Phase and Convergence

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1 Introduction

The aim of this paper is to clarify some properties of "phase" by looking at some island effects of wh-movement. The main claims are the following two points: [1] the category qualified for phase is only CP, and it is identified by a "relative" procedure in terms of "convergence", and [2] [1] enables us to eliminate covert wh-movement from the design of grammar.

Since Chomsky (2000,2001a,b), the idea of phase has been considered to play an important role in the derivational approach to syntax. Phase is a cycle of derivation in the minimalist framework, and Chomsky claims that the derivation of a sentence proceeds phase by phase. How is phase-hood of a phrase determined? Chomsky argues that phase is identified in terms of "proposition", which leads to a natural syntactic object, and that *v*P and CP are regarded as a phase. In other words, phases are determined in terms of syntactic category before the derivation starts in his system.

In this paper, I will focus on the behavior of wh-movement and propose that phase is identified in the course of the derivation, rather than already determined before the derivation starts. In particular, convergence makes a certain domain a phase. Under this approach, (at least) some island effects are derived in such a way that elements cannot be extracted out of convergent domains. In addition, wh-in-situ can be licensed without covert movement.

This paper is organized as follows. Section 2 summarizes the arguments for the phase system proposed in Chomsky (2000, 2001a,b). Section 3 points out some problems involved in Chomsky's system and lays out main issues here. Section 4 proposes a theory in which phase-hood is determined based on convergence. Section 5 discusses some consequences of the proposed system, and Section 6 concludes the paper.

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2 Chomsky (2000,2001a,b): Arguments for *v*P and CP Phases

2.1 Why are Phases Needed?

Let us begin with considering motivations for Chomsky's phase system. One of the strong motivations for the phase system is the "Merge-over-Move" problem. Chomsky (1995) suggests that Merge takes priority over Move unless the latter is necessary for convergence. This preference leads us to a reduction in computational complexity because the Merge-over-Move assumption limits the possible continuations of a derivation. That is, it allows us to select a more economical operation, given that Merge is less costly than Move. Assuming this economy principle, let us consider the following *there*-constructions. Suppose that (1a) and 0) are derived from the same numeration as in (2).

(1) a. There exists evidence that [a man was in the garden].
b. Evidence that [there was a man in the garden] exists.

(2) Numeration for (1a) and 0)
= {C, that, T, a, man, be, in, the, garden, there, exist, evidence}

Under Merge-over-Move, the portions bracketed in (1a) and 0) have the following derivations, (3a) and 0), respectively:

(3) a. [there T be [a man in the garden]] _ 0)
b. [a man T be [~~a man~~ in the garden]] _ (1a)

({C, that, ~~T~~, ~~a~~, ~~man~~, ~~be~~, ~~in~~, ~~the~~, ~~garden~~, *there*, exist, evidence})

In both of the sentences, *a man be in the garden* is formed first. However, the next operation differentiates (3a) from (30). In (3a), *there* is merged to [Spec,TP]. In (3b), on the other hand, *a man* is moved to [Spec,TP]. Under the Merge-over-Move assumption, the merger of *there*, not the movement of *a man*, must be selected in both of the cases. As a result, (3a) is regarded as a more optimal derivation than (30), and the system predicts that the derivation (30) does not take place. Hence, (1a) is wrongly ruled out.

In order to rule in both (3a) and (30), suppose that (3a) and (30) have their own numerations as follows:

(4) a. Numeration (1a) = {{that, T, a, *man*, be, in, the, garden}
{*there*, T, exist, evidence, C}}
b. Numeration 0) = {{that, T, a, *man*, be, in, the, garden, *there*}
{T, exist, evidence, C}}

The numerations in (4a) and (40) have different internal structures, unlike the one shown in (2). Let us assume that each sub-numeration determines a phase. One crucial difference between (4a) and (40) is that *a man* and *there* belong to the same sub-numeration in (40), while they do not in (4a). Given this system, we can successfully derive (3a) and 0) under Merge-over-Move.

(5) Derivation of (3a)
a. Sub-Numeration = {that, T, a, *man*, be, in, the, garden}
b. Derivation: [that a man T [be ~~a man~~ in the garden]]
→ that a man was in the garden.

(6) Derivation of 0)
a. Sub-Numeration = {that, T, a, *man*, be, in, the, garden, *there*}
b. Derivation: [that there T [be a man in the garden]]
→ that there was a man in the garden.

