

## Pair-Merge of Heads and the Bound Pronoun Effect

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## Pair-Merge of Heads and the Bound Pronoun Effect\*

Yuka Usui

### 1. Introduction

As a lot of previous studies suggest, some movement operations do not allow an item to move across finite clause boundaries, but do allow movement across nonfinite clause boundaries. The sentences in (1) and (2) are examples that illustrate this. In each set of data, (a)-sentences involve *too*-movement, (b)-sentences involve Gapping, and (c)-sentences involve Quantifier Raising. (Strikethrough indicates elided parts.)<sup>1</sup> This contrast does not obtain in other movement operations like *wh*-movement, which can move a *wh*-word/phrase successive-cyclically across clauses regardless of the clause type, as in (3).

- (1) a. \*This magazine is too lowbrow [for John to claim that Bill reads].  
b. \*Mary claims that Jill likes apples and [Ann ~~claims that Jill likes~~ oranges].  
c. \*At least one professor claims that [Ann reads every journal]. ( $\forall > \exists$ )  
(Grano and Lasnik (2018: 466))

- (2) a. This magazine is too lowbrow [for John to claim/tend to read].  
b. Mary claims/tends to like apples and [Ann ~~claims/tends to like~~ oranges].  
c. At least one professor claims/tends [to read every journal.] ( $\forall > \exists$ )  
(Grano and Lasnik (2018: 467))

- (3) a. What might he think that she is hiding? (Radford (2009: 207))  
b. What kind of prize do you want to award? (Radford (2009: 434))

Worth noting here is the fact that, as Grano and Lasnik (2018) (henceforth G&L) explicitly present through experimental studies, the “clause-boundedness effect” observed in finite clauses in (1) are significantly alleviated if a bound pronoun is

employed as the embedded subject, as suggested in (4).

- (4) a. ? This magazine is too lowbrow [for John<sub>i</sub> to claim that he<sub>i</sub> reads].  
 b. ? Mary<sub>i</sub> claims that she<sub>i</sub> likes apples and [Ann<sub>j</sub> ~~claims that she<sub>j</sub> likes~~  
 oranges].  
 c. ? At least one professor<sub>i</sub> claims that [she<sub>i</sub> reads every journal]. ( $\forall > \exists$ )  
 (Grano and Lasnik (2018: 467))

G&L call this amelioration the “bound pronoun effect (henceforth BPE)” and present a compelling analysis of the contrast between (1) and (4). Despite the initial attractiveness, their analysis has theoretical and empirical problems. The aim of this paper is to give a more satisfactory explanation to BPE so that several problems left with G&L’s work can be circumvented.

The remainder of this paper is organized as follows. Section 2 goes over G&L’s analysis on BPE and points out theoretical and empirical problems. Section 3 gives theoretical background, based on which the analysis in this paper is spelled out. The main proposal is articulated in Section 4. In Section 5, I lay out the analysis of BPE and suggest that the proposal made in this paper can overcome the drawbacks of G&L’s original approach. I extend the postulated analysis to amelioration of the *that*-trace effect by resumptive pronouns, Copy Raising, and clause-boundedness in nonfinite clauses in Section 6. Section 7 concludes the discussion.

## 2. Grano and Lasnik (2018)

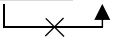
Let us first review Grano and Lasnik (2018), an influential work on BPE. Conducting a detailed experiment on grammatical judgment, G&L corroborate that the employment of bound pronouns can improve the acceptability of the otherwise robustly rejected examples with movement across finite clauses. I repeat the relevant Gapping examples in (5).

- (5) a. \*Mary claims that Jill likes apples and [Ann ~~claims that Jill likes~~ oranges].  
 (= (1b))  
 b. Mary claims/tends to like apples and [Ann ~~claims/tends to like~~ oranges].  
 (= (2b))

- c. ? Mary<sub>i</sub> claims that she<sub>i</sub> likes apples and [Ann<sub>j</sub> ~~claims that she<sub>j</sub> likes~~ oranges]. (= (4b))

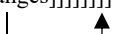
Suppose that, in accordance with G&L, Gapping involves (specifically, rightward) movement (see Section 4 for discussion).<sup>2</sup> To provide an account to this effect, G&L propose that unvalued features on the head of the complement of the phase head can delay Transfer, by saying that C and possibly  $v^*$  are “candidate” phase heads. As shown in (6b), when the embedded subject is an R-expression, it can get the unvalued features on T checked via agreement. Since Transfer of the TP, which I illustrate by shading, is applied immediately, the embedded object *oranges* cannot move to the matrix clause. This is what we see in (5a), where movement across clause boundaries is prohibited.

- (6) a. \*Mary claims that Jill likes apples and [Ann ~~claims that Jill likes~~ oranges]. (= (5a))

- b. [CP<sub>1</sub> C<sub>1</sub> [TP Ann T [<sub>vP1</sub> v<sub>1</sub> [<sub>VP</sub> claim [CP<sub>2</sub> C<sub>2</sub> that [TP Jill<sub>[φ]</sub> T<sub>[vφ]</sub> [<sub>vP2</sub> v<sub>2</sub> [<sub>VP</sub> like oranges]]]]]]]]]  


Now let us examine the example in (5c), which exhibits BPE. What G&L suggest is that bound pronouns are optionally equipped with unvalued  $\phi$ -features, which get values at the timing of their antecedents being introduced (see Kratzer (2009)).<sup>3,4</sup> If the embedded subject is a bound pronoun born without  $\phi$ -features, as sketched in (7b), the unvalued features on T cannot be checked at the embedded CP phase level, due to the unvalued  $\phi$ -features on the subject pronoun. This results in the suspension of transferring the TP, which in turn enables an embedded object to move across clauses later in the derivation. Valuation on the embedded T is accomplished after the antecedent of the bound pronoun is introduced at the matrix level, where it gives the pronoun values.

- (7) a. ? Mary<sub>i</sub> claims that she<sub>i</sub> likes apples and [Ann<sub>j</sub> ~~claims that she<sub>j</sub> likes~~ oranges]. (= (5c))

- b. [CP<sub>1</sub> C<sub>1</sub> [TP Ann T [<sub>vP1</sub> v<sub>1</sub> [<sub>VP</sub> claim [CP<sub>2</sub> C<sub>2</sub> that [TP pro<sub>[uφ]</sub> T<sub>[uφ]</sub> [<sub>vP2</sub> v<sub>2</sub> [<sub>VP</sub> like oranges]]]]]]]]]  


Although G&L's analysis succeeds in explaining BPE in an elegant manner, there are theoretical and empirical problems with this approach. As suggested above, they assume that C and  $v^*$  are (candidate) phase heads. They note, however, that  $v^*$  is “never an actual phase head, because the head of its complement (i.e., V) always has morphological tense and agreement features that are not valued until higher in the clause” (Grano and Lasnik (2018: 488, fn.17)). This does not fit with the assumption generally made in the recent framework, which posits  $v^*$  as a phase head that enables agreement and Case assignment. Another problem is an empirical one. As shown in (8), BPE is not observed in the structure with verbs taking an object DP and a CP complement, such as *persuade* and *promise*. This is not expected under G&L's analysis, in which bound pronoun subjects in the embedded clause should cause Transfer of the embedded TP to be delayed.<sup>5</sup>

- (8) a. \*Joe<sub>i</sub> persuaded Bill<sub>j</sub> that he<sub>j</sub> should read *Pride and Prejudice* and [Tim<sub>k</sub> ~~persuaded Bill<sub>j</sub> that he<sub>j</sub> should read~~ *Sense and Sensibility*].  
 b. \*Joe<sub>i</sub> promised Bill<sub>j</sub> that he<sub>j</sub> had already read *Pride and Prejudice* and [Tim<sub>k</sub> ~~promised Bill<sub>j</sub> that he<sub>j</sub> had already read~~ *Sense and Sensibility*].

