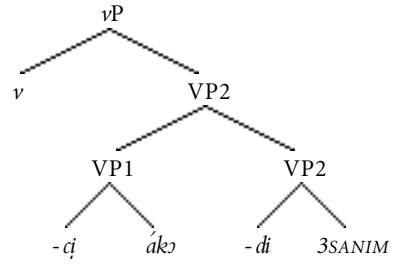


b. [= Twì (43a)]

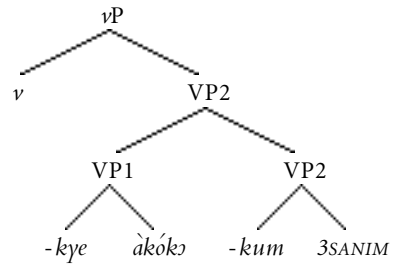


multi-event serial (also instrumental serial)

(51) a. [= Ànyí (44b)]



b. [= Twì (43b)]



The overtness of the object in (51) reduces to the Àkán-specific requirement that the [+animate] feature must "spell out" at all costs (cf. Manfredi 1995). But this calculus does not ignore structure. In (50), object *pro* is already identified by the c-commanding antecedent so no animate pronoun is required, but the same escape is unavailable in (51) where the first direct object fails to c-command the second one, hence the overt pronoun. From this follows the appearance of parasitic subject agreement in so-called consecutive examples in Ànyí: "an object pronoun cannot be present without a subject pronoun being also present in Ànyí, which differs in this respect from Twì" (van Leynseele 1979, 192).[35] In other words, the second instance of subject agreement in (44b) does not supply a reason to liken (44b) to undisputed multiclausal examples like Yorùbá (8) and Ìgbo (11).

Interpreting van Leynseele's observations in this way, all the multi-root constructions discussed in her article are Stahlkean-serials, and the syntactic trees concatenated in what she calls "consecutive coordination" are not larger than those which combine in what she calls a "verb complex". The applicatives, instrumentals and multi-events just discussed are all adjoined VPs *à la Awóyalé*, while the causatives and double objects are complex predicates in the small clause tradition as in (40).[36]

The lack of any event restriction on multi-event serialization in Àkán, first observed by Christaller, follows from (52b).

(52) a. A (quantized) event must be tensemarked (Enç 1987; Verkuyl 1993).
b. Nonlocal tensemarking must be overt (morphological head-marking).
c. A complex event is tensemarked if any of its segments is.

With the exception of *-de* 'take' as in (48d), if one root in an Àkán serial construction bears a tense affix, all of them do, and all the affixes agree, cf. (42), (43), (46). The defectiveness of 'take' is no different from what obtains in Ìgbo examples like (20a): its stativity is configurational, as first pointed out by Stewart: in simple sentences, *-de* "is invariably in the continuative (stative) tense. In [non-stative] simple sentences the usual word for 'take' is *-fa…*" (1963, 146).[37] Following Awóyalé, Déchaine (1993b, 1997) argues that this stativization is possible in a left-adjoined VP, i.e. that instrumental serials inhabit the same structure as (51).

The descriptive effect of (52) across Benue-Kwa can be summarised as follows:

(53) A sequence of aspectually unrelated events cannot be expressed in a single clause (i.e. as a Stahlkean serial construction) unless each root is either local to Tense or audibly tensemarked.

The general force of (53) follows from the conjunction of parameters (3b) and (3c). This conclusion obviously depends on (52b) and the mechanics of tensemarking, to which we now turn.

4. Prosodic inflection in BK1

Serial constructions aside, both the checking-based parameter (29) and the prosodic alternative in (3) rest on descriptions of finite inflection in the individual languages. (29) separates Ìgbo from Ẹ̀dó, but on closer examination, Ìgbo and Ẹ̀dó inflections are more similar than (29) permits. The parameter in (3) unites both languages in BK1, while explaining prosodic phenomena that (29) chooses to treat as phonological accidents, unrelated to either serialization or inflection.

4.1 Ìgbo

If §3.3 works and checking theory can't account for the differing linearization of Ìgbo "compounds", two questions remain.

(i) How do *-gbá* and *-jú* both come to precede a single instance of inflection, the -AFF (= *-rV*) in (35a), versus the two separate inflectional tokens found in noncompound examples like multi-event (5b) and single-event (20a)? Part of the answer is obvious: after predicate raising (40b), *-gbá* and *-jú* are already in correct linear order with respect to each other and to their arguments, and are arguably also phrase-mates (Chomsky 1986, 7, 9). Everything therefore boils down to the position of -AFF with respect to the roots, and there are independent reasons to think that this is determined prosodically. The most important observation is that -AFF always accompanies a pitch effect. In Standard Ìgbo and most dialects, the effect is to suppress the lexical pitch accent (so-called H toneme) if any of the inflected root, for example *-jé* 'go' in (54a) surfaces with L tone. The pitch accent is also suppressed in those western dialects like Ìgboụ́zọ̀ and Ìsele Úku where -AFF has no CV content whatsoever (54b-c). Even in Standard Ìgbo, the primacy of the prosodic component of inflectional morphology is clear from examples where the inflected root doesn't require a CV affix, e.g. for any of the inherently stative items in (22), all of which surface with L tone as shown in (24a) and (55).[38]

Ìgbo varieties (Ọ́nwụemé́ne 1984, 6)

(54) a. Ó jè-lụ ́afịa. [Ọ̀nịcha]
3S go-AFF market

b. Ó jè ́ashịa. [Ìgboụ́zọ̀]
3S go. AFF market

c. Ó ò je ́afịa. [Ìsele Úku]
3S AL go. AFF market
'S/he went to [the] market'

Standard Ìgbo (Nwáchukwu 1984, 86)

(55) Ó tì trá́wụzà.
3S. put. AFF long.pants
'S/he is wearing trousers/has trousers on'

n.b. [*…jé…] in (54), [*…tí…] in (55)

Another indication that accent, not segmental -AFF, is the primary inflectional marker in Ìgbo comes from examples where the lowering effect of pitch accent suppression partly precedes the root. Ìsele Úku displays this anticipatory lowering—glossed here "AL", without implying that it is an independent morpheme—with a 3S clitic subject (54c); elsewhere in the Ìgbo-speaking area, AL happpens in case the subject is a lexical item, as in Ọ́mà́áhyá (56) and Òweré (57). That AL is not an independent item or process, but a mere side-effect of the suppression of the root's lexical pitch accent, regulated by constraints on phrasing, is proved by the minimal contrast in (57). AL fails to occur just in case the pitch accent is not deleted, a situation which occurs in Ḿbàisén and Òweré. In those dialects among others, a so-called strong H root like *-rí* 'eat' (57a) does not surface L but remains H (preceded by a downstep) in the minimal inflected form. L does appear on another class of roots including *-kwú* 'speak' (57b). The latter set is labeled "HL" by Swift *& al.* (1962), "weak H" by Déchaine

(1993b, 504) and TCL2 by Nwáchukwu (1995, 16) because its lexical pitch accent disappears in these finite forms, even though it surfaces in most other derivatives of the same root.[39]

Ọ́màáhyá Ìgbo (Green & Ígwè 1963, 75, 180)

(56) a. Óyi ì ji ḿ.
cold AL hold. AFF 1S
'I have a fever'

b. Éghu ụ̀ ga-ra áhya.
goat AL go-AFF market
'Goats went to market (i.e. sold well)'

Òweré Ìgbo (cf. Éménanjọ 1985, 120 *f.*)

(57) a. Íkhe è kwu-ru ụ́khà.
I. AL speak-AFF talk
'Iyke spoke'

b. Íkhe rí-ri rin à. *n.b.* [*Íkhe é ri-…]
I. eat-AFF food this
'Iyke swept the house'

In other words, despite apparently discontinuous pitch and affixation effects before, during after the root, examples like (54c) and (57a) involve just one single inflectional morpheme whose primary reflex is pitch. To set up an autonomous inflectional element, e.g. an abstract "floating tone" prefix/aux, as the cause of anticipatory lowering, can only obscure this fact.[40]

Turning to compounds, the prosodic conditioning of inflection shows up again as a locality restriction. Welmers' phonemic orientation leads him to analyze the pitch correlate of -AFF as a "low tone replacive" morpheme (1970a, 51), but not every root in a compound becomes low, as Welmers notes: the lexical pitch accent of the first root is suppressed in (46a) but not in (58b-c). In the latter cases, the compound contains a complete trochaic (HL) foot, i.e. the accent of the first root is separated from -AFF by a root which is lexically unaccented (L). The first root can be lexically accented, like *-chụ́* in (58b), or not, like *-wè* in (58c); both end up with an accent, so long as the the second root (*-fụ̀*, in these examples) has none.[41]

Ìgbo (Welmers 1970b, 267; 1973, 141)

(58) a. Ó mè-chi-ri ụ́zọ̀. *n.b.* [*Ó mé-…]
3S do-closed-AFF path
'S/he closed the door'

b. Ọ́ chụ́-fụ̀-rụ Ézè. *n.b.* [*Ọ́ chụ̀-…]
3S chase-out-AFF E./king
'S/he chased Mr. Eze/the king away'

c. Ọ́ wé-fụ̀-rụ ánya. *n.b.* [*Ó wè-…]
3S take-out-AFF eye
'S/he looked away/paid no attention'

One more prosodic characteristic of -AFF (with or without segmental content) is its intrinsic relationship to information focus: like Bantu "conjoint" morphology (Wal 2005), -AFF extends the scope of non-negative assertion (Carrell 1970, 29; Ụ̀walá̀à̀ka 1981) to the right of the finite root by prosodically subordinating the root to its internal argument—not unlike the English Nuclear Stress Rule (Cinque 1993; Wagner 1995). Conclusion: -AFF appears to the left of nonpresupposed argument-type expressions.

