

## RADICAL FREE MERGER

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## RADICAL FREE MERGER

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This paper investigates the validity of Chomsky's (2013) suggestion that the derivation of the Double Object Construction (DOC) in English includes Pair-Merge. In order to render this suggestion implementable, I propose a developed version of Chomsky's (2015) free merger and name it *radical free merger*, where not only Set-Merge, but also Pair-Merge is freely available in phase formation. Under radical free merger, we can capture a well-known asymmetry between the direct/indirect objects in the DOC and hence it is revealed that Chomsky's (2013) suggestion is on the right track. Furthermore, radical free merger provides a more minimalistic framework, where the intrinsic difference between Arguments and Adjuncts may be dispensable.\*

**Keywords:** *Double Object Construction, Free Merger, Pair-Merge, POP+*

### 1. Introduction

The aim of this paper is to examine the validity of Chomsky's (2013) suggestion that "the [Pair-Merge-based] approach could be extended to double objects, capturing the direct-indirect asymmetry familiar from traditional grammar (Chomsky (2013: 46))." Following his intuition, in this paper I assume that the indirect object in the DOC in English is introduced via Pair-Merge. However, this assumption requires the presupposition that not

\* The main empirical problem in this paper was discussed in one chapter of my dissertation written in 2015, although the theoretical proposal of this paper is a completely new one, thanks to the development of the framework of phase theory. I would like to express my sincere gratitude to Nobuaki Nishioka, who supervised me when I was writing my dissertation. I am also truly thankful to Samuel Epstein, Hisatsugu Kitahara, Daniel Seely, and Masashi Nomura, who deepened my understanding concerning Pair-Merge of heads. My thanks also go to two anonymous reviewers, who offered me many invaluable comments and suggestions. In addition, I am grateful to graduates and graduate students of the English department at Kyushu University for fruitful discussions on various topics. Of course, remaining errors and misunderstanding are my own.

only an Adjunct, but also an Argument can be Pair-Merged. In order to legitimize the application of Pair-Merge to Arguments, therefore, this paper proposes an extended version of Chomsky's (2015) free merger and names it *radical free merger*, of which the basic premise is outlined below.

Chomsky (2015) (sometimes referred to as "POP+") claims that internal merge and external merge, which were traditionally treated differently as Move and Merge, respectively, must be equivalent and therefore they should be freely available when a phase is constructed; I refer to this as *free merger* (see 3.3.1 for details). However, I further develop the concept of free merger and argue that Pair-Merge can also freely participate in phase formation. This is the main claim of this paper, that is, *radical free merger*. Under radical free merger, when a phase is formed, four types of merger operations, namely, internal/external Set-/Pair-Merge can be freely applied and unwanted results are ruled out due to failures of determining labels and/or checking uninterpretable features.

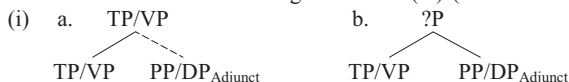
Based on radical free merger, I argue that Chomsky's (2013) suggestion that Pair-Merge applies to the indirect object in the DOC in English is on the right track by demonstrating that a well-known asymmetry between the direct/indirect objects concerning A/A-bar movement in the DOC (see 2.2 and 2.3 for the data) can be readily explained under the assumption of the Pair-Merged indirect object. Given that the asymmetry has not been fully captured in the previous research, we will make a great leap forward if we can explain this phenomenon without relying on some stipulated assumptions, and thus radical free merger will gain strong empirical support.

Furthermore, radical free merger is also theoretically supported in that it provides a more minimalistic framework for structure building, where the traditional definitions of Arguments and Adjuncts become quite meaningless. Notice that it has been standardly assumed, by definition, that Arguments are always Set-Merged and Adjuncts are necessarily Pair-Merged. However, from a minimalistic point of view, there seems to be no theoretical motivation for this definition; that is, why can Pair-Merge not be applied to Arguments and why is Set-Merge not applicable to Adjuncts? Importantly, once we assume that all of the four kinds of merger are freely applied and the Labeling Algorithm and feature checking control the results, Arguments and Adjuncts are not necessarily related to Set- and Pair-Merge, respectively. For instance, in some cases, an Argument DP is externally Set-Merged because otherwise, Phi feature checking fails, while in other cases, such a DP is introduced by Pair-Merge so that labeling failures are avoided (see section 4 for the relevant discussions). On the other hand,

although Adjuncts are introduced via Pair-Merge to circumvent labeling failures in most cases, they can be Set-Merged in other places so as to move and participate in a label determination in the later derivation (such as QP).<sup>1</sup> In this sense, the intrinsic difference between Arguments and Adjuncts may become unnecessary and their basic difference can be derived as a result of multiple factors such as agreement, case checking, and theta-role assignment. Though further investigations are still needed to fully examine the validity of this radical framework, I claim that radical free merger offers us a fruitful opportunity to pursue minimalism by reducing concealed stipulations on Arguments and Adjuncts.

The organization of this paper is as follows: in section 2, we will observe empirical data concerning the asymmetry in the DOC in English. Section 3

<sup>1</sup> Adjuncts are usually Pair-Merged as in (ia) because otherwise, it necessarily produces the XP-YP situation and the labeling fails as in (ib) (the dotted line indicates Pair-Merge).



However, let us consider an ordinary example below.

- (ii) When did John say Bill left?  
 a. When [did John say [Bill left] *t*]  
 b. When [did John say [Bill left *t*]]

As is widely known, (ii) has two interpretations; that is, whether the speaker wants to know the time when John made the utterance or the time when Bill left. Under the standard analysis, these different interpretations are explained based on the original position of *when*. If *when* is base-generated in the matrix clause as in (iia), it modifies the matrix event and thus the question is about the time of John's utterance, whereas if it originally appears within the embedded clause and then moves to the sentence initial position as in (iib), the requested information is the time of Bill's departure. Then, the question is how *when* can be merged in one place and then be internally merged into the sentence initial position. Notice that if we assume that adjuncts are necessarily Pair-Merged, *when* becomes syntactically invisible within the embedded clause and it cannot be involved in syntactic operations anymore. Although we may be able to account for (iia), claiming that *when* is directly merged into the leftmost position, we cannot capture (iib) without assuming internal merge (note that even if *when* is directly merged into the "Spec" of the embedded CP, as an anonymous reviewer points out, it cannot be involved in the matrix question interpretation). Thus, so as to be located in the sentence initial position to make the QP label, we necessarily assume that *when* is firstly externally *Set-Merged* in the embedded clause and then internally Set-Merged to the sentence initial position in (iib). Therefore, we cannot account for such a basic example as in (ii) unless we assume radical free merger.

Riichi Yoshimura (personal communication) at Kyushu University points out that the approach may be extended to some exceptions of adjunct islands, but this possibility is left for future research.

outlines the main theoretical background of this paper and in the last part of the section I will present the central proposal of radical free merger. Based on radical free merger, in section 4, I will offer a Pair-Merge-based account for the DOC data. Section 5 concludes the discussion.

## 2. Empirical Data

### 2.1. The Double Object Construction in English

It is widely known that English has two types of ditransitive construction. One is the construction where two bare internal arguments appear without a preposition as in (1a); this is often referred to as *the Double Object Construction*. On the other hand, one of the internal arguments may be introduced with a preposition as in (1b), which is sometimes called *the Prepositional Dative Construction*.

- (1) a. He gave John some money.
- b. He gave some money to John.

In the history of the generative grammar, some researchers claimed that the two constructions were related by arguing that one of them was derived from the other (e.g. see Larson (1988), Baker (1997), Takano (1998), and Oba (2005)). However, a lot of debates have examined the relation between the two constructions and now there seems to me to be enough evidence to believe that the two constructions are independent (see e.g. Pesetsky (1995), Beck and Johnson (2004), and Bruening (2010a, b), who point out differences concerning possessive interpretation, interpretation of *again*, and acceptability of certain idioms). Thus, this paper takes the position that the constructions are derivationally unrelated, and only focuses on examples of type (1a) (namely, the DOC), leaving a debate on examples of type (1b) for future research. In what follows, I refer to the Recipient argument in (1a), namely, *John* as *the indirect object* (sometimes abbreviated as *IO*) and the Theme argument, *some money*, as *the direct object* (also *DO*).

### 2.2. A-Bar Movement of the Direct/Indirect Objects

As was noted in section 1, the main topic of the empirical discussions in this paper is an asymmetric situation between the direct/indirect objects concerning A/A-bar movement. It has often been pointed out that A-bar movement cannot be applied to the indirect object, while the direct object

can undergo A-bar movement.<sup>2</sup>

- (2) a. \*Who did you give *t* a book? (*wh*-question)
  - b. What did you give John *t*? (*wh*-question)
  - c. \*This is the person who he gave *t* that book. (relativization)
  - d. This is the book which he gave the person *t*. (relativization)
  - e. \*John, he gave *t* that book. (topicalization)
  - f. That book, he gave John *t*. (topicalization)
- (Oba (2005: 61))

Furthermore, extraction from within the indirect object is also prohibited as (3) shows.