The sub-numeration 0) does not contain expletive *there*. Hence, nothing blocks the movement of *a man* to the [Spec,TP] as in 0). Rather, if Move does not take place, the derivation would crash. (3a) is successfully derived. On the other hand, the sub-numeration (60) includes both *a man* and *there*. In this case, the merger of *there* has to take priority and blocks Move. Thus, 0) can be also derived.

These facts show that the derivation of a sentence has to be divided into several phases depending on how the numeration is divided into sub-numerations. Otherwise, a sentence like (1a) is wrongly ruled out under Merge-over-Move. To sum up, Merge-over-Move suggests that derivations are implemented on the basis of phase/sub-numeration. This is one of the supporting arguments for Chomsky's phase system.

2.2 Why is a Phase *v*P or CP?

As mentioned above, phase has to be assumed as a derivational unit in this system. In Chomsky (2000,2001a,b), certain categories, *v*P and CP, are specified as phases. To my knowledge, at least the following three points have been considered as supporting evidence for why *v*P and CP are phases: mobility, proposition and reconstruction effects.

First, "mobility". In (7), *v*P and CP can be a target of movement-like operation like pseudo-cleft. This shows that *v*P and CP each form a syntactic unit.

(7) a. What King Lear said was [$_{CP}$ that Cordelia was no longer his favorite daughter].
b. What Goneril did was [$_{vP}$ blind Gloster]. (Matushansky 2003:4)

The second point is that *v*P and CP are propositional units, in that all theta-roles are assigned in *v*P, and CP is a full clause including tense and force (Chomsky 2000:106). Therefore, either of them forms a semantic unit in terms of proposition.

Finally, the edge of *v*P and CP seems to provide a potential reconstruction site. If we assume that *v*P and CP are phases, we can successfully account for reconstruction effects of the following kind.

(8) [which pictures of himself$_{i,j}$] did John$_i$ think $\underline{\surd}$ Fred$_j$ liked $\underline{\surd}$? (Barss 1986:25)

(9) a. [which of the papers that he$_i$ gave Mary$_j$] did every student$_i$ $\underline{\surd}$ ask her$_j$ to read $\underline{*}$ carefully?
b. *[which of the papers that he$_i$ gave Mary$_j$] did she$_j$ $\underline{*}$ ask every student$_i$ to revise $\underline{*}$? (Fox 1998:164)

In (8), *John* and *Fred* can bind *himself* by means that the wh-phrase stops at the edge of every CP. In (9a), only the edge position of the matrix *v*P satisfies binding requirements at issue: *he* must be bound by *every student*, while *Mary* must not be bound by *her*. That is, the observed binding possibilities imply that the wh-phase has to stop at the edge of *v*P. In (90), there is no position that satisfies the two binding requirements at the same time because every landing site causes a Condition C violation (See note 4 for further discussion).[1]

Given these considerations, Chomsky assumes that *v*P and CP form derivational units, or phases.

2.3 Phase Impenetrability Condition, EPP and Spell-Out

As mentioned above, phase is one of the necessary devices in Chomsky's system, and *v*P and CP need to be specified as a phase. In this section, let us

[1]Based on reconstruction effects as a diagnosis of phasehood, Legate (2003) argues that unaccusative and passive VPs are also phases.

review some other assumptions taken in this system.

First, Chomsky (2000,2001a,b) argues that operations must obey the "Phase Impenetrability Condition" (hereafter PIC):

(10) *Phase Impenetrability Condition*
In phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.
(Chomsky 2000:108)

Let us consider wh-movement under the PIC: [$_{CP}$ who did you [$_{vP}$ ~~you~~ see ~~who~~]? This sentence has two phases (*v*P and CP), and notice that *who* has to move from the lower phase to the higher phase. For the higher phase head C, the accessible domain in the lower phase is only the head of *v*P and its edge. Since *who* is at the complement position in *v*P, C cannot get access to it under the PIC. In order for *who* to move to the [Spec,CP], it has to be moved to the edge of *v*P at some point of the derivation. That is, the PIC requires that A'-movement targets the edge of every phase (successive-cyclic movement). What drives this movement? Chomsky assumes that each core functional category (*v*, T, C) has the EPP-feature, which drives movement. EPP is one of the uninterpretable features and optionally assigned. Hence, the EPP of *v* attracts *who* to the edge position. Finally, C can successfully access *who* observing the PIC, and *who did you see* can be derived.

