

**An Analysis of Elliptical Phenomena Based on Non-Constituent Deletion**

by

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# *Chapter 1*

## *Introduction*

Language is full of mysteries. We, human beings, know our own native language and communicate with each other without any particular consciousness of using it. No doubt, a newly born baby acquires his or her language naturally within very limited time by the time they turn to be age three or four. Therefore, it is obvious that we acquire the capacity to use a language freely without any particular training and learning. Besides, our knowledge is highly productive and we can understand or create extremely infinite sentences that we have never heard, seen, or uttered before. For example, take the following sentence from *The Washington Post* (D1), dated on June 8th, 2018.

- (1) Alex Ovechkin tossed off his helmet and gloves early, with his Washington Capitals less than a second away from winning the Stanley Cup.

(Khurshudyan, 'All Champs,' *The Washington Post*: June 8, 2018)

Despite not knowing who Alex Ovechkin is, what the Washington Capitals are, or even what the Stanley Cup is, we can understand this sentence and at least imagine fairly intuitively what was going on. That is, we have a capacity with which we can understand or create sentences even without any experience of encountering this sentence before. This is what Noam Chomsky calls "Poverty of Stimulus," or "Plato's Problem."

- (2) Plato's Problem

How can we know so much given that we have such limited evidence?

(Chomsky (1986a: xxv))

This means that knowing a language should be not knowing a lot of words, or phrases, but having the capacity or intuition to use and understand a language, namely, the knowledge of

the grammar of the language that we have acquired. The problem of what the capacity/intuition or knowledge of grammar just mentioned are like, has been questioned and pursued since the birth of the generative grammar first advocated by Chomsky (1957).

One conclusion we have reached so far is that only human beings are born with a genetically endowed capacity called, a “Language Acquisition Device (LAD).” This device enables us to acquire a language with very limited exposure to it in our environment. This device is considered to be “a faculty of language (FL), a component of the human mind/brain dedicated to language” (Chomsky (2000: 89)), which is regarded as a “language organ.” FL is not innately limited to a specific language, but it allows us to eventually acquire a language, depending on languages new-born babies or infants are exposed to. Thus, LAD is also called Universal Grammar (UG), which develops, like other organs, into a stative state. When one is in this state, he/she is said to have the (target) grammar/language. The model of language acquisition is roughly schematized below.

(3) Linguistic experience  $\Rightarrow$  LAD/UG  $\Rightarrow$  target grammar/language

The target grammar/language in (3) refers to inner grammar or internal language of the capacity, which is called “I-language.” More specifically, the “I” here means “intentional” or “internalized” to the capacity, differing totally from “E-language.” “E” in this case suggests “extensional” or “externalized” to the capacity, and it is “very remote from mechanisms” (Chomsky 1988:38). The external language, thus, is actual utterances or usage, and has much to do with “performance of language.” This may be affected by other cognitive or environmental effects, and is not within the scope of study of the FL to explore. Characterizing I-languages, clarifying the mechanism of language acquisition, and showing explicitly the design of the human language capacity have been the very center of the attention and the goal which the generative grammar aims to reach.

Importantly, the generative grammar has always been pursuing true adequacy for every proposed explanation of this problem. Thus, it is assumed that the more principled an explanation is, the more valuable it would be. In the current framework of the generative grammar, called the “Minimalist Program” first advocated by Chomsky (1993), “principled”

means that adequate explanations should be consistent with biological and evolutionary aspects of human beings (Chomsky (1995, 2000, 2001, 2004, 2005, 2007, 2008, 2013, 2015b)) to which we will return in the next chapter. The goal, therefore, is too far-reaching to approach, and it surely takes a lot of load and work. However, looking very closely into what we can see through linguistic data or empirical facts could enable us to reach the goal. Therefore, in this paper, I would like to examine some intriguing empirical data and take one small step toward this attractive goal.

Here are the empirical facts I would like to deal with in this paper. In languages, although some parts are overtly or phonologically unrealized, a certain interpretation is available to the silent sites. This is called “Deletion” or “Ellipsis.” (4)-(10) are typical examples observed in English, where the underlined sites stand for phonologically null parts. In each example, the (a) sentences including some missing parts are all understood as the (b) sentences.

(4) Verb Phrase (VP) Deletion

- a. John can read the book but Bill can't \_\_\_\_.
- b. John can read the book but Bill can't read it (the book).

(5) Gapping

- a. Alice ate bread and Brenda \_\_\_\_ cakes.
- b. Alice ate bread and Brenda ate cakes.

(6) Pseudogapping

- a. John will select me, and Bill will \_\_\_\_ you.
- b. John will select me, and Bill will select you.

(7) Sluicing

- a. Somebody just left --- Guess who \_\_\_\_.
- b. Somebody just left --- Guess who just left.

(8) Multiple Sluicing

- a. I know somebody talked to somebody, but I don't remember who \_\_\_\_  
to whom.

b. I know somebody talked to somebody, but I don't remember who talked to whom.

(9) Noun Phrase (NP) Deletion

a. I like John's picture, but I don't like Bill's \_\_\_\_ very much.

b. I like John's picture, but I don't like Bill's picture very much.

(10) Antecedent-Contained Deletion (ACD)

a. Henry read every book that Kelly did \_\_\_\_.

b. Henry read every book that Kelly (did) read.

Take a brief look at each example. The ellipsis phenomenon in (4) is called "VP Deletion," where the verb and its object in VP after the auxiliary are deleted. The example in (5) is "Gapping," in which case, only the verb corresponding to the one in the antecedent clause is missing. The example (6a) indicates that the verb is unrealized with its object left intact. Since this looks like a mixed version of VP Deletion and Gapping, this phenomenon is called "Pseudogapping." In (7a), referred to as "Sluicing," the Tense Phrase (TP) (the finite clause) following the *wh*-phrase in the second conjunct seems to be "sluiced." The following example labeled (8a) is called "Multiple Sluicing," where some elements are deleted in the second clause, but multiple *wh*-phrases in the clause remain undeleted. In (9a), the corresponding noun, *picture*, is deleted in the object noun phrase. This is called "NP-Deletion." Finally, the example (10a) is more mysterious than other elliptical ones, and is called "Antecedent Contained Deletion (ACD)." In this case, unlike the other elliptical phenomena, the gapped sites would never be filled out with the corresponding antecedent phrase because the antecedent structure itself includes gapped sites in it. This causes so-called a "regress problem," which has been attracting a lot of attention in the literature.

Normally, all the examples in (a) above are consistently interpreted as (b), even though there are some silent parts included in them. In order to clarify the mechanism of making this possible, a lot of study has been conducted not only within the generative grammar, but also interdisciplinarily with psychology and other natural sciences for more than 60 years. The reason why this has been drawing a lot of attention is probably because scientists have

all believed that there are deep principles hidden behind the fact that native speakers can intuitively understand these examples as provided in (b). In other words, addressing this problem is regarded as one of the most important problems we should solve to clarify the FL for human beings. In the course of solving this problem, linguists studying within the minimalist framework have been questioning how elliptical sentences like above are derived and what licenses the deleted parts, and pursuing more adequate accounts. Although a lot of proposals and analyses have already been presented in various ways, it is still unknown whether each ellipsis construction requires a different account or analysis, or to what extent unified accounts are possible to provide. That is, we have not yet reached any satisfactory conclusion about this problem. This paper, therefore, focuses on some of the elliptical constructions given above and explores how well we can explain them in more principled ways. By doing this research, I would like to provide one solution to the mysteries of the FL.

This paper is organized as follows: In the next chapter, I will introduce the theoretical framework I am assuming in this paper. In particular, I will introduce the general ideas of the Minimalist Program that particularly, Chomsky (2001) has presented, and provide some important theoretical assumptions. In the later sections of the chapter, we will see two fundamental analyses of deletion phenomena: LF Copying Approach (Williams (1977)), and PF Deletion Approach (Hankamer and Sag (1976), Ross (1969), and Merchant (2001)). In addition, I will explore what licenses deletion in terms of parallelism.

In the chapter 3, I will provide an alternative derivation of Sluicing. I will review some previous analyses and argue that a *wh*-phrase in Sluicing does not move except certain cases, but it is bound by Baker's (1970) Abstract Question Morpheme (Q-morpheme). In addition, following Fox (2000) among others, I will suggest that deletion is possible when the LF structure of the elided sites is isomorphic to that of the corresponding antecedent, and deletion operation is applied to the paralleled constituent except focus marked material (Maximal Effect of Deletion).

In the chapter 4, I would like to propose an alternative analysis of the derivation of another mysterious deletion phenomenon, Multiple Sluicing (MS). It has not been clarified so well how MS is derived in English which disallows multiple *wh*-fronting. Extending Baker's

Q-morpheme analysis, I will assume that just like Sluicing, *wh*-phrases in MS do not move except some cases, but they are bound by the Q-morpheme. Under this assumption, I will explore a more adequate derivation of the construction in terms of the Parallelism and Maximal Effect of Deletion.

The chapter 5 will discuss another interesting elliptical phenomenon, Pseudogapping. I will argue, using the framework of Chomsky (2001), that the remnants in VP in the construction do not move, being provided with interpretation in the base position, and deletion operation is applied in the same way as Sluicing and MS discussed in the previous chapters.

Chapter 6 is the conclusion of this paper and includes my final remarks.

## *Chapter 2\**

# *Theoretical Framework & Two Approaches*

### **2.1 Introduction**

In this chapter, I would like to introduce the fundamental concept of the minimalist program, first advocated by Chomsky (1993), which I will use to discuss the elliptical phenomena in this paper. Throughout the paper, I will assume that the minimalist program, which claims that language is an optimal solution to the faculty of language, is on the right track and reliable as a working hypothesis. Let us take a brief look at the framework adapted in the current generative grammar.

### **2.2 Theoretical Framework**

Before discussing some analyses of elliptical phenomena, I would like to introduce the fundamental framework of the theory of syntax. In this paper, I will keep to the assumptions adapted in the minimalist program proposed by Chomsky (1993) and studied more deeply by his subsequent works. Let us see some important concepts.