- (3) a. \*Who did you say Cindy sent [<sub>IO</sub> a friend of *t*] a picture?
  - b. \*Who did Ron say Kim sent [<sub>IO</sub> an acquaintance of *t*] a threatening letter?
  - c. Who did you say Cindy sent Bobby [<sub>DO</sub> a picture of *t*]?
  - d. Who did Ron say Kim sent me [<sub>DO</sub> a story about *t*]?
- (Runner (2001: 40))

Interestingly, it is not the case that the indirect object can never be a *wh*-word in interrogative contexts: as the examples in (4) imply, when it comes to multiple-*wh*-questions, the indirect object (in this case, even a part of the indirect object) can be a *wh*-element. Therefore, the unacceptability of the *wh*-indirect object in (2) and (3) should have something to do with the movement process.

- (4) a. Who sent [<sub>IO</sub> a friend of whom] a picture?
- b. Who bought [<sub>IO</sub> friends of whom] a book?

(Oba (2012: 28))

To the best of my knowledge, although these phenomena have attracted many researchers' attention (e.g. see Larson (1988), Runner (2001), Oba (2005), and Bruening (2010a)), none of the previous research can completely solve this problem and even the studies that propose a reasonable solution to this matter cannot avoid some stipulated assumptions (e.g. the

<sup>2</sup> Importantly, it is pointed out that there are some speakers who accept A-bar movement of the indirect object (see e.g. Bruening (2001) and Oba (2012)). Actually, some native speakers I have consulted judged them as unnatural and dis-preferred, but not ungrammatical. Hence, it does not seem that the judgement is completely at-tested. Although in this paper I follow the traditional judgement (e.g. see Larson (1998), Oba (2005) and Bruening (2010)) and treat them as ungrammatical, closer studies are needed. Notice that the analysis in this paper is able to accommodate such exceptional judgement as well, as is noted in footnote 13.

Thematization/Extraction-like operation in Oba (2005) and R-dative shift in Bruening (2010a)).

### 2.3. A-Movement of the Direct/Indirect Objects

We can find another interesting fact when it comes to A-movement in the DOC: A-movement (in this case, passivization) can be applied to the indirect object, whereas an example with A-movement of the direct object is quite marginal as in (5).<sup>3, 4</sup>

- (5) a. Buddy was sent *t* the letter.  
 b. \*The letter was sent Buddy *t*.

(Runner (2001: 36))

In addition, as is pointed out by Larson (1988), the marginality of (5b) is reduced when the indirect object is not emphasized and especially when it is a pronoun.

<sup>3</sup> I utilize the term *marginal* rather than *ungrammatical* here, because A-movement of the direct object is more likely to be acceptable than A-bar movement of the indirect object in 2.2. Moreover, (6) with a pronominal indirect object is almost completely grammatical. Although I judge (5b) as “\*” here, I claim later that (5b)-like examples are not ruled out due to purely syntactic reasons, but are degraded owing to an interpretation reason related to the presence or absence of focus on the indirect object (see 4.2.2.2).

<sup>4</sup> As anonymous reviewers point out, there is a wide range of variations concerning the (un)acceptability of A-movement of the direct/indirect objects. For instance, Citko (2011) claims that both the direct/indirect objects can undergo A-movement in Norwegian and Icelandic, while German, Spanish and the majority of Polish allow only the direct object to A-move. Even regarding English, American English prohibits the direct object from being the subject in passives, whereas British English does not, as Ura (2000) argues. Thus, an exhaustive discussion on this topic requires so many pages that I limit the debate in this paper to the English DOC.

However, I briefly note that the approach under radical free merger is capable of capturing the diversity as well. In this paper, I assume that both the direct/indirect objects are a bare DP in English. However, if we assume that in some languages the indirect object is always involved within a phase (a PP phase, a CaseP phase, or whatever) which is related to case assignment, we expect that the indirect object in these languages never moves out of the phase up to the subject position in passives, whereas the direct object can move beyond the indirect object embedded within the phase to become the subject in passives. Hence, in this case only the direct object can undergo A-movement. Furthermore, if the existence of such a phase is optional in some languages, the languages should allow the direct object to move to the subject position when the phase exists, while they permit A-movement of the indirect object when the phase does not exist. Therefore, A-movement is applicable to both of the direct/indirect objects if we assume the optional phase. In this way, by assuming an additional phase, we can capture the diversity in other languages (see e.g. Richards (2010) for the assumption of a phase which ensures case assignment).

- (6) a. A letter was given 'im by Mary.  
 b. \*A letter was given HIM by Mary.

(Larson (1988: 364))

To wrap up, the behaviors of the direct/indirect objects in the DOC we have seen thus far can be summarized as in (7). I will refer to these asymmetric behaviors as *the asymmetry between the direct/indirect objects* in this paper.

(7)

|                | Indirect Object | Direct Object |
|----------------|-----------------|---------------|
| A-movement     | Ok              | *             |
| A-bar movement | *               | Ok            |

In this sense, borrowing Chomsky's (2015) words, the DOC is an "exotic construction" and research on this topic is expected to contribute to an intriguing development of the framework. In what follows, I try to account for the asymmetry in (7) by assuming that the indirect object in the DOC is Pair-Merged, following Chomsky's (2013) suggestion.

### 3. Theoretical Background

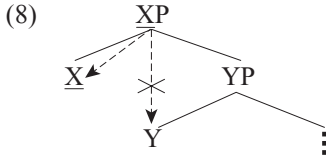
#### 3.1. The Labeling Algorithm

In this section, I will introduce the main theoretical background of this paper, focusing on the Labeling Algorithm, Set-/Pair-Merge, and free merger, in sequence. This subsection focuses on the first one, the Labeling Algorithm.

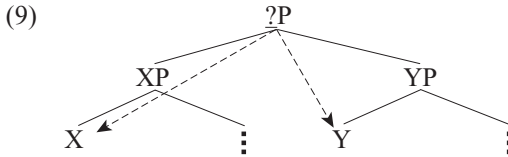
Until recently, it has been considered that the label of a projection is automatically determined as part of a merger operation. That is, when  $\alpha$  is merged with  $\beta$ ,  $\alpha$  will automatically be the label of the resulting constituent, and vice versa. However, Chomsky (2013) casts doubt on this stipulation: he argues that a merger operation should be completely symmetric, and claims that there is no difference between  $\alpha$  *is merged with*  $\beta$  and  $\beta$  *is merged with*  $\alpha$ . A symmetric merger operation simply ensures that  $\alpha$  and  $\beta$  *are merged*.

Therefore, the label of a projection cannot be decided only by a merger operation and we need some algorithm to determine it. Chomsky (2013) proposes a minimal computation-based mechanism named *Labeling Algorithm*, where the nearest head within a relevant syntactic constituent is chosen as the label. Under the Labeling Algorithm, merger with a head and a phrase (namely, X-YP) is the simplest case: the head X is chosen as the

label of the constituent since it is the nearest head as can be seen in (8).<sup>5</sup>

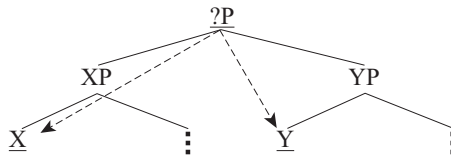


A complicated case is an XP-YP situation in (9), where both of the elements are phrases. Because both X and Y are equidistant, the label of the constituent cannot be determined.

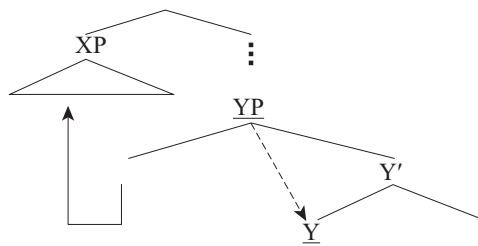


Chomsky (2013) argues that there are two strategies to circumvent the situation in (9). One is to move out either of the elements from the constituent. Assuming that a trace of movement (strictly speaking, a copy of the moved item) cannot be involved in the Labeling Algorithm, Chomsky (2013) argues that when XP is moved, the label of the constituent can be determined as YP as in (10b).

(10) a.



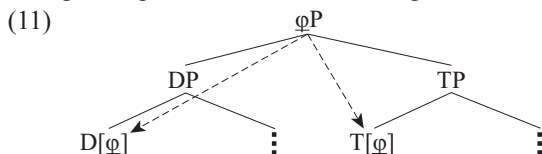
b.



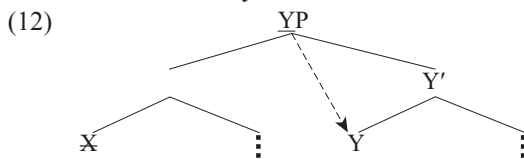
The other strategy is that the equidistant heads share a prominent feature and the constituent receives a label based on the feature. A typical

<sup>5</sup> Although Chomsky (2015) notes that we should not utilize tree diagrams because they are misleading, this paper keeps using them only for the expository purpose. In

example of this is Phi feature Agreement between DP and TP. When XP and YP in (10a) are DP and TP, their heads both share Phi features and they hold an Agree relation. Thus, the Labeling Algorithm can determine the label of the relevant projection as  $\phi P$  (in Chomsky's (2013, 2015) terms,  $\langle \phi, \phi \rangle$ ) through the prominent feature sharing, as can be seen in (11).



In addition to the two strategies above, there is one more possibility to determine the label of XP-YP. That is, either of the heads may lose its status as a labeling candidate. For instance, if X cannot be a candidate for the label (indicated as the strike-through in (12)), the label of the relevant constituent is automatically determined as YP.



Chomsky (2013) himself touches on this third possibility when he argues about label-defectiveness in coordination structures. As we will see in the next subsection, this possibility is also related to a label determination involving Pair-Merged elements.