(Grano and Lasnik (2018: 472, fn.7))

This paper aims to overcome the problems stated above by adopting Chomsky's (2015) proposal on derivation of the  $v^*P$  phase as well as the mechanism of phase cancellation by pair-Merge advocated by Epstein, Kitahara and Seely (2016) and Nomura (2017, 2020).

### 3. Theoretical Background

#### 3.1. The Labeling Algorithm

When Merge takes two syntactic objects to create a set, the resulting set receives a label. Although it was long assumed that labels are determined automatically, a different view was provided by Chomsky (2013, 2015). He argues that, since Merge is a symmetrical operation, and Merge is the sole operation that exists in human language, there must be some mechanism to determine labels. Chomsky proposes a system called the Labeling Algorithm (LA), which is illustrated in (9).

(9) Labeling Algorithm

- (i) If a set  $\{H, XP\}$  is formed, H is the label.
- (ii) If a set  $\{XP, YP\}$  is formed, the LA cannot determine a label unless
  - a. either XP or YP undergoes movement, or
  - b. they share a prominent feature.

When a head and a phrase are merged, the former serves as a label. Meanwhile, when both are phrases, an XP-YP situation is yielded. The label for the projection of this kind is determined if either of the following options is taken. For one, either phrase moves further so that the lower copy of it becomes invisible, as a result of which the remaining phrase provides a label. The other option is available if the two elements share a prominent feature, which itself serves as a label.

In the framework of the LA, the derivation of transitive  $v^*P$  proceeds in the following manner. After an internal argument (IA) is merged to Spec-R in (10a), R inherits  $\phi$ -features from  $v^*$  in (10b). As a result of agreement between R and IA, the label of  $\beta$  is determined as  $\langle\phi, \phi\rangle$ , which in turn enables R to become the label of  $\alpha$ . (Chomsky (2015) assumes that R and English T are too weak to serve as labels by themselves, unless they are strengthened by a  $\langle\phi, \phi\rangle$  label, which is provided via agreement between R/T and an element merged to its specifier position.) In (10c), R undergoes internal pair-Merge to  $v^*$ , which renders the latter invisible. As the phasehood of  $v^*$  is cancelled, it is activated on R and the Transfer domain shifts to the complement of R.

- (10) a.  $\{\delta \text{ EA } \{\gamma \text{ } v^*_{[u\phi]} \{\beta \text{ IA}_{[\phi]} \{\alpha \text{ R } \textbf{IA}\}\}\}\}$   
       b.  $\{\delta \text{ EA } \{\gamma \text{ } v^* \{\beta \text{ IA}_{[\phi]} \{\alpha \text{ R}_{[u\phi]} \textbf{IA}\}\}\}\}$  ( $\alpha=R, \beta=\langle\phi, \phi\rangle$ )  
       c.  $\{\delta \text{ EA } \{\gamma \text{ } \langle R, v^* \rangle \{\beta \text{ IA}_{[\phi]} \{\alpha \text{ R}_{[u\phi]} \textbf{IA}\}\}\}\}$

As for the CP phase, T, which inherits  $\phi$ -features from C, enters an agreement relation with an external argument (EA) merged to Spec-T, as in (11a, b). The Transfer domain is  $\delta$ , the complement of the phase head C, as shown in (11c).

- (11) a.  $\{\varepsilon \text{ C}_{[u\phi]} \{\delta \text{ EA}_{[\phi]} \{\gamma \text{ T } \{\beta \textbf{EA} \{\alpha \text{ } \langle R, v^* \rangle \dots \}\}\}\}\}$   
       b.  $\{\varepsilon \text{ C } \{\delta \text{ EA}_{[\phi]} \{\gamma \text{ T}_{[u\phi]} \{\beta \textbf{EA} \{\alpha \text{ } \langle R, v^* \rangle \dots \}\}\}\}\}$   
( $\alpha=\beta=R-v^*, \gamma=T, \delta=\langle\phi, \phi\rangle, \varepsilon=C$ )

$$c. \{ \varepsilon C \{ \delta EA_{[\varphi]} \{ \gamma T_{[v\varphi]} \{ \beta \text{EA} \{ \alpha \langle R, v^* \rangle \dots \} \} \} \} \}$$

What is significant in the context of analyzing BPE is that, under Chomsky’s (2013, 2015) framework, we do not have to consider that  $v^*$  plays no role as a phase head, as G&L assume. Since internal arguments escape from the Transfer domain at the  $v^*P$  stage by hypothesis as in (10c), we have only to say that certain kinds of movement are phase-bounded and what needs explanation is how finite CP, but not nonfinite CP, prohibits movement across clauses.

### 3.2. Phase Cancellation by Pair-Merge

Epstein, Kitahara and Seely (2016) point out that the theory suggested in Chomsky (2013, 2015) is problematic for the derivation with a bridge verb, which takes CP as its complement. Because CP does not have  $\varphi$ -features, the unvalued features R inherits from  $v^*$  cannot be valued. Moreover, R fails to be strengthened by agreement. Epstein, Kitahara and Seely then propose that structures with this kind of verbs are derived via external pair-Merge of heads, as in (12b). Specifically, R undergoes pair-Merge to  $v^*$  to form the  $\langle R, v^* \rangle$  amalgam before being introduced to the derivation. This leads to what they call “phase cancellation,” rendering the pair-Merged head  $v^*$  with unvalued features invisible before derivation.

(12) a. I think that John is smart.

b.  $\langle R, v^*_{[u\varphi]} \rangle$  *external pair-Merge, phase cancellation*

c.  $\{ \gamma EA \{ \beta \langle R, v^*_{[u\varphi]} \rangle \{ \alpha C \dots \} \} \}$

This analysis does not give rise to the problems of unvalued features or failure of agreement, since unvalued features on  $v^*$  are invisible and do not cause the derivation to crash. Epstein, Kitahara and Seely extend this phase cancellation approach to unaccusative/passive  $vP$ , whose head  $v$  does not have unvalued features.

Another series of influential work on pair-Merge of heads is Nomura (2017, 2020), which explores a different approach from the one advocated by Epstein, Kitahara and Seely (2016). Nomura poses a question about Epstein, Kitahara and Seely’s assumption that both bridge verbs and unaccusative/passive verbs, which are quite different from each other, are similarly derived from external pair-Merge of heads.<sup>6</sup>

Noting that unergative verbs like *smile* and *laugh* can have cognate objects (e.g. *The boy smiled a friendly smile.*), Nomura proposes that external pair-Merge of R to  $v^*$  yields unaccusative/passive  $vP$ , while structures with unergative verbs and bridge verbs are derived via internal pair-Merge of R to  $v^*$ . What distinguishes the derivation of unergative  $v^*P$  from that of transitive  $v^*P$  is the timing of applying pair-Merge. Nomura’s crucial assumption is that the order of Feature Inheritance and internal pair-Merge of heads is optional. When the verb is unergative or a bridge verb, internal pair-Merge applies *prior to* Feature Inheritance, as in (13). When the verb is transitive, on the other hand, R inherits unvalued features from  $v^*$ , after which R undergoes internal pair-Merge to  $v^*$ , as in (14).