Linguists who study the theories of the generative grammar have been pursuing, since its inception, more principled and more adequate explanations as required in other natural sciences. From this point of view, Chomsky (2000: 89) asks “[h]ow well is Faculty of Language (FL) designed?” Furthermore, he questions “to what extent is the FL an optimal solution to minimal design specifications, conditions that must be satisfied for language to be usable at all?” (Chomsky 2001: 1). If the theory of FL itself must be optimal and perfect without any unnatural assumptions or

imperfections as natural sciences are, we will have to ask how it is related to other cognitive computations.

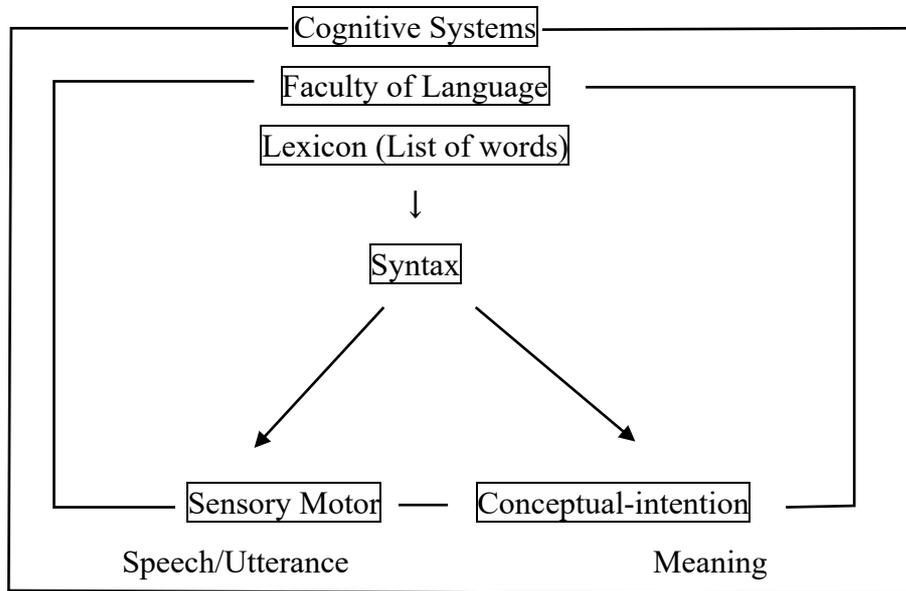
Obviously and naturally, expressions we create as linguistic objects have meanings and phonological contents associated with them; otherwise, communication could never occur between human beings. This is regarded as the “Basic Properties of human languages.” In Chomsky’s words:

- (1) The most elementary fact about each individual’s language is that it generates a pair of interpretations (sensorimotor (SM), conceptual-intention (CI)) for each of infinitely many hierarchically structured expressions, where SM is the link to organs of externalization (typically articulatory-auditory) and CI is the link to the systems of thought and action. We can refer to this virtual truism as the **Basic Principle of human language**, instantiated in one or another form in the brain of each language user.

(Chomsky (2015a), (New preface in *Aspects*: ix, (Originally, Chomsky (1965))))

This means that FL functions independently but works together with other cognitive faculties, which is schematized in (2).

(2)



Under this framework, the operation of putting together lexical elements in the mental “Lexicon,” which essentially has a set of lexical items and words, creates hierarchically structured expressions. These expressions are then mapped onto the SM and CI, which have been traditionally called Phonological Form (PF) and Logical Form (LF).<sup>1</sup> The PF and LF deal with their own instructions or properties at each interface. Since the SM/PF is the interface that deals with utterances, it uses instructions related with certain temporal order and phonetic properties. The CI/LF interprets semantic features, quantificational structures, and so on.

Suppose that FL and other cognitive systems are organized as in (2). FL as a computational system only outputs expressions that can be read by both interfaces. Thus, only “legible” elements should be acceptable at the interfaces. If an expression consists of only readable elements, its derivation will be accepted, which Chomsky (1995) refers to as Convergent. If an output expression includes uninterpretable properties, it is ruled out at the relevant interfaces, and the derivation will result in a “Crash.” We assume, then, that an expression only converges when it contains accessible elements. Chomsky (2000) calls this the “legibility condition.”<sup>2</sup> It is also assumed that this condition requires FL to provide readable expressions to the

interfaces in a perfect and optimal way. This approach is called “Strong Minimalist Thesis (SMT),” which Chomsky (2008) refers to as:

- (3) [T]he “strong minimalist thesis” SMT --- which holds that language is an optimal solution to interface conditions that FL must satisfy; that is, language is an optimal way to link sound and meaning, where these notions are given a technical sense in terms of the interface systems that enter into the use and interpretation of expressions generated by an I-language. If SMT held fully, which no one expects, UG would be restricted to properties imposed by interface conditions. (Chomsky (2008: 135))

In short, this thesis requires a theory of language to be well-supported by other cognitive systems. This approach seems to be natural and real in terms of natural scientific theories. Therefore, we assume that the SMT requiring language to be an optimal solution to legibility conditions is true to explore the nature of human language.

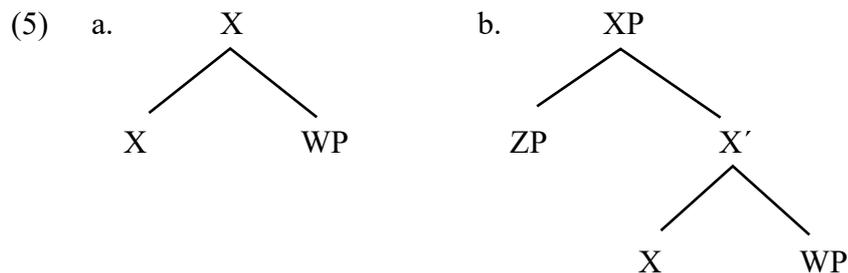
Furthermore, we must take into account not only these interface conditions, but also biological and evolutionary aspects of FL. See the citation from Chomsky (2015b: 3-4).

- (4) One goal of linguistic theory (UG) is to determine the fixed properties of BP and the options of variation. Naturally, one seeks the simplest account of UG. One reason is just normal science: it has long been understood that simplicity of theory is essentially the same as depth of explanation. But for language there is an extra reason: UG is the theory of the biological endowment of the language faculty, and each complication of UG therefore poses a barrier to some eventual account of the origin of language, to the extent that this can be attained. (BP = Basic Principles)

These arguments require us, as a guiding policy, to pursue “genuine solutions” which satisfies the conditions. Under the SMT reaching for a true and real explanation, if

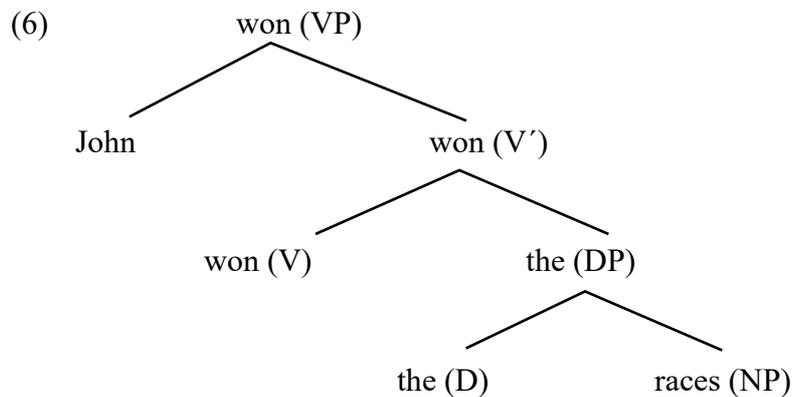
mechanical or descriptive devices are not empirically or independently supported, they will deviate as imperfections from this guide line.<sup>3</sup>

Now, keeping this in mind, let us consider what is needed to create linguistic expressions which can be interpreted appropriately at the interfaces. The most primitive and essential operation here is called a “Merge,” which takes two syntactic objects, X and Y, and forms the new syntactic object K, where  $K = \{X, Y\}$ . The Merge is induced recursively. K is a label of  $\{X, Y\}$  and K can be either X or Y. Suppose, for example, that X is a lexical item (Head) and Y can be a composed phrase containing some other elements in it (WP) as schematized in (5a). (5a) can also take another phrase ZP in the upper position ((Spec)ifier), as illustrated in (5b). The phonological word order is irrelevant at this point. Since the word order is determined depending on language varieties, it is eventually decided by properties of PF specific to each language.



XP contains ZP in the Spec position and X' (bar) in the *sister* position of the Spec, which also contains X in the Head and YP in the Complement. This is known as X'(bar) -Theory. Note, however, that the notations as XP and X' in the figure above are used only for expository purposes and they don't have any “psychological reality,” or “virtual necessities” because they are not directly accessed by the interfaces.<sup>4</sup> The SMT forbids in the course of derivation the introduction of any new elements other than those in the lexicon, but it only admits present elements necessary for the interfaces so as to interpret an expression correctly. This condition is called the “Inclusiveness Condition.” Thus, notations such as XP or any bar levels like X' must be excluded and used just for explanatory purposes. Therefore, the Head in the

structure will basically be a label of the structure as shown in (6).<sup>5</sup> See the examples of a verb phrase (VP) and a determiner phrase (DP) included in the sentence of *John won the races*.



Notice that due to the SMT, each node should be binary, which is thought to make the computation more effective. In (6), the DP *the races* is constructed by merging the determiner *the* and the noun phrase (NP) *races*, and the head *the* becomes the label, which would otherwise be denoted as the DP. Then, the verb (V) *won* is merged with the DP *the races* as its Complement, creating the syntactic object  $won = \{won \{the \text{ races}\}\}$ . Next, the DP *John* is merged with the structure, and is placed in its Spec. This new syntactic object is represented as VP as its label and *won* in a strict sense (Bare Phrase Structure). Optimally, structures to be used should be written in terms of Bare Phrase Structure, but for explanatory purposes, I will use categorial labels in the following discussion.<sup>6</sup>

Suppose that Merge of syntactic objects is applied recursively, and consider how the sentence in (7) is derived.

(7) John won the races.

Suppose that (7) has lexical items selected out of the lexicon, as in (8).