### 3.2. Set-Merge and Pair-Merge

When we use the term *merger operation* in general, we tend to refer to Set-Merge, where, as we have just seen, two elements are merged symmetrically and the labeling strategies in 3.1 are implemented. However, there is another type of merger: Pair-Merge. Chomsky (2004) originally introduces Pair-Merge and claims that when Pair-Merge is applied, an ordered pair is formed. Importantly, as is discussed in Chomsky (2004, 2013, 2015), a

addition, strictly speaking, notations such as  $XP$  and  $X'$  should not be used as well, since readers may wrongly believe that the “P” and “'” levels actually exist. Under the Bare Phrase Structure, the introduction of such *bar levels* violates the inclusiveness condition and a head itself should become the label without “P” or “'” (namely, “VP” should be “V,” DP should be “D,” and so on). In this paper, I utilize the bar level notations only for the purpose of illustration.

Pair-Merged element becomes invisible within the syntax (Chomsky (2004) notes that a Pair-Merged element is attached to “a separate plane”). Hence, when it comes to Pair-Merge, we have to distinguish  *$\alpha$  is Pair-Merged with  $\beta$*  from  *$\beta$  is Pair-Merged with  $\alpha$* . When  $\alpha$  is Pair-Merged with  $\beta$ ,  $\alpha$  becomes invisible within the syntax and the label of the constituent is automatically decided as  $\beta$  when the Labeling Algorithm occurs. When  $\beta$  is Pair-Merged with  $\alpha$ , the opposite situation arises, with  $\beta$  being invisible and  $\alpha$  being the label.

Pair-Merge was originally introduced as an alternative operation to Adjunction. Therefore, it is standardly assumed that Pair-Merge introduces Adjuncts. Given that a Pair-Merged element becomes invisible, a typical status for Adjuncts (namely, they cannot be a label determiner, most syntactic operations seem to ignore them, and so forth) is derived. However, since an Adjunct must be interpreted at the Conceptual-Intentional (C-I) Interface and phonetically realized at the Sensorimotor (SM) Interface, I emphasize that it is only *within the syntax* that a Pair-Merged element is invisible (see 4.1.2 and 4.1.3 for the relevant discussion).<sup>6</sup>

### 3.3. Free Merger and Radical Free Merger

#### 3.3.1. Free Merger

Finally, in 3.3, we will overview the concepts of Chomsky’s (2015) free merger and radical free merger, which is the main proposal of this paper, in sequence. This subsection focuses on Chomsky’s (2015) original version of free merger.

In the early minimalist framework, there was a distinction between Move and Merge. Actually, Chomsky (2000) proposed *Merge over Move* claiming that Merge was a simpler operation than Move and thus it was preferred to Move due to economy.

However, Chomsky (2008) refutes his own discussion on Merge over Move. Chomsky (2008) realizes that Move is a subclass of Merge and

<sup>6</sup> The assumption that a Pair-Merged element is invisible only within the syntax can be derived from Chomsky’s (2004) proposal of an operation called “SIMPL,” which puts a Pair-Merged element back to the “primal plane” at the timing of transfer. Whether or not we adopt “SIMPL,” a Pair-Merged element must be rendered visible at the interfaces, somehow, so as to be read there, as was noted in 3.2. Therefore, I claim that the well-known asymmetric c-command relation between the indirect object and the direct object (see Barss and Lasnik (1986)) can be captured at the C-I interface under the approach of this paper.

argues that Merge and Move should be rephrased as *external merge* and *internal merge*, respectively. Moreover, he claims that external/internal merge should be equivalent, given that they are both sub-cases of merger. Hence, the discussion of Merge over Move has completely collapsed.

Nevertheless, Chomsky (2015) further claims that the distinction between external/internal merge has not been fully deleted yet within Chomsky's (2008) framework in that it presumes that external merge is applied when a phase is formed, namely *before* the phase completion, while internal merge occurs after the phase head is introduced, that is, *after* the phase completion. In this sense, there remains an asymmetry between external/internal merge within Chomsky's (2008) framework.

Chomsky (2015), thus, attempts to eliminate the remaining distinction between external/internal merge and proposes that both external merge and internal merge are freely available when a phase is formed. Thus, under Chomsky's (2015) framework, external merge and internal merge interweave and unwanted results are ruled out by multiple factors (namely, whether or not all the necessary phrases are labeled, all the uninterpretable features are checked, and so on). In this paper, I call this framework *free merger* and define it as follows:

(13) Free Merger:

All merger operations including internal/external merge are freely available in phase formation.

### 3.3.2. A Proposal: Radical Free Merger

Once we introduced the concept of free merger, a question arises. Notice that the discussion on free merger in the last subsection only focuses on Set-Merge. Then, does the term *all merger operations* in (13) not include Pair-Merge? Given that Pair-Merge is a subclass of merger, the null hypothesis is that Pair-Merge should also be included in (13). Because there seems to be no compelling evidence to deny the hypothesis, I argue that the answer to the question is "yes" and propose a radical version of free merger in (14).<sup>7</sup>

<sup>7</sup> At first sight, Pair-Merge seems to be a more complicated operation than Set-Merge, in that it produces an ordered pair and thus it needs an additional process of the order determination, unlike Set-Merge. If so, Set-Merge may be preferred to Pair-Merge because of economy. However, when we think of the resulting situations, Set-Merge may produce elements that cannot be labeled, whereas Pair-Merge necessarily produces labelable ones. In this way, although Pair-Merge itself may be a more complicated operation,

## (14) Radical Free Merger

All merger operations including internal/external Set-/Pair-Merge are freely available in phase formation.

Under (14), the four types of merger operations interweave when a phase is formed: external Set-Merge, internal Set-Merge, external Pair-Merge, and internal Pair-Merge.

A *radical* point of the assumption in (14) is that it results in eliminating the intrinsic distinction between Arguments and Adjuncts, which used to be taken for granted. Under the standard framework, as was noted in section 1, the stipulation is that an Argument must be Set-Merged, whereas an Adjunct must be Pair-Merged. However, under radical free merger, I claim that any element can undergo all of the four merger operations in (14). Therefore, Set-Merge is no longer limited to Arguments and Pair-Merge should not be confined to Adjuncts. In other words, some Arguments can be introduced via Pair-Merge and some Adjuncts may be introduced by Set-Merge. Hence, the stipulated definition that an Argument is Set-Merged and an Adjunct is Pair-Merged is abandoned, with the distinction between Arguments and Adjuncts being derived as a result of agreement, case assignment, theta-role assignment, and so forth. Importantly, as Chomsky (2015) assumes, I also argue that unwanted results are ruled out due to failures of labeling and/or feature checking and therefore over-generation is avoided. In the next section, let us observe how this new framework is implemented through explanations for the DOC examples in section 2.

#### 4. Analysis

In this section, based on radical free merger as proposed in 3.2.2, we will consider the structure and the derivation of the DOC in English and attempt to account for the asymmetry between the direct/indirect objects witnessed in section 2. Furthermore, I demonstrate that radical free merger provides a more minimalistic framework for structure building.

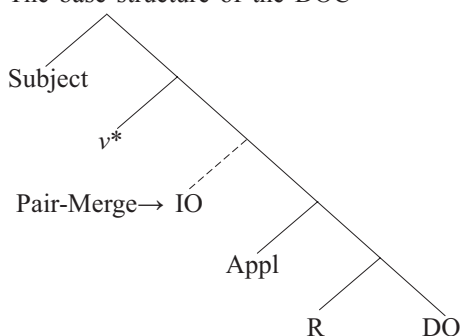
it produces a simpler outcome than Set-Merge. Because the definition of complexity is vague, it is difficult to tell which is more economical and preferable, Set-Merge or Pair-Merge. In this paper, I tentatively assume that neither of them is superior in terms of economy and thus Set- and Pair-Merge are equivalent. Epstein, Kitahara and Seely (EKS) (2016: 9) make a similar claim that “[t]here is no need to stipulate any rule-ordering of set-Merge or pair-Merge,” which seems to support the discussion here.

## 4.1. The Structure and the Derivation of the Double Object Construction in English

### 4.1.1. The Structure

In this subsection, I will consider the base structure of the DOC. Given that the DOC includes one more bare Argument than typical transitive sentences, it is not unreasonable to assume that some additional projection exists in the verbal layers of the DOC so as to introduce the Recipient DP. Marantz (1993) introduces an Appl(icative) head, which was originally found by Baker (1988) in Bantu languages, into the verbal layers of the DOC in English. To the best of my knowledge, this assumption has become standard in recent studies (see e.g. Pykkänen (2008), Bruening (2010a, b), and Miyagawa (2010)). This paper also adopts the Appl head analysis and suggests that it is located between R and  $v^*$  as is shown in (15). Moreover, I assume that Appl assigns the Recipient theta-role to the indirect object, which is introduced into “Spec-AppIP” (in traditional terms) via Pair-Merge.<sup>8</sup>

#### (15) The base structure of the DOC



Before moving on to the derivation of the DOC based on (15), however, let us make a few comments concerning theta-roles and case in the DOC.