(13) a. I think that John is smart.

- b.  $\{\delta \text{ EA } \{\gamma \ v^*_{[u\varphi]} \{\beta \text{ R } \{\alpha \text{ C} \dots\}\}\}\}$   
c.  $\{\delta \text{ EA } \{\gamma \ \langle \text{R}, v^*_{[u\varphi]} \rangle \{\beta \text{ R } \{\alpha \text{ C} \dots\}\}\}\}$

*internal pair-Merge, phase cancellation*

(14) a. John likes cookies.

- b.  $\{\delta \text{ EA } \{\gamma \ v^*_{[u\varphi]} \{\beta \text{ IA}_{[\varphi]} \{\alpha \text{ R } \text{IA}\}\}\}\}$   
c.  $\{\delta \text{ EA } \{\gamma \ v^* \{\beta \text{ IA}_{[\varphi]} \{\alpha \text{ R}_{[u\varphi]} \text{IA}\}\}\}\}$   
d.  $\{\delta \text{ EA } \{\gamma \ \langle \text{R}, v^* \rangle \{\beta \text{ IA}_{[\varphi]} \{\alpha \text{ R}_{\{\text{EPP}\}} \text{IA}\}\}\}\}$

Under his analysis, therefore, phase cancellation can occur even after R and  $v^*$  are introduced separately.

## 4. Proposals

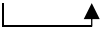
Taking the theoretical assumptions laid out in Section 3 into account, in this section, I make two proposals: the suspension of Transfer due to a labeling failure and two types of verbs taking a CP complement.

### 4.1. BPE in Terms of the LA

Let us examine how we can recapture BPE within Chomsky’s (2013, 2015) framework. As discussed in Section 2, G&L argue that unvalued features on T can postpone Transfer as in (15).

(15) a. ?Mary<sub>i</sub> claims that she<sub>i</sub> likes apples and [Ann<sub>j</sub> ~~claims that she<sub>j</sub> likes oranges~~].

b. [CP<sub>1</sub> C<sub>1</sub> [TP Ann T [<sub>v</sub>P<sub>1</sub> v<sub>1</sub> [VP claim [CP<sub>2</sub> C<sub>2</sub> that [TP pro<sub>[uφ]</sub> T<sub>[uφ]</sub> [<sub>v</sub>P<sub>2</sub> v<sub>2</sub> [VP like oranges]]]]]]]]]]] (= (7b))



What does this mean in terms of the LA? I contend that the configuration in (15b) shows a situation where the label for the TP node cannot be determined, as sketched in (16).

(16)  $\{\eta \text{ C } \{\zeta=?? \text{ pro}_{[u\phi]} \{\varepsilon=?? \text{ T}_{[u\phi]} \{\delta \text{ pro } \{\gamma <\text{R}, v^*> \{\beta \text{ IA}_{[u\phi]} \{\alpha \text{ R}_{[u\phi]} \text{ IA}\}\}\}\}\}\}\}$

The LA cannot determine the label for  $\zeta$  since, at this point of the derivation, the bound pronoun subject does not have values, which are to be provided from the antecedent in a later stage. As I mentioned in Section 3.1, Chomsky (2015) assumes that English T cannot provide a label without being strengthened by agreement. Moreover, Chomsky argues that agreement is required for the shared feature to serve as a label, which means that, in (16), it is impossible for the unvalued feature shared by pro and T to provide a label. Therefore, Transfer of the structure as in (16) would invariably result in a labeling failure. I propose that when transferring the relevant structures would give rise to the crash at the interfaces, Transfer does not apply. I maintain in this paper that the embedded finite CP with a bound pronoun subject always causes a labeling failure, thus delaying Transfer.

#### 4.2. Pair-Merge of Heads and Transfer

The second proposal is that there are two types of verbs taking CP as their complement, as illustrated in (17).

(17) a.  $\{\text{EA } \langle \text{R}, v^* \rangle \quad \{\text{R } \{\text{CP } \dots \alpha\}\}\} \rightarrow \checkmark \text{ movement of } \alpha$   
 b.  $\{\text{EA } \langle \text{R}, v^* \rangle \quad \{\text{IA } \{\text{R } \{\text{CP } \dots \alpha\}\}\}\} \rightarrow * \text{ movement of } \alpha$

The former type in (17a) is exemplified by bridge verbs such as *think*, *believe*, and *claim*. Because they do not take another internal argument whose Case feature needs checking, the matrix  $v^*P$  phase is cancelled by  $v^*$  internally getting pair-Merged to R prior to Feature Inheritance, as represented in (18b, c), as Nomura (2017, 2020) argues.

It is crucial here that nothing is to be transferred at this point, since no features are inherited to R, on which the phasehood would be activated. An item in the embedded CP is thus expected to be able to undergo movement across clauses, as long as it is accessible from outside.

- (18) a. I think that John is smart.  
 b.  $\{\delta \text{ EA } \{\gamma \text{ } v^*_{[u\phi]} \{\beta \text{ R } \{\alpha \text{ C...}\}\}\}\}$   
 c.  $\{\delta \text{ EA } \{\gamma \text{ } \langle \text{R}, v^*_{[u\phi]} \rangle \{\beta \text{ } \mathbf{R} \{\alpha \text{ C...}\}\}\}\}$

Turning to the second type of  $v^*P$  in (17b), composed of verbs that take a DP object and a CP complement, such as *promise* and *persuade*, a different picture emerges. As illustrated in (19), an internal argument of the matrix verb is externally merged to Spec-R. To satisfy the requirement of this IA to get its Case feature checked, R needs to inherit unvalued features from  $v^*$  as in (19b, c). The phasehood on  $v^*$  is activated on R after the latter undergoes internal pair-Merge to the former, as a result of which the complement of the copy of R is transferred, as shown in (19d).

- (19) a. John persuaded Mary that she should read the book.  
 b.  $\{\epsilon \text{ EA } \{\delta \text{ } v^*_{[u\phi]} \{\gamma \text{ IA}_{[\phi]} \{\beta \text{ R } \{\alpha \text{ C...}\}\}\}\}\}$   
 c.  $\{\epsilon \text{ EA } \{\delta \text{ } v^* \{\gamma \text{ IA}_{[\phi]} \{\beta \text{ R}_{[u\phi]} \{\alpha \text{ C...}\}\}\}\}\}$   
 d.  $\{\epsilon \text{ EA } \{\delta \text{ } \langle \text{R}, v^* \rangle \{\gamma \text{ IA}_{[\phi]} \{\beta \text{ } \mathbf{R}_{[u\phi]} \{\alpha \text{ C...}\}\}\}\}\}$

In this situation, there is no way for an element in the embedded CP to get moved across clauses, unless it has some feature making successive-cyclic movement via phase edges possible.<sup>7</sup> For the expository purpose, I call the first type of verbs with a CP complement as in (17a) *claim*-type verbs and the second type with an object DP plus CP complement as in (17b) *persuade*-type verbs.

## 5. Analysis

In this section, I illustrate the derivations of the following three types of Gapping examples: (i) *claim*-type verbs with no bound pronouns (=20a), (ii) *claim*-type verbs with bound pronouns (=20b), and (iii) *persuade*-type verbs with bound pronouns (=20c).

- (20) a. \*Mary claims that Jill likes apples and [Ann ~~claims that Jill likes~~ oranges].

