

The syntax and event semantics of Serial Verb Constructions in Igbo (Benue Congo)

Malte Zimmermann (Universität Potsdam) & Mary Amaechi (Universität Potsdam)

OVERVIEW: We show that Igbo serial verb constructions (SVCs) with and without DirectObject(DO)-sharing exhibit different syntactic and semantic properties. We apply event semantic diagnostics for elucidating the underlying syntax and semantics of the two SVC-types. In the formal analysis, we argue that the DO-sharing SVCs involve a variant of the compositional mechanism of *event extension*, well known from adverbial quantification (von Fintel 1995). The analysis allows for a systematic cross-linguistic comparison of SVCs.

BACKGROUND: SVCs are commonly defined on the basis of formal criteria: They involve juxtaposed sequences of V(P)s with a shared subject, at most one shared grammatical object, single tense/aspect specification (on V1), and single negation (Veenstra & Muysken 2018). These formal criteria are satisfied by Igbo SVC-subtypes with and without DO-sharing in (1ab), where the [-]DO-sharing form in (1b) features a pronominal object *ya* on V₂.

- (1)a. Úchè gbù-rù òkúkò sí-é (= S V₁ O_i V₂) [+DO-sharing]
 Uche kill-PST chicken cook-SFX
- b. Úchè gbù-rù òkúkò_i sí-é ya_i (= S V₁ O_i V₂ PRON_i) [-DO-sharing]
 Uche kill-PST chicken cook-SFX 3SG
 ‘Uche killed the chicken and cooked it.’

There is consensus that SVCs involve a combination of subevents or event specifications, and that they fall into several informal semantic subtypes (Dechaine 1993, V&M18). However, SVCs have received little attention in formal (event) semantics, with the notable exception of Déchaine (1993), Stewart (1998) and Stewart & Baker (2001) for Yoruba, Igbo and Edo.

EVENT-COMPOSITION: Stewart (1998) analyzes the SVC-subtypes in (1ab) in terms of cumulation (2a) and conjunction (2b) of independent event, respectively; cf. also Anderson (2017) on SVC-cumulation. Pace Stewart (1998), we propose to analyze [+]DO-sharing SVCs (1a) in terms of *event extension* (2c). This mechanism is standardly assumed for adverbial quantification (von Fintel 1995), but so far it has not been applied to the analysis of SVCs. The SVC-variant of event extension integrates two subevents into a complex event with a part-whole structure and a partial ordering of the parts. We analyze [-]DO-sharing SVCs in terms of event conjunction, following Stewart (1998).

- (2)a. Event Cumulation (+OBJ-sharing): $\exists e [e=e_1 \oplus e_2 \wedge P_1(e_1) \wedge P_2(e_2)]$ (event pluralities)
 b. Event Conjunction (-OBJ-sharing): $\exists e_1 [P_1(e_1)] \wedge \exists e_2 [P_2(e_2)]$ (INDEP events)
 c. Event Extension: $\exists e_1 e_3 [P_1(e_1) \wedge e_1 < e_3 \wedge \exists e_2 [e_2 < e_3 \wedge P_2(e_2)]]$ (event subparts)

SEMANTIC DIAGNOSTICS: We apply three diagnostics that allow to distinguish between the event-compositional mechanisms in (2): Contradictory adverbs (4a); A-quantification over V₂ (4b); and Cumulation (4c).

- (4)a. S/he kill chicken **quickly** cook **slowly**. b. S/he kill chicken **sometimes** cook
 c. Uche and Obi kill chicken cook $\Rightarrow??$ Uche killed, and Obi cooked the chicken

Event extension involves complex events with a single agent, which do not tolerate double modification with (contradictory) adverbs (Levin & Rappaport 2013). A-quantification maps to propositions and is only compatible with propositional event conjunction. Cumulation allows for plural subjects to distribute over the plural event denoted by V₁ and V₂.

	x-adverbs	A-quantification	Dist over V ₁ ⊕V ₂
event cumulation	✓	*	✓
event conjunction	✓	✓	*
event extension	*	*	*

APPLYING THE DIAGNOSTICS: [+]DO-sharing SVCs exhibit the semantic properties of event extension, whereas [-]DO-sharing SVCs pattern with event conjunction: (5) and (6) show this for contradictory adverbs and A-quantifiers. Neither SVC-type allows for subject distribution over V_1V_2 -subevents: (7) cannot mean that Uche caught and Obi cooked the fish, as falsely predicted by *event cumulation* for [+]DO-sharing. Moreover, ideophones on V_1 (Veenstra 1996) are only licit with [-]DO-sharing SVCs (not shown):