In addition, Chomsky assumes that Spell-out sends phonological features to the PF component cyclically in the course of the (narrow syntactic) derivation. That is, phase is also a unit for which Spell-out applies. However, since successive cyclic movement proceeds by moving something from the edge of a phase to the edge of another phase, we do not want to allow Spell-out to render edge positions inaccessible. In order to capture this effect, it is assumed that only the domain of a phase is spelled-out. As a result, the spelled-out domain becomes inaccessible to extraction as the PIC predicts.

In this section, we have reviewed Chomsky's (2000,2001a,b) approach, according to which phases have to be categorically specified, and under the PIC, the domain of a phase cannot be accessed by the next phase head.

3 Problems with Absolute Determination of Phases

In this section, I point out some problems in Chomsky's system. The first problem concerns the lack of island effects with wh-in-situ.

(11) a. *What does Mary love the guy who bought __?
b. Which person loves the guy who bought what?

(11a) is unacceptable because *what* is extracted out of the Complex NP (island). On the other hand, (110) does not exhibit the effect even though *what* has a relation with the matrix [+Q]C across the island.

Chomsky says that operations must obey the PIC. If we take the PIC in a strict sense, no operation can access the domain already spelled-out.[2] Under this framework, how is (11) derived?

(12) [$_{CP}$ what C [$_{vP}$ what [$_{DP}$ [$_{DP}$ [$_{CP}$ what [$_{vP}$ what what]

(13) [$_{CP}$ which C [$_{vP}$ what [$_{DP}$ [$_{DP}$ [$_{CP}$ what [$_{vP}$ what what]

Chomsky assumes that [+wh] of *what* in 0) has to be checked and deleted for LF-convergence in the domain where the matrix [+Q]C^0 can access. Under the PIC, *what* has to be moved to the edge of matrix *v*P before Spell-out, so that [+wh] of *what* can be checked and deleted by Agree relation with [+Q] as in (13). Otherwise, the derivation crashes. To reach that position, *what* has to cross the Complex NP island. Also in (11a), *what* is crossing the island as in (12) in the same way as (13). However, notice that the one is good, while the other is bad. Therefore, the contrast between (11a) and 0) is inconsistent with what the system predicts. It is difficult to capture this contrast under Chomsky's system.

The second problem concerns the mechanism of copy-deletion. In Chomsky's system, every movement has to take place before Spell-out because of the PIC, as mentioned. For instance, in 0), wh-in-situ *what* has to move to the edge of the matrix *v*P before Spell-out, and then the head of the chain has to be deleted. In the case of *which person*, on the other hand, the tail of the chain has to be deleted. Here, one question comes to mind: What determines which copy is deleted? The copy-deletion sometimes applies to non-highest copies, but sometimes to non-lowest copies in a single sentence. Under this system, some mechanism has to be assumed independently for copy-deletion to work this way.

The third problem is whether or not *v*P/CP is really a derivational unit, as pointed out in Epstein and Seely (2002) and Abels (2003). For the PF-

[2]In Huang (1982), wh-in-situ moves to [Spec,CP] in covert syntax (i.e. post-Spell-out) and that kind of movement only obeys the ECP. Therefore, the contrast in (11) is expected under the Huang-type architecture of grammar. However, the PIC does not allow operations to apply to the domain already Spelled-out. Hence, Huang's type of approach cannot be maintained in this system.

side, TP or VP is sent by Spell-out, not *v*P or CP. In addition, for the LF-side, it is unclear why *v*P and CP are more propositional than TP. That is, neither *v*P nor CP could be treated as a unit in the actual derivation.

At least these three points seem to be problematic in Chomsky's system. In the next section, we will consider how to capture the contrast as in (11) under my system.

4 Phase and Convergence: A Relative Procedure

4.1 Basic Assumptions

In this section, we will consider another possibility of the phase system. As discussed in the previous section, Chomsky assumes *v*P and CP as phases in an absolute sense. In other words, they are pre-determined as a derivational unit. By contrast, I attempt to formulate phases in a relative sense, and they are identified by a certain syntactic context.

The main proposals are the following two points:

(14) a. A phase is a convergent CP.
b. CP is a phase iff the CP contains no uninterpretable features.