### 4.1.2. What Occurs on Theta-Roles?

Firstly, let us quickly consider theta-role assignment processes in the DOC. Under the mainstream minimalist framework, theta-role assignment

<sup>8</sup> The utilization of the term “Spec-” or “specifier” may make readers wrongly believe that the designated position called “specifier” exists. Of course, under Chomsky’s (2013, 2015) framework, the existence of a “specifier” should no longer be taken for granted, but it is normally derived as a consequence of prominent feature sharing, which we saw in 3.1. Notice that this paper uses the term simply for expository purposes.

occurs through a merger operation. More specifically, Chomsky (2008: 140) claims that “E[external]M[erge] yields generalized argument structure.” Then, in this paper I assume that a theta-role is assigned (or probably a theta-role feature is checked) simultaneously with external merge of a DP. Therefore, I claim that the theta-role for the direct object (namely, Theme) in the DOC is assigned when R and the direct object are externally Set-Merged, as in typical transitive constructions.

A question is, then, how the indirect object receives its theta-role. Recall that the indirect object is introduced by Pair-Merge in (15). Under radical free merger, it is not problematic at all that the indirect object, which is an Argument, undergoes Pair-Merge, which is limited to Adjuncts under the standard assumption, since radical free merger allows both Set- and Pair-Merge to freely occur when a phase is built. Moreover, if theta-role assignment is based on “external merge” as Chomsky (2008) claims, radical free merger predicts that not only external *Set-Merge* but also external *Pair-Merge* can host theta-role assignment unless we make some stipulation to prohibit it.

One may wonder how the theta-role can be assigned to the Pair-Merged element, which should be syntactically invisible. Importantly, note that although a Pair-Merged element is rendered invisible within the syntax, it is only *after the application of Pair-Merge* that its syntactic visibility is lost. Therefore, I claim that at the exact timing when Pair-Merge is applied, the indirect object should still be visible within the syntax and the theta-role assignment can be successfully done at this timing (recall that we assume simultaneous theta-role assignment with a merger operation). Moreover, recall that we assume that a Pair-Merged element is invisible only within the syntax and is visible at the interfaces (see 3.2 and footnote 6). Assuming that theta-roles play no role within the syntactic component after they are properly assigned and they are only read at the C-I interface for the interpretation, I conclude that the theta-role assignment to the Pair-Merged indirect object raises no problem.

The process of theta-role assignment to a Pair-Merged element, namely, an Adjunct-like element is reminiscent of Larson’s (1988) approach to the DOC, which presumes that a theta-role is assigned to a DP located in an Adjunct position (though in his analysis the direct object, not the indirect object, is Adjunct-like). Although it seems that the assumption of theta-role assignment to Adjunct-like elements was too radical in Larson’s (1988) era, his intuition can be revived under radical free merger.

### 4.1.3. What Occurs on Case?

#### 4.1.3.1. Case Feature Valuing

Let us turn to a consideration on case in this subsection. Within the minimalist framework, the process of case assignment is rephrased as value assignment to the uninterpretable case feature on a DP (this process is referred to as *case valuing* or *case checking* in this paper). Namely, a DP has a case feature without a syntactic value and it must receive some syntactic value through the derivation. Under the standard framework, case feature checking occurs at the same time with Phi feature checking. Therefore, when Phi features are inherited (see Chomsky (2008) for feature-inheritance), the T head in CP assigns the Nominative value to the case feature on a DP and the R head in *v*\*P, the Accusative value. Importantly, if a case feature fails to receive a value, the derivation is doomed to crash.

As we will see in 4.1.4, the direct object in the DOC can receive an Accusative case value from R, as in typical transitive constructions. One question that arises is; what occurs on the case feature on the indirect object, which is Pair-Merged? In this paper, I claim that it receives the default case value. In the next two subsections, after briefly looking at a phenomenon representative of the default case, we will consider a detailed mechanism for the default case.

#### 4.1.3.2. The Default Case

The existence of the default value for case has often been pointed out in the literature. The most typical example of the default case is, presumably, what are called Mad Magazine sentences argued by Akmajian (1984).

- (16) a. What! Her call me up?! Never.  
b. What! \*She call me up?! Never.

(Akmajian (1984: 3))

The examples in (16) are quite unique. In (16a), the subject of *call* should be *Her* because it possesses the Agent role, which is a typical role for the subject. However, its case manifestation pattern is not Nominative but Accusative. Importantly, (16b) with the Nominative subject is ungrammatical.

Taking into consideration the lack of agreement on the verb, the unacceptability of the Nominative subject in (16b) is predicted under the standard case framework, where agreement is a necessary condition for case valuation: if there is no agreement, case valuation does not occur and thus the Nominative subject cannot appear. On the other hand, it is unclear why the Accusative subject appears in (16a), where no element that can assign the Accusative value to the DP seems to exist. Akmajian (1984) argues

that the Accusative form in (16a) is a realization of “unmarked” case and if case assignment does not occur, the “unmarked” form can appear as in (16a). If we rephrase this in minimalist terms, we can claim that when a case feature is syntactically unchecked, a default form of case appears and it is the same form with Accusative in English. In this paper, I refer to such case realization as *Her* in (16a) as the “default case.”

At this point, we may ask how the default case can appear without causing a derivational crash: given that a case feature is uninterpretable, it should cause the derivation to crash unless it is valued within the syntax, as was touched on in 4.1.3.1. Importantly, hence, although the existence of the default case is evident as (16a) indicates, the present case theory cannot accommodate this fact and, as far as I know, this problem has not been fully solved yet.

#### 4.1.3.3. The Default Case under the Minimalist Framework

This subsection proposes a possible solution to the theoretical problem regarding the default case we saw in 4.1.3.2. Note that under the mainstream phase theory, a phase head transfers its complement to the interfaces after its operations finish, and if unvalued uninterpretable features remain and are sent to the interfaces, the derivation crashes. However, if unvalued uninterpretable features necessarily cause the derivation to crash at the interfaces, the default case example in (16a) can never be generated. Thus, when we seriously tackle the problem with the default case, we have to assume that a derivational crash (at least in this case) occurs somewhere before the interfaces, namely within the syntactic component. In other words, although a derivation including unvalued features is usually cancelled within the syntactic component, under some circumstances it may reach the SM interface, where the features receive a tentative value, namely, the default value.

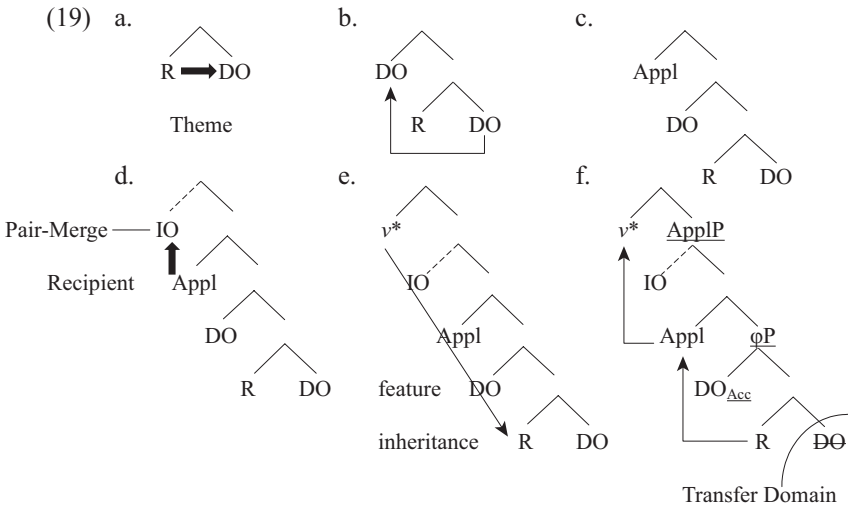
Assuming that a derivational crash due to unvalued uninterpretable features occurs before transfer to the interfaces, we may be able to presume some filtering operation at the end of each phase level, which rules out a derivation with unvalued uninterpretable features. Nevertheless, the introduction of such a brand-new filtering operation is strongly dis-preferred within the minimalist framework, unless there is a sufficient empirical motivation. Notice, then, that within Chomsky’s (2015) framework, the Labeling Algorithm occurs at the end of phasal operations, as if it were a filter. Then, it is fascinating to attribute a crash with uninterpretable features to the Labeling Algorithm. That is, when unvalued uninterpretable features remain at the time of the Labeling Algorithm, the algorithm fails and the

<sup>9</sup> Since the syntax cannot remove unvalued uninterpretable features on a Pair-Merged element, an unvalued case feature in default case examples may also be sent to the C-I interface as well. This seems to be problematic. However, Epstein, Kitahara and Seely (2010) propose a crash-proof version of the C-I interface and if we adopt this idea, unvalued uninterpretable features are ignored or even invisible at the C-I interface and thus no problem arises.

As can be seen in (18), an inflection appears at the end of a past participle in Swedish. When a DP is moved to its left, the past participle shows agreement with the DP and is realized as the plural form in (18a). On the other hand, the past participle in (18b) shows the singular inflection; this is considered to be the default Phi-value. Although we will see the details of their approach later in this paper (see 4.2.2.2), if we adopt Epstein, Kitahara and Seely (EKS)’s (2016) phase cancellation approach,  $v^*$  is externally Pair-Merged with R before they are introduced into the main stream of the derivation and thus Phi features on  $v^*$  become invisible at the syntax. If so, the unvalued Phi features can be *smuggled* to the interfaces and the default value should be assigned at the SM Interface, as we discussed above with the default case example. Further investigation concerning other default-value-related phenomena should be left for future research, since it is beyond the focus of this paper.

