Deriving Directionality Parameters from Functional Typing

The Functional Typing Hypothesis (FTH) (Author 2018a, 2018b) turns the idea of feature-uninterpretability on its head, by hypothesizing that bundles of so-called uninterpretable ϕ-features are actually interpreted as variables at the CI interface, just like pronominal bundles of ϕ-features are (Evans 1980), and that the uninterpretable elements are actually the functional heads like T, v, and C. The FTH assumes that such heads, when null, denote bare λ-operators that are the equivalent of vacuous quantifiers. Such bare operators must find a variable to bind at the CI interface or the structure containing them will violate Full Interpretation (FI) at that interface. For convergence, the C_{HL} must provide the heads denoting such bare operators with a bundle of agreement features, which then can be interpreted as a variable at the CI interface. I call this procedure *functional typing* (FT). To functionally type a head, the C_{HL} must internally Merge the set of ϕ-features of some nominal in the domain of the given head. This is illustrated in the structure in (1).

(1) $[_{TP}\ T_{\phi}{}^{s}\ [vP\ Sub_{\phi}{}^{s}\ [v'\ V_j\text{-}v\phi^{o}\ eats\ VP\ Obj_{\phi}{}^{o}\ t_j]]]$

In (1) T has been typed with the ϕ-features of the subject and the V-v complex has been typed with the ϕ-features of the object. Internal merge of ϕ-features for FT solves the problem of uninterpretable functional heads, but it creates problems for both the CI and SM interface that must be solved somehow (see Author 2018b). Focusing on the SM interface, the problem is the following. If (1) is linearized, a violation of the LCA will ensue since the same set of ϕ-features appear in two different positions. Author (2018b) argues that after FT, the C_{HL} probes the domain of the functionally typed head to check any copy of ϕ-feature agreeing with the head. This "checking" procedure is different from the checking procedure of Chomsky (1993, 1995). Checked copies are licensed to be deleted at the SM interface up to recoverability. But deletion cannot just affect the ϕ-features of the associate: that violates the phonological integrity of the associate and the Not Tampering condition (NTC). Deletion of the entire associate DP, without raising, violates the Principle of Recoverability of Deletion (PRD) since the material associated with the restriction of the DP will not be recoverable. The problem is solved if, after checking, the entire subject and object DPs are internally merged in [Spec, TP] and [Spec, vP] respectively, as in (2), and the phonology deletes one of the checked copies.

(2) $[_{HP}\ \mathbf{Sub_{\phi}{}^{s}}\ T_{\phi}{}^{s}\ [vP\ \mathbf{Obj_{\phi}{}^{o}}\ Sub\phi s\ [v'\ V_j\text{-}v\phi\ eats\ VP\ Obj_{\phi}{}^{o}\ t_j]]]$

Which copy should the phonology delete? If we assume that the ϕ-feature bundle has a hierarchical structure, and that case is usually the highest feature in the bundle, given Baker's (1988) Mirror Principle and the fact that Case is further away from the root than the other ϕ-features (Greenberg 1966), we can provide an answer to the previous question and at the same time derive so-called directionality parameters from case considerations. Suppose that languages with no morphological case systems, like English, just have a single abstract syncretic case, but that languages with case systems actually have the cases associated with the morphological markings (e.g. NOM, etc.). If so, then for a language like English, after FT of T, the C_{HL} will probe the domain of T for agreeing bundles to check. It will check the Obj and the Sub copies alike, based on the fact that the highest feature in the ϕ-feature bundles of those DPs is the same:

generic syncretic Case. Suppose now that the deletion procedure at the SM interface is based on an algorithm like that in (3), implemented while scanning the string of terminals from left to right.

(3) Delete any checked copy that follows another checked copy

If the deletion procedure is based on something like (3), then in (2) the left most copy of the subject, in the higher phase, although checked prior to raising, will not be deleted, as it does not follow any other checked copy. The copies of the object and subject in the outer and inner [Spec, vP], however, will be deleted since they have been checked by T and they both follow the copy of the raised subject. This is shown in (4), deletion indicated with strikethrough font.

(4) [$_{HP}$ Sub_{ϕ}^{s} T_{ϕ}^{s} [vP ~~$\mathbf{Obj_{\phi}^{o}}$~~ ~~$\mathbf{Sub_{\phi}^{s}}$~~ [v' V_j-v_{ϕ} eats VP Obj_{ϕ}^{o} t_j]]]

In the vP-phase, however, there is only one copy of the object left: the one in the trace position. Since there are no other preceding checked copies in the phase, the deletion procedure does not apply, in line with the algorithm in (3). Pronunciation of the structure in (4) results in the SVO word order. We therefore derive the SVO order from the impact of the Case property of the bundle of ϕ-features. If we assume now that in languages with case systems, the distinctions among the different morphological cases is real, a natural assumption is that when the highest feature in the ϕ-feature bundle of the subject (e.g. NOM) types T, and the C_{HL} probes the domain of T looking for NOM, it will not find any agreeing copy other than the one in the vP-internal copy of the subject: the highest feature in the ϕ-bundle of the object will have accusative morphology. In the higher phase, the deletion procedure will be able to delete the lower copy of the subject, since it follows the checked copy in [Spec, TP]. In the lower phase, the procedure will be able to delete the copy in the trace position, since it follows the copy in [Spec, vP], but not the latter copy, since that does not follow other agreeing checked copies in the same phase. Pronunciation of (4) under such conditions will result in the order SOV. We therefore derive the SVO and SOV orders from properties of the Case system: no directionality parameter is needed. Deriving directionality from Case is a welcome outcome in light of Greenberg's (1966) Universal 41, which essentially says that if a language has the SOV word order as a dominant order, then that language "almost always has a case system." The approach makes it possible to explore the question of whether other parameters are derivable from the FTH and the structure of agreeing bundles of features.

Selected References

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