(=(1b))

- b. ?Mary<sub>i</sub> claims that she<sub>i</sub> likes apples and [Ann<sub>j</sub> ~~claims that she<sub>j</sub> likes oranges~~]. (=(4b))

- c. \*Joe<sub>i</sub> persuaded Bill<sub>j</sub> that he<sub>j</sub> should read *Pride and Prejudice* and [Tim<sub>k</sub> ~~persuaded Bill<sub>j</sub> that he<sub>j</sub> should read *Sense and Sensibility*~~]. (=(8a))

In this paper, I hypothesize that Gapping creates CP-coordination and is derived by rightward movement of the second remnant followed by TP-ellipsis (Potter (2014)).<sup>8</sup> I illustrate the derivation of Gapping in (21). At the v\*P phase level, the second remnant *a magazine* undergoes object shift, after which the copy of it is transferred as in (21b). At the CP phase stage, as shown in (21c), the first remnant *Mary* moves from Spec-v\* to Spec-C while the second remnant is merged to the right edge of the TP. (I assume with Merchant (2001) that the unvalued features on C or EPP requirement on T does not cause a problem thanks to the ellipsis of the relevant structure.) The resulting structure (21a) is yielded after the lower TP is elided.

- (21) a. John bought a book and [Mary ~~bought~~ a magazine].  
 b. [<sub>v\*P</sub> Mary R-v\* [<sub>RP</sub> a magazine [<sub>RP</sub> ~~R a magazine~~]]]  
 c. [<sub>CP</sub> Mary C [<sub>TP</sub> [<sub>TP</sub> T [<sub>v\*P</sub> Mary R-v\* [<sub>RP</sub> a magazine [<sub>RP</sub> ~~R a magazine~~]]]] a magazine]]
- 

Among the evidence that Gapping involves rightward movement of the second remnant is the fact that Gapping does not tolerate preposition stranding, as in (22b).

- (22) a. Frank called Sandra and Arthur ~~called~~ Louise.  
 b. Frank talked to Sandra and Arthur ~~talked~~ \*(to) Louise.

(Baltin and Postal (1996: 129))

This property is shared with Heavy NP Shift as in (23), but not with *wh*-movement as in (24).

- (23) \*John looked at *t<sub>i</sub>* in the living room yesterday [the man who lived next door]<sub>i</sub>. (Drummond, Hornstein and Lasnik (2010: 689))

- (24) Who did you look at? (Drummond, Hornstein, and Lasnik (2010: 689))

If it is true that Heavy NP Shift involves rightward movement and *wh*-movement

involves leftward movement, it is plausible to assume that movement applied in Gapping is rightward, not leftward.

Before laying out the analysis, let us make clear under what mechanism certain type of movement, which Gapping includes, is phase-bounded. As discussed in the introductory section, the embedded object *oranges* in (6) cannot escape from the Transfer domain by successive-cyclic movement via phase edges. I assume with Otsuka (2023) that clause-boundedness with movement can be induced by pair-Merge, which renders the merged elements invisible for further operations. This necessitates a pair-Merged element being included in the same Transfer domain as the copy of it in the base position. This is because, as Chomsky (2004) argues, when an item gets pair-Merged, it is merged to the “separate” plane, which is distinguished from the “primary” plane. If the lower copy of the item is transferred separately from the higher one, the operation SIMPL(ification), which gets the pair-Merged element back to the primary plane at the time of Transfer, cannot be properly applied. Otsuka further suggests the possibility that this can be the case with rightward movement involved in phenomena such as Extraposition from NP and Heavy NP Shift (Otsuka (2023: 168, fn. 4)). Once we follow Otsuka’s insight and the view that Gapping is derived by rightward movement of the remnant plus ellipsis, the possibility that the embedded object in Gapping could move to the matrix clause via the phase edges is excluded.

Bearing the basic derivation of Gapping and the mechanism of phase-bounded movement in mind, let us see how the current proposal can explain BPE. First, when the verb is of the *claim*-types and the embedded subject is an R-expression, BPE is not observed. In (25b), the derivation reaches the  $v^*P$  level. After Feature Inheritance from  $v^*$  to R, IA and R get into an agreement relation in (25c). As a consequence of internal pair-Merge of R to  $v^*$ , the Transfer domain is the complement of the copy of R in (25d). At the embedded CP level in (25e), agreement occurs between the subject *Jill* and T, which inherits unvalued features from C, as in (25f). The complement of the phase head C,  $\zeta$ , is transferred in (25g). This prohibits further movement of the embedded object, as suggested in (25h).

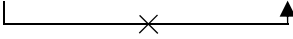
- (25) a. \*Mary claims that Jill likes apples and [Ann ~~claims that Jill likes~~ oranges].



- g.  $\{ \text{Ann } \{ \langle R, v^* \rangle \dots \{ \eta \ C \ \{ \zeta \ \text{pro}_{[u\varphi]} \ \{ \varepsilon \ T_{[u\varphi]} \ \{ \delta \ \text{pro} \ \{ \gamma \ \langle R, v^* \rangle \ \{ \beta \ \text{IA}_{[\varphi]} \ \{ \alpha \ \text{R}_{[\varphi\varphi]} \ \text{IA} \} \} \} \} \} \} \} \}$
- i.  $\{ C \ \{ \text{Ann } \{ T \ \{ \text{Ann } \{ \langle R, v^* \rangle \dots \{ \eta \ C \ \{ \zeta \ \text{pro}_{[\varphi]} \ \{ \varepsilon \ T_{[u\varphi]} \ \{ \delta \ \text{pro} \ \{ \gamma \ \langle R, v^* \rangle \ \{ \beta \ \text{IA}_{[\varphi]} \ \{ \alpha \ \text{R}_{[\varphi\varphi]} \ \text{IA} \} \} \} \} \} \} \} \}$
- 

Finally, let us examine how an additional internal argument of a verb with a CP complement makes BPE disappear. The derivation of the embedded CP is exactly the same as (26b-f). Because of the unvalued features on bound pronouns and the labeling failure they cause, Transfer of the embedded TP is suspended. At the matrix  $v^*P$  level, shown in (27g), Feature Inheritance must take place before internal pair-Merge of R to  $v^*$ , since in this case, the internal argument of the verb *persuade*, namely *Bill*, is merged. As illustrated in (27h), the object needs to enter an agreement relation with R, which inherits unvalued features from  $v^*$ . The phasehood is activated on R as a result of  $v^*$  getting invisible by pair-Merge, and  $\eta$  is the Transfer domain. This makes it impossible for the embedded element to move to the matrix clause, as shown in (27i).

