

## Serialization and the syntax-prosody interface in Degema serial verb constructions

Matthew Tyler (Yale University) and Itamar Kastner (University of Edinburgh)

**Introduction.** Serial Verb Constructions (SVCs) in Degema (Benue-Congo) exhibit an interaction between morphology and prosody which appears to pose a challenge to existing models of the syntax-prosody interface. We show that this pattern follows from the interaction of two independently-motivated syntax-prosody mapping principles. This view is contrasted with that of Rolle (2019), who proposes a total abandonment of serial morphological derivations, whereby syntactic structures are *morphologized* and *prosodified* in parallel.

**The pattern.** Degema verbs are bookended by a proclitic exponing subject agreement, and, sometimes, an enclitic exponing aspect (1). All data are from Rolle (2019).

- (1) Ohoso [ọ=            sá    =n ] ḗnám  
Ohoso 3SG.SET2=shoot=FAC animal  
'Ohoso shot an animal.'

SVCs exhibit one of two patterns. If a light object pronoun (2), or nothing (3), intervenes between the verbs, the entire SVC forms a single prosodic domain (by hypothesis, a PWd) and is bookended by clitics. This is 'single-marking':

- (2) Breno [ọ=            ðúw    mé tá =ān ]            (3) Ohoso [ọ=            tá    ðé =n ] isen  
Breno 3SG.SET2-follow me go-FAC            Ohoso 3SG.SET2=go buy=FAC fish  
'Breno went with me.'            'Ohoso went and bought fish.'

But if a full NP or heavy object pronoun intervenes, each verb constitutes its own PWd and carries its own pair of clitics. This is 'double-marking':

- (4) Tatane [ọ=            sá    =n ] ḗnám    [ọ=            gbíyé=ēn ]  
Tatane 3SG.SET2=shoot=FAC animal 3SG.SET2=kill =FAC  
'Tatane shot and killed an animal.'

**Analysis.** We adopt Rolle's (2019) syntactic assumptions, in which the higher V takes the lower vP as its complement and within each vP, the lexical verb raises to v. We also follow Rolle in treating agreement and aspect clitics as dissociated Agr nodes inserted postsyntactically on the verb(s). Unlike him, we propose that in an SVC, the output of the morphosyntactic derivation is *always* a double-marking pattern like (4). The single-/double-marking alternation is derived at the syntax-prosody interface by two independently-motivated constraints:

- (5) a. **KINYALOLO:** A single PWd must not contain identical AGR morphemes.  
→ *Kinyalolo's Constraint* rules out PWd-internal redundant agreement (Kinyalolo 1992; Carstens 2003, 2005; Henderson 2011; Baker 2010, 2012; Alok and Baker 2018).  
b. **SERIALIZE:** Adjacent verbs in an SVC must form a single PWd.  
→ '**Serialization**' into a single prosodic unit is a near-universal property of SVCs (Aikhenvald 2006; Dixon 2006; Bisang 2009; Haspelmath 2016). It cannot be derived straightforwardly from their syntactic structure (e.g. via MATCH WORD), since verbs in SVCs do *not* form a complex head (Baker 1989; Collins 1997, 2002; Aboh 2009).

These constraints outrank the MAX constraint enforcing phonological realization of the clitics:

- (6) {KINYALOLO, SERIALIZE} ≫ MAX(AGR)

When there is no intervener (or a light intervener), SERIALIZE and KINYALOLO are in tension, and the only way to simultaneously satisfy both is to delete a copy of each clitic, (7). When there *is* an intervener, SERIALIZE and KINYALOLO can be satisfied without deleting any clitics, (8). Regarding

light object pronouns (2), we propose they are pre-specified as prosodically reduced (Zec 2005; Bennett et al. 2018; Tyler 2019), hence incorporate into verbs. Prosodic pre-specification also accounts for why the *outer* clitics survive prosodification—elaborated on in the talk.

(7) Input = SVC with light/no intervener

	[v Agr-V-Asp] [v Agr-V-Asp]	KINYALOLO	SERIALIZE	MAX(AGR)
☞ a.	[Agr-V V-Asp] <sub>PWd</sub>			**
b.	[Agr-V-Asp] <sub>PWd</sub> [Agr-V-Asp] <sub>PWd</sub>		*!	
c.	[Agr-V-Asp Agr-V-Asp] <sub>PWd</sub>	*!*		

(8) Input = SVC with heavy intervener

	[v Agr-V-Asp] DP [v Agr-V-Asp]	KINYALOLO	SERIALIZE	MAX(AGR)
☞ a.	[Agr-V-Asp] <sub>PWd</sub> [DP] <sub>PWd</sub> [Agr-V-Asp] <sub>PWd</sub>			
b.	[Agr-V] <sub>PWd</sub> [DP] <sub>PWd</sub> [V-Asp] <sub>PWd</sub>			*!*
c.	[Agr-V DP V-Asp] <sub>PWd</sub>			*!*
d.	[Agr-V-Asp DP Agr-V-Asp] <sub>PWd</sub>	*!		

**Against OT-DM (Rolle 2019).** In OT-DM, morphological operations (e.g. Agr node insertion) and prosodification (e.g. mapping to prosodic words) are computed in parallel. The main contribution of the OT-DM account is to cast the single/double-marking distinction as part of a conspiracy to reduce multiple exponence of clitics. Single-marking is preferred because each clitic is exponed only once. But for this to happen, adjacent verbs in an SVC need to be corralled into a single ‘morphological word’ (MWd), with each MWd serving as a host for a proclitic-enclitic pair. Double-marking arises when no single MWd can be formed from the verbs in the SVC (because of the intervening DP), thus forcing two distinct MWds to be formed, each of which then carries its own proclitic-enclitic pair. The distinction between light and heavy intervening material is encoded extrinsically to the constraints (as in our account).

