

Using Survive and WorkBench for deriving coordinate symmetries

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A fundamental challenge for any generative theory of coordinate structures is accounting for certain symmetry requirements such as those in the constructions (1) – (4):

- 1 a. #The woman and the shopping bag went to the mall.
b. (?) The woman and her shopping bag went to the mall.
c. *The woman and shopping bag went to the mall.
- 2 a. #The car sped down the street and leaped over the railing.
b. The car sped down the street and flipped over the railing.
c. *The car sped down the street and flip over the railing.
- 3 a. Das Hemd und die Hose passen nicht zueinander. (German)
the.NEUT,NOM shirt and the.FEM,NOM pants fit not to-each-other
'The shirt and the pants don't fit together'
b. *Das Hemd und Hose passen nicht zueinander.
c. Hemd und Hose passen nicht zueinander.
- 4 a. Der Dieb klaute die Kreditkarten und den Laptop. (German)
the thief stole the.PL,ACC credit-cards and the.MASC,ACC laptop
b. *Der Dieb klaute die Kreditkarten und der Laptop.
... the.MASC,NOM
c. Der Dieb klaute Kreditkarten und Laptopzubehör.
... -accessories

Selection from the lexicon presumably guarantees a certain degree of symmetry, but this is not a trivial matter. Other types of symmetries, such as matching morphological gender and Case inflections, depend on structures generated in Narrow Syntax (or the equivalent) requiring agreement that can involve inflections that must be checked at the interface with PF.

In this paper I argue that the selection of lexical items (LIs), the first step in assuring the necessary coordinate symmetries, must proceed in a dynamic process that selects LIs “on demand” and therefore does not rely on the temporary storage of lexical arrays (LAs); instead, it employs a lexicon that is encapsulated within the interface systems, as proposed by Stroik (2007), who follows Jackendoff (2002). To assure matching coordinate inflections – required for the interface with PF – the grammar proposed maps the lexicon with the narrow syntax algorithmically using tools at its disposal that are required for the derivation of simplex sentences. This type of grammar is proposed by Stroik and Putnam (2005) and is developed further by Stroik (2007), and modeled by Putnam (2007) for the Germanic middle field.

A problem with a phase-based approach to coordination (cf. te Velde 2005) is the requirement that the lexicon be accessed only once for each construction (Chomsky 2000: 100-101) so that it doesn't have to be carried along with the derivation. This requirement entails the need to put lexical arrays (and their subarrays) in “temporary storage” until needed; such storage becomes n-times more complicated with a structure consisting of n-conjuncts, all of which have a certain number of features that must match each other for the required symmetry. If the lexicon is encapsulated within the interface systems, there is no need for temporary storage; individual

LIs can be selected as needed for concatenation. Furthermore, the required semantic symmetry of the LIs can be better monitored at selection with an encapsulated lexicon.

Another problem with the derivation-by-phase approach (which utilizes either External or Internal Merge, cf. Chomsky 2006, for conjunction) shows up at Internal Merge: to guarantee the symmetry of inflections, one conjunct must serve as a template for the other in a sequenced derivation of the conjuncts. For this a storage space for the conjunct that serves as a template must be available, but active memory is not designed for this purpose. This problem is avoided in the Survive model with WorkBench (WB) and an encapsulated lexicon, if we assume that multiple conjuncts can be assembled with the appropriate symmetries via a mapping algorithm. LIs are selected on demand, according to matching features – thus assuring symmetry – and, most importantly, without the need for temporary storage. After the first conjunct is derived, a mapping algorithm matches inflectional features from the first to the other conjunct(s), thereby assuring the required symmetry of morphological features for e.g. gender and Case.

The *Survive* Principle of Stroik (2007) – what repels a syntactic object (SO) until matching features can be concatenated – applies directly to conjunction (taken here to be a concatenation operation) without any adjustments, for the features to which SURVIVE is sensitive are also those that determine coordinate symmetry. For most conjuncts (e.g. DPs, VPs, APs) the features required for conjunction are present on the phrasal head. In the conjunction of TP- or CP-conjuncts, however, the required symmetry may depend on features other than those present on T° or C°. In these cases the mapping algorithm guarantees matching features. Crucial for coordinate structures is the matching of conjuncts during assembly; the mapping algorithm must have the capability to match features of conjuncts, if coordinate symmetry is to be assured.

A major benefit of this proposal for the design of a crash-proof grammar for coordination is that narrow syntax/merge does not need to look ahead or back when derivation is dynamic in two key respects: 1) Access to the lexicon is not restricted to the moment preceding derivation, and 2) Multiple conjuncts are maintained in a dynamic matching relation with each other via a feature-mapping algorithm. The WB of Stroik and Putnam has the key elements of such a design in that it is able to assemble conjuncts – regardless of phrase type – in virtual simultaneity with the concatenation of SOs via (Re-) Merge.

References

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