(15) The domain of a convergent CP is spelled-out *"as soon as"* it is qualified as a phase.

Under (14), when a CP has uninterpretable features, it cannot become a phase. Then, Spell-out is postponed until the CP is identified as a phase. But, once the uninterpretable features are checked and deleted, the CP is qualified as a phase and the domain has to be spelled-out as soon as possible under (15). In other words, the derivation determines the phase-hood of a CP in this system.

Having proposed in (14) and (15), let us take a look at the actual derivation of an example like (16).

(16) What do you think John bought __?
a. [C John bought what]
EPP [-Q] [+wh]
b. [what C John bought ~~what~~]
[+wh] ~~EPP~~ → not convergent
c. [C do you think [what C John bought ~~what~~]
~~[+Q]~~ ~~[+wh]~~
d. [what C do you think [~~what~~ C . . . .]]
~~EPP~~

First, *John bought what* is formed. In (16a), the EPP feature of the embedded C and [+wh] of *what* are uninterpretable. Since the embedded C^0 is marked with [-Q], it cannot agree with *what* because of the feature-mismatch. In (16b), EPP attracts *what* to the edge of CP with uninterpretable [+wh]. Since the CP still has an uninterpretable feature, it cannot be convergent and cannot become a phase. Spell-out is postponed and then the derivation proceeds to the matrix clause. The matrix C is marked with [+Q], so it can agree with [+wh] of *what* in (16c). Right after the Agree, the embedded CP can be convergent and can be a phase, because no uninterpretable feature is in the embedded CP. Following (15), the domain of phase has to be spelled-out as soon as possible as illustrated in (16c). After that, the matrix EPP feature attracts *what* to the edge of the matrix CP in (16d). All of the uninterpretable features are checked and deleted in the sentence, and the matrix CP is identified as a phase and spelled-out. Finally, we can successfully derive (16).

4.2 The Treatment of Wh-Movement out of Islands in English

4.2.1 Complex NP Constraint

Let us consider some island violations. This is one of the problems under Chomsky's system as mentioned in the previous section.

(17) Complex NP Constraint
  a. *What does Mary love the guy who bought __?
  b. Which person loves the guy who bought what?

The following derivation illustrates that (170) and (170) are derived under the proposed system. First, (170) is derived as follows:

(18) *What does Mary love the guy who bought __?
  a. [C [who bought what]]
  ~~[+R]~~ ~~[+R]~~ [+wh]
  b. [who C [~~who~~ bought what]]
  ~~EPP~~ [+wh] → not convergent
  c. [C [Mary loves the guy [who C [~~who~~ bought what]]
  ~~[+Q]~~ ~~EPP~~ ~~[+wh]~~
  unchecked → **crash**

In (18), first, *who bought what* is built. The embedded C is marked with [+R], because it is a relative clause. The relative wh-phrase *who* also has [+R], hence [+R]C^0 can agree with [+R] of *who* as in (180). Then, the EPP feature in the embedded C attracts *who* to the edge of CP as in (180). However, the embedded CP still has an unchecked [+wh] of *what*. Therefore, this CP cannot be convergent and it cannot become a phase. Spell-out is postponed, and the derivation proceeds to the matrix clause as in (180). Since the matrix C is marked with [+Q], it can agree with *what*. Right after the Agree, the embedded CP can be convergent and spelled-out. However, the matrix CP has still unchecked EPP feature. This EPP feature causes the crash of the derivation. Hence, the sentence (17a) is ungrammatical.

Second, (17b) can be also derived under the proposed system in the following manner:

(19) Which person loves the guy who bought what?

a. [C [who bought what]]
~~[+R]~~ ~~[+R]~~ [+wh]

b. [C [which person loves the guy [who C ~~[who bought what]~~]]]
~~[+Q]~~ ~~[+wh]~~ ~~EPP~~ ~~[+wh]~~

c. [which person C [which person loves the guy [who C . . .]]]
EPP

The difference between (17a) and (17b) is that (17b) has another wh-phrase *which person* in the matrix clause. First, *who bought what* is formed. As was the case in (17a), the embedded CP cannot be convergent because it has the unchecked [+wh] feature of *what* as in (190). Hence, Spell-out is postponed and the matrix [+Q]C^0 is merged. The matrix [+Q]C^0 can agree with *which person* and *what* at the same time as in (190). As soon as this operation applies, the embedded CP becomes a phase and spelled-out. And then, the matrix EPP attracts *which person* to the edge of CP as in (190). The matrix CP does not have any uninterpretable feature, and the derivation becomes convergent. As the result, the sentence can be successfully derived.