A first drawback is that the account of prosodic serialization in SVCs is parochial: cross-linguistically many (perhaps most) SVCs occur in the absence of agreement/clitics (Aikhenvald and Dixon 2006), so an ‘anti-clitic’ conspiracy cannot be a general explanation for prosodic serialization (hence the need for SERIALIZE). This account also relies on a stipulation that single-marking in an SVC is the default and double-marking the ‘exception’. Our (equally-stipulated) assumption that each verb in an SVC sprouts its own Agr nodes, which may be deleted during prosodification, does *not* lead to parallel computation. In addition, the OT-DM requires MWds as representations distinct from PWds and syntactic heads, and an associated mechanism for labelling them. Finally, computing morphology and prosody simultaneously permits arbitrary interactions, e.g. a single/double distinction depending on whether an NP is singular or plural: ‘PWD=PLURAL’.

**Implications for the analysis of SVCs.** Typological work on SVCs indicates that in ‘contiguous’ SVCs (SVCs with no or minimal material intervening between the verbs), the SVC virtually *always* forms a single prosodic unit (see references cited above). This ‘serialization’ cannot be derived via typical syntax-prosody mapping principles—it cannot be derived as a reflection of syntactic constituency, since the verbs in an SVC do not form a constituent, and it cannot be derived via independent prosodic well-formedness principles, because it requires reference to the syntactic category ‘v’. Our analysis, employing SERIALIZE, represents the first recognition of this issue and the first attempt to address it. This study thus contributes to a small but growing body of work arguing that the syntax-prosody mapping aims to satisfy certain prosodic desiderata which, while making reference to properties of syntactic structure, are *not* directly related to enforcing syntax-prosody isomorphy (Selkirk 1984; Clemens 2014, 2019; Richards 2016).

## References

- Aboh, Enoch Oladé. 2009. Clause structure and verb series. *Linguistic Inquiry* 40:1–33.
- Aikhenvald, Alexandra Y. 2006. Serial verb constructions in typological perspective. In *Serial verb constructions: A cross-linguistic typology*, ed. Alexandra Y. Aikhenvald and Robert M. W. Dixon, 1–68. Oxford: Oxford University Press.
- Aikhenvald, Alexandra Y., and Robert M. W. Dixon, ed. 2006. *Serial verb constructions: A cross-linguistic typology*. Oxford: Oxford University Press.
- Alok, Deepak, and Mark C. Baker. 2018. On the mechanics (syntax) of indexical shift: Evidence from allocutive agreement in Magahi. Ms., Rutgers University.
- Baker, Mark. 2012. “Obliqueness” as a component of argument structure in Amharic. In *The end of argument structure?*, ed. María Cristina Cuervo and Yves Roberge, 43–74. Bengley: Emerald Press.
- Baker, Mark C. 1989. Object sharing and projection in serial verb constructions. *Linguistic Inquiry* 20:513–553.
- Baker, Mark C. 2010. On parameters of agreement in Austronesian languages. In *Austronesian and theoretical linguistics*, ed. Raphael Mercado, Eric Potsdam, and Lisa Travis, 345–374. Amsterdam: John Benjamins.
- Bennett, Ryan, Boris Harizanov, and Robert Henderson. 2018. Prosodic smothering in Macedonian and Kaqchikel. *Linguistic Inquiry* 49:195–246.
- Bisang, Walter. 2009. Serial verb constructions. *Language and Linguistics Compass* 3:792–814.
- Carstens, Vicki. 2003. Rethinking Complementizer Agreement: Agree with a Case-Checked Goal. *Linguistic Inquiry* 34:393–412.
- Carstens, Vicki. 2005. Agree and EPP in Bantu. *Natural Language & Linguistic Theory* 23:219–279.
- Clemens, Lauren. 2019. Prosodic noun incorporation: The relationship between prosody and argument structure in Niuean. *Syntax*.
- Clemens, Lauren Eby. 2014. Prosodic noun incorporation and verb-initial syntax. PhD Thesis, Harvard University.
- Collins, Chris. 1997. Argument sharing in serial verb constructions. *Linguistic inquiry* 461–497.
- Collins, Chris. 2002. Multiple verb movement in ꞤHoan. *Linguistic Inquiry* 33:1–29.
- Dixon, Robert M. W. 2006. Serial verb constructions: Conspectus and coda. In *Serial verb constructions: A cross-linguistic typology*, ed. Alexandra Y. Aikhenvald and Robert M. W. Dixon, 338–350. Oxford: Oxford University Press.
- Haspelmath, Martin. 2016. The serial verb construction: Comparative concept and cross-linguistic generalizations. *Language and Linguistics* 17:291–319.
- Henderson, Brent. 2011. Agreement, locality, and OVS in Bantu. *Lingua* 121:742–753.
- Kinyalolo, Kasangati K.W. 1992. Syntactic dependencies and the spec-head agreement hypothesis in KiLega. Doctoral Dissertation, UCLA, Los Angeles, CA.
- Richards, Norvin. 2016. *Contiguity Theory*. MIT Press.
- Rolle, Nicholas. 2019. In support of an OT-DM model. *Natural Language & Linguistic Theory* 1–59.
- Selkirk, Elisabeth. 1984. *Phonology and syntax: the relation between sound and structure*. Cambridge, MA: MIT Press.
- Tyler, Matthew. 2019. Simplifying MATCH WORD: Evidence from English functional categories. *Glossa: a journal of general linguistics* 4.
- Zec, Draga. 2005. Prosodic differences among function words. *Phonology* 22:77–112.