

**Syntactic height impacts prosodic size: An argument for cyclic prosodification**

**Claim:** Building on two crosslinguistically robust generalizations from two independent phenomena at the Morphosyntax-Prosody Interface, we propose the following correlation:

- (1) If two syntactic heads (or their respective exponents) trigger the same phonological process on an element X, then the process of the syntactically higher head will apply to a bigger (or equal) phonological domain within X.

This correlation makes a strong case for a cyclic approach to the syntax-prosody mapping according to which smaller domains are built and become accessible at an earlier stage than bigger prosodic domains. We implement this by saying that the mapping of syntactic to prosodic structure is modelled as part of a bottom-up Vocabulary Insertion process (see e.g. Kalin 2022).

**Case Study 1 - Types of Verbal Number:** The category of verbal number comes in two flavors: (a) Participant Number expresses a plurality of a given argument of the verb (i.e. ‘to pet dogs’) and (b) Event Number expresses a plurality of events (‘to pet a dog several times’). Standard analyses (Amato 2018, Thornton 2019, Fiebig 2023) assume that the former is located on a low head inside the vP (or on *v*) while the latter is located on a head right above vP. Crosslinguistically, both types of verbal number are frequently expressed by means of reduplication. Interestingly, we find that participant number can only be expressed by partial reduplication whereas event number can crosslinguistically be expressed by both partial and full reduplication. A minimal pair of a language indicating both processes comes from Niuean:

- (2) a. kua ha-hala e ia e tau lā akau.  
 PERF RED.PART-cut ERG he ABS PL branch tree  
 ‘He cut the branches.’  
 b. ne noko-noko e ia e gutuhala  
 PST RED.EVENT-knock ABS she ABS door  
 ‘She knocked on the door (many times).’ Niuean, Haji-Abdolhosseini (2002)

This correlation was confirmed by a crosslinguistic survey involving languages from ten families and is also confirmed by the discussion typological literature (Bybee 1994, Corbett 2000, Mattioli 2019, Wood 2007). The correlation exemplifies our finding in (1): The higher head, which hosts event number, can reduplicate the entire phonological word (or a smaller prosodic constituent) whereas the lower head hosting participant number cannot reduplicate the prosodic word. It only has access to smaller constituents (like a syllable).

**Case Study II - Types of Shifting Coordinators:** Languages signal coordinate relations by one of two ways: (a) With monosyndetic coordinators (like English *and*) in between the two conjuncts or (b) Polysyndetic coordinators that modify each conjunct. The standard account (see e.g. Mitrović 2014, Bhatt 2014) is that the latter (represented as ADD in (3)) attach inside the periphery of both conjuncts and that the former (& in (3)) joins the two conjuncts.

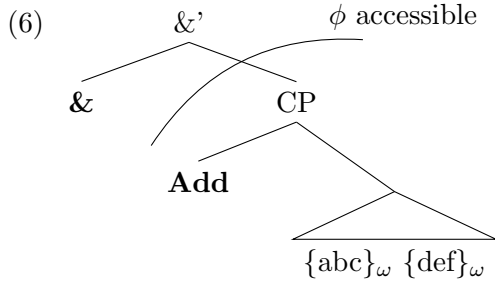
- (3) [[ ADD-Conjunct 1 ] [ & [ ADD-Conjunct 2 ] ]]

In the vast majority of cases, these elements are located in these positions but in some case they cliticize to a phonologically determined second position within the respective conjuncts. In Latin, the coordinator *-que* shifts to a position after the first phonological word. In Yoruba, the coordinator *sì* shifts to a position after the first phonological phrase (Aremu & Weisser 2024).

- (4) {de provincia}<sub>ω</sub>=**que** decess-it (5) {Olá ò bá}<sub>φ</sub> **sì** lọ.  
 from province=AND depart.PERF-3SG Ola should have AND go  
 ‘... and he departed from the province.’ ... and Ola should have gone.’  
 Cicero, Against Verres 2.2.48 Yoruba, Aremu & Weisser 2024