- (5)a. *Úchè gbù-rù òkúkòì *ósíísò* síé *nwáyòò nwáyòò* [+]DO-share: *
 b. Úchè gbù-rù òkúkòì *ósíísò* síé *ya* *nwáyòò nwáyòò* [-]DO-share: ✓
 Uche kill-PST chicken quickly cook Ø/3SG slowly
 ‘Uche killed the chicken quickly and cooked it slowly.’
- (6)a. *Úchè nà-ègbú òkúkòì *ógè ùfòdú síé* [+]DO-share: *
 b. Úchè nà-ègbú òkúkòì *ógè ùfòdú síé ya* [-] DO-share: ✓
 Uche HAB-kill chicken sometimes cook Ø/3SG
 ‘Uche regularly kills chicken, sometimes cooking them.’
- (7) Úchè nà Òbí kò-tà-rà ázùì síé (ya) [+/-]DO-share:
 U & O catch-DIR-PST fish cook 3SG *no cumulation*
 ‘Uche and Obi both caught and cooked the fish.’

ANALYSIS: We analyze [+]DO-sharing SVCs as forming complex verbal predicates at the V-level (Ramchand 2008) (8a). The structure contains only one DO, which is theta-selected by the entire verb cluster [$V_1 < V_2$]. The presentation will forward reasons against short DO-movement from V_2 to V_1 . [-]DO-sharing SVCs are analyzed as vP-conjunctions (with ATB-raising of the subject) (8b). The semantics of (1ab) are given in (9ab). With minimal event extension (von Fintel 1995) denoted by $<_{MIN}$ in (9a’), AG and TH of e_1 and e_2 are the same. We also present reasons for tying the AG Uche to event part e_1 , and not to the whole event e_3 .

- (8)a. LF: $\exists [TP \text{ kill } t_{SUBJ} [VP \text{ chicken } [V_1 \text{ tv } [_{EXT} <_{MIN} [V_2 \text{ cook }]]]]]$ [+]DO-share
 b. LF: $\exists [TP \text{ kill } [_{VP3} [_{VP1} t_{SUBJ} [tv \text{ chicken}_i]]] \& [_{VP2} t_{SUBJ} [eat \text{ PRON}_i]]]]$ [-]DO-share
- (9)a. $\llbracket (1a) \rrbracket = \exists e_1 e_3 [\text{kill}(e_1) \wedge \text{AG}(\text{Uche}, e_1) \wedge \text{TH}(\text{tz.chicken}(z), e_1) \wedge e_1 < e_3 \wedge \exists e_2 [e_2 < e_3 \wedge \text{cook}(e_2)]]$
 a’. $\llbracket <_{MIN} \rrbracket = \lambda P_{2 < v, t} . \lambda P_{1 < e, vt} . \lambda x . \lambda e_1 . \exists e_3 [P_1(e_1)(x) \wedge e_1 < e_3 \wedge \exists e_2 [e_2 < e_3 \wedge P_2(e_2)]]$
 b. $\llbracket (1b) \rrbracket^g = \exists e_1 [\text{kill}(e_1) \wedge \text{AG}(\text{Uche}, e_1) \wedge \text{TH}(\text{tz.chicken}(z), e_1)] \wedge \exists e_2 [\text{cook}(e_2) \wedge \text{AG}(\text{Uche}, e_2) \wedge \text{TH}(g(i), e_2)]$

(9a) imposes no temporal ordering on e_1 and e_2 , such that [+]DO-sharing SVCs can express complex actions of simultaneous events (10). By contrast, [-]DO-sharing SVCs express two subsequent events (not shown). Moreover, the temporal implicature of $\tau(V_1) < \tau(V_2)$ with [+]DO-sharing is cancellable by adding *... but not in this order* (not shown)..

- (10) Úchè fè-rè ákwàì m̀m̀rì déé
 Uche spray-PST cloth water iron
 ‘Uche (simultaneously) water-sprayed ‘n ironed the cloth.’

EXTENSIONS & OUTLOOK: The proposed event semantic analysis of SVCs easily extends to other informal subtypes in Igbo, such as resultatives, expressed by V+V-compounds, instrumentals, and directionals. More generally, it provides the basis for the systematic comparison of SVCs across languages, and it may provide novel insights into the nanosyntax of English verbs that code complex events into simple lexical roots (Ramchand 2008).

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