- (27) a. \*Joe<sub>i</sub> persuaded Bill<sub>j</sub> that he<sub>j</sub> should read *Pride and Prejudice* and [Tim<sub>k</sub> persuaded Bill<sub>j</sub> that he<sub>j</sub> should read *Sense and Sensibility*].
- b.  $\{\delta \text{ pro } \{\gamma \text{ v}^*_{[u\phi]} \{\beta \text{ IA}_{[\phi]} \{\alpha \text{ R IA}\}\}\}\}$  ( $\alpha=R, \beta=<\phi, \phi>$ )
- c.  $\{\delta \text{ pro } \{\gamma \text{ v}^* \{\beta \text{ IA}_{[\phi]} \{\alpha \text{ R}_{[u\phi]} \text{IA}\}\}\}\}$
- d.  $\{\delta \text{ pro } \{\gamma <R, \text{v}^*\} \{\beta \text{ IA}_{[\phi]} \{\alpha \text{ R}_{[\text{v}\phi]} \text{IA}\}\}\}\}$
- e.  $\{\eta \text{ C}_{[u\phi]} \{\zeta \text{ pro}_{[u\phi]} \{\varepsilon \text{ T } \{\delta \text{ pro } \{\gamma <R, \text{v}^*\} \{\beta \text{ IA}_{[\phi]} \{\alpha \text{ R}_{[\text{v}\phi]} \text{IA}\}\}\}\}\}\}\}$
- f.  $\{\eta \text{ C } \{\zeta \text{ pro}_{[u\phi]} \{\varepsilon \text{ T}_{[u\phi]} \{\delta \text{ pro } \{\gamma <R, \text{v}^*\} \{\beta \text{ IA}_{[\phi]} \{\alpha \text{ R}_{[\text{v}\phi]} \text{IA}\}\}\}\}\}\}\}$   
 $(\gamma=\delta=R-\text{v}^*, \varepsilon=??, \zeta=??, \eta=\text{C})$
- g.  $\{\text{Tim } \{\text{v}^*_{[u\phi]} \{\text{Bill}_{[\phi]} \{\text{R } \{\eta \text{ C } \{\zeta \text{ pro}_{[u\phi]} \{\varepsilon \text{ T}_{[u\phi]} \{\delta \text{ pro } \{\gamma <R, \text{v}^*\} \{\beta \text{ IA}_{[\phi]} \{\alpha \text{ R}_{[\text{v}\phi]} \text{IA}\}\}\}\}\}\}\}\}\}\}\}\}$
- h.  $\{\text{Tim } \{\text{C} <R, \text{v}^*\} \{\text{Bill}_{[\phi]} \{\text{R}_{[u\phi]} \{\eta \text{ C } \{\zeta \text{ pro}_{[\phi]} \{\varepsilon \text{ T}_{[v\phi]} \{\delta \text{ pro } \{\gamma <R, \text{v}^*\} \{\beta \text{ IA}_{[\phi]} \{\alpha \text{ R}_{[\text{v}\phi]} \text{IA}\}\}\}\}\}\}\}\}\}\}\}\}$

- i.  $\{C \{Tim \{T \{\text{Tim} \{<R, v^*> \{Bill \{R_{[+np]} \{\eta C \{\zeta \text{pro}_{[Q]} \{\varepsilon T_{[vp]} \{\delta \text{pro} \{\gamma$   
 $\{<R, v^*> \{\beta IA_{[Q]} \{\alpha R_{[+np]} IA\}\}\}\}\}\}\}\}\}\}\}\}\}\}\}\}\}\}\}$   


Therefore, the facts on BPE are successfully accounted for under the proposal developed in this paper. When the embedded subject is an R-expression, Transfer applies upon the completion of the CP phase. When bound pronouns are used as the embedded subject, Transfer is delayed and movement across finite clauses becomes possible, insofar as the matrix verb is a *claim*-type verb, not a *persuade*-type verb.

## 6. Extension

### 6.1. Labeling Failure and Suspension of Transfer

As laid out in Section 4.1, the crucial assumption this paper makes is that Transfer can be delayed because of the labeling failure, caused by pronouns with no values. If this line of analysis is on the right track, it should be natural to expect that it must be possible to find some other cases in which the structure cannot get a label upon the completion of the phase, but can be convergent later in the derivation. As far as I can find, there are at least two cases for which the same situation applies: the amelioration of the *that*-trace effect by resumptive pronouns and Copy Raising.

#### 6.1.1. Amelioration by Resumptive Pronouns

As illustrated in (28), a *wh*-word can be moved from the subject position of an embedded clause as long as there is no overt complementizer *that*.

- (28) Who do you think (\*that) is smart?

Chomsky (2015) analyzes this effect by hypothesizing that a *wh*-word/phrase is merged to Spec-T at the embedded CP phase. As already discussed in Section 3.1, after the phase head C is merged, T inherits unvalued features from C, as in (29a, b). Chomsky proposes that if C is overt, the Transfer domain is its complement  $\delta$ , as in (29c). When C is deleted as in (29d) (represented as double strikethrough), on the other hand, the phasehood activates on T, resulting in its complement  $\beta$  being transferred. According to Chomsky, only the latter case allows movement of a *wh*-

word/phrase and thus the *that*-trace effect is induced. If *that* is overt, the subject *who* is trapped in the Transfer domain and cannot undergo further movement.

- (29) a.  $\{_{\varepsilon} C_{[u\varphi]} \{_{\delta} who_{[\varphi]} \{_{\gamma} T \{_{\beta} \text{who} \{_{\alpha} \langle R, v^* \rangle \dots \} \} \} \}$   
 b.  $\{_{\varepsilon} C \{_{\delta} who_{[\varphi]} \{_{\gamma} T_{[u\varphi]} \{_{\beta} \text{who} \{_{\alpha} \langle R, v^* \rangle \dots \} \} \} \}$   
 $(\alpha=\beta=R-v^*, \gamma=T, \delta=\langle \varphi, \varphi \rangle, \varepsilon=C)$   
 c.  $\{_{\varepsilon} C \{_{\delta} who_{[\varphi]} \{_{\gamma} T_{[v\varphi]} \{_{\beta} \text{who} \{_{\alpha} \langle R, v^* \rangle \dots \} \} \} \}$   
 d.  $\{_{\varepsilon} C \{_{\delta} who_{[\varphi]} \{_{\gamma} T_{[v\varphi]} \{_{\beta} \text{who} \{_{\alpha} \langle R, v^* \rangle \dots \} \} \} \}$

Let us now examine whether there is a chance of *who* being merged to Spec-C. As shown in (30), if this were the case, the unvalued features C passes on to T would remain unchecked since T has no overt nominal element in its specifier position. As English T cannot be a label provider on its own, the derivation would be doomed to crash, whether C gets deleted or not.

- (30)  $\{_{\zeta} who_{[\varphi]} \{_{\varepsilon} C \{_{\delta} \text{who} \{_{\gamma} T_{[u\varphi]} \{_{\beta} \text{who} \{_{\alpha} \langle R, v^* \rangle \dots \} \} \} \} \}$   
 $(\alpha=\beta=R-v^*, \gamma=??, \delta=??, \varepsilon=C)$

What is crucial here is that the factor that excludes the possibility of *who* being merged to Spec-C (presumably via Spec-T) in (30) is the labeling failure. In the light of the present analysis, even when labels are not determined, the structure can “wait” for itself to become convergent in the later stage. Let us suppose this is the case and consider how the structure in (30) would survive. If the Transfer does not take place at the embedded CP level, the derivation reaches the matrix clause as shown in (31).

- (31)  $\{who \{C \{you \{T \{who \{you \{ \langle R, v^* \rangle \dots \{_{\zeta} who_{[\varphi]} \{_{\varepsilon} C \{_{\delta} \text{who} \{_{\gamma} T_{[u\varphi]} \{_{\beta} \text{who} \{_{\alpha} \langle R, v^* \rangle \dots \} \} \} \} \} \} \} \} \} \}$

*Who* undergoes movement to the matrix Spec-C via phase edges. This structure as such does not give rise to a grammatical result because of the labeling failure on  $\gamma$  and  $\delta$ . What would happen, then, if some material were inserted into Spec-T to rescue this otherwise ungrammatical structure? Although there is speaker variation, the following sentence is argued to be grammatical at least for some speakers.