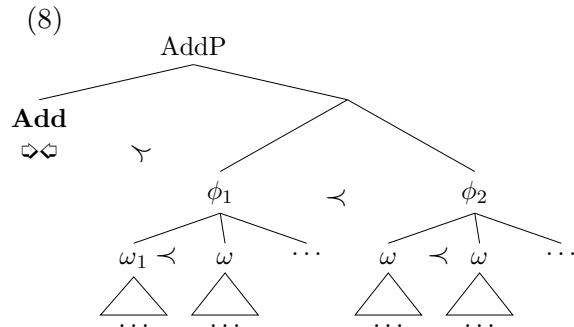
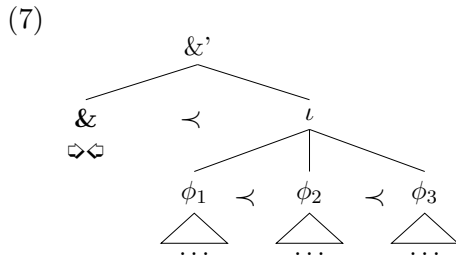
There is a robust crosslinguistic generalization: Polysyndetic coordinators shift to a position after the first phonological word (cf. Mitrović 2014): Latin, Ancient Greek, Hittite, Kalaallisut, Cherokee, etc). Monosyndetic coordinators shift after the first  $\phi$ -phrase: Yorùbá, German, Polish. In line with (1), it is the higher head that targets the bigger prosodic constituent.

**The Argument:** In both case studies, we contrast two syntactic heads which differ minimally in syntactic height and contain exponents that trigger the same phonological process. Crucially, the two heads are separated by a standardly assumed cyclic domain boundary (Chomsky 2001). With verbal number, one is inside the vP, the other was right above. With clausal coordinators, one was inside the CP, one right above. (6) shows the configuration with Case Study 2:



The respective domain boundaries (CP and vP) seem to be crucial. In (6), being inside the CP-domain, the polysyndetic coordinator has no access to the level of the phonological phrase. The higher head & right above it does however. This shows that prosodic constituents become accessible in a cyclic manner: Upon completion of a given cycle, a prosodic category becomes an accessible target.

**The Model:** The argumentation above indicates that the Syntax-Prosody mapping must apply in a cyclic fashion. We model this as it being part of a cyclic bottom-up Vocabulary Insertion (VI) process (Bobaljik 2000, Paster 2006, 2009, Kalin 2022). VI applies bottom-up and as soon as that bottom-up procedure arrives at a cyclic node, it maps it to the corresponding prosodic constituent. In addition, we assume that when a given Vocabulary Item is inserted, it is linearized with respect to the previously established material. Here's how this works for the shifting coordinators: Second position displacement is a transformational rule that, informally, states: *Dislocate an element X to a position after the first element within the category it precedes*. This transformation applies at the point of VI of X if it bears the subcategorization-feature [ $\triangleright\triangleleft$ ]. In (7), we show derivation at the point of VI of a monosyndetic coordinator with this feature. Its complement has been inserted and, as it was a full CP, mapped to a  $\iota$ . & is linearized wrt. that  $\iota$  (indicated by  $\triangleleft$ ) and as a result, it will be dislocated to right-adjoin to the first element within that  $\iota$ , which is  $\phi_1$ . With a polysyndetic coordinator in (8), the complement of ADD was not a full CP and thus is not mapped to an  $\iota$ . ADD is only linearized with respect to the  $\phi_1$ . Thus, the placement rule will dislocate ADD to the first constituent within  $\phi_1$ , which is  $\omega_1$ .



For reduplication, we assume a PF-operation that includes a similar restriction, such that a RED morpheme can only trigger reduplication of a phonological domain that is not the highest existent phonological domain at the current cycle. The lower participant number exponent cannot reduplicate prosodic words because the prosodic phrase has not yet been constructed in their cycle. In contrast, the RED morpheme on the event number head is inserted later, when the prosodic phrase is already constructed and therefore the smaller phonological domain, i.e. the prosodic word, can be reduplicated.

**Conclusion:** A cyclic approach to the syntax prosody mapping is required to account for strong empirical correlations such as the two case studies we presented. The different patterns with higher and lower heads arise solely as the result of the different timing with respect to the cyclic domain: Only upon completion of a given domain a new prosodic cycle becomes accessible. This logic cannot easily be replicated in representational/parallel approaches to the Syntax-Prosody mapping (see e.g. Truckenbrodt 1999, Selkirk 2009, Elfner 2012).