- (8) Lexical items for (7): {Complementizer (C), Tense (T), John,  $v^*$ , won, the, races}

These items are selected out of the lexicon for (7) and each item has following properties; Complementizer (C) expresses force/mood, Tense (T) has tense and event structure, and the “light (little)” verb  $v^*$  functions as a head of transitive constructions, providing a thematic role of Agent to the subject. The noun *John* has both an uninterpretable Case feature [-Case] and interpretable semantic features [+ $\phi$ ]. Likewise, the object DP *the race* consists of the determiner *the* and the plural noun *races*. This constituent also bears [-Case] and [+ $\phi$ ]. It is also assumed that the C-Head has uninterpretable  $\phi$  features [- $\phi$ ] to be inherited by the following T-Head. Note that under standard assumptions, C can also have the Question feature [+Q] with [-Q] on a *wh*-phrases in cases of interrogatives, on which I will not rely in my analysis. Instead, I will follow Baker (1970), where an independent Question morpheme (Q-morpheme) can bind a *wh*-phrase in situ, which assigns an appropriate value and meaning. I will discuss this in further detail in the following chapters. Here, we only see briefly a standard instance of derivation. The  $v^*$ - and T-Head have their innate properties which can value under certain conditions the [-Case] that all noun phrases should have. The distinction of [ $\pm$  interpretable] here means the un/interpretability at the interface. That is, if [+ interpretable], it is legitimate at the CI (LF) interface. Otherwise, it is not acceptable under the legitimate condition; therefore, uninterpretable features must become interpretable or valued before they reach the interfaces. The relationship between the un/interpretable features is a “give-and-take” relationship in a sense. The [- $\phi$ ] features on a T- or  $v^*$ -Head seek as a “probe” for its matching “goal” DP bearing the relevant [+ $\phi$ ] features in a certain search space within the c-commanding relation.<sup>7</sup> If they match and agree (AGREE), the matching DP has its own [-Case] feature valued in return by the T- or  $v^*$ -Head. In fact, “[t]hese dependencies find their expression in morphological inflection in highly variable, language-specific ways” (Chomsky et. al. (2018: 9)).

Let us turn to the sentence (7). Suppose that the derivation has reached  $v^*P$  as in (9a) below by merging. Note that the operation Merge takes two syntactic objects, whether lexical items or phrases already constructed, forming a set. Merging an item from the lexicon to another syntactic object is called “External Merge,” by which generalized argument/thematic relations are established. In (9a), the  $v^*$  as a probe seeks the matching goal *the races* with both uninterpretable features ( $[-Case]$  on the noun and  $[-\phi]$  on the  $v^*$ ) valued under AGREE. Then, T is merged to the  $v^*P$ . After a C-Head has been merged, the T inherits the  $\phi$ -features from it (9b), seeking the subject *John* in the Spec- $v^*P$ . Likewise, under AGREE, the uninterpretable features will be valued, but the Extended Projection Principle (EPP) feature on T that requires a phonological element in its Specifier position and moves the subject overtly to the Specifier position as in (9c). This is another kind of merge called an “Internal Merge,” which moves an element in the structure already constructed, merging it to the top of the attracting category, providing a discourse-oriented meaning.

- (9) a. [ $v^*P$  John  $(-Case, +\phi)$   $v^*$   $(-\phi)$  [won [the races $(-Case, +\phi)$ ]]]
- b. [CP C [T $(-\phi, EPP)$  [ $v^*P$  John  $(-Case, +\phi)$   $v^*$   $(-\phi)$  [won [the races $(-Case, +\phi)$ ]]]]]
- c. [CP C [John $(-Case, +\phi)$  [T $(-\phi, EPP)$  [ $v^*P$  John  $v^*$   $(-\phi)$  [won [the races $(-Case, +\phi)$ ]]]]]]]
- 

Crucially, the movement and AGREE are limited to a certain search space as just mentioned. The search space is defined as a “phase,” which is typically assumed to be a CP and  $v^*P$ , not other projections of functional categories, because it has been assumed that CP has a force indicator and a  $v^*P$  includes a full argument structure, and they both create a propositional unit. In addition, these categories function as a semantic and phonological integrity at the interfaces, and they can undergo movement when necessary. These phases play a very important role in derivations. Due to effective computations based on SMT, a derivation of an expression proceeds phase by phase. Each phase undergoes a mapping operation to the interfaces, called a “TRANSFER,” which occurs when a phase is completed. Each phase is output to the two interfaces for interpretation. Earlier phases are “forgotten,” so that the burden of

computation is reduced (Chomsky (2001: 12)). This comes from the Phase-Impenetrability Condition (PIC), a version of which is given below. (10) is the core idea of this condition.

- (10) The domain of H is not accessible to operations at ZP; only H and its edge are accessible to such operations. (Chomsky (2001: 14))

Suppose that in (11), the HP is a phase with the Head H and the *edge*  $\alpha$  as a specifier. Suppose also that Z is also a phase-Head while X is a non-phase Head. The condition in (10) will be schematized as in (11).

- (11) [<sub>ZP</sub> Z ... [<sub>XP</sub> X ... [<sub>HP</sub>  $\alpha$  [H YP]]]]

Under the principle (10), only  $\alpha$  and H are accessible from the next phase Head Z. Each phase head can be optionally assigned an edge-feature [EDGE] to attract an element overtly to the edge position, the specifier position. If it is assigned to a head, a relevant element must move to the edge position as soon as possible, whereas no element will be moved without the edge-feature on a phase Head, to which I will turn in the following chapter. Since YP has been sent to the interfaces when the ZP phase is constructed, no elements in YP can be accessed outside of the HP except contexts such as a long-distance relationship between an operator and its (unbounded) variable. This means that all elements in the YP must have become legitimate before the derivation gets to the ZP, because the YP undergoes a TRANSFER. That is, all the uninterpretable features in YP must be valued or moved up to accessible positions before the lower phase in the derivation reaches the next higher phase. With respect to this, Chomsky (2001) provides the following guiding principle, where Ph1 and Ph2 stand for the HP and ZP in (11) respectively.

- (12) Ph1 is interpreted/evaluated at the next relevant Ph2. (Chomsky 2001: 13))





respectively, causing the convergent derivation with all the uninterpretable features deleted.

To sum up, the framework I assume in this paper has the following properties.

- (15) i. Cognitive Systems consist of:
- Lexicon, Syntactic Component, the Sensorymotor (SM/PF) interface, and the Conceptual-intention (CI/LF) interface.
- ii. Legibility Condition
- No superfluous symbols in representation are admitted.
- iii. The Strong Minimalist Thesis
- The human faculty of language provides optimal solutions to legibility conditions.
- iv. Bare Phrase Structure
- Categories are elementary constructions from properties of lexical items. (Chomsky (1995: 249))
- v. Two types of Merge (Duality of Semantics)
- Language seeks to satisfy the duality in the optimal way. (Chomsky (2008: 141))
  - External Merge (EM): Merge (X, Y) = {X, Y}, where X nor Y is part of the other, yields a generalized argument/thematic structure.
  - Internal Merge: Merge (X, Y) = {X, Y}, where Y is part of X with two copies of Y, provides a discourse-related and scopal properties, namely, surface semantic effect of Y.
- vi. Copy Theory of Movement
- A moved element leaves its copy, instead of a trace, in the case of overt movement, deleted at rules of PF.
- vii. No Tampering Condition
- Merge of X and Y leaves the two syntactic objects unchanged.
  - Merge cannot break up X or Y, or add new features to them. (Chomsky (2008: 138))

viii. Probe/Goal Valuation

- An uninterpretable feature searches for its relevant interpretable feature in the search domain. If they agree, the uninterpretable features become legitimate objects at the interfaces.

ix. Phase Impenetrability Condition

$[_{ZP} Z \dots [_{HP} \alpha [H YP]]]$

- The domain (YP) of H is not accessible to operation outside HP; only H and its edge  $\alpha$  are accessible to such operation.

(Chomsky (2001: 13))

(HP and ZP are phases ( $v^*P$  or CP))

- A phase is interpreted/evaluated at the next higher phase.

In the rest of this paper, keeping to the SMT, I assume that these assumptions are correct and real in exploring the elliptical phenomena of Sluicing, Multiple Sluicing, Pseudogapping. To find our way to a more appropriate explanation of these three elliptical phenomena, I will explore briefly some fundamental and general views of ellipsis constructions and demonstrate that the PF Deletion approach, which assumes PF deletion of structures already constructed in the syntactic component, is more plausible to explain the phenomena.

### 2.3 LF Copying vs PF Deletion

In order to explore in this framework a more reasonable alternative analysis of the three elliptical phenomena: Sluicing, Multiple Sluicing, and Pseudogapping, I would like to introduce some fundamental approaches/analyses previously proposed that have had large impacts on studies of deletion/ellipsis. Traditionally, to account for the elliptical phenomena presented above in the first chapter, there have been several kinds of accounts proposed in the literature. Among them, in general, there have been two mainstreams of analyses proposed within the generative grammar. Those analyses both basically presume that two components, LF and PF, exist outside the syntactic component that we have already seen above. A lot of analyses previously

proposed appeal to either of these components. One analysis is based on semantic interpretation rules, appealing to operations in the LF component. The basic idea of this analysis is to make up for elliptical parts with semantics in their antecedent counterparts (LF Copying). This line of analysis was proposed by Williams (1977). Since then, this idea has been studied and extended by other linguists: to name a few, Fiengo and May (1994), Chung, Ladusaw, and McCloskey (1995), Lobeck (1995), and Wilder (1994). In their analysis, it is claimed that silent parts are empty to begin with, and the meaning in the antecedent parts are copied into the empty parts. Lobeck (1995) extends this idea and claims that ellipsis is only limited to a maximal projection, which is licensed when the head, taking the deleted maximal projection as its complement, has an agreement relation with the element in the specifier position. Williams (1977), adapting Wasow's (1972) "Empty Structures Hypothesis," proposed that a missing constituent has all the structures that its corresponding antecedent structures have with their lexical nodes occupied by empty elements (*deltas*), and that the corresponding terminals in the antecedent clause are copied into the deltas of the missing structures at a certain stage of derivation after applying some rules of semantic interpretation.