#### 4.1.4. The Derivation

Based on the discussions on theta-roles and case in 4.1.2 and 4.1.3, we will return to the derivation of the DOC in this subsection.



Let us see details of the derivation in (19). Firstly, R and the direct object are externally Set-Merged and R assigns the Theme theta-role to the direct object as in (19a). After the theta-role assignment, the direct object is internally Set-Merged as in (19b), due to a labelling reason shown soon below, and Appl is externally Set-Merged as can be seen in (19c). Following that, as is shown in (19d), the indirect object is externally Pair-Merged

and the Recipient theta-role is assigned as was discussed in 4.1.2. Hereafter, the indirect object becomes invisible within the syntax (Pair-Merge is represented as the dotted line). Finally, the phase head  $v^*$  is externally Set-Merged and feature-inheritance occurs as in (19e) (the processes related to the subject are omitted here for simplicity). The Labeling Algorithm also occurs as is shown in (19f). Here and in what follows, I will omit explanations for the labels irrelevant to the discussion. Owing to the internal merge of the direct object in (19b), the label  $\phi P$  can be determined.<sup>10</sup> Moreover, since the indirect object has been Pair-Merged, it is invisible to the Labeling Algorithm and thus the ApplP label can be determined.

A couple of notes are needed concerning the derivation in (19). Firstly, I argue that feature-inheritance occurs from  $v^*$  to R, probably successive-cyclically via Appl in (19e).<sup>11</sup> Thus, I emphasize that since the relevant features are transmitted from  $v^*$  to R, the Phi feature checking and the case feature checking are successfully done between R and the direct object.

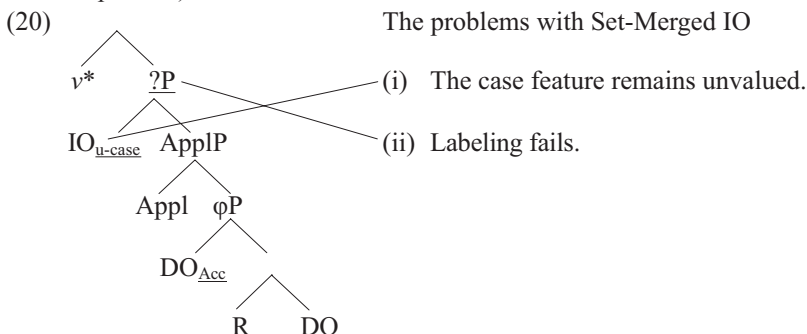
Secondly, notice that head movement of R is triggered via Appl to  $v^*$  as is shown in (19f), with R being internally Pair-Merged with Appl and  $v^*$  in a successive-cyclic fashion. As Chomsky (2015) argues, this process makes the phase-head status on  $v^*$  defective and the transfer domain is shifted from the complement of  $v^*$  to that of the lower copy of R.

Thirdly and finally, recall that under radical free merger, Set-Merge and Pair-Merge are freely available. Therefore, the indirect object may be introduced not by Pair-Merge as in (19d), but via Set-Merge as the direct object is. However, I claim that this possibility is ruled out because it raises

<sup>10</sup> Note that without internal Set-Merge of the direct object, the  $\phi P$  label is not formed via the prominent feature sharing option and we expect that R is chosen as the label since R is the nearest head within the constituent R-DP. However, what is crucial here is that R itself cannot be a label without Phi feature checking; this is because the R head is weak for labeling and it cannot serve as a label without being strengthened through the Phi feature checking. Concerning the strengthening process, see Chomsky (2015) and EKS (2016) (footnote 11 also contains a brief discussion regarding the strengthening process). Therefore, the direct object is forced to be internally Set-Merged.

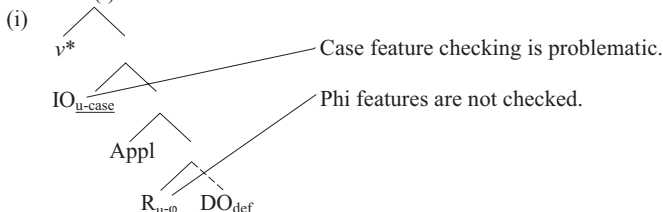
<sup>11</sup> I claim that the long-distance feature-inheritance here is obligatory for the derivation to converge. That is, if the inheritance does not occur, R, which is assumed by Chomsky (2015) to be so weak that it cannot be a label, can never be strengthened through Phi feature checking (see footnote 10 as well); hence, the labeling for  $\phi P$  and RP fails and the derivation does not converge. This long-distance feature-inheritance from  $v^*$  (via or skipping Appl) to R may also be motivated by the requirement of establishing  $v^*$ -R relation, as is discussed by Chomsky (2015).

two problems in (20): (i) the uninterpretable case feature on the indirect object remains visible within the syntax but cannot be valued (notice that the strategy for the default case discussed in 4.1.3.2 cannot be applied here since the indirect object is Set-Merged); (ii) the indirect object remains visible at the timing of the Labeling Algorithm and thus labeling for “?P” in (20) fails due to the XP-YP situation (notice that the indirect object and ApplP are both phrases).



Thus, the possibility of Set-Merge of the indirect object is always excluded and only the derivation with Pair-Merge in (19) survives (at least in active voice examples).<sup>12</sup>

<sup>12</sup> As an anonymous reviewer notes, there is another possibility concerning the derivation of the DOC under free merger: the direct object is Pair-Merged and the indirect object is Set-Merged. In this case, on first glance, one may expect that the derivation converges because the direct object is assigned the default case, whereas the indirect object can be assigned case somehow from  $v^*$ . However, if we assume that feature-inheritance from  $v^*$  to R licenses R's case assignment ability following Epstein, Kitahara and Seely (2012), we expect that  $v^*$  itself is not capable of assigning case to the indirect object. In addition, a more serious problem under this possibility is that the Phi features located on R through feature-inheritance remain unchecked, because the direct object is syntactically invisible as in (i).



Thus, this possibility is excluded. Concerning another derivational possibility where both the direct/indirect objects are Pair-Merged, see footnote 19.

## 4.2. Empirical Discussion

Having shown the structure and the derivation of the DOC in English, we will turn to an empirical discussion in this subsection. In order to account for the asymmetry in the DOC we saw in section 2, let us examine derivations for A-bar movement of the indirect object and the direct object, and A-movement of the indirect object and the direct object, in sequence.

### 4.2.1. On A-Bar Movement

In this subsection we will consider the examples of A-bar movement. Recall that the indirect object cannot undergo A-bar movement, whereas the direct object can. The relevant data are repeated in (21).

- (21) a. \*Who did you give *t* a book? (= (2a))  
 b. What did you give John *t*? (= (2b))

#### 4.2.1.1. The Indirect Object

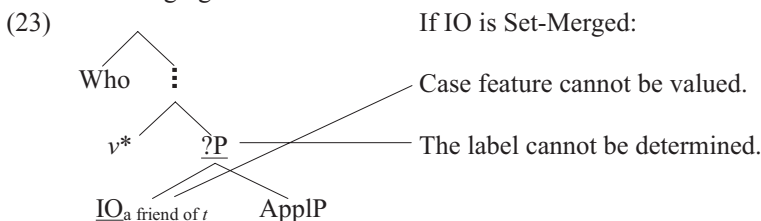
Based on the structure and the derivation of the DOC presented in 4.1, we can readily explain the impossibility of A-bar movement of the indirect object. The indirect object cannot move since it has been externally Pair-Merged and thus syntactically invisible when A-bar movement is applied to it. Thus, (21a) cannot be derived.

Of course, radical free merger provides another possibility to derive A-bar movement of the indirect object; that is, if the indirect object is introduced via Set-Merge, it may undergo A-bar movement. However, as was shown in 4.1.4, if the indirect object externally Set-Merges, the two problems arise: the problems with labeling and case feature valuation. In this case the former problem does not occur since the *wh*-indirect object is moved away from “Spec-AppIP” position and the XP-YP situation is avoided. Nevertheless, the latter problem is inevitable: the uninterpretable case feature on the indirect object cannot be valued, for there is no case-valuer and the default case strategy is not available in this case. Hence, the Set-Merge derivation is excluded due to the failure to value the case feature on *who*.<sup>13</sup>

<sup>13</sup> Notice that if the problem with case is solved, the Set-Merge derivation will be tenable and thus A-bar movement of the indirect object will be accepted. Given that the case inflection on *who* (namely, the Accusative form, *whom*) rarely appears in present spoken English, we may be able to assume that some speakers have lost the uninterpretable case feature on the lexical item *who*. If so, such speakers are expected to accept (21a), where the indirect object is A-bar moved. As was already noted in footnote 2, there are some speakers who actually accept examples like (21a) and the “case-less” *who*

Recall that extraction from within the indirect object is also unacceptable as (22) shows.

(22) \*Who did you say Cindy sent [<sub>IO</sub> a friend of *t*] a picture? (= (3a))  
 (22) is also easily captured. If the indirect object has been Pair-Merged, the extraction is impossible since the Pair-Merged indirect object has become syntactically invisible. On the other hand, if it has been Set-Merged, the case feature on it is doomed to be left unvalued. In addition, the labeling problem cannot be ignored in this case, as we can see in (23): since the indirect object *a friend of* remains in the base-generated position, the XP-YP situation is inevitable and the Labeling Algorithm fails, preventing the derivation from converging.



