Labeling via Feature Valuation

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Chomsky (2015: 9) proposes that English T differs from Italian T in that it is so weak that it cannot label an output syntactic object derived by the application of Merge. Interestingly enough, Chomsky (2015: 10) also proposes that English T can be strengthened sufficiently by a Spec-Head relation to serve as a label for an unlabeled syntactic object. In this paper, we propose a new manner of labelingby means of which the label of {T, v*P} is determined without recourse to Spec-Head relations. More specifically, we argue that the valuation of the φ feature strengthens both English weak T and universally weak R. Given Boeckx's (2011) analysis of feature composition for parametric variation, the difference in licensing of pro-drop phenomena—subjectless finite sentences— between, for example, English and Italian follows from our proposal.

Key Words : labeling, Merge, Spec-Head relation, φ feature, feature valuation, weak T, weak R

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Ⅰ　Introduction [1]

Chomsky (2015: 9) proposes that English T differs from Italian T in that it is so weak that it cannot label an output syntactic object derived by the application of Merge. Interestingly enough, Chomsky (2015: 10) also proposes that English T can be strengthened sufficiently by a Spec-Head relation to serve as a label for an unlabeled syntactic object. [2]

Let us examine the following derivational stages to see how his proposal works. The syntactic object {T, v*P} is derived by means of the application of (External) Merge to T and v*P, as depicted in (1) and (2).

(1)　　　Merge(T, v*P) = {T, v*P}

(2)　　　[$_\alpha$ T v*P]

Minimal search, originating in α in (2), identifies T as a promising candidate for the label of {T, v*P}. [3] However, T is too weak to serve as a label in English, as noted, leaving us with an unlabeled syntactic object. [4] Since Merge can apply freely, it next applies to DP and α, as shown in (3).

(3)　　　Merge(DP, α) = {DP, α}

The head of DP and the head of α, that is, T, share the feature φ, and thus {DP, α} is assigned the label <φ, φ>, as in (4).

(4)　　　[$_{<φ, φ>}$ DP α]

However, we should notice another labeling effect of this merger. Assuming that there is established a Spec-Head relation between DP and T in (4), Chomsky (2015: 10) proposes that T is strengthened by the relation so that it can serve as the label of α, which suggests that a more accurate resulting structure would be the one shown in (5).

(5)　　　[$_{<φ, φ>}$ DP [$_{TP}$ T v*P]]

We propose a new manner of labeling in this paper by means of which the label of {T, v*P} is determined without recourse to Spec-Head relations. More specifically,

we argue that the valuation of the φ feature strengthens both English weak T and universally weak R. Given Boeckx's (2011) analysis of feature composition for parametric variation, the difference in licensing of pro-drop phenomena—subjectless finite sentences—between, for example, English and Italian follows from our proposal.

In the next section, we point out some relevant outstanding issues. In Section III, we argue for our new analysis. On the basis of our proposal, we then deal with the parametric difference between English and Italian in Section IV, and show how R is strengthened in Section V. In Section VI, we explore some consequences of our claim.

Ⅱ　Some Outstanding Issues

As discussed in the preceding section, all syntactic objects are labeled in (5), so there seems to be no problem with the derivational stages just examined. However, we would like to point out the following issues that remain to be settled.

First, T inherits φ and tense features from C at a later step of derivation. Thus, feature-sharing between D and T as depicted in (4) is in fact unavailable, which suggests that the label of {DP, α } is still undetermined at this stage. It is therefore necessary to reconsider the derivation of (5) in a way that takes feature inheritance into account.

Second, it is unclear why and how Spec-Head relations can strengthen weak T. We should notice here that under Chomsky's (2015) proposal, the relations flourish only in labeling T and R,[5] and are not required in other contexts pertaining to Labeling Theory. Given the Strong Minimalist Thesis, it is naturally preferable to explicate how {T, v*P} is labeled without recourse to Spec-Head relations.

In addition, merger of an extra element of any category with {T, v*P} does not suffice for labeling; if it did, merger of an adverb with {T, v*P} would end up strengthening of T, which would imply that subjectless finite sentences such as (6) are falsely predicted to be grammatical in English.

(6)　　*Secretly made plans for the future.
　　　（Cf. He secretly made plans for the future.）

　　As shown in (5), it is DP that strengthens T. This is why constructions such as (6) are excluded. However, we then face a further question: why does only DP play such a significant role in strengthening T?

