Linear Order in Syntax: Selection and Coordination

Much current work in syntax assumes that linear order is not part of the syntactic component, but is only specified as part of the algorithm converting a hierarchical structure into a linear one at PF. We show with previously unobserved data that linear order is crucial to selection in instances of coordination. This means that linear order must be part of syntax from the beginning, since selection cannot be delayed until PF.

It has long been known that selectional requirements can be violated in coordination. In (1), prepositions do not permit CP complements, but a CP may be part of a coordination as complement to a P, so long as the first conjunct satisfies the selectional requirements of the P:

(1) a. You can depend on my assistant and that he will be on time.
b. * You can depend on that my assistant will be on time. (Sag et al. 1985, 165, (124b), (125b))

Many analyses have been proposed for this, most of which posit a special role for the *first* conjunct. For instance, in Zhang (2010), the category of the coordinate phrase is the category of its first conjunct.

What has not been observed before (to our knowledge) is that categorial selection in coordination depends on linear order. In examples like (1), which constitute the bulk of the cases from the literature, the selecting head (the P) *precedes* the coordinated dependents. When the coordination instead precedes the shared element, it is the *last* conjunct that must satisfy selectional requirements. For instance, a verb that does not select subjunctive complements can be coordinated with a verb that does:

(2) a. I had hoped and recommended that the school be named in honor of Don Clayton...
b. * I had hoped that the school be named in honor of Don Clayton.

In this example, two selectors are coordinated, followed by what they select. As can be seen, only the *last* one's selectional properties have to be satisfied. Further examples showing the same thing follow. Example (3) is structurally like (2) except that the conjuncts differ in whether they c-select CPs or not. Example (4) has a CP and NP coordinated as the subject of a verb that only permits an NP subject. Example (5), a famous book title, has an adverb coordinated with an adjective in prenominal position.

(3) a. The accused had contemplated and expected that, as a consequence of his acts, Saunders would die.
b. * The accused had contemplated that Saunders would die.

(4) a. That images are waterproof and many of his other pronouncements are all incoherent.
b. * That images are waterproof is incoherent. (Pollard and Sag 1987, 131)

(5) a. the once and future king
b. * the once king

The correct generalization is not that the *first* conjunct matters for selection; rather, what matters is the conjunct that is linearly *closest* to the element that the coordinate complex as a whole is in a selectional relation with.

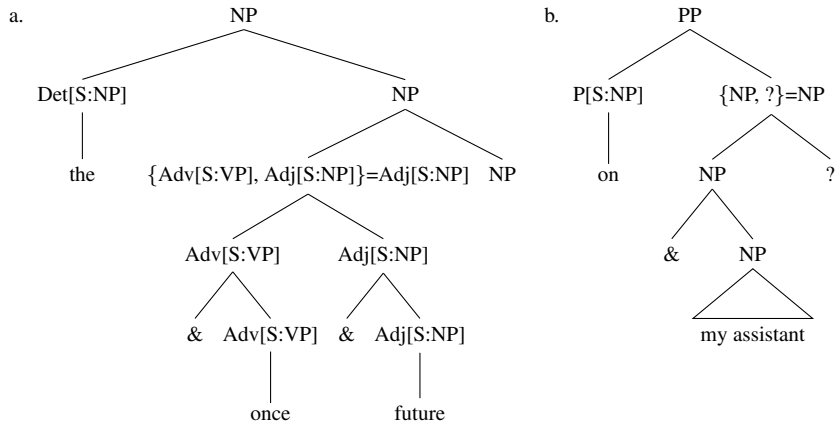
This generalization requires that linear order be part of the syntax. We account for it as follows. First, following Phillips 1996 and Bruening 2014, the syntax builds structure left to right. Second, heads and phrases have selectional features, e.g., V[S:NP], which indicates a verb that selects an NP. Selectional features are checked off by not projecting; an [S:NP] feature on a V will not project to VP if the sister of V

is NP (Bruening 2013). Structures satisfy selectional requirements if no selectional feature projects to the topmost node.

As for coordination, we build on Dalrymple and Kaplan's (2000) union algorithm for feature resolution, and Collins and Stabler's (2014) Set Merge. A coordinate structure's label is the union of the labels of the conjuncts. The union of phi features can be something other than what is present on any of the conjuncts; for instance, a singular plus a singular give rise to a dual. With syntactic category, however, a set of two unlike syntactic categories must be resolved. Selectional requirements must be checked as early as possible; in some cases, this will require early resolution of the label of a coordinate phrase. However, if nothing forces a particular label before the coordinate structure is completely built, resolution must take place at that point, because the phrase as a whole must be integrated into the surrounding syntax. In such a case, the label of the coordinate will be the label of the most recently built conjunct (the last one, going left to right).

To illustrate, in (5a), the coordinated phrase is an adjunct. We assume that adjuncts have selectional features and differ from other selectors only in not projecting their own category when they merge (Bruening 2013). To keep things simple, we say that adverbs have [S:VP], while adjectives have [S:NP]. The NP in (5a) is built left to right, beginning with the Det and then the coordinated phrase (6a). Individual conjuncts have an "&" adjoined to them, which triggers Set Merge. (The first "&" is never pronounced in English, but may be in other languages.) The category labels of the conjuncts are collected in a set, as shown between { }. Up to this point nothing has forced resolution of the category, but the coordinate needs a single label for integration into the syntax. The label of the most recently processed conjunct is chosen, as it is the currently active one. The label of the coordinate becomes Adj[S:NP], shown outside the set brackets. Since this node's sister is NP, their mother does not have [S:NP], and [S:NP] is satisfied. The selection feature of the first conjunct, [S:VP], also did not project, so all constraints are satisfied.

(6)



In (1a), the preposition *on* has the label P[S:NP], as shown in (6b). The syntax next begins building the coordinate complex, starting with the first conjunct. As stated above, selectional features must be checked as early as possible. At this point, they can be: the syntax must check the selectional feature on P by resolving the set of labels to that of the first conjunct, before even waiting for further conjuncts to be merged. So, as shown in (6b), the label of the coordinate complex is resolved to NP, before subsequent conjuncts have even been merged. In this case, selection is satisfied. Had the first conjunct been a CP, though, the [S:NP] feature would have projected to the dominating PP node and the derivation would have crashed.

Left to right structure building plus early resolution of selectional features thus captures the effect of linear order in coordination. We will further show that selection exactly mirrors the phenomenon of closest conjunct agreement (e.g., Benmamoun et al. 2009); our results suggest a syntactic account of closest conjunct agreement, in contrast with recent accounts that delay it until PF (e.g., Bhatt and Walkow 2013).