The other analysis is based on PF deletion, which was first proposed by Ross (1969), and extended by Chomsky (1972). Since then, this analysis has been considered to be promising, and is still pursued by a lot of linguists. The basic idea of this analysis suggests that elliptical structures can be obtained by deleting, at PF, a structure once constructed in the syntactic component. Therefore, this approach is different from the LF Copying approach in that elided sites have overt structures constructed before the PF component, where they are deleted by phonological operations.

It is beneficial to look back quickly at a few approaches, which would give us a basic idea of analyzing the elliptical constructions. Thus, in this section, we will briefly review the fundamental ideas of these two previous analyses and consider problems that may arise. Finally, we will see that the analyses utilizing PF Deletion seem more plausible within the current framework in discussion.

### 2.3.1 LF Copying Approach: Williams (1977) -VP Deletion-

Let us first review the LF Copying approach. Here, we will consider, as one prominent analysis, the claim by Williams (1977). Williams suggests that elided structures should be interpreted by copying the lexical elements in the antecedent clause into the empty positions in the elided structures. To explain elliptical phenomenon such as VP Deletion, he first presupposes as a framework that there are two kinds of sub-grammar rules in the grammar: Discourse Grammar Rules and Sentence Grammar Rules. Compare (16) as VP Deletion and (17) as Gapping.

- (16) A: Did John leave?  
B: Yes, he did. (Williams (1977: 102))
- (17) A: Did Sam go to the store?  
B: \*No, Bill to the supermarket. (Williams (1977: 102))

The examples above show whether deletion is permitted “across utterance boundaries” (Williams (1977: 101)). In (16), the deleted part following the auxiliary *did* in the (16B) can be semantically interpreted as the VP *leave* in the antecedent sentence (16A). In Gapping in (17), on the other hand, it is impossible to fill the gapped verb in the second clause (17B) with *go/went* in the preceding sentence (17A). These facts indicate that VP Deletion allows an anaphoric relation across the sentences in a context, while Gapping does not allow this cross-utterance relationship, obeying the “sentence-bound condition” discussed in Ross (1967). Thus, it is claimed that there are two sub-grammar rules in the grammar: Discourse Grammar Rules and Sentence Grammar Rules, one of which each construction seems to depend on.<sup>11</sup>

Williams suggests that in order to retrieve the interpretation for the elided part, antecedent lexical elements are copied into the nodes in the elided structures. Under this copying analysis, in the VP Deletion in (16) which is possible across utterances, the antecedent VP in the preceding sentence is available to copy onto the elided VP. With respect to Gapping in (17) obeying Sentence Grammar, on the other hand, copying the verb (head) into the gapped position is blocked because there is no

corresponding element included in the same sentence to copy onto its empty slot. This means that the operation of copying the antecedent VP onto the relevant part in the elided clause, which Williams calls the “VP Rule,” is an instance of Discourse Grammar Rules.

Note that since the generative grammar at this era of the 70s was composed of Deep Structures, Transformation, and Surface Structure, there are some rules or operations of semantic interpretation applied to Surface Structure to provide the logical form of a given sentence. In this framework, the logical form created by Sentence Grammar serves as an input to Discourse Grammar, and its output will eventually produce a possible meaning.

With this in mind, let us consider the example (18) and look more closely into Williams’ analysis of VP Deletion based on the LF Copying approach.

(18) John told Bill about himself and George did too. (Williams (1977: 118))

The sentence (18) is ambiguous with respect to the reference of the reflexive pronoun. Before analyzing the ambiguity, let us see some facts about a reflexive pronoun. As is well-known, (19a) is ambiguous between (19b) and (19c) as shown below.

- (19) a. John told Bill about himself.
- b. John<sub>i</sub> told Bill<sub>j</sub> about himself<sub>i</sub>.
- c. John<sub>i</sub> told Bill<sub>j</sub> about himself<sub>j</sub>. (Williams (1977: 118))

Suppose that co-indexization which makes interpretations of reflexives possible is established as one of the Sentence Grammar Rules. By the co-indexization, (18) would be able to have four logically different readings as given in (20). (The examples in (20) are from Shima (2015: 139)).

- (20) a. John told Bill about John and George told Bill about George too.
- b. John told Bill about Bill and George told Bill about George too.

- c. John told Bill about John and George told Bill about Bill too.
- d. John told Bill about Bill and George told Bill about Bill too.

(cf. Shima (2015: 139))

As a matter of fact, however, the possible readings of (18) are only (20a) and (20d), and (20b) and (20c) are ruled out. In order to explain these facts, Williams, following Wasow's (1972) "Empty Structure Hypothesis," assumes that an elided sentence has empty structures inside with every lexical node occupied by deltas  $\Delta$ . Each  $\Delta$  in (21) shows a lexical node.

(21) John told [<sub>VP</sub> Bill about himself] and George did [<sub>VP</sub>  $\Delta\Delta\Delta\Delta$ ] too.

Two Sentence Grammar Rules using lambda conversion are applied to interpret the empty VP. One is "Derived VP Rule (DVPR)" proposed by Partee (1973), which converts VP in the surface structure into semantic structures denoted by lambda notation, and the other is Reflexivization, as an obligatory conversion rule, that turns reflexive pronouns into variables bound by the lambda operator. The important thing to keep in mind is that the rules of lambda conversions are instances of Sentence Grammar Rules, which Discourse Grammar Rules follow. Applying these conversion rules to (18), the interpretation of the first conjunct in (18), the LF of (19a), could be obtained in two ways as shown below. First, the DVPR converts the antecedent VP in (21) into (22).

(22) John  $\lambda_X$  (<sub>VP</sub>  $x$  told Bill about himself)

Then, there are two ways for the derivation to proceed; (22) will be converted into (23a) or (23b) depending on how a rule of Reflexivization is applied. If the reflexive pronoun converted into a variable chooses the lambda as its binder, the LF structure will be (23a). If the reflexive pronoun, on the other hand, links itself to the object noun *Bill*, its LF structure will be (23b).

- (23) a. John  $\lambda_X$  ( $_{VP}$  x told Bill about x)  
 b. John  $\lambda_X$  ( $_{VP}$  x told Bill<sub>j</sub> about himself<sub>j</sub>)

Recall that VP Rule, LF copying of the VP, is one of the Discourse Grammar Rules. Since DVPR and Reflexivization are both assumed to be the Sentence Grammar Rules, these rules must come before the VP rule, which copies the antecedent VP into the empty sites in the second conjunct. After the VP Rule has copied the VP of (23a) and (23b) into the empty nodes in (21), (21) will be represented as either (24a) or (24b), respectively.

- (24) a. John  $\lambda_X$  ( $_{VP}$  x told Bill about x) and George did  $\lambda_X$  ( $_{VP}$  x told Bill about x).  
 b. John  $\lambda_X$  ( $_{VP}$  x told Bill<sub>j</sub> about himself<sub>j</sub>) and George did  $\lambda_X$  ( $_{VP}$  x told Bill<sub>j</sub> about himself<sub>j</sub>)

These structures eventually result in yielding (20a) and (20d). To obtain the interpretation in (20b) and (20c), the VP Rule should be applied before DVPR and Reflexivization are induced, but it is impossible because the former is a Discourse Grammar Rule applied to the output of Sentence Grammar Rules.

I have just introduced the LF Copying approach, under which the copying operation at LF fills their elided parts with the LF structures in the relevant preceding sites. This approach seems to be interesting and attractive as it can explain at least some of the facts associated with VP Deletion. Unfortunately, however, there are some problems with this LF Copying approach. The first problem is: Why are there two kinds of grammar rules, such as Sentence Grammar Rules and Discourse Grammar Rules? It is not so clear what determines the order of application of Reflexivization and the DVPR. Furthermore, exactly what syntactic status should we give to the  $\Delta$ s assumed in his analysis? It would be a deeper question under the framework we are pursuing how we should take such prima facie language-specific material. Ideally, we would

like to avoid using these artificial devices. We will turn to the copying approach in the next chapter to examine a derivation of Sluicing.

Next, I would like to examine another analysis based on a deletion operation at PF.

### **2.3.2 PF Deletion Approach**

In this section, I would like to introduce another intriguing approach to deletion phenomena, based on a phonological operation at PF known as the “PF Deletion” approach. This approach suggests, in general, that elided structures are derived by deleting structures once constructed in the syntactic component. Unlike the LF Copying approach, it is claimed that elided sites have syntactic structures taken as pre-elliptical forms and undergo the PF operation of Deletion to make them “unpronounced.” I will base my analysis of elliptical phenomena on this approach.

The fundamental idea of this analysis was first proposed by Ross (1969), and Chomsky (1972) extended his analysis. Building on their arguments, Hankmer and Sag (1976) made further progress. Since then, this approach has been pursued intensively and extensively with some modifications by generative linguists, such as Fox (2000), Merchant (2001), and Fox and Lasnik (2003). Specifically, Merchant (2001) proposes an extensive analysis by observing Sluicing, which I will examine more closely in Chapter 4. Although it is necessary to explore as many phenomena as possible and examine the adequacy of this PF Deletion approach, it is worthwhile and important for a moment to review quickly some fundamental arguments for PF Deletion through VP Deletion observed by Hankmer and Sag (1976), and Sluicing by Ross (1969) and Merchant (2001).

#### **2.3.2.1 PF Deletion Approach 1: Hankmer and Sag (1976) - VP Deletion –**

In the last section, taking an instance of VP Deletion, we have seen the LF Copying approach, in which elided sites are phonologically null and their interpretation can be retrieved by copying the meaning of the antecedent VP. This section introduces PF Deletion approach to the same phenomenon. Take first Hankmer and Sag (1976).

They provide some fundamental arguments supporting this phonological deletion approach regarding VP Deletion.

Hankamer and Sag (1976) pointed out that, crucially, an elliptical construction needs an overt linguistic expression in its antecedent part. Unpronounced VP sites would not be admitted even when its meaning could be inferred in a given situation. For example, imagine a situation where s/he attempts to stuff a 9-inch ball through a 6-inch hoop. In this situation, (25) is not acceptable though the sentence itself is grammatical.

(25) #It's not clear that you'll be able to. (Hankamer and Sag (1976: 392))

However, if the linguistic expression corresponding to the imaginary situation above is overtly uttered, the similar VP deletion will be possible.

(26) Hankamer: I'm going to stuff this ball through this hoop.