(ii) If inflection feature checking doesn't cause either kind of movement (root-reversing or argument-reversing) in compounds, is it then a coincidence that Ìgbo exhibits both types and Yorùbá neither?[42] If the two types do tend to cooccur crosslinguistically, despite their hypothetical formal difference (head-movement versus XP predicate raising), and if they don't reduce to a 'pull factor' like feature-checking, then there should exist a 'push factor' such as scope. Helpfully, Ìgbo displays a third potential case: one which does not itself involve compounding, which is not directly sentive to inflection, and which is scopal in nature. The "bound verb complement" (BVC, clause-final nominalization) has four main distributions. It's both obligatory and anaphoric, recovering a discourse referent, in transitive contexts e.g. with *-rí* 'eat' (58a=37b) and *-kụ́-wa* 'break by knocking' (58b), if no lexical object is expressed. It's also obligatory with intransitives, for example *-wá* 'break' (59a) and the anticausative of *-kụ́-wa* 'break by knocking' (59b), but in those cases it lacks detectable meaning.[43] It's optional in transitive contexts if the direct object is overt (60a,b), in which case it recovers an event-related topic (like argument clitic-doubling, cf. Cinque 1991). Finally, it's marginal in the present perfect form, which is morphologically intransitive as shown by the fact that an overt object must be inflected as inherent/genitive case (e.g. *…akpụ́* H!H) rather than in the citation phonetic shape i.e. structural/accusative case (*…ákpụ* HH), cf. 61).[44]

Ìgbo (Éménanjọ 1984; Nwáchukwu 1987, 115; Hale *& al.* 1995, 100)

(58) a. Ó rì-ri *(e-rí).
3S eat-AFF NOM-eat
'S/he indeed ate [an edible, topical thing]'

b. Ọ́ kụ̀-wa-ra *(a-kụ́-wa).
3S hit-break-ASP NOM-hit-break
'S/he indeed broke [a breakable, topical thing]'

(60) a. Ó rì-ri ákpụ (é-ri).
3S eat-AFF *ákpụ* NOM-eat
'S/he ate [the] *ákpụ* (as expected)'

b. Ọ́ kụ̀-wa-ra ọ́bà (a-kụ́-wa).
3S hit-break-ASP gourd NOM-hit-break
'S/he broke [the] gourd (as expected)'

(59) a. Ọ́bá à wa-ra *(a-wá).
gourd this break- AFF NOM-break
'This gourd is split open'

b. Ọ́bá à kụ- wa- ra *(a-kụ́- wa).
gourd this knock-split- AFF NOM-knock-split
'This gourd split open as a result of knocking'

(61) a. Ó rí-ele (akpụ́).
3S eat-AFF *ákpụ́*.GEN
'S/he has eaten (*ákpụ́*)'

b. ?Ó rí-ele (akpụ́) é-ri.
3S eat-AFF *ákpụ́*.GEN NOM-eat
'S/he has eaten (*ákpụ́*) as expected'

Assuming that structural accusative is realized internal to the Ìgbo present perfect suffix as an incorporated argument (Déchaine & Manfredi 1998, 86*ff.* cf. Bittner & Hale 1996), the generalization in (58) - (59) is that the BVC is required in the absence of an accusative. This state of affairs follows from a particular interpretation of (62a) and from its paraphrase (62b). The latter version suffices to compel the reordering in (39b). The reordering in (40b) would also follow, if (62b) applied to all roots across the board. It is also relevant to observe the absence of a BVC-type element in either Yorùbá or Ẹ̀dó.[45]

(62) a. "All Ìgbo verbs are transitive" (Émènanjọ 1975, 166)
b. In Ìgbo, every finite root must be followed by an argument-type expression.

In this way, the generalization in (62) brings the reorderings in (39b) and potentially (40b) into a larger set of phenomena in Ìgbo which are all characterized by considerations of predicate-internal scope, ultimately related to information-theoretic properties of inflectional pitch accent, not by tensemarking requirements as claimed by (29).

4.2 Ẹ̀dó

The part of (29) which divides Ìgbo from Ẹ̀dó can, in principle, be falsified by two kinds of observations:

(63) a. that Ẹ̀dó roots in serial constructions do indeed bear "morphological tense inflection" at least as much as Ìgbo roots; or
b. that Ìgbo verbs are not in fact inflected for tense to a greater extent than Ẹ̀dó roots are.

Both statements have ample empirical support. Consider the following description of finite inflection in Ẹ̀dó:

Ẹ̀dó (Baker & Stewart 1997, 44 = Stewart 2001, 180)

		"one syllable verb 'cry' "	"two syllable verb 'cry-PL' "
(64) a.	"simple past"	*só* (H)	*sò- ló* (L-H)
b.	"present (habitual)"	*sò* (L)	*sò- lo* (L-L)
c.	"simple future"	*ghá sò* (H L)	*ghá so- ló* (H H-!H)
d.	"past perfective"	*só- rò* (H-L)	*sò- ló- rò* (L-H-L)

Sorting the paradigm by syllable type takes the consensus view the Ẹ̀dó lexicon contains no minimal pairs of roots distinguished only by pitch; instead, the surface tone of a root is wholly determined by its inherent syllable structure (CV, CVV or CVCV) plus inflection.[46] On this premise, to protect (29) from (64) requires the stipulation that "tone marking is not inflectional" (Stewart 2001, 205 *fn.* 10), but which is a nonstarter for an elementary reason: to separate the lines labeled "simple past" (64a) and "past perfective" (64d) conceals the fact that these two forms are synonymous and in complementary distribution.[47] In fact, the CV suffix in (64d), henceforth -(*r*)*è*, is always required in order to mark past tense, with two systematic exceptions: (i) in simple clauses if a direct object happens to be pronounced *in situ*, e.g. (65a versus b), and (ii) in a portion of Stahlkean serial constructions, to be discussed below. Otherwise, if neither condition is fulfilled and if -(*r*)*è* is absent, a 'past' interpretation fails for unsuffixed H, as illustrated in (65c-d). (65d) by itself already disproves (64b), which would expect L instead of H on the root. (66) fills out the paradigm, showing that -(*r*)*è* triggers a past reading with a null object (66b), and that when the object is *in situ*, nonpast is expressed with L on the root. (67) shows that the presence versus absence of -(*r*)*è* in front of a *wh*-type variable signals the difference between past and nonpast. Inescapably, therefore, lines (64a) and (64d) differ only phonetically—disproving (29) as a syntactic generalization.[48]

Ẹ̀dó (Melzian 1937, 188; 1942, 21, 43; Aikhiọnbare 1988, 205 *ff.;* cf. Stewart 2001, 178, 182)

(65) a. Ọ́ só ìhuán. → [ọ̀síhuán] LH!H
3S noiseH song
'S/he sang a song'

b. *Ọ́ só-(r)è ihuán.
3S noiseH-AFF song

c. Ọ́ só tìe érè.
3S noiseH callLL 3S
'S/he is shouting to call him/her'

d. Àmẹ́ só.
water noiseH
'The rain is making a racket, i.e. pelting down'

(66) a. Ọ́ dẹ́ èbé. → [ọ̀débé] LH!H
3S buyH book
'S/he bought [a] book'

b. Ọ́ dẹ́-(r)è.
3S buyH- AFF
'S/he bought [something]'

c. Ọ́ dẹ́.
3S buyH
'S/he is buying [something]'

d. Ọ́ dẹ ebé.
3S buyL book
'S/he is buying [a] book'

(67) a. Ọ̀ bọ́ òwá. → [ọ̀bówá] LH!H
3S buildH house
'S/he built [a] house'

b. òwa n–ọ bọ́
house DEF - 3S buildH
'the house that s/he is building [now]'

c. òwa n–ọ bọ́–(r)è
house DEF - 3S buildH-AFF
'the house that s/he built'

d. Èwá ọ̀- ré Èsósá khiẹn- rẹ̀n.
mat 3S- COP E. sellH-AFF
'It is [a] mat that Èsósá sold'

e. Èwá è- ré i- khiẹ́n.
mat 3S- COP 1S-sellH
'What I sell/am selling is mats'

Following Ámayo (1976, 236) in detail, Agheyisi derives the forms described in line (64a) from those described in line (64d) by a mixture of tense allomorphy (for the distrubutionof the consonant) and abstract phonology (for the verb-final vowel and tone):

> "Whenever the verb is followed immediately by its Direct Object…, the P[ast] T[ense] M[arker] form that occurs with the verb is the variant without the initial consonant /r/, and then, the processes of assimilation and contraction… result in the total elision of the PTM vowel, leaving only the Floating Low Tone to indicate the tense of the sentence" (1990, 71)

As Ámayo (1976, 238) carefully points out, this hypothetical"Floating L" must also delete before the direct object, otherwise the surface tone of a H-initial direct object should downstep after a past tense verb. In fact, the failure of downstep to appear in the past form (68a) makes it phonetically identical to the nonpast form (68b), leaving (68a) with no phonetic cue to "indicate the tense of the sentence".

Ẹ̀dó (Ámayo 1976, 238)

(68) a. Ọ̀ kọlọ́ ekhwe. → [ọ̀kọlékhwe] LLHH
3S pluckH eggplant
'S/he picked some eggplants'

b. Ọ̀ kọlọ́ ékhwe. → [ọ̀kọlékhwe] LLHH
3S pluck eggplant
"S/he picks eggplants/is picking eggplants'

From the homophony of (68) it follows that., contra Agheyisi's quotation directly above, the appearance of a downstep in (67a) can't be traced to any autosegmental residue of an underlying-(*r*)*è*. In order to insist that -(*r*)*è* is underlyingly present before a direct object requires its deletion in that context to be phonetically unrecoverable, i.e. it's totally abstract. Thus, total circularity dogs any attempt to treat past tense inflection as an underlying suffix. The alternative is to deny that -(*r*)*è* is a suffix of any kind, treating it instead as a mere epenthetic syllable whose appearance is a secondary enhancement, in certain phrasal context, of a prosodic marker:[49]

(69) a. An inflectional pitch accent must be realized on a branching constituent within its phrase:
by syntactic branching if possible, or by CV epenthesis (insertion of a weak syllable) as a last resort.

b. Foot parameter (Èdó): trochaic/right branching i.e. *sw* or [HL].

As to the second column of (64), *-so-lo* is bimorphemic. Ẹ̀dó does have genuine roots which aren't transparent compounds or extended forms, and about these Aikhiọnbare observes that "CVCV(V) verbs in the language seem not to inflect for plurality" (1988, 218), where "plurality" refers to the suffix *-lo* in (64), cf. Stewart (1997). *-lo* is thus another so-called suffix in Ẹ̀dó with a prosodic default character.

For the purpose of satisfying (69), it seems uncontroversial that an unsubcategorized locative N, a PP and a parenthetical CP all begin a separate phrase; this is consistent with the appearance of -(*r*)*è* before the bracketed material in (70).