Ⅲ　Proposal

　Accepting Chomsky's (2015, 2016) cyclical derivation of clausal structure, we propose that the φ feature valuation of T by D strengthens T. Let us reexamine the following derivational steps to see how labels are determined under our analysis.

(7)　　　a.　　　$[_{\alpha}$ T ν*P] (= (2))

　　　　　b.　　　$[_{\beta}$ [D NP]$[_{\alpha}$ T ν*P]]

　　　　　c.　　　$[_{CP}$ C $[_{\beta}$ [D NP]$[_{\alpha}$ T ν*P]]]

　　After merging C and β, as shown in (7c), T inherits the unvalued φ feature from C.[6] Then, the φ feature is valued by D via Agree. By means of feature-sharing between T and D, β is labeled <φ, φ>. As proposed above, the valuation of the φ feature strengthens T. As a result, minimal search from α identifies T as the label of {T, ν*P}, thereby deriving (8).

(8)　　　$[_{CP}$ C $[_{<\phi, \phi>}$ [D NP]$[_{TP}$ T ν*P]]]

Ⅳ　Valuation and Labeling

　　Given our proposal, outlined in Section III, that the φ feature valuation strengthens T, we are now in a position to see how the φ feature valuation results in a strengthened T. First, according to Boeckx's (2011) analysis of feature composition for parametric variation, "languages may choose to express f_1 and f_2 separately (analytically) or as a bundle (syncretically)" (p. 215). On the basis of his analysis, we would like to argue that the unvalued φ and valued tense features—inherited from C —are expressed separately under T (as depicted in (9)) in languages such as English that have "poor" agreement systems disallowing pro-drop constructions (see (6)). On

the other hand, in languages such as Italian that have "rich" agreement systems that facilitate pro-drop phenomena, the two inherited features are expressed as a bundle under T, as indicated in (10).

(9)　　　　　　　　　T

[φ feature]　　　[tense feature]

(10)　　　　　　　　T
　　　　　　　　　　|
　　　　[φ feature + tense feature]
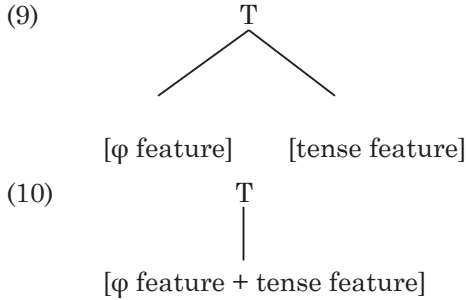
Given (9), minimal search ambiguously finds two candidates for the label of {T, v*P} in (7a), namely, [φ feature] and [tense feature]. This is parallel to cases like {XP, YP} and {H, H}, in that the LA fails to determines the labels of the syntactic objects derived by Merge. We argue that the branching structure represented in (9) as well as that in {XP, YP} and {H, H} impedes the determination of labels, which arguably is what leads Chomsky (2015) to regard English T as weak.

We should note that this kind of ambiguity does not arise in (10), where T has a single bundled feature complex. Thus, minimal search readily finds a candidate for the label of {T, v*P}, which is what ultimately allows pro-drop phenomena in languages such as Italian. This is what the term "strong T" refers to.

Let us next consider how the label of {T, v*P} is determined in languages such as English on the basis of (7c), reproduced below as (11).

(11)　　　$[_{CP}$ C $[_{\beta}$ [D NP]$[_{\alpha}$ T v*P]]]

Minimal search is possible both from α and from β. With regard to the latter, D and T are identified as sharing the same φ feature, which suggests that the φ feature in (9) participates in the LA, leaving the tense feature intact for another minimal search. In this way, minimal search from α finds the tense feature for the label of α, that is, {T, v*P}. This is how α and β are labeled as shown in (8) under our analysis; thus, this helps explicate the process of strengthening.

Ⅴ　The Label of R

Let us examine how R is strengthened under our theory by examining the following derivational stages.