In sum, both of the two derivational possibilities for A-bar movement of (or extraction from) the indirect object are excluded due to the syntactic invisibility of the indirect object if it is Pair-Merged, or the failure(s) in feature checking (and labeling) if it is Set-Merged.

#### 4.2.1.2. The Direct Object

Although I omit a detailed derivation owing to space limitation, A-bar movement of the direct object does not raise any problems. This is because the direct object can undergo A-bar movement successive-cyclically, as long as it is introduced via Set-Merge, as the object in normal transitive examples can. Of course, under radical free merger, the direct object may also be Pair-Merged. However, the derivation never converges because the Pair-Merged *wh*-direct object can no longer move and cannot participate in a QP label determination in that case.

may shed light on this fact. Moreover, if the case-less *who* approach is on the right track, such speakers should offer different judgments on other phenomena related with *who*. Since this topic goes beyond the domain of this paper, I will leave it for future research. What is crucial here is that extraction from the indirect object (namely, (22)) is never possible due to the labeling reason discussed in 4.2.1.1.

### 4.2.2. On A-Movement

Let us move to A-movement in this subsection. As is repeated below, whereas the indirect object can be passivized, it is difficult for the direct object to undergo A-movement. Moreover, recall that when the indirect object is phonetically weak and especially when it is a pronoun, A-movement of the direct object becomes more acceptable.

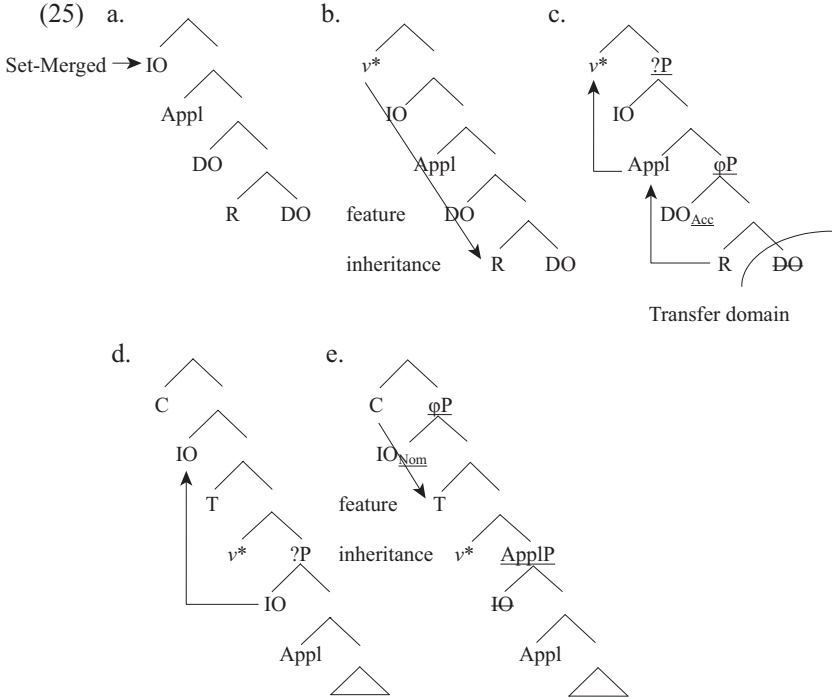
- (24) a. Buddy was sent *t* the letter. (= (5a))  
 b. \*The letter was sent Buddy *t*. (= (5b))  
 c. A letter was given 'im by Mary. (= (6))

#### 4.2.2.1. The Indirect Object

We will first investigate derivational possibilities for (24a). In this subsection, I tentatively assume that in passive derivations for (24a) the subject does not exist and a past participle affix *-en* is attached to the verb in the numeration.<sup>14</sup> Importantly, I assume that a phase head *v\** appears even in passive derivations, at least in this case (namely, this paper does not presume a weak version of “*v*” as is discussed in Chomsky (2001)). Hence, a *v\**P phase is formed and the Accusative case can be assigned to the direct object, as is seen below.

Under the assumption for passive derivations above, the derivation in the *v\**P phase for (24a) is almost homogeneous with the one for active voice examples (e.g. (19)). However, notice that if the indirect object is Pair-Merged as in active DOC examples, we expect that it becomes syntactically invisible and cannot undergo A-movement anymore (thus, Phi feature checking in the next CP phase fails). Hence, when it comes to the passivization of the indirect object, only the derivation where the indirect object is externally Set-Merged can survive. Note that the problems with labeling and feature checking we saw in 4.1.4. do not arise in this case: the CP phase is formed above the *v\**P phase and labeling and case feature checking are successfully done there. Let us examine details of the derivation in (25):

<sup>14</sup> Here, I assume that an implicit subject does not exist but the interpretational differences between passive and unaccusative can be derived from the existence of the affix *-en*, following Oba (2013). Moreover, importantly, I distinguish the affix *-en* from inflection based on Phi features: the former is an item attached to a verb within the lexicon (or a Pair-Merge process of *-en* to R may be involved in the syntax) so as to ensure the interpretation of the implicit subject, but the latter is a mere realization of checked uninterpretable Phi features without any contribution to interpretation.



I omit the processes until the indirect object is introduced since they are completely the same as the active voice derivation in (19) in 4.1.4: external Set-Merge of R and the direct object, internal Set-Merge of the direct object, and external Set-Merge of Appl. As was touched on above, when the indirect object is introduced, it must be externally Set-Merged in this case. Thus, it remains syntactically visible. After  $v^*$  is externally Set-Merged, feature-inheritance occurs from  $v^*$  (via Appl) to R as in (25b). Following the inheritance, feature checking, the Labeling Algorithm, and transfer are triggered. As a result, the direct object has its case feature valued and the  $\phi P$  label is determined as in (25c). Notice that the label represented as “?P” in (25c) is not determined at this moment. Nevertheless, because the transfer domain shifts due to the head movement of R (via Appl) to  $v^*$  (see Chomsky (2015) for the relevant discussion), this problematic projection is not transferred and thus I claim that the derivation can proceed to the next CP phase.

After the derivation in  $v^*P$  finishes, the CP phase is constructed as in (25d) by external Set-Merge of T, internal Set-Merge of the indirect object, and external Set-Merge of C, in sequence. The process of internal Set-

Merge of the indirect object raises no problem since the Set-Merged indirect object is visible at the syntax and not transferred yet. Then, feature-inheritance occurs and feature checking and the Labeling Algorithm are triggered as in (25e). Since we assume that a subject DP does not exist in this derivation, the indirect object can be “the subject” of the sentence, namely, can participate in the  $\phi$ P label determination. In addition, since the indirect object has moved out, the lower copy of it does not take part in the Labeling Algorithm and ?P can be labeled as ApplP. Thus, the derivation converges.

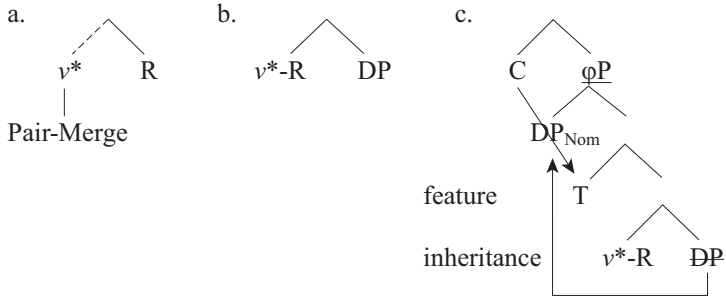
#### 4.2.2.2. The Direct Object

When it comes to the passivization of the direct object, it cannot be derived under the assumption for the passive derivation in 4.2.2.1, namely, a subject DP does not exist but  $v^*$ P phase is formed. If the  $v^*$ P phase is formed, the direct object can be case-valued and involved in a  $\phi$ P label determination within  $v^*$ P phase. Therefore, a further application of syntactic operations to the direct object is redundant and banned due to economy.

However, (24c) above implies that when the indirect object is phonetically weak and especially when it is a pronoun, the passivization of the direct object should be accepted. This indicates that we need some strategy to derive (24c). A possible solution is that a  $v^*$ P phase is somehow cancelled: if  $v^*$ P is not formed, neither case valuing nor the Labeling Algorithm occurs and economy does not prevent further operations on the direct object. Thus, A-movement of the direct object is salvaged if a  $v^*$ P phase cancellation occurs.

Importantly, EKS (2016) propose a phase cancellation through external Pair-Merge between  $v^*$  and R. They claim that in passive and unaccusative examples,  $v^*$  is directly Pair-Merged with R before they enter the mainstream of the derivation and the phase head status of  $v^*$  is cancelled since a Pair-Merged element becomes invisible. In other words,  $v^*$  loses its phase-head status before it forms a phase owing to the  $v^*$ -R external Pair-Merge. Thus, Chomsky’s (2001) stipulated assumption of weak-phase head  $v$  is derived from this process and weak-phases are no longer necessary. The derivation for a passive sentence *John was hit* under EKS’s (2016) framework is as follows:

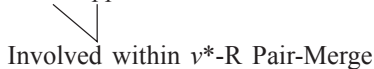
(26) John was hit *t*.