Ẹ̀dó (Ọ̀mọ́ruyì 1986, 291)

(70) a. Àlimoí vbo- rò [$_{PP}$ nódẹ̀].
orange ripenH-AFF yesterday
'An orange became ripe yesterday'

b. Àlimoí vbo- rò [$_{PP}$ vbe okhuae].
orange ripenH-AFF in basket
'An orange became ripe in the basket'

c. Àlimoí na vbo- rò [$_{CP}$ adéghẹ̀ u hoó].
orange this ripenH- AFF if 2S want
'This orange is ripe if you want'

(69) also explains the synonymy and complementary distribution of lines (64a) and (64d), and predicts further data which (64) does not mention: the regular past tense effect of -(*r*)*è* in null object constructions. This effect is blind to aspectual type, whether telic eventive (71a/72a), inchoative (71b/72b) or inherent stative (71c/72c). For this reason, Ọ̀mọ́ruyì describes -(*r*)*è* as "the simple past tense suffix" (1986, 288; 1988, 31) and Aikhiọnbare (1988) concurs. (69) only slightly modifies their view, by reanalyzing -(*r*)*è* as phrase-final realization of the more basic inflectional pitch accent which triggers a past interpretation.

Ẹ̀dó (Melzian 1942, 59*f.*; cf. Aikhiọnbare 1988, 206 *f.*;Ọ̀mọ́ruyì 1986, 1988)

(71)	a.	Ọ̀ bọ́-(r)è.	'S/he built [something]'	(72)	a.	Ọ̀ bọ́.	'S/he is building/habitually builds'
		Ọ̀ dẹ́-(r)è.	'3S bought [something]'			Ọ̀ dẹ́.	'3S is buying/habitually buys'
		Ọ̀ mọmọ́-(r)è.	'3S lent [something]'			Ọ̀ mọmọ́.	'3S is lending/habitually lends'
		Ọ̀ dé-è.	'3S fell down'			Ọ̀ dé.	'3S is falling/habitually falls'
	b.	Ọ̀ vbié-(r)è.	'3S went to sleep OR was asleep'		b.	Ọ̀ vbié.	'3S is asleep/habitually sleeps'
	c.	Ọ̀ fé-è.	'3S was rich'		c.	Ọ̀ fé.	'3S is rich'
		Ọ̀ rré-(r)è.	'3S was far away/long ago'			Ọ̀ rreé.	'3S is far away/long ago'

Other data support a more nuanced gloss for -(*r*)*è* as "completive" rather than past (Ámayo 1975; cf. Welmers 1973b). The difference hinges on the ambiguity in English translation of certain inchoative predicates.

	Ẹ̀dó (Ọ̀mọ́ruyì 1986, 291, cf. Wescott 1963, 145)		*Ẹ̀dó* (cf. Agheyisi 1986, 50, 52, 160)	
(73)	Ọ̀ gọ́-è.	'3S bent OR is crooked'	Ọ̀ gọ́.	'3S is bending'
	Ọ̀ guọghọ́-(r)è.	'3S broke OR is broken'	Ọ̀ guọghọ́.	'3S is breaking'
	Ọ̀ vboó-(r)ò.	3S became ripe OR is ripe'	Ọ̀ vboó.	'3S is getting ripe/changing color'

The nonpast resultative readings of the suffixed inchoatives in (73) show that tense interpretation depends on root *Aktionsart* as well as on choice of inflection, but to a lesser extent than in Ìgbo. The limit on the dependency in Ẹ̀dó, compared to Ìgbo, can be appreciated from two observations. (i) These roots are inherently nonstatic, because even the nonsuffixed forms (74) receive only dynamic interpretations. (ii) The suffixed forms (73) still allow a past reading even if they don't compel one. By contrast, an activity like -*vbiẹ* 'sleep' suffixed with -(*r*)*è* is necessarily past (71b), and the same goes for an inherent state like -*fe* 'rich' (71c). Thus the data in (73) may undermine the claim that -(*r*)*è* denotes Priorean "true or referential tense" (Enç 1996, 353), but they don't rescue the tendentious separation of lines (64a) and (64d), which remains falsified by (65) - (68) and (71).

A few more Ìgbo data speak directly to (63b). Comparing finite forms of inherently static and dynamic roots, it's clear that the Ìgbo counterpart of Ẹ̀dó -(*r*)*è* does lack a consistent temporal value: -*chọ́* plus -*rọ* (75a) is unambiguously nonpast, -*kọ̀* plus -*rọ* (76a) unambiguously past. If Ẹ̀dó was at least as 'tenseless' as Ìgbo, both sentences in (71c) should be nonpast like (75a).

Ìgbo (Nwáchukwu 1976a, 136; Williamson 1982)

(75)	a.	Ọ́ chọ̀-rọ égo.		(76)	a.	Ọ́ kọ̀-rọ édè.	
		3S want-AFF money				3S want-AFF *Colocasia esculentum*	
		'S/he wants money [now]'				'S/he planted *Colocasia esculentum*' [before now]	
	b.	Ọ́ chọ̀-ọ-rọ égo.			b.	Ó kọ̀-gha édè.	
		3S want-AFF- AFF money				3S V- PROG *Colocasia esculentum*	
		'S/he wanted money [before now]'				'S/he is/was planting *Colocasia esculentum*'	

Based on contrasts like (75) versus (76), Welmers & Welmers conclude that "[w]e do not talk about 'tenses' in Ìgbo because tenses are supposed to have something to do with time" (1968, 76). Ọ́nwụemẹ́ne (1981) insists that the nonpast reading of (77a) does "refer to some past experience", but if so the lived history has left no evidential trace: unlike the Ẹ̀dó forms in (73), Ìgbo (77a) is not temporally ambiguous. On the contrary, the appearance of segmental inflection in (77a) depends on the lack of a definite or overtly referential object as in (77b) . Haitian provides another example of interpretive dependency between an unmarked verb and its internal argument (78), with the difference that Haitian unlike Ìgbo allows an eventive predicate to be morphologically bare.[50]

	Ìgbo [unspecified dialect] (Ọ́nwụemẹ́ne 1981, 105)		Haitian (Déchaine 1991, 32)	
(77)	a. Ọ́ nwè-re jí.	(78)	a. Pyè vann bèf.	
	3S hold- AFF yam		P. sell cattle	
	'S/he has or owns yams'		'Pyè habitually sells cattle'	
	b. Ọ́ nwè jí ndị à.		b. Pyè vann bèf yo.	
	3S hold yam *pro.*3P this		P. sell cattle DET	
	'S/he has or owns these yams'		'Pyè sold the cattle'	

In this way, Ọ́nwụeméne's defense of a uniform 'past' denotation for -AFF ends up proving the opposite, while undermining the structuralist tenet that grammatical morphemes are stable signs with fixed denotations. On the contrary, the pattern in (77) shows that the presence of inflectional material in the syntactic derivation depends on information located outside the minimal domain of affixation, in particular that the segmental content of -AFF in Ìgbo is epenthetic based on the interpretation of the direct object. This semantic dependency goes along with its phonetic dependency on phrasing and root prosody as described in §4.1.

Gathering together the above strands, there is phonetic similarity between Ẹ̀dó -(*r*)*è* and its Ìgbo counterpart. Both are segmental fill-ins, comprising a weak consonant plus an default vowel, arising as side-effects of inflectional accent and providing the minimal morphology by which past readings are achieved. The precise conditions of appearance differ, however, between the two languages. Ẹ̀dó -(*r*)*è* ensures phrasal realization of the pitch accent (*sw* or HL) denoting past tense/completive aspect in a branching domain containing the root, just in case no syntactic complement is present. Ìgbo *-rV* by contrast is a pronominal clitic which referentially binds a right-branching predicate's inherent *Aktionsart* by suppressing pitch accent on the nonrecursive side (the root), shifting information prominence over to the complement. Past tense interpretations in Ìgbo arise from the predicate as a whole, not from the inflected root itself. Of the two, therefore, the Ẹ̀dó item has the better claim to be "morphological tense inflection", supporting (63) and undermining (29). In multi-root constructions, tense matching as a semantic consideration holds equally in both languages (and see §5.3), but morphological inflection-matching is more characteristic of Ẹ̀dó than Ìgbo (but see §5.4).

Even if (29) could be salvaged as a description of Ẹ̀dó finite morphology, not to mention crosslinguistic typology, the only explanatory work it performs within Ẹ̀dó is to ensure the absence of -(*r*)*è* in "serial" constructions narrowly defined. But an alternative explanation is at hand, namely the prosodic constraint in (69), so the task is to compare the two accounts. Consider (79) and (80). In both examples, the (a) form has the direct object of the first root *in situ*, so by (69) the -(*r*)*è* should be blocked in both instances on prosodic grounds, just as it was in (65a), (66a) and (67a), and this expectation is fulfilled. A contrast emerges in the (b) examples: -(*r*)*è* is possible in (80b) but not (79b).

Ẹ̀dó (Ọ. Ogie, p.c., cf. Baker & Stewart 1997, 44; Stewart 2001, 178*f.)*

(79) a. Òzó gìá ìrhunmwun kherhé.
O. cut grass small
'Òzó cut the grass a little bit'

b. Irhunmwun ọ-ré Òzó gìá(-*rè) khèrhé(-*rè).
grass 3S-COP O. cut-AFF small-AFF
'It's the grass that Òzó cut a little bit'

(80) a. Òzó gìá ìrhunmwun khérhee.
O. cut grass small$_{ADJ}$
'Òzó cut the grass short'

b. Irhunmwun ọ-ré Òzó gìá-rè khérhee.
grass 3S-COP O. cut-AFF small$_{ADJ}$
'It's the grass that Òzó cut short'

Assuming (29), Stewart draws the conclusion that examples like (80) belong to a construction other than serial, which he calls an "A[djective] P[hrase] resultative" (2001, 181). But there's more than one way to be non-serial, and the presence of -(*r*)*è* in (80b) requires comment in either theory. In the Ẹ̀dó literature, items like *khérhee* in (80) are called "derived adjectives" (Ọ̀mọ́ruyì 1986, 297; cf. Wescott 1963, 124) on the reasonable view that they're formed from basic predicate roots like *kherhe* in (79) as reduced relative clauses.[51] In that case they denote attributes, which explains the presence of the copula in predicative construction (81a). This analysis is compatible with the contextual interpretation of an object depictive attribute as result, both in Ẹ̀dó (80a) and (81b) and also in English (82a), compared with (82b) where a canonical resultative adjunct is less than fully felicitous.

Ẹ̀dó (Ọ̀mọ́ruyì 1986, 287 *f.*, 300)

(81) a. Òkhuo nií yè mosemose.
woman this COP beautiful$_{ADJ}$
'That woman is beautiful'

b. Òsaró biẹ ọ̀mọ́ gbàka.
O. birth child strong/healthy
'Òsaró gave birth to a strong/healthy child'

English

(82) a. Òsaró delivered a healthy/fine child.

b. Òsaró$_i$ delivered a child$_j$ [healthy$_{i\,/\,?j}$].

