

Structure Building That Can't Be!

Samuel D. Epstein (U-Mich) Hisatsugu Kitahara (Keio/U-Mich) T. Daniel Seely (EMU)

In this paper, we combine Chomsky's (2007, 2008) phase-based analysis with Epstein et al.'s (1998) derivational approach to syntactic relations. We identify a unique property of the resulting system and deduce a number of seemingly disparate principles and distinctions by appeal to the proposed synthesis.

A Derivational Approach to Syntactic Relations

Epstein et al. (1998) proposed that the only relations that exist for C_{HL} are those established by the derivational process itself. Specifically, c-command is the relation that Merge establishes between α and terms of β at the exact point of merging α to β . One unique property of this approach is that, if α is merged "non-cyclically" to an embedded category γ , where γ is a distinct term of β , then α will c-command every term of γ , but there will be no c-command relation between α and any higher term of β .

Deriving the "Invisible" Status of SPEC-T

Such "non-cyclic" merger has been implemented in Chomsky's (2007, 2008) feature-inheritance analysis. To be concrete, let us assume that C_{HL} has constructed $[_{TP} T [_{vP} NP [_{v'} v VP]]]$. As a next step, External Merge (EM) merges C to $[_{TP} T [_{vP} NP [_{v'} v VP]]]$, forming $[_{CP} C [_{TP} T [_{vP} NP [_{v'} v VP]]]$. At this point, T inherits unvalued ϕ -features and tense from C. Subsequently, Agree values ϕ -features on T and Case on N, and Internal Merge (IM) merges NP to $[_{TP} T [_{vP} NP [_{v'} v VP]]]$, forming $[_{TP} NP [_{T'} T [_{vP} NP [_{v'} v VP]]]$. Now, given the unique (derivational) property discussed above, NP occupying SPEC-T c-commands every term of $[_{TP} T [_{vP} NP [_{v'} v VP]]]$, but C does not c-command NP occupying SPEC-T, because, recall C was merged to a "SPEC-less" TP, namely $[_{TP} T [_{vP} NP [_{v'} v VP]]]$, and the (derivationally determined) c-command domain of C was established at that point of the derivation. Chomsky (2008:150) noted: "[the edge-feature] EF of C cannot extract the PP complement from within SPEC-T: if it could, the subject-condition effects [exhibited by (1) and (2)] would be obviated."

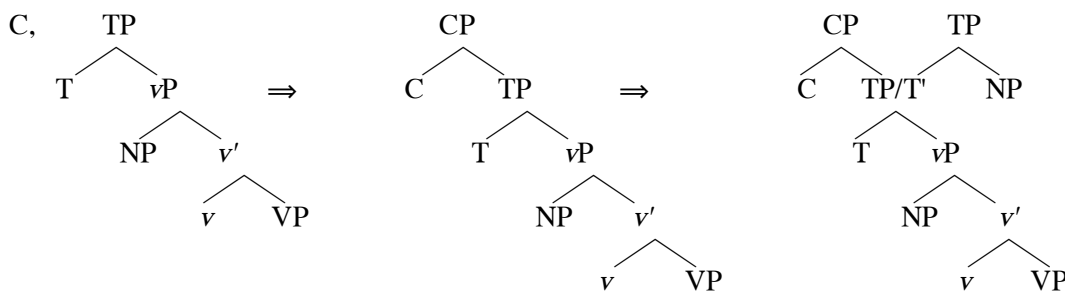
- (1) a. it was the CAR (not the TRUCK) of which [they found the (driver, picture)]
 b. of which car did [they find the (driver, picture)]?
- (2) a. *it was the CAR (not the TRUCK) of which [the (driver, picture) caused a scandal]
 b. *of which car did [the (driver, picture) cause a scandal]?

Chomsky continued: "[i]t must be, then, that the SPEC-T position is impenetrable to EF, and a far more natural principle would be that it is simply invisible to EF." No analysis of this optimal result is offered. The present analysis explains the "invisible" status of the SPEC-T position (formed by "non-cyclic" merger) as a natural property of the derivational system.

Deriving the "Impenetrable" Status of Phase-Complement

The two applications of Merge, EM(C, TP) and IM(NP, TP), in effect, create an object with two roots, in which $[_{TP} T [_{vP} NP [_{v'} v VP]]]$ is "shared" by the Merged elements C and NP, as illustrated in (3) (the linear order is irrelevant):

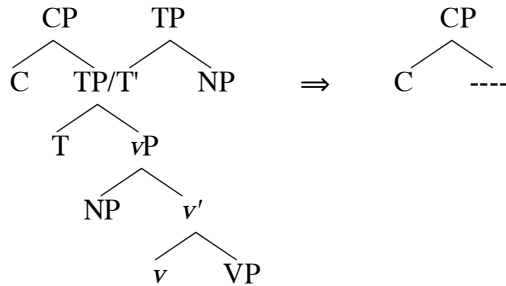
- (3) a. EM merges C to $[_{TP} T [_{vP} NP [_{v'} v VP]]]$: b. IM merges NP to $[_{TP} T [_{vP} NP [_{v'} v VP]]]$:



Notice, such a two-rooted object does not meet Chomsky's (1995) definition of "syntactic

objects" since it is neither a lexical item nor of the type $\{\gamma, \{\alpha, \beta\}\}$. To eliminate the two-rooted object (thereby allowing the derivation to continue), we propose that inside the phase cycle, Transfer removes one root of this illegitimate object at the exact moment "non-cyclic" merger creates it. More specifically, Transfer targets the label T of the "shared" object and sends every object labeled by T to the interface, as illustrated in (4):

(4) Transfer targets the label T of the "shared" object and sends every object labeled by T to the interface:



This algorithm explains why Transfer applies when it does (every time and only when a two-rooted object is created due to "phase head (PH) and non-PH" feature-inheritance), and it also explains why the application of Transfer removes everything but PH and its edge (i.e. SPEC) (the right, not the left peak of the "two-rooted" object is deducibly the one that must be eliminated) thereby rendering the phase-head-complement "impenetrable" to subsequent operations. Extending the present analysis to the vP phase, the Phase-Impenetrability Condition (PIC) is explained by the (deducible) application of Transfer employed to overcome the inevitable creation of a two-rooted object by feature-inheritance and "non-cyclic" merger.

Eliminating the Strong vs. Weak Distinction

As shown above, Transfer will remove the phase-head-complement if feature-inheritance from PH to the head that PH selects takes place, and "non-cyclic" merger creates a two-rooted object. Suppose that the valuation of Case (following feature-inheritance) is a necessary condition for "non-cyclic" merger. Then, the absence of Case-valuation implies the absence of non-cyclic merger. If so, Transfer need not and will not apply under the principle of last resort (part of computational efficiency). This analysis captures the absence of PIC effects in raising/passive vP without invoking Chomsky's (2001) strong vs. weak distinction. Similarly, it captures the absence of PIC effects in the Icelandic counterpart to "Jon(dat) like(pl) the-books(Nom, pl)" (where T agrees in number with Nominative object occupying its base position inside the complement of v), one of the reasons why Chomsky (2001) revised his (2000) definition of PIC.

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