(12)　　a.　　　$[_\alpha \text{ R DP}]$

　　　　b.　　　$[_\beta \text{ DP } [_\alpha \text{ R } t]]$

　　　　c.　　　$[_{v*P} \, v^* \, [_\beta \text{ DP } [_\alpha \text{ R } t]]]$

　　　　d.　　　$[_{v*P} \, v^* \, [_{<\phi, \, \phi>} \text{ DP } [_{RP} \text{ R } t]]]$

Minimal search starting from α recognizes R as a candidate label in (12a). However, R, which has no φ feature at this point, does not qualify as a label. Internal Merge then derives (12b), but the label of β is still unspecified. However, the introduction of v^* to the derivation makes it possible for R to inherit the unvalued φ feature from v^* in (12c). After the φ feature valuation of R by D, β receives the label <φ, φ>. Since R has the valued φ feature, it becomes sensitive to minimal search from α, serving as the label of α. This yields the labels indicated in (12d).

Ⅵ　Summary and Consequences

Our proposals can be recapitulated as follows. First, for some categories, such as T and R, a valued φ feature is required to become a label. Second, parametric variation in pro-drop phenomena is explained by our new analysis together with Boeckx's (2011) proposal. In the rest of this section, we would like to consider two consequences arising from it.

First of all, our proposal dispenses with the notion of "strengthening by Spec-Head relations," which could, however, survive as a handy metaphorical expression for illustration. This in turn implies that Spec-Head relations no longer play a significant role in syntactic computation or I-language, which is a welcome outcome under the Strong Minimalist Thesis.

Second, as far as the φ features of T and R are valued, T and R are invariably eligible for labels. Thus, it is natural that they will never be "de-labeled" in the course of derivation. Therefore, contrary to Chomsky (2015: 11), we no longer need

the assumption that information regarding labels is temporarily stored in "memory" until Transfer applies, to ensure that labeled syntactic objects will not go back to unlabeled ones. In this way, we obtain another desirable consequence in light of the Strong Minimalist Thesis.

Of course, it is still necessary to clarify why the valued φ feature contributes to labeling, which calls for a more elaborated analysis. It is interesting to note that Grano and Lasnik (2018) argue that the phasehood of CP is dependent on the valuation of the φ feature. Both their proposal as well as ours seem to point to the new necessity of scrupulous scrutiny of the role of the φ feature.

Notes

1   I would like to thank Jae-Young Shim (Pukyong National University, South Korea) for useful comments on the earlier version of this paper. All remaining inadequacies are mine alone.

2   Terms such as "weak," "strong," and "strengthen" have been used metaphorically. In Section IV, we will clarify what they syntactically represent in a consistent manner.

3   The Labeling Algorithm (LA) applies at a phase level (Chomsky (2013: 43, 2015:14)). For ease of illustration, however, we assume step-by-step applications of the LA in each derivational stage in what follows.

4   On the other hand, since T is strong in languages like Italian, it qualifies to serve as the label of {T, v*P}. Therefore, the next application of Internal Merge, indicated in (3), is not required for this labeling-theoretic reason. For example, subjectless sentences such as *È tornado* '(He) returned' are grammatical in Italian.

5   Chomsky (2015) argues that T is weak in specific languages such as English, but that R is cross-linguistically weak, a distinction we deal with in Section V.

6   Chomsky (2015) argues that T inherits the valued tense feature and phasehood along with the φ feature from C, but we concentrate on the φ feature valuation in this article for expository purposes.

References

Boeckx, Cedric (2011)“Approaching Parameters from Below,”*The Biolinguistic Enterprise*, ed. by Anna Maria Di Sciullo and Cedric Boeckx, 205-221, Oxford University Press, Oxford.

Chomsky, Noam (2013)“Problems of Projection,”*Lingua* 130, 33-49.

Chomsky, Noam (2015)“Problems of Projection: Extensions,”*Structures, Strategies and Beyond: Studies in Honour of Adraiana Belletti*, ed. by Elisa Di Domenico, Cornelai Hamann and Simona Matteini, 3-16, John Benjamins Publishing Company, Amsterdam.

Chomsky, Noam (2016)“Puzzles about Phases,”to appear in *Linguistic Variation: Structure and Interpretation: A Festschrift in Honour of M. Rita Manzini*, ed. by L. Franco and P. Lorusso, Mouton De Gruyter, Berlin and Boston.

Grano, Thomas and Howard Lasnik (2018)“How to Neutralize a Finite Clause Boundary: Phase Theory and the Grammar of Bound Pronouns,”*Linguistic Inquiry* 49, 465-499.