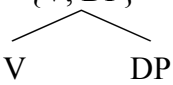
Labels and Recursion: From Adjunction Syntax to Predicate-Argument Relations

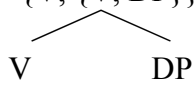
In this talk I explore the emergence and ontology of syntactic labels. I propose that labels are created derivationally as a 'reparation' that circumvents the violation of a legibility condition. As a consequence, I argue that predicate-argument relations are derived from a more primitive adjunctive syntax without labels (*cf*. Hornstein (2005), Hornstein, Nunes & Pietroski (2006), Hinzen (2006)).

First, I show that the proposal of the label-free syntax (*cf*. Collins (2002), Seely (2006)) has serious empirical drawbacks: I briefly discuss the phenomena of XP movement, islands, incorporation, quantificational dependencies and argument structure. All these phenomena make reference to labeled XPs. But assuming labels the following questions arise: (i) Why do syntactic phrases have labels? (ii) How do labels appear derivationally? (iii) How do labels identify the set they label? Having Merge as just symmetrical set-formation (*cf.* Chomsky (2005), Hinzen (2006)) entails that in itself, the merger of (α, β) cannot give a labeled structure, but a simpler {α, β} set. So, the only way to get a labeled structure using just Merge and the lexicon is to take Merge as a compound operation (Join & copy) where the first step (Join) creates a set and the second one (Copy) provides it a label (1) (*cf.* Boeckx (2006)).

(1a) Step1 (Join): α↔β = {α, β}



(1b) Step2 (Copy): β↔{α, β} = {β, {α, β}}



That answers question (i). However, since the notion of 'labelhood' is vague (after all, V is just one of the members of the {V, {V, DP}} set of (1b)), the ontology and consequences of labelhood will have to be explained (questions (ii) and (iii)). My proposal relies in the hypothesis in (2).

(2) *Interface Legibility Hypothesis:* Interfaces require sets with coherent categorial intensions.

Given such a restriction, labeling operations can be explained as *repairing* strategies (answering questions (ii-iii)): the label provides a set with a coherent intension (*i.e.* all of the members of the set contain a given categorical feature). For instance, in the step1 of (1a), the simple {V, DP} set is created but at this step, the set {V, DP} is heterogeneous: there is no grammatical category that can provide it a coherent type, and hence, by (2), it is illegible (assuming a Neodavidsonian conjunctivist semantics, in (1a) we have two unrelated monadic predicates (something like {kiss(e) & Mary(y)}). I will argue that the labeling mechanism provides the step from this adjunct-like syntax of conjunction of independent predicates to the hierarchical predicate-argument syntax based on labels (*cf*. Hornstein (2005), Hornstein, Nunes & Pietroski (2006), Hinzen (2006)): having {V, DP} in (1a), the verbal head (the syntactically active *locus*) is remerged with the structure to give it a coherent type (1b). Now an asymmetry emerges in the new set; crucially, both members of {V, {V, DP}} will have a verbal character (both contain a [+V] categorial feature). Thus, the set {V, {V, DP}} labeled with a verbal intension is readable at the interfaces. We are left with a last problem though: the primitive {V, DP} of (1a) (now, a member of {V, {V, DP}} in (1b)) is still an illegible object. And obviously, recursion on the labeling strategy won't solve the problem. Here my proposal is a purely repairing strategy: the DP that as such is interpretable (*i.e*, Val(y, *Mary*) *iff* Mary(y)) is now in a verbal environment at the highest phrase (a VP). Thus, the solution to the VP-contained DP is to lift its type (*à la* Pietroski (2005)) to accommodate its type to that

of the intension of the highest set that contains it: this turns the DP complement of V from an individual-denoting type to an *event-participant* one (an argument) (3):

(3) Val(y, Mary) *iff* Mary(y) → Val(e, int-Mary) *iff* Theme(e, Mary))

Finally, I will argue that taking adjunction syntax to be more basic than predicate-argument syntax provides as well a way to characterize the operation of labelling as crucial step in the origin of the human language capacity. Authors like Hurford (2001, 2003) have argued that the concepts of protothought were just one place predicates of the form PREDICATE(x). Unifying this idea with the assumption that the label-less adjunction syntax is more primitive than the predicate-argument syntax provides a seemingly plausible hypothesis for the structure of protolanguage as having monadic predicates and adjunction syntax (*i.e.* bare Merge), but not any predicate-argument relation. Then, a crucial step towards the complex properties of natural language syntax would have been provided by the appearance of the *Interface Legibility Condition* in (2), which might be considered one of Chomsky's (2005) "third factor" effect; one of the "principles of data analysis" built-in the faculty of language. In fact, one of the predictions of the idea that I will present is that as a result of the acquisition of the labeling option the computational system of the human language gained a fundamental economy treat; *recursion*. Labels permit to keep the derivation active while forgetting about the inner constituents of the phrase. Then, the recursive trait of natural language syntax, which apparently, is uniquely human (*cf. i.a.*, Chomsky, Hauser & Fitch (2002), Tomalin (2007)) would constitute a cognitive tool that boosts computation (*cf*. Longa (2006) as well as Clark (1997) and Lupyan (2006)).

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