- (32) Who<sub>i</sub> did you say that he<sub>i</sub> will come?(Bayer and Salzmann (2013: 294))

The sentence in (32) is an example of amelioration of the *that*-trace effect by inserting a resumptive pronoun. The pronoun *he*, which is coreferential with *who*, is inserted

(33) a.  $\{\zeta \text{ who}_{[\varphi]} \{\varepsilon \text{ C } \{\delta \text{ ~~who~~ } \{\gamma \text{ T}_{[\text{up}]} \{\beta \text{ ~~who~~ } \{\alpha <\text{R}, \text{v}^*> \dots\}\}\}\}\}\}$   
 $(\alpha=\beta=\text{R}-\text{v}^*, \gamma=??, \delta=??, \varepsilon=\text{C})$   
 b.  $\{\text{who } \{\text{C } \{\text{you } \{\text{T } \{\text{~~who~~ } \{\text{you } \{\alpha <\text{R}, \text{v}^*> \dots\} \{\text{~~who~~ } \{\varepsilon \text{ C } \{\delta \text{ he}_{[\varphi]} \{\gamma \text{ T}_{[\text{up}]} \{\beta \text{ ~~who~~ } \{\alpha <\text{R}, \text{v}^*> \dots\}\}\}\}\}\}\}\}\}\}\}$   
 $(\gamma=\text{T}, \delta=<\varphi, \varphi>)$

(34) a. John is a person who Mary met someone who admired \*(him).  
b. John is a person who Mary wondered when a portrait of \*(him) would appear in the NYT.

(35) John is a person who Mary heard that Frank likes (\*(him)).

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### 6.1.2. Copy Raising

Another example that may result from delaying Transfer due to a labeling failure is Copy Raising, which is exemplified by the following sentences in (36).

- (36) a. John seems like he is smart.  
b. John looks as if he is smart. (Takano (2013: 209))

The peculiarity of this construction lies in the fact that the matrix subject apparently moves from the embedded subject position to the matrix subject position. As pointed out by Takano (2013), the availability of involving an idiom chunk as the matrix subject as in (37) constitutes evidence that Copy Raising, as the name suggests, does involve raising of an item from the embedded clause, on the premise that idiomatic expressions must be merged in the base position.

- (37) a. %The shoe looks like it's on the other foot.  
b. %The shit appears as though it's going to hit the fan very soon.  
(Potsdam and Runner (2001: 455))

Following Kayne (2002), Takano (2013) proposes that in Copy Raising sentences such as (36), the matrix subject *John* and the embedded subject *he* are merged to compose a complex DP, as in (38b), before entering derivation. As illustrated in (38c), after the complex DP is merged to Spec-T, only the antecedent *John* raises to the matrix subject position via the embedded CP edge.

- (38) a. John seems like he is smart.  
b. [<sub>DP</sub> John he]  
c. [<sub>CP</sub> C [<sub>TP</sub> John T [<sub>v\*P</sub> seem [<sub>CP</sub> ~~John~~ [<sub>CP</sub> C [<sub>TP</sub> [<sub>DP</sub> ~~John~~ he] T<sub>[uφ]</sub> [<sub>v\*P</sub>   
↑ ↑  
[<sub>DP</sub> ~~John he~~] smart]]]]]]]]

Notably, Takano assumes that A-movement from an A'-position like Spec-C (as represented by the second arrow in (38c)) is possible in principle. He argues that the reason so-called superraising constructions (e.g. \**John seems it is likely to win.*) are ruled out is that a nominal moves across another Case-assigned element (in this case *John* moves past the subject expletive *it*), which violates minimality. On the other hand, in the case of (38), it is permissible for *John* to move to an A-position from an

A'-position, since it is not yet assigned Case.

Let us consider what the current analysis based on the LA predicts about Copy Raising. Departing from the Kayne-Takano line of analysis, I assume that the antecedent in Copy Raising moves from the embedded subject position to the matrix subject position via the embedded Spec-C, in a parallel manner with subject *wh*-movement as described in the last subsection. The derivation proceeds as in (39). The subject *John* is merged to Spec-C via Spec-T in (39a). The LA cannot provide labels for  $\gamma$  and  $\delta$  at this point, since no visible element is merged to Spec-T to strengthen T by agreement. This labeling failure can delay transferring the relevant structure, in the same way as the case of BPE. At the matrix stage, the antecedent undergoes movement to Spec-T. In a similar way to resumptive pronouns discussed in Section 6.1.1, if the pronoun *he* is inserted when the labels are determined at the matrix CP stage, as in (39b), the labels of  $\gamma$  and  $\delta$  are determined as T and  $\langle \varphi, \varphi \rangle$ , respectively.<sup>10</sup>

- (39) a.  $\{\zeta \text{ John}_{[\varphi]} \{\varepsilon \text{ C} \{\delta \text{ John} \{\gamma \text{ T}_{[\varphi\varphi]} \{\beta \text{ John} \{\alpha \langle \text{R}, v^* \rangle \dots \} \} \} \} \} \}$   
  
 $(\alpha=\beta=\text{R}-v^*, \gamma=??, \delta=??, \varepsilon=\text{C})$
- b.  $\{\text{C} \{\text{John} \{\text{T} \langle \text{R}, v^* \rangle \dots \} \{\zeta \text{ John} \{\varepsilon \text{ C} \{\delta \text{ he}_{[\varphi]} \{\gamma \text{ T}_{[\varphi\varphi]} \{\beta \text{ John} \{\alpha \langle \text{R},$   
  
 $v^* \rangle \dots \} \} \} \} \}$   
 $(\gamma=\text{T}, \delta=\langle \varphi, \varphi \rangle)$

Therefore, the present analysis can give an account to Copy Raising constructions by assuming that movement from an A'-position to an A-position is possible in principle, as Takano (2013) argues.

## 6.2. Clause-boundedness in Nonfinite Clauses

As noted in the introductory section, at first sight, nonfinite clauses do not seem to create phase boundaries. The example in (2b), repeated here as (40), shows that Gapping allows an element embedded in a nonfinite clause to move to the matrix clause.

- (40) Mary claims/tends to like apples and [Ann ~~claims/tends to like~~ oranges].  
 $(=(2b))$

G&L apply their analysis on BPE observed in finite clauses to the availability of

movement across nonfinite clauses. They discuss that the embedded subject in nonfinite clauses is arguably PRO, a silent pronoun born without features (Landau (2000)). This makes it possible to provide an account parallel with the one posited for finite clauses with a bound pronoun. As shown in (41), PRO, a pronoun without values, cannot check unvalued features on T (and this leads to a labeling failure), delaying Transfer of the embedded TP. The object *oranges* can thus move even after the derivation reaches the matrix level.

- (41) [CP<sub>1</sub> C<sub>1</sub> [TP Ann T [vP<sub>1</sub> V<sub>1</sub> [VP claim [CP<sub>2</sub> C<sub>2</sub> [TP PRO<sub>[uφ]</sub> T<sub>[uφ]</sub> [vP<sub>2</sub> V<sub>2</sub> [VP like oranges]]]]]]]]]
- └──────────┐  
                  ▲

Note that it is untenable to assume that nonfinite CP does not count as a phase. The examples in (42) suggest that nonfinite clauses with overt subjects as in (42c) do not allow for movement across clauses, though there is a clear contrast of grammaticality between finite clauses, as in (42a), and nonfinite clauses with a covert subject as in (42b). This is unexpected under the view that finite CP serves as a phase that blocks movement across clauses, while nonfinite CP does not.<sup>11</sup>

- (42) a. \*John thinks that Bill will see Susan and Harry ~~thinks that Bill will see~~ Mary.  
       b. John wanted to read books and Mary ~~wanted to read~~ magazines.  
       c. \*John wanted Bill to read books and Mary ~~wanted Bill to read~~ magazines.
- (Lasnik (2017: 4))

Importantly, the same goes for other phenomena, including Heavy NP Shift (=43)) and Quantifier Raising (=44)). In both cases, the embedded object is prohibited from undergoing movement across nonfinite C when the embedded subject is overt, while the contrast between finite and nonfinite clauses is obvious.

