

## Label Weakness and the EPP

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**Issue:** Chomsky (2015) argues that the EPP is reducible to labeling and proposes that in languages like English, T is subject to label weakness (= (1)):

- (1) **Label Weakness:** T by its nature is too weak to serve as a label on its own; in order to work as a label, T must have overt or visible Spec,TP. (Chomsky 2015:9-10)
- (2) \* $[\lambda$  Was [written the book by the professor]] ( $\lambda$  = unlabeled)

Given (1), failure to raise to Spec,TP in (2) will incur a labeling problem:  $\lambda$  will not be labeled and Full Interpretation will be violated at the interfaces. This paper considers the deduction of the EPP from labeling. Though label weakness may eliminate the EPP, which, as Lasnik (2003) points out, has been a pervasive mystery (i.e., a stipulation), it also raises problems that do not arise under the EPP. I claim that the problems can be solved by Merge, showing that the operation is an important ingredient of the successful deduction of the EPP from labeling.

**Problems:** The EPP and label weakness both require the creation of Spec,TP in (2). However, there are cases where the two make different predictions. The first case is where the subject moves out of the Spec in question. Consider (3):

- (3) a. [<sub>CP</sub> Which professor [C [ $\lambda$  t will win the Nobel Prize]]]?  
b. Which professor [do you think [ $\lambda$  t will win the Nobel Prize]]?

In these examples, the subject moves to Spec,TP but moves out to Spec,CP for interpretation, which yields a copy in the Spec of TP. Suppose that overtness or visibility of syntactic objects or occurrences is defined as in (4) (Chomsky 2013:44):

- (4)  $\alpha$  is taken to be in the domain D if and only if every occurrence of  $\alpha$  is a term of D.  
Given (4), copies, being part of a discontinuous element, are syntactically invisible and cannot be overt Spec. Then in (3), T, as it is without overt Spec, cannot work as a label, with  $\lambda$  left unlabeled; on the other hand, the EPP on T can be satisfied, whether Spec,TP is overt or covert (i.e., a copy). Unlike the EPP, label weakness predicts that (3) is ill-formed. This argument is supported by (5), where subject movement does cause ill-formedness for lack of overt Spec,TP:  
(5) \*Which professor do you think [that [ $\lambda$  t will win the Nobel Prize]]? ( $\lambda$  = unlabeled)

The same problem is also found in (6), where T is infinitival:

- (6) a. The student seems [ $\lambda$  to [be in the library]]. ( $\lambda$  = labeled)  
b. Which student do you believe [ $\lambda$  to [be the most intelligent]]?

As in (3), even though the subject moves to the embedded Spec,TP on its way, it will move out and  $\lambda$  will be left unlabeled in the absence of overt Spec. Unlike the EPP, label weakness wrongly predicts ill-formedness with (6).

The second case is found in the verbal domain. Chomsky argues that label weakness also applies to the root R, which is categorized as V when selected by  $v/v^*$ : R, like T, is weak as a label and cannot label without overt Spec. This means that the object always raises from its base position to Spec,RP for labeling purposes; otherwise, labeling failure will result with  $\beta$ :

- (7) a. The student will [read- $v^*$  [the book [ $\beta$  R t]]] ( $\beta$  = V)  
b. The student will [read- $v^*$  [ $\beta$  R the book]] ( $\beta$  = unlabeled)

This is not what the EPP predicts. Unlike the subject EPP, the object EPP is not forced in languages like English. The absence of the object EPP is evidenced, for instance, by grammatical extraction from the object in (8):

- (8) Who did Mary see [a picture of t]?

It has been much argued in the literature that movement is not possible out of moved elements (Bošković 2018 a.o. and references cited therein). Then, well-formed extraction from the object in (8) suggests that [a picture of t] stays put in its externally merged position. This argument is supported by (9). According to Mahajan (1992), specific objects move out to a Spec in the verbal domain. In this case, as shown in (9), extraction of the object is indeed ill-formed:

- (9) \*Who did Mary steal [that picture of t]?

Label weakness wrongly predicts that (8) is ill-formed.

**Proposal:** I propose that Merge solves the problems posed by label weakness. Merge applies freely, constrained only by general principles of minimal computation (or 3rd factor principles)

(Chomsky 2013, 2015). Under this assumption, two modes of Merge are available for free: set-Merge (=10a), which creates a new set out of  $\alpha$  and  $\beta$ , and pair-Merge (=10b), which yields an ordered pair, producing an adjunction structure: if  $\beta$  is pair-merged to  $\alpha$ , it is adjoined to  $\alpha$ :

(10) a.  $\{\alpha, \beta\}$                       b.  $\langle\alpha, \beta\rangle$

I claim that in examples where labeling failure does not arise, T and R are externally pair-merged to C and  $v$ , respectively, with (11a) and (11b) produced, instead of (12a) and (12b):