As illustrated above, the contrast between (17a) and (17b) can be captured under this system. If the operation Move is made up of Agree and (internal) Merge as suggested in Chomsky (2000, 2001a,b), Move is no longer a single operation in this sense. Rather, it is a by-product of two different operations. The proposed system supports this idea, in that Agree and Merge take place separately. That is, Agree makes a certain domain convergent (followed by spelled-out), hence (internal) Merge cannot attract any element

out of that domain and the derivation crashes. This is the scenario to derive island effects in this system.

4.2.2 Wh-Island

Wh-islands also exhibit virtually the same contrast as the one we saw in (17a) and (17b).

(20) Wh-island
   a. *What did John wonder where Mary bought __?
   b. Who wondered where Mary bought what?

In (200), *what* is extracted out of the wh-island and the movement causes a wh-island violation. In (200), on the other hand, *what* can stay inside the island, when the matrix clause has another wh-phrase. Let us take a look at the derivations of those examples under the proposed system.

(21) *What did John wonder where Mary bought __?
   a. [C Mary bought what where]
      ~~[+Q]~~ ~~[+wh]~~ ~~[+wh]~~
   b. [where C [Mary bought what ~~where~~]]
      ~~EPP~~
   c. [C John did wonder [where C . . . .]]
      ~~+Q/EPP~~ unchecked → **crash**

First, *Mary bought what where* formed. Since the embedded C is marked with [+Q], it can agree with *what* and *where* at the same time as in (210).[3] And the EPP feature in the embedded clause attracts *where* to the edge posi-

[3]In (21), the embedded [+Q]C agrees with *what* and *where*. Therefore, this derivation shows that *what* only has the embedded reading, not the matrix reading. However, *what* can also take the matrix reading in this case, as reported in Baker (1970). Suppose that multiple Agree of [+Q]C is optional. In (21), the embedded C multiply agrees with the two wh-phrases. If C only agrees with *where*, then [+wh] of *what* remains unchecked. Therefore, the embedded CP cannot become a phase and the derivation proceeds to the matrix clause. The matrix C agrees with the unchecked [+wh]. Right after the Agree, the domain of embedded CP is spelled-out as soon as possible. Therefore, the matrix EPP cannot attract *what*, and it causes crash of the derivation. Since *what* is licensed with the matrix [+Q], it can have the matrix reading in this case. Therefore, the proposed system can allow the readings by giving the optionality to multiple Agree.

tion following the Attract Closest in (210). At this point of the derivation, the embedded CP can be convergent and become a phase. Hence, the CP has to be spelled-out as soon as possible. And then, the derivation proceeds to the matrix clause. The matrix $[+Q]C^0$ is introduced to the derivation, but it cannot agree with any other element because there is no wh-phrase that the matrix C can access to. This unchecked [+Q] causes the derivation crash, and the sentence 0) becomes ungrammatical.

On the other hand, 0) has another wh-phrase in the matrix clause. The derivation is as follows:

(22) Who wondered where Mary bought what?

a. [C Mary bought what where]
~~[+Q]~~ ~~[+wh]~~ ~~[+wh]~~

b. [where C [Mary bought what ~~where~~]]
~~EPP~~

c. [C who wondered [where C . . . .]]
~~[+Q]~~ ~~[+wh]~~

d. [Who C ~~who~~ wondered [where C . . . .]]
~~EPP~~

The same derivation as (21) is implemented in (220) and (220). However, the matrix $[+Q]C^0$ can agree with the matrix wh-phrase *who* in this case, as in (220). The EPP feature attracts *who* to the edge of CP in (220), and the matrix CP becomes convergent. As the result, the proposed system can also derive the contrast between 0) and 0).

In this section, we have illustrated how the proposed system can capture the contrasts observed in island configurations such as (17) and (20). Especially, the timing of Spell-out is an important key to deriving island effects in this system, as already discussed.