Sag: It's not clear that you'll be able to.

(Hankamer and Sag (1976: 392))

This is also true of Sluicing, and Gapping. First, see an instance of Sluicing below. Compare (27) and (28).

(27) Situation: [Hankamer produces a gun, points it offstage and fires, whereupon a scream is heard.]

Sag: #Jesus, I wonder who.

(28) Hankamer: Someone's just been shot.

Sag: Yeah, I wonder who. (Hankamer and Sag (1976: 408))

In (27) above, Sag's utterance is not appropriately understood even though the sentence seems to be grammatical. (28), on the other hand, shows that if the similar situation is linguistically expressed in the preceding utterance, a certain material

proposition following the *wh*-phrase can be elliptical. That is, elided parts must be “syntactically controlled.”

The same holds true for an instance of Gapping, where the matrix verb seems to have been deleted. See (29) and (30) below.

- (29) Situation: [Hankamer produces an orange, proceeds to peel it, and just as Sag produces an apple, says:]  
#And Ivan, an apple. (Hankamer and Sag (1976: 410))
- (30) Hankamer: Ivan is now going to peel an apple.  
Sag: And, Jorge, an orange. (Hankamer and Sag (1976: 410))

These examples show that in order for deleted sites to be interpreted correctly, overt expressions are needed in the preceding utterance.

Furthermore, this analysis provides a natural account for examples involving passivization. Compare (31a) and (31b).

- (31) a. Nobody else would take the oats down the bin, so Bill did.  
b. The oats had to be taken down to the bin, so \*Bill did.  
(cf. Hankamer and Sag (1976: 413))

In (31a), where the antecedent is in a form of active voice, the following sentence is acceptable with the same voice. In (31b), on the other hand, the same deletion in the second clause is not possible. This comes from the difference in the voice between the first and the second clause. These examples support the argument that deletion is only possible when an overt linguistic expression occurs in an antecedent sentence. That is, the deletion phenomena above can be naturally explained if we assume that elliptical parts are literally deleted by a phonological deletion operation under identity. In the next section, let us see briefly other analyses of this approach by focusing on Sluicing, though I will discuss this in greater detail in the next chapter.

### 2.3.2.2 PF Deletion Approach 2: Ross (1969) and Merchant (2001) -Sluicing-

Next, let us review Ross' (1969) PF Deletion approach, which was published before Hankamer and Sag's and has had a great impact on the subsequent study of deletion phenomena since then. Ross suggests that elided structures are derived by applying a deletion operation at PF to structures already constructed in the syntactic component, and claims that the sentence (32a), called "Sluicing," results from deleting the TP already projected with *wh*-movement as shown in (32c).

- (32) a. She kissed a man who bit one of my friends, but Tom doesn't realize which one of my friends.
- b. \*She kissed a man who bit one of my friends, but Tom doesn't realize [which one of my friends]<sub>i</sub> [<sub>TP</sub> she kissed [a man who bit *t<sub>i</sub>*]].
- c. She kissed a man who bit one of my friends, but Tom doesn't realize [which one of my friends]<sub>i</sub> [~~<sub>TP</sub> she kissed [a man who bit *t<sub>i</sub>*]]].~~

As shown in (32b), if the *wh*-phrase crossed a complex noun phrase in *wh*-movement, the movement would violate one of the island conditions, which I will discuss in the next chapter. Thus, this movement should be ruled out and (32a) would be ungrammatical. However, (32c) shows that if the complex noun phrase is elided by deleting the TP phonologically, this island violation appears to be "repaired" and (32a) will be grammatical.

Ross claims that the PF deletion plays an important role to explain elliptical phenomena and in fact, the PF Deletion approach is supported by some empirical facts. Since Ross presents ample evidence in support of this approach, I will leave the presentation of these examples for a further discussion on Sluicing in the next chapter. Here, I would like to see some other evidence Merchant (2001) provides to support this approach. The examples below are related with preposition stranding. Compare the English examples with preposition stranding with the Greek examples disallowing it.

- (33) a. Who was he talking with?  
 b. Peter was talking with someone, but I don't know who.  
 c. Peter was talking with someone, but I don't know with who.<sup>12</sup>  
 d. Peter was talking with someone, but I don't know with whom.

(cf. Merchant (2001: 92))

In English, a *wh*-phrase can be moved to the front position with the preposition left behind as in (33a). Thus, in the case of Sluicing, when the relevant TP is deleted, the preposition can be stranded and deleted along as (33b). As in (33c) and (33d), the preposition can be pied-piped with the *wh*-phrase. (33c) and (33d) show the possibility that the preposition and the *wh*-phrase are both once generated as in (34), and the relevant TP is deleted after the pied-piped *wh*-movement.

- (34) a. [was he talking [with who(m)]]  
 b. [with who(m) [~~was he talking~~]]?

The Greek example also shows us that the PF deletion approach is more plausible. In Greek, which disallows preposition stranding unlike English, Sluicing with a preposition stranded is also impossible. See (35).

- (35) a. I Anna milise me kapjon, alla dhe ksero \*(me)pjon.  
 the Anna spoke with someone but not I.know with who  
 'Anna spoke with someone but I don't know with whom.'

- b. \*Pjon misile me?  
 who she.spokewith  
 'Whom did she speak with?'

(Merchant (2001: 94))

In (35a), the preposition *me* must occur with the *wh*-phrase *pjon*. This means that, just like the English example, the prepositional phrase *me pjon* has been moved by *wh*-

movement, and afterward, the inner TP undergoes deletion in PF. The analysis based on LF Copying cannot easily or naturally explain the facts in (35).

Merchant gives additional evidence supporting the PF Deletion approach in terms of the selectional properties of complements. He argues that the category of a remnant in Sluicing is a CP, not a DP, and the lower structure TP is deleted. Let us take a look at examples which support this point. Main verbs such as *know* and *remember* can take not only a DP but also a CP as their complement.

- (36) a. Jack know Guard Mulligan.  
b. Jill remembers the important announcement from yesterday. (Merchant (2001: 41))
- (37) a. Jack knows which guard was present.  
b. Jill remembers what I told you yesterday. (Merchant (2001: 41))

With this in mind, consider how the multiple *wh*-question (38a) is interpreted. If the unpronounced part following *which* was considered to be a TP, the second sentence in (38a) would be paraphrased as (38b), and if the category of *which* itself was taken as the DP, it would be interpreted as (38c).

- (38) a. He claimed one of the guards had been present. Who knows which?  
b. Who knows which guard he claimed had been present?  
c. Who knows which guard? (Merchant (2001: 41))

Examining a possible answer to (38a) will give us an answer to which can be true. If there is a TP structure following *which*, the *wh*-phrase is taken as an indirect question, and then the required answer is only about the matrix subject as (39a). If *which* was a DP, on the other hand, a pair-list answer in accordance with the matrix subject should be possible as (39b).

- (39) a. Jack does. / Jack knows which.

- b. #Jack knows Guard Mulligan, Bill knows Guard Keeley, etc.

(Merchant (2001: 42))

As the facts indicate, the only possible answer is (39a). This supports the idea that the category of the complement in Sluicing is not a DP, but a CP with its TP complement deleted by phonological operations.

Finally, there is another important argument in support of the PF Deletion approach. The argument, which is originally suggested by Ross (1969), is based on Case agreement of a *wh*-phrase in Sluicing. In an English dialect that distinguishes between *who* and *whom*, only *who* is allowed in the context in (40), but not *whom*.

- (40) a. Somebody from Kankakee is going to be invited to the party by Ralph,  
but they don't know who/\*whom is going to be invited to the party by  
Ralph.
- b. Somebody from Kankakee is going to be invited to the party by Ralph,  
but they don't know who/\*whom. (Ross (1969:254))

This fact indicates that the *wh*-phrase in this case is Case-marked by the element in the embedded clause, not by the matrix verb, *know*. Similarly, this is also observed in Greek. The examples are from Merchant (2001).

- (41) a. Kapjos irthe, alla dhe ksero (pjos / \*pjon).  
someone came, but not I.know who-Nom / \*who-Acc  
'Someone came, but I don't know who.'
- b. Dhe ksero (\*i apantisi / tin apantisi).  
not I.know-1SG the answer-Nom / the answer-Acc  
'I don't know the answer.' (Merchant (2001: 43))

As we can see in (41b) above, the verb *know* assigns Accusative Case to its object. As in (41a), however, *who* in the object position is only possible with Nominative Case.

If Case is assigned/checked in the syntactic component under probe-goal agreement system, some probe that values the Case of *wh*-phrase must have appeared before the deletion operation is applied. These arguments presented above show that the salvaged elements have been extracted out of the elided clause in Sluicing. The LF Copying approach, however, cannot possibly explain this adequately.

The PF Deletion analysis seems to be more reasonable in this sense. Furthermore, the analysis is also theoretically superior to the LF Copying one. If the meaning in the antecedent had to be copied onto the empty sites in the elided sentence, it would impose more loads on derivation, which should be avoided in favor of the SMT and effective computation. In addition, if empty structures including elements such as deltas have been externally merged with remnant structures, those parts would have to be untouchable at a later stage of its derivation. Therefore, it is theoretically unwelcome to replace the empty sites with the meaning of the antecedent category.

As discussed above, the LF Copying approach is not empirically nor theoretically plausible enough, rendering it invaluable. On the other hand, as far as we can see from the evidence above, the PF Deletion approach is more appealing and thus worth pursuing. Therefore, I will keep to the PF Deletion Approach as more reasonable in order to explain elliptical phenomena.

#### **2.4 What Licenses Deletion? -Parallelism-**

Even though we have seen that the LF Copying approach is not endurable enough, their fundamental goal seems to be correct in a sense. It is to guarantee that the semantic interpretation in the antecedent site must be reflected in the elided structure so that the deleted sites are correctly interpreted, and there must not be an asymmetry between the antecedent site and the elided site. That is, semantic identity or recoverability, namely some kind of parallelism, must be guaranteed to interpret elliptical sentences appropriately. In other words, we need a licensing condition on applicability of deletion.