Assuming that a postnominal attribute like *khérhee* in (80) follows a right phrase boundary, (69) requires -(*r*)*è* to be pronounced if the root is accented and there is no object in situ. By contrast, the inflected event-oriented adverbial *khèrhé* in (79) is presumably within the c-command domain of the finite root *gìá* 'cut', hence (69) is satisfied without -(*r*)*è* epenthesis.

If the Ẹ̀dó facts ended at (81), we could declare a draw between (29) and (69) as far as serial constructions go, not minding (29)'s problems with the inflection of single-root Ẹ̀dó clauses or with crosslinguistic comparison. But -(*r*)*è* does in fact appear in some Ẹ̀dó multi-root clauses which are presumptively useable to refer to single events (83). Both examples therefore violate (29), whereas (83a) satisfies (69) because the first root *koko* is used intransitively therefore the second root *de* cannot occupy its right branch. It's also plausible that (83b) has a right phrase boundary before *bìgọ́ọ́*, judging by the optional intervening elements.

Ẹ̀dó́ (Ogie 2003, 18)

(83) a. Íràn kóko-rò dẹ́ ìmọ́tò.
3P gatherH-AFF buy car
'They bought a car together'

b. Ízẹ̀ ọ-ré Òzó kan-rẹ̀n (bánbannà) (dòó) bìgọ̀ọ́ vbenianà.
nail 3S-COP O. pressH-AFF now come "crooked" thus
"Òzó ruined the nail (just now) by nailing it bent like this" [gloss as in source]

In (83b), the LLH pitch pattern on [bìgọ̀ọ́] is also informative. If it was a bisyllabic root, the pitch ought to be LH, according to the inflectional table in (64). Agheyisi (1986, 16) lists [bìgọ̀ọ́] as an unsegmented trisyllable. But the LLH pitch pattern can be derived by assuming just enough syntactic complexity as required anyway in order to express a derivational relationship to the monosyllabic roots *bi* 'move/push' (Melzian 1937, 18) and *gọ* 'bend' (cf. 74 above). Concretely, in a compound structure [[*bi*] *gọ*] with *bi* as a left adjunct and the right-hand segment *gọ* inflected on its own, [gọ̀ọ́] is the expected outcome, based on the regular LH treatment of a serialized monosyllable inflected in the past, as shown in (84b) and (85b).

Ẹ̀dó́ (Melzian 1942, 45, 67 *ff.*)

(84) a. Ọ́ dá tú. → [ọ̀dátu = LHH]
3S severe cry
'S/he is screaming'

b. Ọ́ dá tù-ú. → [ọ̀dá! tú = LH!H]
3S severe cry-AFF
'S/he screamed'

(85) a. Ọ́ dé gbé òtọ. → [ọ̀dégbotọọ̀ = LHHHL]
3S down hit ground
'3S is fallen down'

b. Ọ́ dé gbè-é òtọ. → [ọ̀dégb! ótọ̀ = LH!HL]
3S down hit-AFF ground
'3S fell down'

For the purpose of this demonstration, it doesn't matter if the basic morphological operation applied to monosyllabic *gọ* (83b), *tu* (84b) and *gbe* (85b) is the lengthening, with the LH tone pattern regularly derived from that in accordance with the general rule in the right-hand column of (64a), or *vice versa* if the root lengthens in order to bear the complex tone. Either scenario is conclusive against (29), showing that a non-initial monosyllabic root in a serial construction is indeed targeted by inflection, otherwise a bare monosyllabic root would be obtained (as in Yorùbá for example). Moreover, "tense matching" as a phonological operation ("Copy the tone feature…" Stewart 2001, 202) can't help: it has nothing to say about the LH on the second root in (83b), (84b) or (85b), since in none of those examples is there any LH on the first root to be copied, yet in all of them an inflectional operation targets the second root. The roots need not be string-adjacent either: they can be separated by a direct object, cf. (86).[52]

Ẹ̀dó́ (Melzian 1942, 69)

(86) a. Ì rhie ẹ́ré na è. → [ìrhiẹ́reéné̩ẹ̀ = LLLHHL]
1S take 3S give 3S
'I'm giving 3S to 3S'

b. Ì rhíe ẹ́ré nà-á è. → [ìrhíẹ́reéné̩ẹ̀ = LHH!H!HL]
1S take 3S give-AFF 3S
'I gave 3S to 3S'

The resultant state interpretation of [bìgọ̀ọ́] as 'crooked' in (83b) follows in the analytic approach, and need not be listed, since the same stativity occurs with the inchoative root *gọ* by itself when inflected in the past or so-called "completive" form, cf. (73a). The only fact requiring a compound analysis, as opposed to free syntax, is the lack of an independent pitch accent on *bi* in [[*bi*] *gọ*].

A different situation occurs in (87a), which is a multi-event by any reckoning. For Stewart this is covert coordination, a type which he exempts from tense-matching (2001, 202*f.*), but -(*r*)*è* nevertheless fails to appear when the internal argument of the first root is replaced by a gap (87b).[53] The published data are typographically garbled, but the accompanying prose observation is that "there are tone changes only on the first verb", with reference to the difference between 'climb' (H!H) and 'detach' (LH). In other examples, the "special high-downstep-high" tone pattern found on the first root in (87a) can appear on both roots: if the gap follows the second root (87b), if two gaps are construed Across-the-Board (87c). If the root is monosyllabic, no H!H occurs at all (88).

Ẹ̀dó́ (Stewart 2001, 69 *ff.*; Baker & Stewart 1999b, 12)

(87) a. Èrhán ọ-ré Òzó hiín kpàẹ́n ivìn.
tree 3S-COP O. climb(H!H) detach(LH) coconut
'It's a tree that Òzó climbed and picked [a] coconut'

b. Ívìn ọ-ré Òzó hiín è rhán kpaẹ́n.
coconut 3S-COP O. climb(H!H) tree detach(H!H)
'It's a coconut that Òzó climbed a tree and picked'

c. Ìyán ọ-ré Òzó kokó dunmwún.
yam 3S-COP O. gather(H!H) pound(H!H)
'It's yams that Òzó gathered and pounded'

(88) a. ?Èmiówó ọ-ré Òzó dẹ le ìyán.
meat 3S-COP O. buy cook yam
'It's meat that Òzó bought and cooked some yams'

b. Ìyán ọ-ré Òzó dẹ èmiówó le.
yam 3S-COP O. buy meat cook
'It's yams that Òzó bought some meat and cooked'

Stewart (2001, 67) characterizes H!H as resumptive or "anaphoric agreement" (cf. Haïk 1990): a noncanonical form displayed along a *wh*-extraction path. Ignoring the contradiction between describing H!H as agreement and claiming that "tone marking is not inflectional" (Stewart 2001, 205), and setting aside the absence of this agreement on monosyllabic roots (88), let's still suppose that the first root takes H!H in (87b) because it's followed by a gap, and the second root fails to take H!H in (87a) because it's not. As Stewart (2001, 85, *fn.* 46) acknowledges, such an analysis is orthogonal to (29) because it appeals to linear order (phonology) rather than hierarchical phrase structure. (29c), the Bare Stem Condition, offers no guidance as to the non-appearance of -(*r*)*è* in any of these cases, since the Baker-Stewart taxonomy regards all of them as concealed coordinate structures.

Even supposing that (29) could be extended to cover the absence of -(*r*)*è* in (87) and (88), the patch would backfire for typological purposes, removing the only independent evidence for separating covert coordination from serial constructions, in which case the parametrization in (29) would fail to divide Ìgbo from the rest of Benue-Kwa. *Q.e.d*.

5. Loose threads

5.1 Suffixation in BK2 serials

In BK2, on the 'plus side' of the parameter in (3), if individual finite roots are not audibly inflected (3c), the semantic predictions are (i) that minimally inflected eventive roots are ambiguous between simple past and present perfect (3a); and (ii) that aspectually unrelated events can't serialize (3b). Prediction (i) is not discussed here. Prediction (ii) is borne out in Yorùbá, exemplified by Bámgbóṣé's observation in (6), and apparently by two other clusters, Nupe and Gbè. Nupe (89) is uncontroversial, differing little from Yorùbá in relevant respects. In Gbè, the restriction shows up in (90a) in comparison with the Ìgbo example in (90b).

Nupe (Stewart *& al.* 2000, 3)

(89) *Musa du etsi gi nakàn.
M. cook yam eat meat

Fɔ̀n-Gbè (da Cruz 1997, 31)

(90) a. Kɔkú sɔ́ asɔ́n lɛ́ yi axi mɛ.
K. take crab PL go market interior
'Kɔkú brought the crabs to the market'
*'Kɔkú took the crabs (somewhere) and [then] went to the market' [explicitly excluded in the source]

Ìgbo (Ụ̀walá̀à̀ka 1982, 65, 68 as annotated in source)

b. Ó wè-re ite bịá.
3S take-AFF pot come
" 'He came with a pot' (incorrectly glossed by Hyman 1971 as 'He brought a pot')"[54]
"It feels intuitively that two propositions are implied…the subject's coming and his taking a pot."

Suffixed finite roots in Gbè—such as the progressives in (91) and habituals in (92)—require comment, since they potentially fall on the minus side of (3c).

Mínàgbè

(91) a. Mù lè àblɔ́ dù-ɔ̀.
1S AUX *àblɔ́* eat-NOM
'I am/was eating *àblɔ́*'

Fɔ̀ngbè

b. Ùn dò mɔ̌lìnkún dú-wɛ̀.
1S AUX rice eat-NOM
'I am eating rice'[55]

Gèngbè

(92) a. Kòfí sà-nà àglán.
K. sell-HAB crab
'Kòfí habitually sells/sold crabs'

Èvègbè

b. Kòfí jrà-(n)á àkɔ̀dú.
K. sell-HAB crab
'Kòfí habitually sells/sold crabs'

At second glance, however, the suffixed progressives are all auxiliated, the multiple roots do not occasion multiple suffixes, and the suffixed is nonfinite: either the entire lexical predicate (93), or its first segment (94), is under a nominalizing phrasal head which has the secondary property of triggering either reduplication or object shift, in various ways in different Gbè varieties (Fabb 1992a,b; Kinyalolo 1992; Houngues 1997; Manfredi 1997; Aboh 2001). The link between nonfiniteness and object shift recalls the Yorùbá example (2a) above.