- (43) a. \*Max said [that he was going to return *t<sub>i</sub>* to the library] yesterday, [each of the books that he checked out last week]<sub>*i*</sub>. (Sabbagh (2007: 350))  
       b. I have wanted [to know *t<sub>i</sub>*] for many years [exactly what happened to Rosa Luxemburg]<sub>*i*</sub>. (Postal (1974: 92, fn. 8))  
       c. \*I have wanted [Bob to know *t<sub>i</sub>*] for many years [exactly what happened

to Rosa Luxemburg]i.

(Nakajima (1984: 141))

- (44) a. #Someone said that Sue is married to every man. ( $\exists > \forall$ ,  $*\forall > \exists$ )

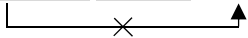
(Fox (2000: 62))

- b. Someone wants to visit everyone. ( $\exists > \forall$ ,  $\forall > \exists$ ) (Thoms (2016: 297))

- c. Someone wants John to visit everyone. ( $\exists > \forall$ ,  $*\forall > \exists$ )

(Thoms (2016: 297))

It follows that it is plausible to consider that nonfinite C is actually a phase head and that what matters is whether the subject pronoun is PRO or an overt one. The ungrammaticality of (42c) and (43c), and the inapplicability of Quantifier Raising in (44) are thus expected, since the embedded subject *Bill* has a complete set of  $\phi$ -features from the outset, which leads the embedded TP to be transferred immediately after unvalued features on T are checked. The embedded object *magazines* in (42c) thus cannot undergo movement at the upper phase levels, as illustrated in (45).

- (45)  $\{C \{ \text{Mary} \{ T \{ \text{Mary} \{ <R, v^*> \{ \eta \ C \{ \zeta \text{Bill}_{[\phi]} \{ \epsilon \ T_{[vp]} \{ \delta \text{Bill} \{ \gamma \langle R-v^*_{[u\phi]} \rangle$   
 $\{ \beta \text{IA}_{[\phi]} \{ \alpha \text{R IA} \} \} \} \} \} \} \} \} \}$   


Before leaving this subsection, let us consider the following object control example with the verb *persuade*.<sup>12</sup>

- (46) \*John persuaded Dr. Thomas to examine Jane, and Bill ~~persuaded Dr. Thomas to examine~~ Martha. (Kuno (1976: 314))

Note that the DP *Dr. Thomas* in (46) is the object of the matrix verb *persuade*, unlike the DP *Bill* in (42c), which is the subject of the embedded verb *read*. Remember that I have suggested in Section 4 that *persuade*-type verbs, which takes a DP object and a finite CP complement, constitute phasal  $v^*P$ , in that  $v^*$  passes unvalued features on to R. Analogously to finite complements, I posit that an internal argument DP of the matrix verb blocks movement of the embedded object *Martha* across nonfinite phase boundaries as well. As illustrated in (47), the matrix object *Dr. Thomas* enters an agreement relation with R, which bears unvalued features it inherits from  $v^*$ . Internal pair-Merge of R to  $v^*$  then takes place, resulting in the Transfer of  $\eta$ .

$$(47) \quad \{C \{ \text{Bill} \{ T \{ \text{Bill} \{ \langle R, v^* \rangle \{ \text{Dr. Thomas} \{ R_{[\text{v}\phi]} \{ \eta \} C \{ \zeta \text{PRO}_{[\phi]} \{ \varepsilon \} T_{[\text{v}\phi]} \{ \delta \text{PRO} \{ \gamma \langle R, v^* \rangle \{ \beta \text{IA}_{[\phi]} \{ \alpha R_{[\text{v}\phi]} \text{IA} \} \} \} \} \} \} \} \} \} \} \} \} \}$$

Again, the example in (46) would fail to be accounted for if we assume that nonfinite CP does not constitute a phase, because if it were the case, nothing would prevent the embedded object from moving across clause boundaries.

To recap, the analysis articulated in this paper can accommodate the facts surrounding (non-)clause-boundedness witnessed in nonfinite clauses as well as finite clauses. The absence of transparency in infinitives with an overt subject is accounted for with the assumption that nonfinite CP constitutes a phase, while the transparency for movement in subject control constructions is due to the embedded subject PRO, a pronoun without  $\phi$ -features. Object control constructions exhibit clause-boundedness, since Transfer takes place in the matrix  $v^*P$ .

## 7. Concluding Remarks

This paper has argued about how BPE can be accounted for under the framework of Chomsky's (2013, 2015). It has suggested that the current approach better captures the facts on BPE than G&L's original proposal in two perspectives. Firstly, it is in tandem with the standard assumption that CP and  $v^*P$  are phases. In Chomsky's system, which this paper adopts, IAs of transitive verbs undergo movement to Spec-R in order for R to be a label provider. This leads IAs to get out of the Transfer domain at the  $v^*P$  phase level. Secondly, the analysis developed in this paper can explain how an object DP of *persuade*-type verbs block elements in the embedded CP from undergoing certain kind of movement to the matrix clause. Adopting Nomura's (2017, 2020) insight, I have discussed that internal pair-Merge of R to  $v^*$  can be applicable prior to Feature Inheritance. This is the case with *claim*-type verbs, which take only CP complements. On the other hand, *persuade*-type verbs, which take an object DP plus a CP complement, require Feature Inheritance for agreement. This leads the complement of R to Transfer, resulting in the inability of further movement of items in the embedded CP. I have demonstrated the possibility that the suspension of

Transfer can also occur with the amelioration by resumptive pronouns and Copy Raising. I have also noted that the current analysis can be readily extended to nonfinite clauses, which do exhibit clause-boundedness when the embedded subject is overt or when the matrix verb is *persuade*-type one.

## Notes

\* Earlier version of this paper was presented at the 76th General Meeting of Kyushu Branch of The English Literary Society of Japan, held at Miyazaki University on October 14-15, 2023. I would like to express my sincere gratitude to Nobuaki Nishioka for his insightful suggestions. I am also grateful to Masako Maeda for her fruitful comments. My thanks also go to Carey Benom for his stylistic improvement. Needless to say, all remaining inadequacies are my own.

<sup>1</sup> The comprehensive list of the phenomena with which Grano and Lasnik (2018) argue the bound pronoun effect is observed is the following: *too/enough*-movement, Gapping, comparative deletion, Antecedent Contained Deletion, Quantifier Raising, multiple questions, Pseudogapping, reciprocal binding, Multiple Sluicing, Family of questions, Extraposition, and *tough*-movement.

<sup>2</sup> It has been controversial whether Gapping involves movement. In this paper, I treat it as a kind of movement phenomena, on the basis of the discussion in Coppock (2001) among others. For the in-situ analysis of Gapping, see Goto (2013) and Takaki (2017).

<sup>3</sup> Kratzer (2009) argues that pronouns born without  $\phi$ -features can get values from the local phase head  $C/v^*$ . G&L's analysis departs from hers in that they assume that it is the antecedent that provides such pronouns with values.

