Top-Down, Left-Right Derivations

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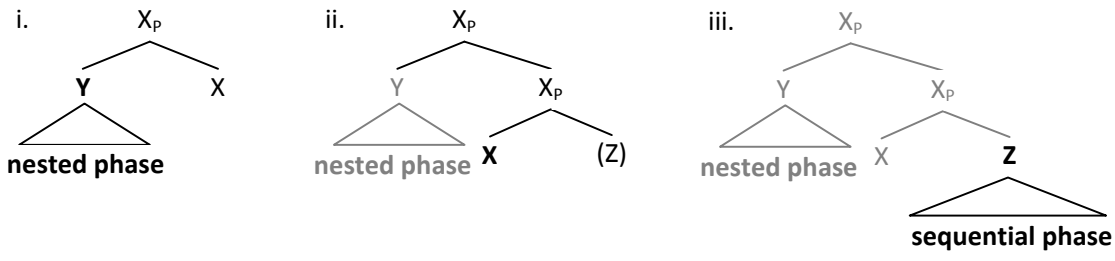
The goal of this talk is to provide empirical arguments in favor of a derivational view of the grammar in which structure building occurs, incrementally, top-down (Chesi 2004a, 2007) and from left to right (Phillips 1996, 2003).

Following the Minimalist research spirit (Chomsky 1995-2008), I will show that the bottom-to-top orientation of phrase structure building is not a "virtual conceptual necessity" and that we can gain in descriptive adequacy if we drift away from the idea that the basic recursive operation is a set formation operation like Merge.

In a nutshell, I propose reversing the set-formation/hierarchy-building procedure: if phrases are expanded, instead of being created by Merge, we can interpret the notion of Phase (Chomsky 2008) as the minimal expansion domain in which a given set of features must be linearized and processed (i.e. lexicalized or further expanded). For instance, given the phase X_P in (1), linearly expanded as <Y X>, assuming nothing but the geometry of the structure and the sequence of processing of these two features (Y must be processed before X), we can distinguish Y from X in computational terms given that Y will be processed (either expanded or lexicalized) as a nested phase, that is, while X, the head (in the sense of Pollard & Sag 1994) of the phase X_P, is not computed yet (1.i). Considering other potential features within the same X_P phase to be expanded before X, the complexity for allowing recursive expansion of nested phases like Y, can be precisely calculated (Chesi 2004b) and described by a cost function whose growth is exponential. At the end of the processing of Y, the head X will be lexicalized and once the lexical features expressing the thematic requirement(s), if any, related to X will be inspected, their need(s) will be expanded, rightward, as sequential successive phase(s) Z (1.ii). Since Z will be the last feature(s) predicted by the current phase, we can safely abandon (close) the superordinate phase (1.iii) and expand Z independently. Because of this, we predict that the cost of expanding/processing the selected complement will be much lighter than expanding any pre-head feature (the cost function draws a linear complexity growth with respect to the length of features to be expanded as sequential phases, Chesi 2004b). This prediction seems to be empirically interesting since the class of nested constituents in this system turns out to correspond exactly to what is considered to be a Strong Island (Subject and Adjunct islands).

(1)



Here I assume that Movement (long-distance/filler-gap dependency) is triggered by the fact that unexpected (un-licensed) features are inserted in the computation: this is because features come in bundles from the lexicon/grammar, and lexicalizing a "criterial position" (in the sense of Rizzi 2006) might result in introducing extra features; this is the case, for instance, of the wh- elements like "who" that lexicalize an expected interrogative feature, but also bring argumental features (i.e. "who" is a

"determined" nominal entity, i.e. a DP expressed by an ordered feature set like <D N>) that are not licensed. This way we rephrase any non-local dependency (here I will discuss only A'- Movement, Chesi 2004-07, but see Bianchi & Chesi 2007/10 for QR, Bianchi 2008/10 for Pronominal Binding and Chesi 2009 for Extraposition and Heavy NP-shift) in Top-Down, Left-Right terms, using a Memory Buffer where unexpected feature bundles are stored, until the (first) relevant selecting position is found (i.e. a specific phase head with exactly the unexpected feature requirements expressed by thematic selection necessities). Regulating the access and the inheritance mechanism of the memory buffer content through phases (only selected phases can discharge the content of the memory buffer), we succeed in capturing, among other things, islandhood (Chesi 2004, Bianchi & Chesi 2006, Bianchi & Chesi 2012) and parasitic gap constructions (Bianchi & Chesi 2006). Tuning the inheritance mechanism and regulating the order of the structure building operations (e.g. delayed expansion of selected phases in nested constituents) we can account also for the intermediate status, in terms of transparency with respect to extraction, of certain adjuncts (Pollard & Sag 1994) and for the reconstruction/"transparency" behavior of certain subject positions (e.g., simplifying the whole story, subjects of unaccusatives and passives, Bianchi & Chesi 2012).

I want to stress here that this grammatical perspective does not provide a processing account of these phenomena (the grammar is not the parser from this perspective), but it simply shows how a formal grammatical model that includes exactly these directionality constraints is empirically more adequate in unifying a relevant set of facts otherwise mysteriously related. Time permitting, I would also try to show that this grammatical model is explanatory more adequate than the standard Minimalist one and that locality constraints (e.g. Relativized Minimality, Rizzi 1990) and many asymmetries found in processing minimal pairs of sentences (e.g. Subject Vs. Object Relative clauses, Traxler et al. 2002, Belletti & Chesi 2011) can be directly described in terms of memory (over)load and feature confusion.

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