Fɔ̀ngbè (Ọ. Aboh p.c, cf, Kinyalolo 1992, 40)

(93) a. Kofi dọ [vi le kplan yi wɛxɔmɛ] wɛ̀.
K. AUX child PL accompany go school NOM
'Kofi is taking the kids to school'

Gùngbè (Aboh 2001)

b. Sétù tò àklá lɔ́ zé dù.
S. AUX biscuit DET take eat. NOM
'Sétù is eating the biscuit'

Èvègbè (Ọ. Aboh p.c)

(94) Kòfí lè nú ʃò-mí ná Àsíbá.
K. AUX mouth beat-NOM PREP A.
'Kòfí is talking to Asiba'

The habitual suffix does serialize with multiple tokens (95), therefore supposing it to be finite, the construction in (95) should escape the aspectual restriction (3b), predicting that a sequence like 'cook- HAB yam eat - HAB meat' is possible. Assuming that it's not, implies either (i) that the force of (3b) does not reduce to tensemarking as (52) claims, or else (ii) that the suffixes in (95) are licensed under a single, null tense operator (aux), moving them onto the 'plus' side of (3c). Support for hypothesis (ii) includes the fact that the habitual suffix is banned from past or future tense contexts: periphrastic constructions are required (96).

Èvègbè (Aboh 2001)

(95) E-tsɔ́-na akɔ̀ɖu ɖu-na.
3S-take - HAB banana eat- HAB
'S/he habitually eats bananas'

Èvègbè (Westermann 1930, 75*f.*)

(96) a. Me-nɔ dɔ́ wɔ-ḿ.
1S-stay work do-NOM
'I always used to work'

b. M-á-nɔ dɔ́ wɔ-ḿ.
1S- FUT-stay work do-NOM
'I shall always work'

The idea that 'true' habituals in Benue-Kwa are morphologically bipartite is also requored to Standard Yorùbá, which has two durative auxes, *a* and *ń*, neither one of which is habitual by itself. *A* is inherently finite: it triggers third singular subject *pro*-drop and is not directly negatable—both properties are shared with the future aux *yóò* and with clausal negation itself. *Ń* (or its allomorph *í*) is nonfinite because it lacks both properties, and is unambiguously progressive unless negated or under a universal quantifier (Abraham 1958, 433). Either item forms an unambiguous habitual only in combination with the element *máa*, and in different orders: *a máa* or *máa ń*. By itself, *máa* gets a future interpretation, though it seems to possess internal structure of its own because it's just minimally different from the negative imperative modal *máà* (Abraham 1958, 416*f.*; Oyèlárán 1989, 8).

5.2 Configurational finiteness

As mentioned in §1, Mufwene & Dijkhoff (1989) consider the feature [±finite] alien to the grammar of languages like Sranan and Haitian, based on the absence of morphological cues. But if diagnostics like reflexivization are relevant, then finiteness also has a syntactic dimension. In Haitian, given the availability of Exceptional Case Marking to license a reflexive in (97), the failure of reflexive *tèt li* '3S self' in (98c) can only indicate that *kwè* 'believe' requires its clausal complement to be (abstractly) tensed.

Haitian (M. DeGraff, p.c.)

(97) a. Jan fè Mari ri.
J. make M. laugh
'Jan made Mari laugh'

b. Jan fè tèt li ri.
J. make head 3S laugh
'Jan made himself laugh'

(98) a. Jan kwè Mari (te) ri.
J. believe M. ANT laugh
'Jan believes Mari to have laughed'

b. Jan kwè li (te) ri nan rèv li.
J. believe 3S ANT laugh in dream 3S
'Jan believes himself to have laughed in 3S's dream'
OR 'Jan believes 3S to have laughed in 3S's dream'

c. *Jan kwè tèt li (te) ri.
J. believe head 3S ANT laugh

Conversely, (99) is a potential example of a Yorùbá infinitive which is morphologically unmarked, because the infinitive H mora seen in (2a) is absent here. This is so because (99) does not entail that they have yet sold the cloth. But if bare root infinitives are generally possible, then (6a) repeated here should have be able to escape the aspectual restriction by allowing a biclausal parse like 'I sold yam in order to come'—contrary to fact.

Yorùbá (Bámgbóṣé 1966, 158)

(99) Wọ́n ra aṣọ tà.
3P. AFF buy cloth sell
'They bought cloth to sell'

(6) a. *Mo ta iṣu wá.
1S sell yam come

The fact that (6a) can't be saved indicates that the second root in (99) is only a pseudo-infinitive, and that English translation is not probative. The alternative is to treat the sequence of roots *ra… tà* as a listed idiom meaning "…buy for resale". The worth of this speculation obviously depends on the actual number and flavor of such examples, at present unknown.

Despite their similarity, Yorùbá finite inflection and the infinitive marker are phonetically distinct. The infinitive, with two tokens in (2a), necessarily adds phonetic length. Finite inflection, glossed here as AFF(irmative), does not: it is a pitch accent (H) pronounced at the right edge of any nonclitic subject not already ending in H. Unlike the infinitive, the accent does not require a syllable (mora) of its own. In (99) for example, the pronominal clitic *wọn* '3pl' is inherently toneless (M, unaccented) and acquires H as the grammatical subject without added duration. Speaking informally and with orthography in mind, Bámgbóṣé describes the phonetic lengthening of a HL noun such as *tísà* 'teacher' in finite subject position by saying that "a high tone syllable is added" to yield a form which he writes *tísàá* (1966, 34), but such length is the minimum necessary to accommodate the pitch rise. The infinitive is different: in (2a) *fẹ́* 'want' has inherent H but its vowel still must lengthen before the nonfinite root. No phonetic motivation exists for pre-infinitive lengthening, so it's direct audible evidence for the infinitive as a syntactic category.[56]

5.3 Tense mismatch

One published example (in two versions) reported from the northeast edge of the Ìgbo cluster has been cited as an exception to serial tense matching, but the evidence is problematic. The gloss of (100a) seems garbled because it denotes a physical impossibility. (100b), quoted by Bámgbóṣé (1974, 17, 27; 1982, 19 *fn. 6*), is a substring of (100a) whose implausibility it inherits, also because it comes from the same fieldwork team.

Àbánkeléke Ìgbo (Meir *& al.* 1975, 106 *f.*; Bendor-Samuel 1968, 121)

(100) a. Ò shí–a jí à-tsú è–rí.
3S boil- AFF yam. GEN NOM-pound NOM-eat
"S/he cooked yam and is pounding and eating it"
[translation as in source, which also indicates that "[t]he last two actions are simultaneous"]

b. Ò shí–a jí è–rí.
3S boil- AFF yam. GEN NOM-eat
"S/he cooked yam and is eating it (now)" [translation as in source]

Until the data can be checked, the most likely explanation is morphological opacity: prefixed forms like *è-rí* in (100) seem to occur as infinitives in the dialect in question (Meir *& al.* 1975, 154-56). To express the translation of (100b) as given, Standard Ìgbo needs a biclausal construction, which gaps the second subject before an accented (H-tone bearing) variant of the durative aux *nà* and which also overtly repeats the shared (inanimate) direct object in pronominal form:

Ìgbo (C. Úchèchúkwu p.c.)

(101) Ọ́ sụ́–rụ ụtara ma ná è–rí yá ùgbú à.
3S pound- AFF mash but DUR. AGR NOM-eat 3S. GEN present this
'S/he prepared food and is eating it right now'

In Twì, while convincingly explaining away several kinds of alleged mixed-tense serial examples, Ɔsam (1994, 211; 2003, 19) does cite sentences similar in translation to (i-b), however these are not possible in Baule (Larson 2005, 81).[57]

5.4 The coordination fatwa

Our survey of Benue-Kwa shows that if phenomena aren't defined independent of language-particular properties, parametric circularity results. A case in point is the mention of coordinating conjunctions in certain definitions of serial constructions:

(102) a. "A serial verb construction is a succession of verbs and their complements (if any) with one subject and one tense value *that are not separated by any overt marker of coordination or subordination*." (Collins 1997, 462, emphasis added)

b. "SVCs are constructions in which more than one verb appears in sequence with a single overt subject *and no markers of coordination or subordination.*" (Baker & Stewart 1999a, 24, emphasis added)

The tension around conjunctions goes beyond markers. Baker also excludes multi-event, "veiled coordination" (i.e. without overt conjunctions) from the definition of "*serial verb construction proper*" (1989, 514 *f.*, emphasis in original), but by the end of the article the opposite conclusion is reached:[58]

(103) "[C]overt coordination and serialization constructions… coexist not only in Yorùbá and Sranan, but also in Àkán…, Fɔ̀n… and Chinese… The simple theoretical statement that serializing languages allow double-headed VPs captures this generalization elegantly… Thus, it is legitimate to use the term 'serialization' in a broad sense, referring both to "true serialization" and "covert conjunction", since the same principles and parameters make both structures possible." (Baker 1989, 549 and *fn.* 27)

The correlation in (103) is also endorsed by Baker & Stewart (1999b, 3), but Baker & Stewart (2002, 38 *fn.* 17) disagree, citing Stewart's (2001) arguments for "structural differences between Covert Coordinations and C[onsequential] SVCs…".[59]

The coordination *fatwa* thus exists in two forms: material (overt conjunctions banned) and spiritual (covert banned too). It raises a more basic issue: the relationship between coordinating conjunctions and syntax. Unless this is direct and unproblematic, the *fatwa* cannot add explanatory force, and can have the opposite effect. §4.2 showed how the banning of spiritual conjunctions caused problems for the analysis of tensemarking in Ẹ̀dó. But there are good reasons not to ban material conjunctions either. First of all, there is as yet no theory of coordination at the syntax-semantics interface. Some model-theoretic semanticists imply the existence of such a theory, with claims like the following:

(105) "[W]e do not know of any languages that lack a word that is more or less synonymous with *and*, joining expressions from different syntactic (and semantic) categories—sentences, noun phrases or prepositional phrases—by using what can be seen as the same semantic operation." (Chierchia & McConnell-Ginet 2000, 9 *f.*; cf. Jacobsen 1996, 93 *f.*)

Space restrictions forbid a full demonstration here, but it's safe to say that (105) is directly falsified by Ìgbo, Yorùbá and other Benue-Kwa languages, which have at most *category-specific* conjunctions. There is no morpheme in these languages which blithely conjoins both argument-type and predicate-type expressions. The most neutral items found in argument-type conjunction, namely *nà* (Ìgbo) and *àti* (Yorùbá), are necessarily missing in the predicate-type conjunctions in (107):

Ìgbo

(106) a. Ó tà-ra ụgbá nà áki.
3s chew-AFF *ụgbá* & *áki*
'S/he ate salad and/with nuts'

Yorùbá

b. Àti Ìsókó àti Ìsòbò, Èdó ni gbogbo o wọn.
& *Ìsókó* & *Ìsòbò* *Èdó* COP all GEN 3P
'Both Ìsókó and Ìsòbò, all of them are Èdó'

Ìgbo (Ụwaláàka 1982, 65)

(107)a. Ógù bya-ra ọkọhwụkọhwụ bya-ra óhi nkịtá.
O. come-AFF mourning come-AFF theft dog.GEN
'Ógù came for the second burial as well as to steal dogs'

Yorùbá (Oyèlárǎn 1982a, 127, 131)

b Ó tẹ ìgbẹ́ tẹ ojú ọ̀nà.
3s tread bush tread eye path
'It walks both in the forest and on the high road'

Another issue is the existence of mismatches between overt coordinating conjunctions and syntactic type, for example in sentences violating the Coordinate Structure Constraint:

English (Ross 1967; Ńnàńnà 2003)

(108) a. I went to the store and bought some wine.

b. What$_i$ did you [go to the store] and [buy t_i]?

c. Terms could be spelt out on how Ụ̀bá will be paid
his ₦3.9 billion from Anambra people's treasury,
which Ǹgige had backed away from and got into trouble.