<sup>4</sup> As G&L note, pronouns can be introduced to the structure with valued  $\phi$ -features. This assumption makes it possible to accommodate examples like the one in (i), where the most deeply embedded pronoun *him* can be coreferential with the matrix subject across more than one phase boundary. This is what G&L mean by pronouns being “optionally” equipped with unvalued  $\phi$ -features.

(i) John<sub>i</sub> said [<sub>CP</sub> that Mary thought [<sub>CP</sub> that Kim saw him<sub>i</sub>]]

(Grano and Lasnik (2018: 481))

<sup>5</sup> One might think that the absence of BPE observed in (8) can be accounted for if we assume that Transfer applies *immediately* after the antecedent is introduced and the bound pronoun

receives values. As G&L point out, however, this does not seem to help if we try to accommodate other kinds of movement that exhibits BPE as well (Grano and Lasnik (2018: 472, fn. 7)). Let us consider the following examples of *too*-movement, involving operator movement to Spec-C (see Chomsky (1977)).

- (i) a. \* This magazine is too lowbrow [for John to claim that Bill reads]. (= (1a))  
 b. ? This magazine is too lowbrow [for John<sub>i</sub> to claim that he<sub>i</sub> reads]. (= (3a))
- (ii) [<sub>CP</sub> Op C for [<sub>TP</sub> John [T to [<sub>VP</sub> v [<sub>VP</sub> claim [<sub>CP</sub> C that [<sub>TP</sub> pro<sub>[uφ]</sub> T<sub>[uφ]</sub> [<sub>VP</sub> v [<sub>VP</sub> read Op

]]]]]]]]

As shown in (ia), this kind of operator movement from the embedded object position to the embedded Spec-CP is not allowed if the clause is finite. The example in (ib) suggests that the embedded bound pronoun alleviates this effect. This can be explained with G&L's analysis as in the structure in (ii), where the bound pronoun subject without values fails to check unvalued features on T, thus suspending Transfer of the embedded TP. Of significance here is that the operator needs to move to Spec-C. This movement must be applied after the upper C is introduced to the derivation. If we assume that Transfer applies immediately after the antecedent is introduced and the bound pronoun gets values from it, it should be impossible for the operator to undergo movement to Spec-C. Thus we need another approach to analyze the examples in (8).

<sup>6</sup> Hayashi (2020) points out that it is also a problem with Epstein, Kitahara and Seely (2016) that if bridge verbs derive with external pair-Merge of R to  $v^*$ , it is unclear how the  $v^*$ , which is rendered invisible, assigns a  $\theta$ -role to the external argument.

<sup>7</sup> Successive-cyclic A'-movement such as *wh*-movement is allowed with the verb *persuade*, as in (i).

- (i) What<sub>i</sub> did Kevin persuade Roger he should try  $t_i$ ?  
 (Bošković and Lasnik (2003: 542))

<sup>8</sup> The previous studies on Gapping have argued that it has either vP-coordination or CP coordination, or both (Potter, Frazier and Yoshida (2017)). The following example in (i) is two-way ambiguous with regard to the scope interaction between negation and coordination.

- (i) Ward can't eat caviar and his guest beans.  
 a. It's not possible for Ward to eat caviar and for his guest to eat beans. (NEG

> and)

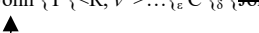
- b. Ward can't eat caviar and his guests can't eat beans. (and > NEG)

(Siegel (1987: 53))

The first reading, where negation takes scope over the coordination, cannot be derived from the CP-coordination structure, which this paper adopts. I leave this problem for future research.

<sup>9</sup> If the presented approach is on the right track, resumptive pronouns and bound pronouns should be treated as the same kind. See Hornstein (2001) for the view that pronouns are grammatical formatives, not lexical items. I leave the exact nature of these pronouns for future research.

<sup>10</sup> If we maintain the analysis proposed by Kayne and Takano, it may be possible to suggest that the complex DP contains two DPs with  $\phi$ -features, which delays Transfer, as in (ia). After the antecedent *John* gets moved to the matrix subject position as in (ib), the labels for  $\gamma$  and  $\delta$  are determined, since now only one DP, namely *he*, remains in Spec-T.

- (i) a.  $\{_{\epsilon} C \{_{\delta} \{John_{[\phi]} he_{[\phi]}\} \{_{\gamma} T_{[u\phi]} \{_{\beta} \{John_{[\phi]} he_{[\phi]}\} \{_{\alpha} \langle R, v^* \rangle \dots \} \} \} \}$   
  
 $(\alpha=\beta=R-v^*, \gamma=??, \delta=??, \epsilon=C)$
- b.  $\{C \{John \{T \langle R, v^* \rangle \dots \{_{\epsilon} C \{_{\delta} \{John_{[\phi]} he_{[\phi]}\} \{_{\gamma} T_{[u\phi]} \{_{\beta} \{John_{[\phi]} he_{[\phi]}\} \{_{\alpha} \langle R, v^* \rangle \dots \} \} \} \} \}$   
  
 $(\gamma=T, \delta=\langle \phi, \phi \rangle)$

In fact, Kobayashi (2019) independently explores this line of approach. Adopting G&L's insight that bound pronouns can delay Transfer and the doubling analysis advocated by Kayne (2002) and Takano (2013), he provides an analysis of Copy Raising constructions, suggesting that Transfer of the embedded TP can be suspended thanks to a pronoun without  $\phi$ -features. Kobayashi crucially assumes that "it is only at the stage where the antecedent [...] has moved into the matrix subject position that the pronoun can inherit valued  $\phi$ -features because only at that stage does the pronoun they occupy the whole doubling constituent, hence counting as a DP" (Kobayashi (2019: 44)). I leave the viability of Kobayashi's approach compared with the current one for future research.

<sup>11</sup> In this connection, as an alternative, the embedded subject may be the copy of the matrix subject *Ann*, which undergoes movement, as shown in (i) (Hornstein (1999)). G&L suggest that this option poses no problem if we assume that nonfinite CP does not constitute a phase and thus

there are not phase boundaries in the first place.

- (i) [CP<sub>1</sub> C<sub>1</sub> [TP Ann T [<sub>VP1</sub> V<sub>1</sub> [VP claim [CP<sub>2</sub> C<sub>2</sub> [TP ~~Ann~~ T<sub>[uq]</sub> [<sub>VP2</sub> V<sub>2</sub> [VP like oranges]]]]]]]]]

As is noted, however, nonfinite C should be a phase head, which blocks movement from within the embedded clause when the subject is overt. It thus follows that the option suggested above is not tenable under the current discussion.

<sup>12</sup> This is also observable in other phenomena such as Quantifier Raising (= (i)), reciprocal binding (= (ii)), and Multiple Sluicing (= (iii)).

- (i) a. At least one professor claims/tends to read every journal. ( $\exists > \forall, \forall > \exists$ ) (= (2c))  
 b. Someone persuaded John to attend every class. ( $\exists > \forall, * \forall > \exists$ )  
 (Cecchetto (2004: 370))
- (ii) a. Mary and Ann claim/tend to like each other. (Grano and Lasnik (2018: 470))  
 b. \*They persuaded Bill to visit each other. (Chomsky (1973: 255))
- (iii) a. Someone claims/tends to be worried about something but I don't know who  
~~claims/tends to be worried~~ about what. (Grano and Lasnik (2018: 471))  
 b. A certain boy told Fred to talk to a certain girl. \*I forget which boy ~~told Fred to~~  
~~talk~~ to which girl. (Barrie (2008: 274))

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