Under the PF deletion approach, it has been discussed how to formalize a licensing condition. Examining the examples introduced by Fox (2000), we can see that an LF

structural parallelism would be promising. Let us take (42) and (43) for example, with phonological reduction, which is supposed to serve just like an ellipsis. The italicized parts below are phonologically reduced.

- (42) a. First Bill called Mary an idiot. Then John *insulted her*.  
 b. \*First John insulted Mary. Then Bill *called her an idiot*.  
 (Fox (2000: 84))
- (43) a. John talked to every woman he saw. Bill *talked to many women*, too.  
 b. \*Bill talked to many women. John *talked to every woman he saw*, too.  
 (Fox (2000: 84))

In (42a) and (43a), phonological reduction is acceptable, but the reversed order of these conjuncts in (42b) and (43b) will be unacceptable if the VP in the second conjunct undergoes reduction.

Fox (2000) argues that the unacceptability of (42b) and (43b) can be explained in terms of parallelism between the antecedent and the elliptical clause. His core idea of parallelism is presented below. Note that the basic intuition is suggested by Rooth (1992).

- (44) Phonological reduction of a constituent of  $\alpha$  is licensed only if at LF there is some constituent  $\beta$  that reflexively dominates  $\alpha$  and the discourse contains an antecedent LF,  $\beta_A$ , such that that (a) or (b) holds.
- a.  $\beta_A$  is an appropriate alternative to  $\beta$ .  
 b.  $\beta_A$  together with the shared presupposition entails an antecedent LF,  $\beta_{AC}$ .  
 $\beta$  reflexively dominates  $\alpha$  if  $\beta$  dominates  $\alpha$  or  $\beta = \alpha$ . (Fox (2000: 85))

Under this parallelism, phonological reduction is licensed if the elided sites are the same as the antecedent in terms of linguistic expression or those inferable from discourse. Roughly speaking, they must share together the same linguistic

elements/expressions present in discourse. This can account for (42) and (43). In (42a), the proposition of Bill calling Mary an idiot entails that Bill insulted Mary, and this can be the appropriate antecedent for the second conjunct. In (42b), however, it is impossible to infer that Bill called Mary an idiot by stating that Bill insulted Mary in the first sentence. The same line of reasoning can be applied to (43). Therefore, it is very reasonable to believe that this intuition is strong enough to cover what the LF Copying approach aims to capture.

Building on this, Fox formalizes the parallelism further in a different way. He recasts the parallelism in (44) in terms of LF representation and the modified parallelism is presented as in (45).

- (45) Phonological reduction or deletion is licensed only if either of the following holds.
- a. The LF of a sentence that contains the elided/down-stressed material,  $\beta_E$  is structurally isomorphic to a sentence that contains the antecedent,  $\beta_A$ .
  - b.  $\beta_A$  (together with shared presuppositions) entails an LF,  $\beta_{AC}$ , and  $\beta_{AC}$  is structurally isomorphic to  $\beta_E$ . (Fox (2000))

The underlying intuitions suggested in both (44) and (45) are the same. The parallelism in both cases requires that the antecedent and the elided sentence must share the semantic meaning together. In fact, the parallelism in (45), based on the LF structural isomorphism, can also account for the contrast in (46).

- (46) a. A boy talked to every teacher, and a girl did (~~talk~~), to Jane.  
 b. A girl talked to Jane, and a boy did, (~~talk~~) to every teacher.
- ( $\exists > \forall$ ) \*( $\forall > \exists$ )  
 (Fox (2000: 96))

The sentence *A boy talked to every teacher* is normally scopally ambiguous. Interestingly, however, the sentence in the cases above is disambiguated with respect

to scope relation. If Fox's generalization (47) is correct, this will be straightforwardly accounted for.

(47) Scopally uninformative sentences are restricted to surface scope.

(Fox (2000: 109))

The generalization (47) blocks the object DP *Jane* from taking wide scope over the subject DP *a girl* because no inverted effect comes out. This is schematized as follows.

(48) a.  $\beta_A$ : every teacher  $\lambda y$  [a boy  $\lambda x$  [x talked to y]]

$\beta_E$ : a girl  $\lambda x$  [Jane  $\lambda y$  [x talked to y]] (46a)

b.  $\beta_A$ : a girl  $\lambda x$  [Jane  $\lambda y$  [x talked to y]]

$\beta_E$ : every teacher  $\lambda y$  [a boy  $\lambda x$  [x talked to y]] (46b)

Considering the isomorphism for the given LF structures in (48), neither of them can satisfy the parallelism (45), thus making the inversed scope reading for (46) unavailable.<sup>13</sup>

As seen above, the parallelism based on LF representation can work well to explain the contrast given above. Therefore, I assume that this line of explanation is basically correct and the parallelism of this line should be adapted as a working definition. Based on the discussion above, I would like to explore to what extent we can go to explain deletion phenomena, focusing mainly on Sluicing, Multiple Sluicing, and Pseudogapping.

## Notes for Chapter 2

\* Some part of this chapter appeared in Hirai (2014), "Sakujiyo Gensyou wo Megutte -Sluicing wo Chuushin-ni (On Phenomenon of Deletion -With Special Reference to Sluicing-)," *Seisei Bunpou no Kiseki to Tenbou (The History and Future of Generative Grammar)*. I would like to thank Naoyuki Ono, Makoto Kondo, Takeo Kurafuji, and

Kazumi Matsuoka for their helpful comments and discussion.

1. It is obvious that linguistic expressions are hierarchical and structure-dependent, but not string-dependent. Consider the well-known examples in (ia) and (ib).

- (i) a. birds that fly instinctively swim  
b. instinctively, birds that fly swim. (Chomsky (2017a: 201))

The example (ia) is ambiguous in that the adverb *instinctively* can modify either *fly* or *swim*, while the (ib) is not because the adverb only modifies the matrix verb. This suggests that closeness in terms of linear order is ignored, but structural distance is more important.

2. This condition is also called “Full Interpretation.” Here I assume that they are the same in nature.

3. The subsequent studies by Chomsky and other bio-linguists suggest that all linguistic mechanisms require accounts based on biological (path-dependent) evolutionary history, brain science, and other cognitive supports. For details, see Chomsky (2005) and others.

4. See Chomsky (2000: 96-97). Chomsky mentions that descriptive devices are subject to more strict conditions imposed by the SMT.

5. The latest theory advocated by Chomsky (2013, 2015b, 2017a, and 2017b) assumes that Merge comes free, and each label is determined by the labeling algorithm under the minimal search supported independently by the SMT, because labels are necessary for each projection to be interpreted at the interface. Although it is very intriguing to discuss the elliptical phenomena in this point, I will put this aside here and follow the assumption in discussion.

6. As illustrated in (6), the sentential subject is base-generated within the verb phrase (VP internal subject hypothesis). The more precise structure supposes that it is base-generated in the specifier position of the light verb (verbalizer) *v*-Head built above the VP. I turn to the detailed structure later.

7.  $\alpha$  c-commands  $\beta$  if  $\alpha$  does not dominate  $\beta$  and every  $\gamma$  that dominates  $\alpha$  dominates  $\beta$ .

8. Chomsky, Gallego, and Ott (to appear), suggest that transferred phases can be accessed as long as the properties of a probe in the higher phase are affected by an element in the transferred phase from some evidence involving a quirky subject configuration. This possibility has already been implied by Chomsky (2000, 2001), but a lot of issues still remain to be clarified. Here, I assume that all elements in the lower phase should be legible.

9. What does *wh*-movement come from? Precisely speaking, under the theory in discussion, just like the subject-movement we have seen, it is assumed that overt movement is induced collaboratively by feature-matching and the EPP (edge) feature on the target head. To derive a normal English *wh*-question, therefore, *wh*-phrases are assumed to have a [+Q] feature and [-WH] feature, which are valued by the matching [-Q] on the C-Head with the EPP (edge) feature. If so, under the PIC, in order for the valuation and movement across phases to be correctly carried out, it would be necessary to assume that not only *v*\*Ps but also the C-Head of an embedded non-interrogative clause as (14) should have those features with the EPP assigned. It is still unclear why this is possible. In fact, as Epstein, Kitahara, and Seely (2017) point out, it has long been one of the theoretical problems with the literature since Chomsky's adjunction proposed by Chomsky (1986b).

It is assumed here that in English normal *wh*-questions, *wh*-movement still obeys the PIC and a *wh*-phrase moves successive cyclically via phases to output a new outcome for the requirement of the C-Head. Thus, the movement to an intermediate position would include a problem of "look-ahead," which is not welcome under the consideration of the minimalist framework. I will return to this in the next chapter and consider another possibility in terms of Baker's Abstract Question Morpheme.

10. I follow the traditional assumption that all clauses obligatorily have a subject in a Spec-TP whether the position is phonologically realized by a DP or occupied by *pro* or PRO. This principle is taken as the requirement of the EPP feature on a T-Head.

11. For more evidence to support the assumption that VP Deletion can be induced as Discourse Grammar, see Williams (1977).

12. Some speakers judge (33c) as unacceptable if the preposition occurs with the *wh*-phrase.

13. Other examples will be presented to support this idea in the next chapter.

## *Chapter 3\**

### *On Sluicing*

#### **3. 1 Introduction**

In this chapter, I will examine one type of the elliptical constructions, called “Sluicing,” as (1a) and (2a), which was first pointed out by Ross (1969). I will call this construction “Single Sluicing” (henceforth, SS) to distinguish Sluicing with multiple *wh*-phrases as (3a) where multiple *wh*-phrases are left undeleted, which is called Multiple Sluicing (MS). In the former, only one *wh*-phrase is left as a remnant, and the TP structure following the *wh*-phrase seems to be omitted.