5 Some Consequences of the Proposed System

This section discusses some consequences gained from the proposed system. As discussed in the previous section, island effects follow from the derivation based on the proposed system. Compared to Chomsky's system, the system at issue does not have to stipulate certain categories as phases in an absolute sense. Rather, a property of a derivation, i.e. convergence, determines whether or not a CP is a phase. Although the proposed system still specifies the category of potential phases, the phase-hood of a CP follows

from the way the derivation proceeds. Hence, the proposed system does not suffer from one fundamental question as much as Chomsky's system does: Why are certain categories phases, not others? This is similar to a difference between a theory of the Chomsky (1986) type and a bounding theory of the Chomsky (1977) type. In the *Barriers* type theory, every XP is potentially a barrier, but certain environments prevent it from becoming a barrier. In this sense, the proposed phase system is taking a stance similar to *Barriers*. On the other hand, Chomsky's phase based system is closer to the Chomsky (1977) style bounding theory in that "bounding nodes" are determined in an absolute manner. In this respect, the proposed system may provide a principled account of locality effects.

Further, the proposed system allows Agree to search a deeper domain than Chomsky's system does, unless CP becomes convergent. Thus, unchecked wh-phrases do not have to move to an intermediate site in order to have their [+wh] checked. The domain containing wh-in-situ is not spelled-out and therefore still accessible to the probe in our system. In other words, wh-in-situ can be licensed in the original position, without any movement. Since the copy theory of movement was proposed in Chomsky (1995), the mechanisms of copy–deletion have been seriously discussed in many places. Wh-in-situ, however, adds a complication to the picture if it undergoes covert movement. The system has to find a principled way to explain why the tail of a chain is pronounced only in multiple wh-constructions (cf. Pesetsky's (2000) theory of copy-deletion). In addition given that some languages (e.g. Bulgarian) exhibit multiple wh-fronting, whatever mechanisms are proposed for the English cases, it must be parameterized somehow. If wh-in-situ does not involve covert movement, these complications do not arise to begin with. That is, movement is always overt, and copy-deletion always applies to non-top copies. This is one of the virtues of the proposal here. Further, our system may open a way to solve empirical problems concerning covert movement that has been pointed out in the literature (Aoun and Li 1993, Cole and Hermon 1994, Ouhalla 1996, Simpson 2000), though these problems are beyond the scope of this paper.

As mentioned in Section 2.1, Chomsky argues, based on the *there*-construction in (1) (=(23)), that the need of sub-numerations constitutes an argument for his phase system. Our system cannot appeal to the notion of sub-numeration, because phases are identified in the course of the derivation. Therefore, the data under consideration might be a problem for our system. However, as Abels (2003) pointed out, if we assume that unaccusative verbs can have a partitive Case, as proposed in Belletti (1988), both (23a) and 0) can be derived without appealing to the notion of sub-numeration.

(23) a. There exists evidence that [a man was in the garden].
b. Evidence that [there was a man in the garden] exists.

Suppose that *exist* in (23a) and *be* in (230) are partitive Case assigners. In (230), *a man* is marked with a partitive Case in the merged position. Since it is already Case-marked, it cannot move anywhere. Therefore, *there* is merged to [Spec,TP] to satisfy the EPP. In (23a), on the other hand, *be* does not mark a partitive Case. Therefore, *a man* has to move to [Spec,TP] for Case and EPP reasons. The matrix verb *exist* assigns a partitive Case to *evidence*, and then *there* is merged to [Spec,TP] because *evidence* is frozen in place. Under this assumption, (23) is derived without the sub-numeration system. In this respect, there seems to be not enough motivation for Chomsky's phase system, while the proposed system is maintainable.[4]

6 Concluding Remarks

In conclusion, I have proposed the following two points: [1] only a convergent CP is a phase, and it is identified by a "relative" procedure, [2] we can discard covert movement under [1]. This system can derive island effects from derivations, and some consequences can be gained. Therefore, this system is a possible framework to be considered.

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[4] *v*P is not qualified as a phase in our system. Reconstruction data such as (9), where *v*P-spec seems to function as a reconstruction site, may be problematic for our proposal. However, if the acceptability of (i) casts doubt on the analysis of (9), the sentence should be unacceptable because no reconstructed site satisfies both Condition C and the condition for bound pronoun binding, as seen below:

(i) Which of the papers that he_i gave $Mary_j$ did John _ expect her_j to _ ask every $student_i$ _ to _ revise _? (Norbert Hornstein, p.c.)

Hence, (9) is not as strong evidence for *v*P being a phase as it is argued.

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