What Merge Can & Can’t Do for Phonology

With the advent of the Minimalist Program, attention has shifted to defining the set of basic operations in the grammar. This has increased the degree of apparent similarity—at the level of pure computation—between syntax and phonology. For example, the conception of movement as copying, leading to the claim that chains must be linearized, is reminiscent of reduplication in phonology (e.g., Rainy 2000). Agree finds a direct counterpart in the way harmony processes are characterized in phonology (Mailhot & Reiss 2007). Additionally, biolinguistic research has reopened the possibility of deep homology between the syllable and the syntactic phrase (Carstairs-McCarthy 1999). Minimalism has also led to a discharge of problems from pure syntax to the interfaces, much like many problems of pure phonology have been relegated to phonetics.

At the same time, Minimalist pursuits appear to lead to the hypothesis that there is a deep asymmetry between the mapping from syntax to meaning and the mapping from syntax to sound/sign. Chomsky (2008), for example, takes syntax to be optimally designed for LF purposes, but not for PF, confirming Bromberger & Halle (1989)’s suggestion that phonology is different. In this talk we focus on what we take to be the key difference between syntax and phonology: in syntax, the fundamental operation is Merge (combine \( \alpha \) and \( \beta \) symmetrically), whereas in phonology it is Concatenate (asymmetrically add \( \alpha \) to \( \beta \)). Whereas iterative applications of Concatenate yield a flat linear structure, Merge yields a nested hierarchical structure. That is, syntactic structures must be linearized, but linear precedence is a primitive in phonology. Since phonology lacks Merge, it also follows that it lacks internal movement, since movement is a subspecies of Merge (Internal Merge or re-merge; Chomsky 2004). In the presence of re-merge, the notion of identity to which syntax is sensitive is endocentric or endoskeletal (defined internal to the system), whereas identity is extrinsic in phonology. This finds a parallel with rule application, which is extrinsic in phonology, but intrinsic in syntax (Bromberger & Halle 1989, Reiss 2003).

However, Merge is still very relevant to phonological matters. In fact, we suggest that the presence in syntax of two distinct kinds of Merge (Chomsky 2004), set-Merge (the symmetric case) and pair-Merge (asymmetric; the adjunction case, similar to Concatenate) is reflected in phonology, and that this is one manifestation of a more general strategy that aids in making public not only the content of syntactic terminals, but also the speaker’s intended bracketing of those terminals. We show that, cross-linguistically, many phonological processes apply freely across word/morpheme boundaries when these elements have been joined by set-Merge, but that the processes are blocked by occurrences of pair-Merge, by phonetically null syntactic elements (An 2007), and by chunks of syntax that are compiled in a distinct workspace (complex specifiers, coordinated clauses). Furthermore, recent work shows that phonological processes are constrained by syntactic phase boundaries and obey the PIC (Marvin 2003, Piggott & Newell 2006, and others). We believe these are all facets of the same phenomenon.

To illustrate this, consider the list of obligatory Intonational Phrase boundaries in (1). (1a-c) are exactly those contexts that have been claimed to involve pair-Merge. (1d) and (1e) are special cases of adjunction; as Nespor & Vogel (1986) note, prosody marks paratactic clausal adjunction, but not subordination (a case of set-Merge). (1f-h) can be categorized as topicalized/focalized elements, which often undergo string-vacuous movement or remain \( \textit{in situ} \); special phonological treatment may therefore serve as the only indication of the topic status/focus feature. On the basis of this characterization of I-Phrases and the properties of other prosodic phrase types, we argue that studying the PF interface in this light forces us to rethink the prosodic hierarchy and brings us closer to a strictly syntax-driven conception of phonological domains, i.e., a ‘direct reference’ theory (Kaisse 1985, Odden 1990, Cinque 1993). It is also consistent with theories of language evolution such as Sandler (2008) and Progovac (2008), which emphasize the role of prosody in marking syntactic dependencies in early/proto-language.
Obligatory I-Phrase domains (as in Selkirk (2005) for English; but taken to hold cross-linguistically): A CP corresponds to a single I-Phrase unless interrupted by a(n): (a) appositive; (b) parenthetical; (c) adjunct; (d) non-restrictive relative clause; (e) conjoined clause; (f) heavy fronted constituent; (g) contrastively stressed element; (h) focused element.

References