Japanese (Kuno 1973, 205; cf. Déchaine 1993b, 265)

(109) a. John-wa boosi-o nui-de Mary-ni aisatusi-ta.
J.-TOP hat-ACC take-*te* M.-DAT greet-PAST
'John took off his hat and greeted Mary'

b. John-wa, Mary-ni, boosi-o nui-de aisatusi-ta.
J.-TOP M.-DAT hat-ACC take-*te* greet-PAST
'Mary, John took off his hat and greeted'

Based on the grammaticality of *ex situ* dependencies like (108b-c), it has been argued in defiance of the *fatwa* that English either has serial verbs (Déchaine 1993b; cf. Stahlke 1970, 91*f.*; den Dikken 1991) or that it has something "corresponding" to them (Muysken & Veenstra 2002, 3; cf. Carden & Pesetsky 1977, Cormack & Smith 1994; Corne *& al.* 1996; Cardinaletti & Giusti 2001; Larson 2005). Japanese (109b) is similar: an internal argument phrase scrambles across an intervening VP which is syntactically neither subordinate nor superordinate to the extraction site. If *-te* is defined as a conjunction based on its translation (Stewart 2001, 5), the status of (109b) is equally mysterious as that of (108b-c), but if language-internal considerations recommend treating *-te* as "an allomorph of the past tense" (Nakatani 2002, 2), then (109) escapes the *fatwa*, which is puzzling given its similarity to (108).

Lastly it should be recognized that 'spurious' predicate conjunctions occur in Benue-Kwa. Example (110) with two static 'light verbs' is ungrammatical without the adverbial clitic *-kwa* 'also', but is a good Stahlkean serial in every other respect.

Ìgbo (C. Úchèchúkwu p.c.)

(110) Ọ́ mà-ra ḿmá (wè-é) bu*(-kwa) íbù.
3SV-AFF goodness take-AFF V-also fatness
'S/he is beautiful/handsome as well as being fat'

5.5 Parameters au sens large

The working hypothesis motivated §1 is that serial constructions appear in the absence of blocking factors. Alternative ideas have been pursued in the literature, in which serial phenomena correlate with some positive morphosyntactic trait.

(111) "VPs {can/cannot} count as the projection of more than one distinct head." (Baker 1989, 519)

(112) a. "I (tense) can license multiple Vs." (Collins 1997, 493)

b. "The light verb *v* can license multiple Vs." (Collins 2002, 8)

c. "T {is/is not} specified for a V-feature and therefore does not need to be checked by V."
(Stewart 1998a, 223; cf. Baker 1989, 519 *fn.* 3).

A potentially substantive difference between these is the status of internal arguments: (111) builds in the object-sharing effect observed by Stewart (1963) via the 1980's Projection Principle. But recent consensus has been that object sharing is not a necessary condition—certainly not if multi-event examples are accommodated, and not even for single-event examples, many of which violate such a constraint (Manfredi 1991, 124-48; Lee 1992) unless the Thematic Hierarchy can be freely enlarged so as to allow "optional", "secondary" ϑ-roles e.g. for instruments in "take" constructions (Baker 1989, 537*f.*). In various ways, shared objects can be built into a looser, top-down licensing in surface syntax via operator-binding of an empty internal argument (Law & Veenstra 1992; Da Cruz 1993; Collins 1993). §3 implemented this idea within an architecture friendly to predicate adjunction, but others have applied it within neo-Larsonian structures limited to complementation and alternating SPEC and head positions

Top-down approaches consistent with (112) can be further tied to inflectional morphology and other PF characteristics in several ways (cf. Muysken 1987). Stewart's theory of Èdó, criticized in §4.2, is not the only possibility along these lines.

(113) a. "[T]here are two reasons why SVCs are not possible in non-serializing languages: either because V2 fails to get agreement morphology, if it does not move out of the second VP, or [because] the movement of V2 to Infl to get agreement morphology would violate the H[ead] M[ovement] C[onstraint], since V2 is not properly governed." (Law & Veenstra 1992, 205)

b. "[T]he absence of V-to-I movement sets serializing languages apart from non-serializing languages which have V-to-I movement in overt syntax or at LF." (Muysken & Veenstra 2002, 25)

The parameters expressed in (113) are testable insofar as there exist independent grounds to characterize morphological patterns as inflectional—not always an obvious call, as shown in several examples above—or else to decide whether V-to-T occurs in a given language. This latter is also controversial. In French, if overt verb raising *à la* Emonds (1978) and Pollock (1989) survives the objections of Iatridou (1990) and Williams (1994), one predicts the absence of serial verbs, correctly. In English, finite verbs have also been argued to check a V-feature in T, even if covertly (Lasnik 1994), and in terms of (113) this would rule out serialization—correctly, apart from cases like (108) and the other Germanic and Romance examples discussed in the references cited there.

From a Benue-Kwa perspective, a problem immediately arise with either proposal in (113): identification of tense and agreement morphology in many of these languages is a theory-internal exercise, compared to the kinds of cues available to infant learners of French and English. This goes not only for verb inflection but for the existence of a morphosyntactic class of adverbs which could be used as signposts for the detection of linear order effects in the manner of Cinque (1999). Setting adverbs aside, application of the other criteria leads to contradictory results, on certain assumptions:

(114) "French… does not seem to have consequential *and*. One possibility is that French has movement of V to Tense… By contrast, English 'Infl-lowering' applies in an Across-the-Board fashion. But this should rule out even 'true' V-bar coordination in French. In a similar vein, Law & Veenstra (1992) propose a correlation between movement of V-to-Tense and the absence of serial verb constructions… However, the parameter cannot be this simple, since Ìgbo has serial verb constructions… and V-to-Tense…, but also verbs inflected by head-head agreement." (Déchaine 1993b, 197)

Alternatively, one could claim that Ìgbo finite inflection doesn't count for the purposes of (114), for example if it denotes not Tense but something hypothetically 'lower' in clause structure such as polarity (Ụ̀walá̀àka 1988, 53; Déchaine 1993b, 461) or an aspectual feature (Manfredi 1991, 149), or is some kind of default agreement with no interpretable content whatsoever. Then Ìgbo is a serializing language in good standing, and certain kinds of serial constructions such as resultatives are masked by independent effects like predicate raising, which in that case could not be analyzed as a side-effect of V-to-T. This was the gist of §4.1, and to the extent it's convincing, (113) remains viable as a UG parameter of the 'blocking' kind.

Notes

1. Mufwene & Dijkhoff also assume that "a serial construction… cannot involve an infinitive" (1989, 326 *fn.* 26) but they cast doubt on the relevance of finiteness in languages like Haitian and Sranan, to which Law & Veenstra refer. A similar claim would be difficult to maintain in Benue-Kwa, as they acknowledge. They observe that Kituba (vehicular Kikɔ́ɔngɔ) dialects allow either bare roots or morphological infinitives in purpose constructions, but only bare roots (traditionally called "narrative tense") in serial constructions. They further assume that the absence of infinitives leads to "general restructuring" (1989, 325*f.*) in favor of parataxis e.g. serialization, but admit that such an inference does not require that finiteness is absent, just its "traditional morphological conception" (1989, 302).

2. Crowther comments, "I have hitherto used the word *times* instead of *tense,* because *tense* is a nicer distinction of *times*, the which distinction I do not think can easily be made in the Yorùbá language" (1843, 16; cf. Welmers & Welmers 1968; Déchaine 1991). In Bantu, some reportedly rich tense distinctions reduce to aspectual forms plus incorporated adverbials (Welmers 1973b, 348-50), and apparent person/number agreements may be better analyzed as pronominal clitics (Kinyalolo 2003, cf. Bresnan & Mchombo 1987).

3. An Ìgbo infinitive can contain aspectuo-temporal morphology which is independent of the main clause, e.g. *í-rí-cha-ala* 'to have eaten up' ends with *-ala* which is the (southern) version of the present-perfect ("perfective") suffix (Éménanjọ 1985, 32). Déchaine (1992) gives a syntactic analysis of infinitive downstep.

4. An H-bearing mora of this type probably also marks the Baule "intentional" inflection (Larson 2005, 63, citing Creissels & Kouadio N'Guessan 1977,191), although vocalic length is not explicit in the quoted description. In Ẹ̀dó, Melzian (1942, 109, 124) notes lengthening after a future aux, while declaring himself agnostic as to its morphological source, which is understandable given the number of alternative explanations made available in the language by consonant deletion.

5. Yorùbá grammarians assume that *-bọ̀* is the progressive version of *-wá* because of their complementarity in (2c) versus (2d). Another pair of this kind is [+ progressive] *-bẹ* versus [- progressive] *-wà* 'exist (somewhere)', cf. Ward (1952, 136).

6. In principle, (*n*) *á* 'future' can either be treated (i) as a specification of tense, or else (ii) as a modal operator which selects an infinitive. Aboh opts for (i), but (ii) does not contradict his demonstration that (*n*) *á* is not merged *lower* than Tense, and he does not firmly shut the door to viewing (*n*) *á* constructions as the Gbè analogue of English *for-to* complementation (2004, 339, *fn* 6). On the modal view, obligatory repetition of (*n*) *á* before each root in a serial construction (Westermann 1930, 127) has a straighforward explanation, as the only way to ensure tense matching in the absence of a finite future. A set of infinitive constructions in Gbè displays OV order, similar to the Yorùbá example (2a).

7. Some Bantu "verb extensions" are serial constructions by the Stahlkean definition (Schadeberg 2003, 73) no less than Ìgbo "V-V compounds" and Yorùbá "splitting verbs" discussed in §3.3 below. The line between free predicate roots and bound derivational affixes is not sharp, and reliance on translation tends to mask the morphosyntactic productivity of idioms (Éménanjọ 1978, 124 *f.*).