- (1) a. Somebody just left --- Guess who.  
b. Somebody just left --- Guess who just left. (Ross (1969: 252))
- (2) a. Ralph is going to invite somebody from Kankakee to the party, but they don't know who.  
b. Ralph is going to invite somebody from Kankakee to the party, but they don't know who he's going to invite to the party. (Ross (1969: 252))
- (3) a. I know that in each instance one of the girls got something from one of the boys. But they didn't tell me which from which.  
b. I know that in each instance one of the girls got something from one of the boys. But they didn't tell me which got something from which.  
(Lasnik (2014: 5))

Just like other elliptical constructions discussed in the first chapter, the (a) sentences in (1)-(3) are consistently understood as the (b) sentences. There are a lot of interesting facts observed in this construction as we see below, which has long been drawing a lot of attention,

particularly, with respect to its derivation within the framework of the generative grammar. However, it is still unclear how this SS is derived. Therefore, clarifying how this construction is derived within the framework of the generative grammar is theoretically meaningful and important. In this chapter, I would like to explore an alternative account for this construction and propose that except some cases, a *wh*-phrase in SS stays in situ, bound by a relevant operator with the other structures deleted. In particular, extending Baker's argument for Abstract Question Morpheme (henceforth, Q-morpheme) for *wh*-phrases, I will suggest that the Q-morpheme is located on the C-Head with two properties in nature; in languages such as English, the morpheme requires at least one *wh*-phrase to be phonologically adjacent to it, and it can bind a *wh*-phrase in situ within a remote phase. When deletion occurs in English SS, the phonological requirement is satisfied even if the *wh*-phrase stays in situ. That is, if the intervening structures are deleted, SS is admitted even without *wh*-movement because the Q-morpheme satisfies the adjacency requirement for a remnant *wh*-phrase, and at the same time, it is bound by the morpheme. When structures involving other intervening elements exist, English SS is ruled out. Furthermore, I will claim that as an identity condition for deletion, an isomorphism of LF structures involving an operator-variable relation admits PF deletion of the structures, in which case structures presupposed in the antecedent must be maximally deleted with focused elements intact.

This chapter is organized as follows; In the next section, I will present some more interesting facts observed in SS and suggest that they force us to reconsider the discussion on the LF Copying approach versus the PF Deletion approach. In the section 3, I will return to the debate on the approaches, and I will introduce two main approaches to SS by Chung, Ladusaw, and McCloskey (1995) (henceforth, CLM) for the LF Copying approach, and Merchant (2001) and Fox and Lasnik (2003) for the PF Deletion approach. In addition, one of the recent approaches based on PF Deletion, called "MaxElide," will be reviewed in a later section. Then, we will consider some problems that may arise within the minimalist framework in discussion, and see that none of the analyses are empirically or theoretically plausible enough. Then, extending Baker (1970), I will explore possibilities that a *wh*-phrase would not have to undergo *wh*-movement to a Spec-CP in SS while it has to move

to a Spec-CP in a normal (embedded) interrogative. As a possible explanation, I will show that my *wh*-in situ approach, LF parallelism, and Maximal Effect of Deletion will be able to explain SS correctly. Finally, the section 4 concludes the chapter.

## 3.2 Empirical Facts

### 3.2.1 Is PF Deletion Related to Sluicing (SS)?

In this section, we will see first that SS involves very mysterious phenomena. In order to see how strange properties SS has and thus how important it is to explain its derivation, let us begin by reviewing the facts pointed out by Ross (1969). Recall that some empirical facts related to preposition stranding and other phenomena enable us to believe that the PF Deletion approach where fully constructed structures are deleted at the PF interface is a more reasonable one to explain some elliptical phenomena, and this is the case of SS. Below are some other facts supporting the PF deletion in SS. The examples below are related with Case of a *wh*-phrase in SS. The examples are based on the discussion in Ross (1969: 252).<sup>1</sup>

- (4) a. Ralph is going to invite somebody from Kankakee to the party, but they don't know who/whom he is going to invite *t* to the party.
- b. Ralph is going to invite somebody from Kankakee to the party, but they don't know who/whom.

Speakers who admit *whom* as an object *wh*-phrase in a *wh*-question use *whom* both in an embedded interrogative clause such as (4a) and in SS such as (4b). However, this option is not observed in the context of (5) below, where the *wh*-phrase serves as the subject in the embedded clause. Compare (4) and (5). The examples below are based on Ross (1969: 254).

- (5) a. Somebody from Kankakee is going to be invited to the party by Ralph, but they don't know who/\*whom is going to be invited to the party by Ralph.
- b. Somebody from Kankakee is going to be invited to the party by Ralph, but they don't know who/\*whom.

Notice that in (5), the *wh*-phrase appears to have originated from the subject position in the embedded interrogative clause, but in this case, unlike (4), the option of using *whom* is not possible.

The fact that only *who* can occur in the position in (5) while *whom* is not admitted explicitly indicates that it is more reasonable to assume that the clause structure already constructed is deleted at a certain (later) stage of the derivation. (4b) does not make it clear what could value the Case feature of the remnant *wh*-phrase because the Case feature could be valued by either a functional element in the matrix clause or the one in the elided clause. Looking at (4) and (5), however, we would find it reasonable to suppose that the Case feature of *wh*-phrase is valued by an element in the following TP clause, which will undergo deletion at PF after Spell-Out. The fact that only *who* with a nominative Case is possible in (5) clearly shows that its Case is not valued by an element in the matrix clause, but by a Case-valuing element in the structure to undergo deletion. If an unvalued Case feature is valued in a probe-goal relation before mapping to the interfaces, there must be features to license a *wh*-phrase of SS in Syntax. Under the LF Copying approach in which ellipsis sites are assumed to be structurally empty, the facts above cannot be explained straightforwardly. The empirical facts just seen, therefore, allow us to suppose that SS also results from the PF deletion which follows Case-valuing and *wh*-movement.

Another example supporting PF deletion approach comes from Ross's observation on idiomatic phrases. As is well known, idiomatic sequences cannot be broken up. See (6)-(8).

- (6) a. Who are you going to do away with?  
b. \*With whom are you going to do away?
- (7) a. What will we have to make do with?  
b. \*With what will we have to do?
- (8) a. Which plot did the FBI get wind of first?  
b. \*Of which plot did the FBI get wind first? (Ross (1969: 264))

As we can see above, the idiomatic phrases involving the *wh*-phrase with the pied-piped

preposition are not judged as grammatical. Under the PF deletion approach, the same results would be expected to come out in the SS context. This expectation is indeed born out.

- (9) a. Bill's planning on doing away with one of his inlaws, but I don't know which.  
b. \*Bill's planning on doing away with one of his inlaws, but I don't know with which. (Ross (1969: 265))
- (10) a. We'll have to make do with some kind of vile 3.2 beer for our punch, but I don't know exactly what kind.  
b. \*We'll have to make do with some kind of vile 3.2 beer for our punch, but I don't know with exactly what kind. (Ross (1969: 265))
- (11) a. The FBI got wind of one of the many plots to smoke draft cards, but I can't remember which.  
b. \*The FBI got wind of one of the many plots to smoke draft cards, but I can't remember of which. (Ross (1969: 265))

As shown above, the SS examples with the idioms where a preposition is pied-piped are also ungrammatical. These facts are attributed to the analysis that the preposition is prevented from being pied-piped in the course of derivation. This is what the PF deletion approach can expect. Under the LF copying approach, on the other hand, it is not easy to explain these facts without further complexities.

Thus, we can conclude here that PF Deletion approach is more appealing, and a deletion operation is applied to fully constructed structures to derive SS. However, there are some interesting and mysterious facts we have to consider, which could counter the analysis here. Some examples are presented in the next section.

### 3.2.2 Mysteries: Question

The last section showed that SS appears to be derivable by PF Deletion. This approach seems to account for the SS examples we have already seen without difficulty. However,

there are some outlier cases. Worthy of note is the very strange and baffling instance of SS whose unsaid sites include so-called “syntactic islands.” Generally speaking, it is assumed that clauses or phrases such as relative clauses, sentential subjects, complex noun phrases, and embedded *wh*-clauses count as islands, and extraction out of them is blocked as violation of island conditions, which are unified as “subjacency condition.”<sup>2</sup>

- (12) a. \*Who did she kiss a man who bit *t*? (Relative Clause)  
 b. \*Who is that he’ll hire *t* is possible? (Sentential Subject)  
 c. \*Who do you believe the claim that he bit *t*? (Complex Noun Phrase)  
 d. \*What problem was Sandy trying to work out which student would be able to solve *t*? (Embedded *Wh*-Interrogative)

Under the conditions, these examples are all ruled out because the *wh*-phrase has been moved across the island.

However, interestingly, in the case of SS, things become different. Let us see the following instances of SS.

(13) Complex Noun Phrase (Relative Clause)

- a. She kissed a man who bit one of my friends, but Tom doesn’t realize which one of my friends.  
 b. \*She kissed a man who bit one of my friends, but Tom doesn’t realize which one of my friends she kissed a man who bit *t*. (Ross (1969: 276))

(14) Complex Noun Phrase (Adjunct Clause)

- a. I believe the claim that he bit someone, but they don’t know who.  
 b. \*I believe the claim that he bit someone, but they don’t know who I believe the claim that he bit *t*.

(15) Sentential Subject

- a. That he’ll hire someone is possible, but I won’t divulge who.  
 b. \*That he’ll hire someone is possible, but I won’t divulge who that he’ll hire *t* is impossible. (Ross (1969: 277))

(16) Embedded *Wh*-Interrogative

- a. Sandy was trying to work out which students would be able to solve a certain problem, but she wouldn't tell us which one.
- b. \*?Sandy was trying to work out which students would be able to solve a certain problem, but she wouldn't tell us which one she was trying to work out which students would be able to solve. (CLM (1995: 272))

Once again, preliminarily, the (a) sentences are interpreted as the (b) sentences even though the relevant parts are silent. In (13)-(16), since the unsaid sites seem to include an island, the *wh*-phrase appears to have moved across the island or some kind of boundary, violating the island condition: the complex noun phrase constraint (a relative clause in (13) and an adjunct in (14)), the sentential subject condition in (15) and the (embedded) *wh*-clause in (16). Thus, as we can expect, if each island is phonologically realized in those contexts, the sentences will become ungrammatical. However, if the elements other than the preposed *wh*-phrase in the embedded CP are phonologically unrealized like the (a) examples above, the island violations in question seem to be obviated or cancelled. That is, apparently, violation may have been “repaired” or “salvaged” by the deletion process.