As can be seen in (26a), before  $R$  is introduced into the main stream of the derivation,  $v^*$  is externally Pair-Merged with  $R$  and  $v^*$  becomes invisible in the syntax. The resulting amalgam is, then, externally Set-Merged with a  $DP$  (*John*) as in (26b). Given that the syntax can no longer see the  $v^*$  head, a  $v^*P$  phase is not formed, which results in a “phase cancellation.” Therefore, the  $DP$  can survive until the next  $CP$  phase. Although skipped in (26),  $T$  is externally Set-Merged and the  $DP$  is internally Set-Merged. When the  $C$  head is externally Set-Merged, the  $CP$  phase is completed and feature-inheritance, feature checking, and the Labeling Algorithm occur as in (26c). As a consequence, the uninterpretable case feature on the  $DP$  is assigned the Nominative value and the  $DP$  can participate in the label determination through the prominent Phi feature sharing, as can be seen in (26c).

Adopting EKS’s (2016) phase cancellation through external Pair-Merge of  $v^*$  to  $R$ , I claim that when the phase cancellation occurs, the passivization of the direct object will be accepted. However, I argue that in order to externally Pair-Merge  $v^*$  to  $R$  in the  $DOC$ , the elements between them, that is,  $Appl$  and the indirect object must also be Pair-Merged as is schematically shown below.

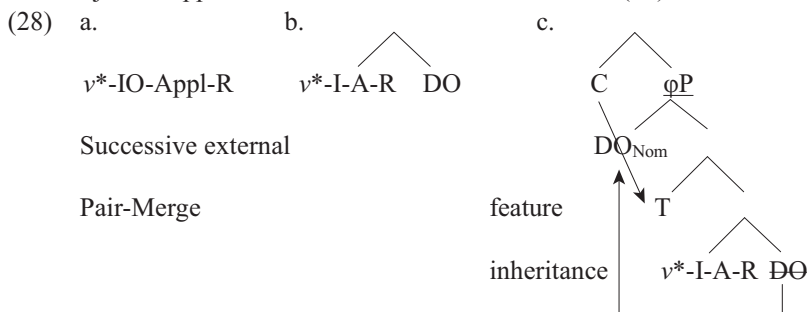
(27)  $v^*-IO-Appl-R$



As we can see in (27), before  $v^*$  is externally Pair-Merged with  $R$ ,  $Appl$  and the indirect object are externally Pair-Merged with  $R$ . Given that EKS (2016) claim that the process of external Pair-Merge of  $v^*$  and  $R$  is a “morphological” operation, I claim that the indirect object in (27) is also involved within the morphological verbal word formation; that is, it becomes

a clitic-like element.<sup>15</sup>

Thus, I argue that if the process of (27) is permitted, the passivization of the direct object is applicable. The derivation is shown in (28):



The phase cancellation occurs through successive external Pair-Merge as in (28a). As a result, even after the direct object is externally Set-Merged with the verbal amalgam of  $\nu^*$ -IO-Appl-R, a phase is not formed and thus the direct object can survive until the CP phase. The remaining processes are the same with those we saw in (26) above: when the CP phase is completed, feature checking and the Labeling Algorithm successfully finish as in (28c).

<sup>15</sup> One question that arises is, as an anonymous reviewer points out, how the theta-role assignment of Appl to the indirect object is held in this situation, given that both of them are Pair-Merged. This is a difficult question because when the indirect object is Pair-Merged, Appl has already been Pair-Merged and thus it is invisible. One possible solution to this problem is to assume that the ability to assign (the Recipient) theta-role on Appl is somehow transmitted to R through Pair-Merge. The transmission process is not a pure stipulation but a serious consideration on Chomsky's (2015) framework reveals that some kind of transmission-like mechanisms may be required. Let us see the reasoning.

Note Chomsky's (2015) argument that although R is unlabelable,  $\langle R, \nu^* \rangle$  (namely, R, to which  $\nu^*$  has been Pair-Merged) can be a label. If Pair-Merge only relates two items asymmetrically and renders one of them invisible, the change of R's labeling status is not explained; both R and  $\langle R, \nu^* \rangle$  should be equally unlabelable. Therefore, we have to conclude that Pair-Merge of  $\nu^*$  somehow changes R. Now, given that  $\nu^*$  itself is a labelable item, then, one possible prediction is that the labelability of  $\nu^*$  is transmitted to R through Pair-Merge. Of course, we need to seriously consider the validity of this process. However, if the transmission of labelability through Pair-Merge turns out to be a tenable option, it is not unreasonable to assume that the theta-role assignment ability is also transmitted from Appl to R (via the same mechanism as what ensures the labelability of  $\langle R, \nu^* \rangle$ ). Though the discussion on this topic is quite important, it is related to the whole framework of Chomsky (2015) and presumably requires more time to research. Hence, I will leave it for future studies.

A question left unanswered is why this strategy, namely, the amalgam formation of  $v^*$ -IO-Appl-R is limited to cases where the indirect object is phonetically weak or it is pronominal. To put it the other way around, that the indirect object is phonetically weak implies that the indirect object is not focused. Therefore, the limit of the amalgam formation here can be rephrased as follows: the indirect object within  $v^*$ -IO-Appl-R cannot be focused. Then, why can it not be focused? Now, let us assume that a focus element must be licensed within the syntax.<sup>16</sup> Given the fact that a focus element can either be located in the sentence initial position or be pronounced with emphasis in its in-situ position, there seem to be at least two ways to license the focus element. The first one is to form a (focus) label through the prominent feature sharing with C; this derives the sentence initial focus. On the other hand, a focus element seems to be licensed in its in-situ position, probably based on a c-command relation with its licenser; this strategy produces the in-situ focus with phonetic emphasis. Although I will not pursue the details of the mechanism further, based on the assumption of focus licensing, we can readily derive the impossibility of the focused indirect object: if the indirect object is Pair-Merged, it cannot move to the sentence initial position, nor can it be licensed based on a c-command relation since it becomes syntactically invisible. Thus, the indirect object cannot be focused, as long as it is Pair-Merged.<sup>17</sup>

Now, the discussion thus far creates an interesting expectation: if a speaker accepts the unfocused indirect object in the passive DOC, we expect that he/she permits the  $v^*$ -IO-Appl-R amalgam formation and direct object passives in the DOC, even with a proper noun indirect object. In other words, the marginality of passives with A-movement of the direct object relates to the speaker's fondness for the unfocused indirect object. If the indirect object is a pronoun, the unfocused indirect object is easily accepted because it is natural not to focus a pronoun. However, let us consider the sentence in (29).

<sup>16</sup> Given that the examples in (4) in section 2.2 are grammatical, I claim that non-moved *wh*-phrases in multiple *wh*-questions are licensed in the C-I Interface and thus the non-moved indirect object can be a *wh*-word even though it is Pair-Merged.

<sup>17</sup> Note that the discussion here is consistent with the fact that the indirect object in the DOC cannot be focused even in active voice sentences; this is because the indirect object is always Pair-Merged and thus focus licensing necessarily fails. However, I argue that since it is located in the middle of a sentence, the proper noun indirect object is unproblematic in active voice examples.

(29) The book was given John.

In (29), *John* is likely to be interpreted as new information because if it is not, we can instead use *him*. Moreover, it is located in the sentence final position, where stress is usually put in English, following Cinque's (1993) stress prominence rule. Therefore, I suspect that some speakers are unwilling to treat *John* in (29) as an unfocused element. Given that the analysis here forces *John* in (29) to be unfocused since it is Pair-Merged, I argue that for such speakers, a sentence such as (29) is dis-preferred. On the other hand, if some speakers allow an unfocused proper noun to appear as the indirect object in the configuration in (29), we predict that such speakers permit the amalgam formation including the proper noun indirect object and A-movement of the direct object should be unproblematic. Hence, I conclude that the judgement variety concerning A-movement of the direct object is not explained from a purely syntactic point of view but it relates to the presence or absence of focus on the indirect object.

#### 4.3. Considerations on Other Possibilities under Radical Free Merger

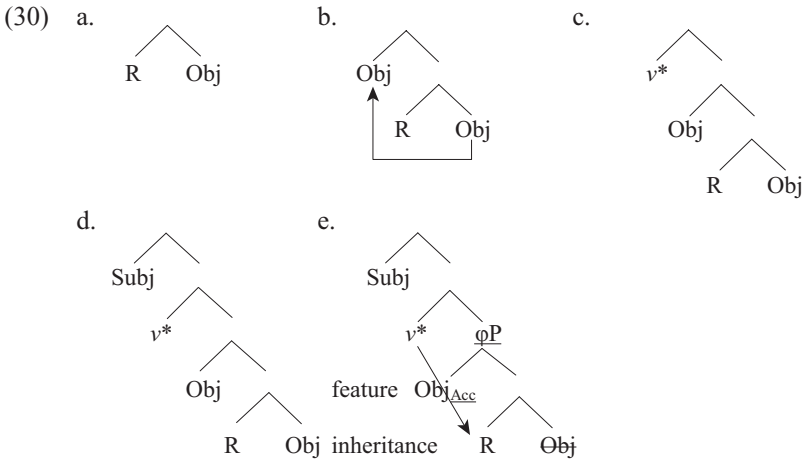
As we have observed thus far, radical free merger offers us an interesting solution to the asymmetry between the direct/indirect objects in the DOC, which is free from stipulations. However, since radical free merger is a quite *radical* way of structure building, we need to confirm that it does not produce unwelcome over-generation in yielding usual sentences. In this subsection, we will ensure that radical free merger can successfully generate typical transitive sentences as the standard framework does.