8. Inchoative or causative versions of these roots, meaning 'break' and 'shed/drop' respectively, also inflect. In Yatyẹ (Ìdomà cluster), Stahlke (1970, 97) lists 14 roots which, left as simplex predicates, are inherently stative, and which combine with one or more tokens of the aspectual operator *-bà* to become either inchoative or causative. The transparent compositionality of these shifts tells against treating the inchoative meaning as basic and deriving the stative therefrom as has been argued to occur in Berber (Guerssel 1986). Stahlke cites the Yatyẹ roots in inflected form, including a prefix of fixed vowel quality (*a-* or *i-* depending on the root, apparently) which takes LH tone in the imperfective (or LM for auxes), and is toneless (unaccented or M tone) in what he calls "perfect tense" (1970, 80), translating as nonpast with stative roots.

9. Causative *down* independent exists in English (*The missile downed the plane*), but not the inchoative (**The airplane downed*).

10. A third possibility is that some morphological distinctions, including the one at issue here, are orthogonal to both lexicon and syntax (Hale 1995, cf. Williams 1981, 2003).

11. Baker (1989) allows top-down adjunction as well, but just for multi-events, see §5 below. Awóyalé says his "proposed template does not form part of the syntax" (1988a, 9), although the disclaimer sounds ever more quaint as the aspect literature burgeons.

12. The term Benue-Kwa was first published, to my knowledge, by Givón (1975, 105, 112 citing Welmers *p.c.*).

13. This is true although Hyman (1975, 136-40) defines serial verbs more narrowly than Givón (1975), employing the term "consecutivization" even for single-event, multi-root constructions.

14. The Nupe and Ìdomà clusters are both both BK2, but available sources don't determine the status of Nupe with respect to (3a), or of the Ìdomà cluster with respect to (3b). Mambila among other "Bantoid" languages is called "a language with four level tones" (Connell 1996), presumptively falsifying (3d), but in a subsequent paper, Connell notes that uninflected roots of predicate type choose from only two distinct pitch values (2000, 167), so alternative formulations of (3b) may be able to cut the cake in between BK1 and BK2 consistent with the other three parameters, depending on morphosyntactic analysis of surface pitch. Similarly, (3d) can take refuge in the fact that the few narrow Bantu languages (Kamba, Chaga) described as possessing "four tone levels" include "secondary superhigh and superlow" (Kissebirth & Odden 2003, 59).

15. Williamson (1989, 28) anticipates the correlation in remarking that "[t]one forms part either of lexical items or of grammatical contructions. Roughly speaking, the languages which have more tone levels tend to use tone more for lexical contrasts and thus less for grammatical constructions."

16. For independent reasons, inclusion of *wè-é* after the second subject makes the examples in (7) grammatical. With the root *-bya* (5a) and a few others, the expected, default inflectional element—called "Open Vowel Suffix" (Green & Ígwè 1963, 58)—is latent (Swift *& al.* 1962, 76 *fn* 1). For some other roots and in some dialects, the suffix is optional and signals aspectual information (Nwáchukwu 1976a, 70, 81). So far as I know it is required, in all dialects, on the second root in (5b) and (9).

17. Cf. the agent noun *ọ̀sọ́* 'runaway, wanderer, fugitive' (Williamson 1972, 431; Ígwè 1999, 697) and the root *-sọ́* 'avoid, start (out of fright)' (Williamson 1972, 473; Ígwè 1999, 746).

18. A noneventive predicate like *-jì* 'hold' can take the progressive *-ghe/gha* only as a coerced inchoative (Nwáchukwu 1976b, 136). (21a/c) are southern forms; their northern counterparts use the durative auxiliary *nà* whose general meaning is generic i.e. habitual.

19. Green & Ígwè (1963, 74 *f.*) and Winston (1973, 147) imply that inflection is also optional in (20c); Nwáchukwu (1976b, 136 *f.*) disagrees. Green & Ígwè's view that Ìgbo lacks obligatory inflectional suffixes apart from tones (1963, 12, 53*f.*) is essentially O. Stewart's analysis of Ẹ̀dó́, except that they do treat tone patterns as inflectional.

20. Southern varieties like Òwerẹ́ also have a habitual auxiliary *jì* (Émẹ́nanjọ 1981, §5). Analyses of instrumental constructions as subject depictives include Collins (1993), Déchaine (1993b), Hale *& al.* (1995) and Déchaine & Úchèchúkwu (2001).

21. The difference between single *-rV* in (20) and *-VrV* (so-called double *-rV*) in (23) may be trivial: Nwáchukwu (1976b, 136; 1984, 81, 92 *f.*) reports the two forms as in free variation in simplex sentences for inherent subject depictives in a past reading. With single *-rV* on the first root, (23a) also has a multi-event reading: 'S/he stood up and [then] spoke', exactly as in (25b) below.

22. (25b) can also refer to a single event that lacks present salience. Disussing the nearby dialect of Ọ́mà́áhyá (Ọ̀hụ́nhụn), Green & Ígwè (1963, 111) imply that the second root should be preceded by antidownstep (i.e. should bear "higher than high" tone) in the multiple event interpretation of a sentence like (25b), but not in any single event reading of either type represented in (25), cf. Winston (1973, 172). A sensitivity of phrasing to the difference between multiple and single event interpretations would go with the "slight comma intonation" mentioned by Sebba (1988, 111) and cited by Baker (1989) as favoring a "covert coordination" analysis, although to use this fact as a phrase structure diagnostic requires a theory of downstep and phrasing which does not yet exist.

23. The SOV reconstruction of Proto-Niger Congo is contested by Heine (1976, 1980) and reaffirmed by Williamson (1986; 1989). There is only one finite OV language in the whole of Niger-Congo: Ịzọ̌n. Everything else is Aux-2nd, and the Benue-Kwa examples of OV order are derived by object shift (Manfredi 1997). Even assuming that Ịzọ̌n is a separate branch of Niger-Congo, co-equal with Mandekan or higher, it's less likely for all the other branches to have lost finite OV than for Ịzọ̌n alone to have acquired this pattern. The probabilities are still further apart, if the divergence of Mandekan is older than that of Ịzọ̌n.

24. The idiomatic status of "splitting verbs" is not in doubt, but their semantic irregularity may be exaggerated. The H tone of the second root *-jẹ́* in (27a) root is etymologically odd; compositionality would be restored if it was underlyingly M-bearing as in *jẹ* 'eat, consume' parallel to the cluster of expressions meaning to 'cheat' summarized in (27e). Awóbùlúyì (1969, 154 *fn.* 8) identifies the second root in (27d) is *-mu* 'drink', but if M tone is spurious the etymon could be *-mú* 'catch hold of (with one hand)' with H tone and compositional semantics. Similarly in Ìgbo, the complex root *-gíde* (28c) 'against' is restricted to second position in compounds consistent with reanalysis as a bound element, but a phonologically related form *-jíde* (with regular palatalization) occurs independently in the meaning 'seize' or 'grab' and transparently composed of *-jì* 'hold' plus *-dé*/*-dó* 'keep'.

25. Ọlá–Orìe (2003) gives a non-syntactic, Optimality analysis to phenomena of this kind.

26. Ìgbo *-rí* 'eat' is cognate to Yorùbá *-jẹ* and Ẹ̀dó *-re*. The Ẹ̀dó equivalent of the compound in (28e) is *-fian x -re* 'bite/cheat x' (Melzian 1937, 60), with linear order as in Yorùbá. A near-equivalent in Ẹ̀dó to the compound in (28c) is *-gu x -gui* 'criticise x', literally 'APPL *x* grumble' (Melzian 1937, 67), isomorphic to Yorùbá. The Yorùbá example 'believe *x*' in (27f) is also consistent with an applicative structure 'listen to *x*', as expected if it is parallel to (27c) and (27e). Ìgbo (28f), although not directly comparable to Yorùbá (27f), goes along the same lines: 'offend *x*' = 'bad do *x*' i.e. 'be(have) badly to *x*'.

27. Ìgbo lacks passives and middles. It does have anticausatives (intransitivized causatives), cf. §4.1 below, but not formed from noncausatives like 'eat' and 'talk'. The [+ predicate] nature of Yorùbá *kún* is apparent from its intransitive variant 'full' (36b), but there remains the difference that such roots regularly allow a zero causative in Yorùbá (35d), not in Ìgbo (36d). The [+ predicate] nature of Yorùbá *-já òde* is suggested by the gloss in (35e-f). In English, [+ predicate] items are called adjectives and prepositions, but the matter is more intricate: unlike Yorùbá *kún* (26d) or English *full*, Ìgbo *-jú* can't causativize (36d) and is more like the non-dynamic part of English *shelve* (Hale & Keyser 1993, 56), a stance predicate meaning '*káikai* is in [the] barrel' plus the entailment that the] barrel is full. English *fill* works this way if the subject is countable and the location is not bounded: *Shouts filled the air* versus ?* *Wine filled the bottle.* In Ìgbo, the entailment is pragmatic: *-jù* without an argument container means 'be plentiful', thus Ígwè (1999, 279) contrasts *Ánụ jù-ru éfere* 'Meat filled the plate' (≈36c) with *Ánụ jù-ru n'éfere* 'There's plenty of meat in the plate'.

28. For Hale, among many others now, noncausative transitives are structurally like unergatives:

> "We can assume, then, that the subject is in fact excluded from the L[exical] R[elational] S[tructure] representations of unergatives. … [A] subject, if present in an unergative LRS representation, would itself be uninterpreted for lack of a predicate in the complement position. The …subject of an unergative verb is therefore a 'true external argument' appearing in the Spec position of the functional projection IP…" (Hale & Keyser 1993, 76).

29. Manfredi (1991, 162-67) failed to appreciate this difference.

30. (40) is modeled on den Dikken's double objects (1995, 164) but is compatible with Hale & Keyser's location-verb shell (1993, 56), cf. Hale *& al.* (1995, 103). (40b) drops den Dikken's assumption of string-vacuous raising of the head of XP2 to *v*. Baker (2003, 228*f.*) seems to agree that compounding is motivated thematically and not by the checking of inflectional features as in (29).

31. In the Àny̰ì vesions of (42a-b) and (43b), van Leynseele reports that either predicate can be separately negated, pragmatics permitting (1979, 193), but no data are given, and the same is not true in either Twì or Baule, which require all roots to be negated or none (Boadi 1968; Ɔsam 1994; Larson 2005, 83*ff.*), therefore I must provisionally set this diagnostic aside.

32. Van Leynseele cites these Àny̰ì examples in "unmarked present tense", which she glosses as habitual, "in order to avoid phonological and sequential complications" (1979, 196 *fn.* 6). In Twì at least the progressive (an existential quantification) is formally different from the habitual (a universal quanification), cf. Dolphyne & Kropp Dakubu (1988, 74*f.*).