(11) a.  $[_\delta \langle C, T \rangle [_\alpha \dots ]]$     b.  $[_\omega \langle v, R \rangle [ \dots ]]$

(12) a.  $[_\kappa C [_\lambda T [_\alpha \dots ]]]$     b.  $[_1 v [_\beta R [ \dots ]]]$

In (11), a T-headed set  $\lambda$  and an R-headed set  $\beta$  are not produced and overt Spec is not required for labeling purposes. Moreover,  $\alpha$  with  $\beta$  adjoined to it is syntactically on par with  $\alpha$  (Chomsky 2004, 2015, Fukui 2017);  $\langle C, T \rangle$  is on par with C and  $\langle v, R \rangle$  on par with  $v$ . Notice that C and  $v$  are strong as labels, able to label without overt Spec. The problems that arise under label weakness are solved by Merge. Merge, together with label weakness, explains the EPP.

**Consequences:** One consequence of the proposal is that it can eliminate the need to assume strong T and weak T: languages have only weak T. Chomsky (2015) claims that T in languages like Italian and Spanish is strong and can label on its own. One argument for this is that a null subject is possible for such languages, with no overt subject or overt Spec required for labeling:

(13) Ha parlato. [Italian]                      (14) Hemos trabajado todo el día. [Spanish]  
has spoken    have worked all the day

‘He spoke.’ (Burzio 1986)                      ‘We have worked all day.’ (Perlmutter 1979)

Given the proposal, so-called “strong T” follows from external pair-merge of T to C. Suppose that in null-subject languages, (11a), instead of (12a), is generated. Thanks to the pair-merge, a T-headed set is not produced and overt Spec is irrelevant to labeling; hence a null subject is observed. Under the proposal, parametric variation regarding strong/weak T is explained as one consequence of 3rd factor compliant applications of Merge (Obata et al. 2015).

The second consequence is that labeling is one side of the EPP. If (11a) is generated to overcome label weakness in (3) and (6), it can also be yielded in (2), predicting a null subject. Following Mizuguchi (2017), I argue that the other side is externalization at the SM level: Spec works as an instruction to externalization that  $\phi$ -features are canonically externalized:

(15)  $[_{\text{Spec}} [_\delta \langle C_\phi, T \rangle [_\alpha \dots (t) \dots ]]]$  ( $\phi \rightarrow$  externalized)

$\phi$ -features are canonically externalized under Spec-head or XP-YP. In (2), the derivation under (11a) will be ruled out as  $\phi$ -features cannot be realized, which violates Full Interpretation at the SM interface; the EPP is forced by externalization. Notice that in null-subject languages, the creation of Spec is irrelevant to  $\phi$  externalization: verbal inflections in such languages are inherently valued  $\phi$ -features (Alexiadou & Anagnostopoulou 1998, Baker & Hale 1990 a.o.).

The third consequence is that the intermediate EPP or successive cyclic A-movement is explained. Recall that in (6),  $\langle C, T \rangle$  is created, which overcomes label weakness of T. Recall that  $\langle C, T \rangle$  is on par with C. This means that the composite head works as a phase head. Then unless the subject moves to the Spec of  $\langle C, T \rangle$ , it cannot move out for phase impenetrability. Successive-cyclic A-movement is evidenced, for instance, by (16), where the surface subject can be legitimately interpreted only in the position marked as “\_\_” or the Spec of  $\langle C, T \rangle$ : *every man* can bind *his* without a Condition C violation (Bošković 2002):

(16) [*His mother*’s bread] seems to *every man* [ \_\_ to be known by *her* to be the best there is].

Under free Merge, successive-cyclic A-movement will not be forced unless cyclic Transfer applies. The successive cyclicity can be deduced from overcoming label weakness by Merge.

**Conclusion:** This paper claims that problems with label weakness can be solved by Merge, arguing that Merge is an integral part of the deduction of the EPP from label weakness (i.e., Full Interpretation). The paper shows that Merge plays a key role in language and supports the hypothesis that language is explained by Merge and the properties of the interfaces.

**References:** Alexiadou & Anagnostopoulou. 1998. Parameterizing AGR. Baker & Hale. 1990. Relativized minimality and noun incorporation. Bošković. 2002. A-movement and the EPP. Bošković. 2018. On movement out of moved elements, labels, and phases. Burzio. 1986. *Italian syntax*. Chomsky. 2004. Beyond explanatory adequacy. Chomsky. 2013. Problems of projection. Chomsky. 2015. Problems of projection: Extensions. Fukui. 2017. *Merge in the mind-brain*. Lasnik. 2001. *Minimalist investigations in linguistic theory*. Lasnik. 2003. On the extended projection principle. Mahajan. 1992. The specificity condition and the CED. Mizuguchi. 2017. Labelability and interpretability. Obata et al. 2015. Can crosslinguistically variant grammars be formally identical? Perlmutter. 1979. *Deep and surface structure constraints in syntax*.