As we have witnessed, Argument DPs can be introduced by Pair-Merge under radical free merger. Moreover, since I introduced EKS's (2016) phase cancellation in 4.2.2.2, even  $v^*$  can be Pair-Merged. Thus, it opens up many derivational possibilities:  $v^*$  is Set-/Pair-Merged, the object is Set-/Pair-Merged, and the subject is Set-/Pair-Merged.<sup>18</sup> Let us see possible derivations for a typical transitive sentence, *John hit Ken*.

Firstly, the most normal way of generating this sentence is to introduce all elements via Set-Merge. The derivation is the same with the one under the standard framework: R and the object DP are externally Set-Merged, the object DP is internally Set-Merged,  $v^*$  is externally Set-Merged, the subject DP is externally Set-Merged, and a set of operations within the  $v^*P$  phase

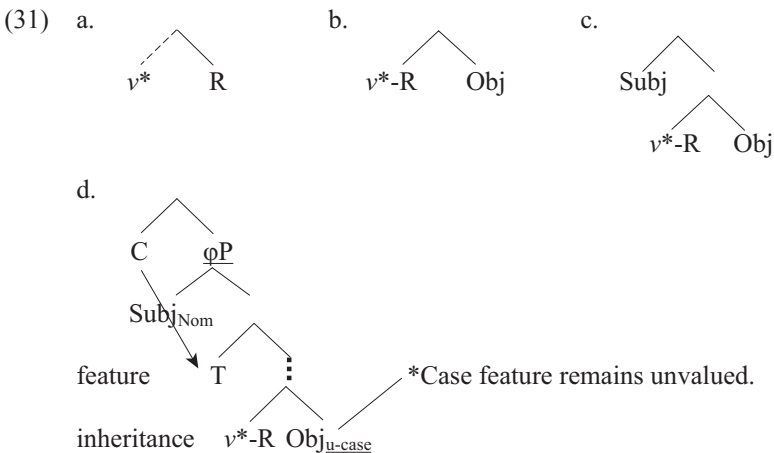
<sup>18</sup> Therefore, I do not assume that the phase cancellation is necessarily related to passive derivations, unlike EKS's (2016) original claim.

occur, in sequence, as can be seen in (30).

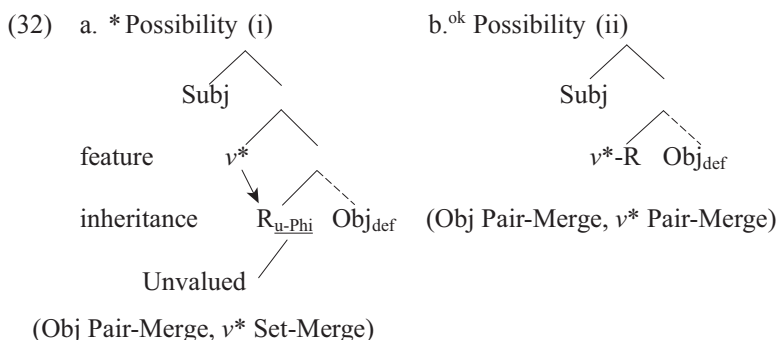


In this derivation, the object DP can participate in the  $\phi$ P label determination and it can receive the Accusative case value. I omit the derivation in the CP phase, because there is nothing to note especially.

Secondly, let us explore a case where the phase cancellation by Pair-Merge of  $v^*$  to R is applied. In that case, note that there is no way to deal with an uninterpretable case feature on the object DP, since  $v^*$  loses its status as a phase head and thus case valuing within the  $v^*$ P phase becomes impossible. Therefore, although the subject DP has its case feature valued at the next CP phase level, the case feature on the object DP remains unchecked and the derivation is doomed to crash as we can see in (31).



What occurs, then, if the object DP is externally Pair-Merged? In this case, the object DP becomes syntactically invisible and it receives the default case value at the SM interface as was discussed in 4.1.3.2. Concerning Pair-Merge of the object, we have to consider two cases: (i)  $v^*$  is externally Set-Merged (namely, no phase cancellation) or (ii)  $v^*$  is externally Pair-Merged (that is, a case of the phase cancellation). Under possibility (i), the Phi features on  $v^*$  cannot be properly dealt with, since the features within the Pair-Merged object DP are invisible and thus feature checking is impossible as in (32a). On the other hand, under possibility (ii) shown in (32b), the derivation converges since the problematic Phi features on  $v^*$  also become invisible.<sup>19</sup>



Note that the form of the default case is indistinguishable from the Accusative form in English and the consequences from the derivations in (30) and (32b) are apparently the same. However, as was discussed in 4.2.2.2, the object DP in (32b) is involved within a morphological verbal word forma-

<sup>19</sup> Given the discussion here, an anonymous reviewer points out a question. That is, what occurs if both the direct object and the indirect object are Pair-Merged in the DOC and moreover, EKS's (2016) Phase Cancellation approach is applied? In that case, the framework in this paper expects that the derivation converges and a gigantic amalgam of  $v^*$ -IO-Appl-R-DO is formed. Interestingly, Gast (2007) offers unique examples concerning the DOC where both the direct/indirect objects are pronominal.

(i) I got the map from his secretary, and when I GAVE IT HIM he spread it out on his desk. (Gast (2007: 33))

As shown in (i), in some British dialects of English, a special word order *gave it him* is observed when both the direct/indirect objects are pronominal. If we assume that the order shift between *him* and *it* occurs through the process of the phonetic form determination of the gigantic amalgam of  $v^*$ -IO-Appl-R-DO, the analysis here may also accommodate the idiosyncratic example of (i); that is, the phonological order shift is possible in some way because both of the direct/indirect objects are incorporated within one word through Pair-Merge.

tion and it cannot be focused. Thus, I claim that the derivation in (32b) is acceptable only for a sentence such as *John hit 'im*.<sup>20</sup>

The remaining possibility is that the subject DP is externally Pair-Merged. In that case, the subject receives the default case value. I argue that this is the case for Mad Magazine sentences we saw in 4.1.3.2, repeated below as (33).<sup>21, 22</sup>

(33) What! Her call me up?! Never. (= (16a))

This leads to the question of what occurs on the Phi features within the CP phase if the subject DP is externally Pair-Merged. Since the subject DP becomes syntactically invisible after Pair-Merge, the Phi features on C cannot be checked, in a similar vein with what we saw in (32a), where the Pair-Merged object DP fails to check the Phi features on  $v^*$ . We can assume that the phase cancellation strategy of  $v^*$ -R Pair-Merge is also applicable to C-T. However, it is questionable whether the C head, which possesses plenty of features related to discourse force, unlike the  $v^*$  head, can be Pair-Merged and becomes syntactically invisible. This paper does not draw a conclusion on this topic and I simply claim that some strategy needs to be applied to the C head to derive (33). The discussion thus far can be summed up in a table as follows.

<sup>20</sup> I will not consider how Pair-Merged objects behave in other languages here. The form of the default case is different depending on the language and thus the discussion on Pair-Merged objects seems to open up a wide possibility of explanations. I will leave this for future studies.

<sup>21</sup> An anonymous reviewer points out a similarity between Mad Magazine sentences and children's Optional Infinitives. It has been pointed out that in young children's utterance, the accusative subject can appear and there is also a connection between the appearance of agreement and the nominative form (see Wexler (1994) for detail of Optional Infinitives). Of course, the analysis in this paper can also accommodate these facts if we assume that the accusative subject is a default case DP derived through Pair-Merge. However, this opens up quite an interesting possibility: if young children utilize Pair-Merge to derive Optional Infinitives, this may indicate that it is easier for young children to use Pair-Merge than to use Set-Merge. The discussion on this topic may be related to the learnability of Set-Merge and Pair-Merge. Furthermore, it also seems to shed some light on a question about the complexity of Set-Merge and Pair-Merge (see footnote 7 as well). The debate on this profound and intriguing topic should be open for future studies. I would like to thank the anonymous reviewer for making me consider this point.

<sup>22</sup> Another question is where *Her* is located in (32). Since it must receive Agent role, it has to be firstly merged into Spec- $v^*$ P. Hence, if we assume that this first merge of *Her* is Pair-Merge, *Her* remains in Spec- $v^*$ P without moving further. Then, it may be possible to assume that the Mad Magazine example in (32) is a bare  $v^*$ P without CP layer at all, given that T-related phenomena are not observed in (32).

(34)

|                                 | v*         | Object     | Subject    |
|---------------------------------|------------|------------|------------|
| Normal Transitive (= (29))      | Set        | Set        | Set        |
| Object Cliticization (= (31b))  | Pair       | Pair       | Set        |
| Mad Magazine (= (32))           | Set/(Pair) | Set/(Pair) | Pair       |
| * due to case feature (= (30))  | Pair       | Set        | Set/(Pair) |
| * due to Phi features (= (31a)) | Set        | Pair       | Set/(Pair) |

5. Conclusion

In this paper, I have investigated the validity of Chomsky’s (2013) suggestion that the derivation for the DOC includes Pair-Merge. As we have seen, the assumption compels us to propose radical free merger, where Pair-Merge as well as Set-Merge should be freely available in a phase formation. Importantly, radical free merger enables us to explain the asymmetry between the direct/indirect objects in the DOC and thus it is revealed that Chomsky’s (2013) suggestion is on the right track. Furthermore, the assumption opens up a possibility of a more minimalistic way of structure building. Although we still have to examine the tenability of this approach from various perspectives, I hope to have shown that radical free merger develops the minimalist framework a great deal.

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