33. Sáàh (1992) argues that the suffix which appears as [-*ìì*] in (48a) and (49a) is not a pronominal object clitic, but an allomorph of the past tense suffix in (48b) and (49b). It's not limited to canonical transitives, is found only in sentence-final position, is restricted to past tense and with this root is tracked by nasality, cf. (48a). In closely related Nzema, the corresponding item is [-*l i*].

34. Similarly in English, *I ate chicken yesterday* is pragmatically easier than *I ate* {*a/the*} *chicken yesterday*. The title of the comic film "*Eating Raoul*" (1982, dir. P. Bartel) plays on the default, non-alimentary interpretation of *eat* plus a proper name.

35. The source of this Àny̰ì-specific implication mysterious. It does not hold in Baule (Larson 2002b, 7).

36. I don't attempt to account for the uniform inflection of all these types, for the moment noting only the close similarities to prosodic inflection in Ìgbo and Ẹ̀dó, addressed in §4.

37. The Baule counterpart, *fa*, does not show defective inflection (Larson 2005, 73).

38. Ọ́nwụemé́ne (1984) reports that, in addition to the tone effect, a segmental suffix shows up in Ìsele Úku as a vowel mora, unless followed by a vowel-initial word. He regards the mora as underlying and derives examples like (54c) by ellipsis, but the default character of the suffix throughout Ìgbo may favor epenthesis instead; either way, the mora's appearance is prosodically conditioned.

39. For example the intinitive *íkwú*, the present perfect *èkwúele*, and the gerund *òkwúkwu*, all show the root with H tone, see Nwáchukwu (1983). Readers of Nwáchukwu (1995) will want to correct a typo in the "past" column of example (1) on p. 16, where the prose discussion makes it clear that the three forms should be written *ńri*, *gbúru*, *gbára* rather than *ṅri*, *gbùru*, *gbàra*. The glossary of Swift *& al.* (1962) contains 37 "HLTV" versus 40 "HTV and 28 "LTV", i.e. the three sets are roughly equal in extent.

40. Goldsmith (1976, 75*f.*) cites two examples from Green & Ígwè (1963, 75, 77) in which a subject anticipates the tone of a finite verb (his "subject tone flop" rule), where the verb root is not L but downstepped H. It happens that in both examples the downstepped H is not an underlying pitch accent, but reflects a finite root whose accent is suppressed but whose derived L is raised before another L in the context of prosodic phrasing, hence it doesn't contradict the generalization in the main text. Unfortunately the Òweré paradigm in (57) can't be reproduced in Ígwè's Ọ́màáhyá dialect since the latter never pronounces the root on downstepped H in a sentence like (57b). The data in (57) have been streamlined for clarity, but there's also a crucial typographical correction: the L tone mark at the right edge of the subject of the model for (57a) is missing in example (42c) on p. 121 of the 1985 edition, although it is implied by the prose summary on the previous page and shows up correctly in the 1981 roneo-stencilled original manuscript (p. 224), as well as being confirmed by many other examples in both editions.

41. The pitch accent on the first root if any begins a new trochaic foot, i.e. the H tone is downstepped in (58b-c), just as with simplex predicates in Òweré and Ḿbaisé́n like (57b). This regular phrasing effect shows up also in the present perfect as well as in the negative subjunctive (traditionally called negative imperative). These patterns can of course be transcribed autosegmentally, in terms of tonemes rather than foot structure, but the root initial downstep in (57b) and (58b-c) comes for free in the metrical theory. In Àkán, the inflection of string-adjacent serialized roots in "past tense" contexts displays a remarkably similar prosodic trait: only one suffix appears (after the second root), and the (lexically redundant) pitch accent (H tone) of the first root is not suppressed, as would happen if it were adjacent to a "past" suffix (Campbell 1988, 218-20). This applies regardless of whether the derived strings are resultative (-*kye-kyere* 'tie up' < 'tie-catch') or non-resultative (-*ka-kyerɛ* 'say to' < 'say-show').

42. I assume that Yorùbá nonsplitting forms like (30) are listed as single bisyllabic roots. Also note that the nonvacuous movement claimed to occur in Yorùbá (40a) affects neither the relative order of roots, nor that of arguments.

43. *Caveat lector:* the notation in (59a-b), with an asterisk outside parentheses, indicates that the whole example is grammatical unless the parenthesized material is omitted.

44. (59b) with BVC present is incorrectly reported as ungrammatical by Manfredi (1997, 113). It becomes ungrammatical is if -*ẓọ̀-wá* 'break by stomping' replaces -*kụ́-wa* 'break by knocking'. Hale *& al.* (1995) analyze the both cases.

45. Exception to (62): predicates introducing an implicit location, e.g. *Úchè bya-ra* 'U. came [here]'. The BVC's restriction to absolute sentence-final position seems to be related to two other facts: (i) the BVC is not a free form, in contrast to the clefted gerund used in verb focus in many other Benue-Kwa languages (Manfredi 1993); (ii) where the BVC is optional, as in (60) and (61), it marks the predicate as anaphoric by attracting the focus away to an epenthetic foot, cf. Manfredi (2004).

46. This is the view of Wescott (1963, 29) and Ámayo (1975, 22; 1976) versus Melzian (1942) and Ogieiriaikhi (1973). Roots are basically toneless also in Àkán, and as in Ẹ̀dó, inflection is copied on all roots in an Àkán serial construction (Campbell 1988).

47. Baker (2003, 229) repeats the labels "past perfective" *-(r)è* and tonally marked "past" as if they were semantically distinct and disregarding their allomorphy. Dunn & Agheyisi (1968, 85) reserve the term "past perfective" for a true present perfect form, something both semantically and phonetically distinct from (64d). Both the other semantic labels in (64) are tendentiously tense-like: "present (habitual)" is actually ambiguous between generic "present habitual" and progressive, while the "simple future" can alternativelybe progressive (Melzian 1942, 107*ff.*) at least for some predicates, and if doubled forms a future progressive (Wescott 1963, 150).

48. The presence of the *-r-* in *-(r)è* is phonologically circumscribed for some speakers, and the vowel sometimes harmonizes with the vowel of the root. For Melzian's consultants including Chief Egharevba, *-r-* regularly occurs after all and only bimoraic roots including -CVV and CVCV; Ámayo agrees, but Aikhiọnbare says that "…in the speech of much of the younger generation… the alveolar approximant never occurs. While noting its 'optionality', we shall assume that the /rV/ structure is basic." (1988, 226 *fn.* 5). Lenis onsets are historically fragile in Ẹ̀dó (Elugbe 1980, 1989), and their synchronic realization is sensitive to tempo (Wescott 1962; Ọ̀mọ́rzùwá 1989). In (67), I gloss the phonetic strings [èré] and [ọ̀ré] as expletive subject clitic plus copula, where O. Stewart has unanalyzed FOC.

49. Similar constraints operate in Yorùbá transitive VPs (Déchaine 2001) and Ẹ̀dó genitive noun phrases (Manfredi 2003).

50. The dependency of tense morphology and interpertations on predicate-internal quantification in (77) and (78), respectively, recall Verkuyl's (1993) compositional, Boolean approach to aspectual calculus.

51. The absence of a dedicated open lexical class of attributes in Ẹ̀dó may account for varied judgements among Ẹ̀dó linguists as to the precise form of such items, whether fully reduplicated, lengthened only on the final syllable, or simply given an inherent, uniform tone pattern HH or LL. For example, Melzian's *pẹ̀rhẹẹ̀* (LLL) 'flat' (1937, 173) is given by Ọ̀mọ́ruyì (1988) as *pẹ̀rhẹ̀* (LL), and Melzian cites speaker variation between *mòsee* (LLL) and *mòsemose* (LLLL) 'beautiful' (1937, 123*f.*).

52. A similar argument could be made for the rising pitch of *dòó́* 'come' in (84b), assuming a monosyllabic source for this item, however it has independent restrictions, according to Melzian (1937, 25), which make this hard to verify. The low pitch of *bì* in (83a), i.e. the absence of an independent pitch accent on that root, may well show that *bì* is compounded with *gọ*, but crucially without having been reanalyzed as a simplex, bisyllable morpheme, in which case it should inflect like *kòkó́* in (79b).

53. The crucial example of non-matching tense in covert coordination, (68b) on p. 203, actually shows two instandes of matching tense, but it is accompanied by the annotation "habitual + past tense tones" confirmed in the prose summary, thus the second root is probably intended to have LH inflection, with "peeled" as the corresponding part of the translation.

54. 'He brought a pot' is simply expressed in Ìgbo as *Ó we-te-re ite* with the suffix *-te* '[towards speaker]' (Ụ̀walá̀àka 1982, 69).

55. Judging from the ambiguity of (90a), the past reading of (90b) may have been accidentally omitted by the source.

56. Finite pitch accent is usually called the "H tone syllable" or HTS (e.g. Awóbùlúyì 1975); Bámgbóṣé more aptly calls it "high tone junction" (1966, 33). A likely reason for the popularity of the HTS label in early generative literature was its easy integration into phonology at a time when abstract syllables could be guiltlessly added to underlying forms and then deleted by rule. Such deletion, even if permitted by phonology, mysteriously fails to affect Yorùbá infinitives, apart from two plausible cases of restructuring after *-lọ* 'go' or *-wá* 'come'; this restructuring is limited to the Standard variety, according to Bámgbóṣé (1971, 42).

57. The data are illegible in the online version (Ɔsam 2003); the English translations are 'Abam has taken the fish and is eating it', 'Esi has washed the towel and is hanging it', and 'Abam has bathed and is sitting at home'.

58. Covert coordination analyes of serialization date at least from Bámgbóṣé's "linking" analysis (1974), which was generative-semantic without apology. To set covert coordination aside in narrowly syntactic terms, the only test Baker (1989) applies to a Benue-Kwa language is to cleft both verbs of a serial construction together. This is possible in Yorùbá and excludes a multi-event reading (p. 549), but the result may be uninformative: Yorùbá verb cleft requires a gerund (Bámgbóṣé 1966, 56), described as equivalent to an abstract noun denoting an eventuality, i.e. event or fact (Awóyalé 1974, 359 *f.*; Ekúndáyọ̀ 1976, 244 *fn.* 10, cf. Ajíbóyè *& al.* 2003). If a multi-event cleft requires multi-gerunds, this may reveal more about nominals than about VPs.

59. Specifically, Stewart remarks that "One of the major results of this book will be to criticize the spurious unification of the transitive plus result and transitive plus transitive S[erial] V[erb] C[onstruction]s" (2001, 10).

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