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Reducing computation at the SMS Interface: A Derivational Approach to (Chain)Linearization

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In this talk I aim at providing a strictly derivational approach to SMS interpretation, with implications for Linearization and, more specifically, for the phonetic realization of Chain links.

Although the Minimalist Program has a preference for derivational, rather than representational, approaches to syntactic relations, most approaches to (Chain) Linearization (e.g. Chomsky 1995, Nunes 2004, Uriagereka 1999, Richards 2001) still have a representational flavor. The reason why this is the case is that they make use of Kayne's (1994) LCA, which relies on asymmetric c-command, and this relation is defined on tree structures, not on the properties of the derivation. No approach to linearization, therefore, independently of its predictive power, can be strictly derivational if it makes use of Kayne's LCA. Notice that this is not a critique of Kayne's LCA itself, which is perfectly legitimate under a representational approach.

Moreover, notice that under Kayne's LCA *all* asymmetric c-command relations that hold among Lexical Items (LIs) have to be computed in order for the syntactic tree to be linearized. From a minimalist point of view, we should also question whether all that computation is really necessary.

A derivational approach to linearization should only rely solely on some derivational property of the system (and not resort to the representational tree that it creates). In this talk I propose that the property that the system uses to yield ordered strings of LIs is *access to the order of application of Merge*. More specifically, I propose the following algorithm:

(1)

SMS interpret (the Phonological Features of) LIs in the opposite order in which
Merge operations inserted them in the derivation.

Assuming (1), and abstracting away now from the problem of two LIs in mutual c-command – for which some solutions have been proposed (see Chomsky 1995, Guimaraes 1998, Epstein et al. 1998 and Moro 2000) –, we can say that any linear order that a given expression displays is directly related to the order in which LIs entered the derivation and not to the structural relations that hold among them.

A problem would arise, though, when Merge applied to two phrases built in parallel workspaces. I assume here that specifiers are built after heads and complements, independently of their phrasal status (see Fernández-Salgueiro 2004 for a principled account), although there are other solutions, like assuming a Multiple Spell-Out approach (Uriagereka 1998).

This approach is consistent with the idea that it is Merge (and not the two levels of representation PF and LF) that provides information to the two performance systems (see Epstein et al. 1998). Here, I assume Epstein et al's derivational approach on the SOT side. On the SMS side, however, I propose a different timing of access to the information provided by Merge (online for SOT but end-of-the-line for SMS).

As for the Linearization of Chains, I believe that the explanatory and predictive power of Nunes's (2004) insightful proposal can remain intact under this derivational approach, that is, without resorting to all the computation that the LCA entails. In order to rethink Nunes's proposal in these terms, I will rely on the (un)interpretability of Fs and assume something that follows from the principle of Full Interpretation (FI) applying at the interfaces: an LI cannot be interpreted by SMS if it contains uninterpretable material, that is, not just Phonological Features.

Consider how (2) would be linearized under my approach (I assume, with Nunes, that the lower copy of they has unchecked Case, even under Agree (see Fernández-Salgueiro, to appear):

(2)

$\Sigma = \{\text{may}, \{\textit{they}_{\text{NOM}}, \{\text{may}, \{\textit{may}, \{\text{v}, \{\textit{they}_{\textit{NOM}}, \{\text{v}, \{\textit{v}, \{\text{like}, \{\textit{like}, (\ldots)\}\}\}\}\}\}\}\}$

Following (1), SMS are going to interpret the PhonFs of LIs in the reversed order in which they were merged. Accordingly, the upper copy of *they* would be the first LI whose PhonFs are interpreted by SMS. As its NOM-F has been deleted, it is fully interpretable by our SMS, and no problem arises here. Then, *may* would also be interpreted by SMS without trouble, since its EPPF has been deleted. However, when SMS tries to interpret the lower copy of *they*, it finds a Case F, which is uninterpretable by SMS. Therefore, the lower copy of *they* is not pronounced. Notice that, under this approach, the upper copy of the chain is pronounced independently of the status of the other LIs (and therefore, independenty of the status of its original copy), as expected under the derivational assumption that it is Merge operations (and only Merge operations) that provide the relevant information to the performance systems.

It is also worth noticing that my use of the principle of FI is strictly derivational. If a given LI contains UnFs it cannot be interpreted by SMS, but this does not cancel the derivation or makes it crash. Rather, FI is a condition on *each* Merge operation (hence its derivational character); if an LI that contains UnFs is associated with a given operation of Merge, all that FI does is prevent that LI from being interpreted by SMS.

It does not seem problematic either to adopt Nunes's idea that Morphology can make the structure invisible for the LCA (in order to allow lower copies to be pronounced, like in the intermediate wh-copy cases, or the Spanish clitics) under this approach. In this case, we can say that the (morphological) adjunction operation would provide SMS with linear order information.

Notice that Nunes's approach and mine predict (apart from the technical differences) that *all and only* LIs without uninterpretable Fs are pronounced, that is, none of these approaches make any reference to which copy is the highest or the lowest, which is a departure from standard approaches to copies, in which it is stipulated that only the upper copy of a chain can be pronounced. Another important and interesting difference between my approach and Nunes's is that Nunes relies on economy conditions while mine relies on interface-based properties.

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