However, some questions arise immediately. Under the PF Deletion approach, how is it possible for a *wh*-phrase to move to the embedded CP position, violating an island condition at all? We have seen that the ungrammaticality of (5) and (9)-(11) is attributed to failure of the implement of Case-valuing by an element in the elided clause and the failure of pied-piping in idiomatic phrases, respectively. If structures undergoing deletion must be built up first, the relevant structures in (13)-(16) should never be able to be constructed in the first place. Unfortunately, the PF Deletion approach at hand is not satisfactory enough to explain how *wh*-movement could violate an island condition to flee from elided sites. Thus, we are forced to ask whether the grammaticality of the (a) sentences in (13) - (16) comes from repair, and whether the PF Deletion approach can be really a reasonable analysis available to SS. Therefore, it is worthwhile to reconsider some previous accounts for SS.

In the following sections, turning again to the debate of LF Copying approach versus PF

Deletion approach, I would like to explore a more reasonable analysis of how SS can be derived and consider how we can explain the facts observed in SS.

### 3.3 The Debate on the LF Copying Approach and PF Deletion Approach Again

#### 3.3.1 TP-Copying (Recycling)

##### 3.3.1.1 TP-Recycling in SS

The most significant analysis of SS in favor of LF Copying approach has been provided by CLM. Following Heim (1982), Kamp (1984), Wasow (1972) and Williams (1977), CLM assume that indefinite noun phrases and *wh*-phrases are bound by a certain operator, and suggests that SS involves LF-copying of TP (Inflection Phrase (IP) in their term), called “TP-Recycling,” which dispenses with any kind of syntactic *wh*-movement or deletion operations at PF. They further argue that an elided clause involves a structure such as (17a) to begin with, where the C-Head and its complement TP are derived as empty, and in the same way as Williams’ (1977) VP Deletion we saw in Chapter 2, the semantic meaning of the corresponding TP in the antecedent is copied (“recycled” in their analysis) into the null site in the elided TP at LF. This is illustrated in (17b). (See CLM (233-244))

- (17) a. [TP John [VP saw someone]], but I wonder [CP who [C' e [TP e ]]]  
b. [TP John [VP saw someone]], but I wonder [CP who [C' e [TP John saw someone]]]

Let us look more carefully at the mechanism of recycling. According to Heim (1982), Kamp (1984), Kuroda (1965), and Nishigauchi (1986 and 1990), indefinite noun phrases and *wh*-phrases are considered to be indeterminate nominals functioning as a variable, which must be bound by an appropriate operator in the course of derivation (at a discourse level). When the indefinite noun phrase *someone* in the antecedent clause in (17a) has no operator to bind it, an existential operator is inserted to bind the indefinite noun phrase as a variable. Otherwise, the indefinite noun phrase would not be interpreted appropriately and would be ruled out at LF. We can see this in Japanese. In fact, in Japanese, the existential quantifier morpheme *ka* occurs attached with an indefinite noun phrase. Without the

morpheme, the sentence will be unacceptable. See (18).

- (18) a. Taro-ga nani-ka-wo katta.  
Taro-Nom something- $\exists$ -Acc buy-Past  
'Taro bought something.'  
b. \*Taro Nani-wo kata.

Following this line of analysis, CLM claim that the LF structure of the antecedent clause of (17a) is represented as in (19), where the indefinite noun phrase *someone* in the object position taken as a restricted free variable is bound by the existential operator, and an appropriate interpretation is provided due to existential closure. The first conjunct in (17a) is roughly represented as (19).

- (19) a. [TP John [VP saw someone]]  
b. ( $\exists x$ ) [TP John saw person (x) ]

How is the interpretation of the elided clause retrieved under this mechanism? Since the TP following the *wh*-phrase in the second conjunct of (17a) is empty, there is no variable for the base-generated *wh*-phrase to bind. Thus, the antecedent structure of TP is copied into the empty sites as (20b).

- (20) a. [CP who [C' e [TP John [saw someone ]]]]  
b. (which x) [John saw person(x) ]

Due to the recycling/copying operation of the TP in the first conjunct into the empty site in the second conjunct in (20) and a subsequent interpretive operation, called "Merger," which relates the variable in the recycled LF structure to the binder in the elided clause, the indefinite noun phrase is bound by the *wh*-operator and then the correct interpretation comes out without violating the conditions related to movement across islands.

Notice here that an indefinite noun phrase in the antecedent clause functions as a variable,

and the *wh*-phrase in the Spec-CP binds it as a result of copying and Merger. The derivation of SS depends largely on the establishment of this operator-variable relation in the elided clause after recycling. Since no movement is applied in their analysis, no island condition would be violated. Take (13a), for example, repeated as (21a), where the *wh*-phrase is assumed to be base-generated in the embedded Spec-CP. The LF structures of the first and the second conjunct in (21a) will be (21b) and (21c), respectively. After recycling, the second conjunct will be represented as in (21d).

- (21) a. She kissed a man who bit one of my friends, but Tom doesn't realize which one of my friends.
- b.  $\exists x$  [TP She kissed a man who bit (one of my friends(x))]
- c. Tom doesn't realize which one of my friends (x) [CP e [TP e ]]
- d. Tom doesn't realize [which one of my friends (x) [CP e [TP she kissed a man who bit (one of my friends (x))]]]

As seen in (21d), the long-distance binding for the indefinite noun phrase over the relative clause holds, and as a result, the target interpretation is retrieved.

Their analysis seems to be promising in that the insensitivity of the violation of an island condition is explained. If the LF Recycling approach was plausible, however, one may ask how we should account for the examples Ross (1969) and Merchant (2001) pointed out with respect to Case-valuing and preposition stranding? Particularly, it needs to be clarified how their LF Recycling approach can explain the facts about Case-valuing? Recall that Ross's (1969) observation on remnant *wh*-phrases shows a possibility of Case-valuing with an element in a deleted site, not with that in the matrix clause, supporting the PF Deletion approach. The examples in question are (4) and (5), repeated as (22) and (23).

- (22) a. Ralph is going to invite somebody from Kankakee to the party, but they don't know who/whom he is going to invite to the party.
- b. Ralph is going to invite somebody from Kankakee to the party, but they don't know who/whom.

- (23) a. Somebody from Kankakee is going to be invited to the party by Ralph, but they don't know who/\*whom is going to be invited to the party by Ralph.
- b. Somebody from Kankakee is going to be invited to the party by Ralph, but they don't know who/\*whom. (Ross (1969:254))

In order to explain the (un)grammaticality of (22) and (23), it has been assumed that a Case-valuing element should exist in the structure, undergoing the deletion at the later stage. Thus, the examples above make their LF Recycling approach look weak. They suggest that their analysis does not cause any problems with this, because they assume that Case-valuing is induced at LF after the recycling operation. Since the Case feature of the *wh*-phrase is assumed to be valued not in Syntax, but at LF, it is claimed that their analysis still holds for SS.

### 3.3.1.2 Some Problems with LF-Recycling

The analysis by CLM based on TP Recycling at LF seems to be plausible in that the obviation of violation of island conditions can be explained, and by assuming LF Case-marking, the issues on Ross's observation on Case-valuing also appear to be solved. However, if we adapt their analysis to other contexts, we will see that their scenario is not necessarily so attractive. In fact, there are some empirical and theoretical problems observed even under the assumption of LF Case-valuing and the establishment of the operator-variable relation.

First, it is not straightforward or easy to believe that LF Case-valuing actually holds. If Case-valuing was induced at LF, what mechanism would allow a *wh*-phrase located in the CP to receive its value in strict cyclic derivation. In addition, it remains to be explained what motivates A-movement. See (24).

- (24) a. \*Was hit Mary by John.
- b. Mary was hit by John.
- c. John seems to be optimistic.
- d. \*Seems John to be optimistic.

Traditionally, (24a) and (24d) are considered to be ungrammatical because the subject DPs are not Case-assigned in Syntax. That is, A-movement should be induced by the requirement of Case of a DP, which rules out DPs with [-Case] at PF, and all DPs should be in a Case-assigned position when spelled-out. One may claim that the ungrammatical examples in (24) come from the unsaturated EPP feature. However, as assumed in the current framework, if movement to a head with an EPP feature requires AGREE relation between a probe and its goal as a prerequisite, there should be a Case-valuing element in Syntax to derive (24b) and (24c). This means that Case-valuing should not be induced at LF.<sup>3</sup> Therefore, it is more plausible to assume that Case feature should be valued by a certain element in the syntactic component and thus, it is more promising to suppose that constructed structures should exist before deletion, and the PF Deletion approach based on Ross's observation can still be supported.

Second, does the relation between a WH-operator and the copied indefinite noun phrase as a sort of variable really hold? As Merchant (2001) points out and CLM also acknowledge, the LF Recycling approach will have difficulties explaining the ungrammaticality of (25).

(25) \*Who did you see someone yesterday?

If an indefinite noun phrase such as *someone* counts as a variable and an operator is inserted at a point of its derivation to bind it, why is it impossible for the *wh*-operator to bind the indefinite noun phrase in (25), instead of the existential operator? If *someone* is taken as a variable, the structure would be represented as (26), where *someone*, (person(x)), is bound by the *wh*-operator. However, this relation is impossible.

(26) Which x [you saw person (x)]

Third, there is a theoretical problem, which is crucial in the minimalist framework assuming strictly cyclic derivation. If efficient computation and SMT must strictly be obeyed, a derivation should go phase by phase. This means that the LF Recycling that

attempts to copy more than one phasal complex into other categories will require a heavy burden such as “late-merge.”<sup>4</sup> This operation is not an optimal solution to the interfaces. Given the discussion here, we can conclude that the LF Recycling operation does not seem to be adequate enough as a minimalist analysis of SS. Therefore, another account must be explored to explain the phenomena found in SS in a more optimal way.

### **3.3.2 PF Deletion**

Although the LF Copying/Recycling approach appears *prima facie* appealing, we have just seen that there are some empirical and theoretical problems with the approach. In this section, let us examine accounts based on PF Deletion which was first proposed by Ross (1969) and has been developed under the PF Deletion approach since then (Chomsky (1972), Fox and Lasnik (2003), Merchant (2001, 2008)). Before examining the accounts, take a brief look at another example supporting the PF Deletion approach which has not been introduced so far. After introducing the example, we will review and examine the previous analyses by Ross (1969), Chomsky (1972), Fox and Lasnik (2003), Merchant (2001, 2008), and Hartman (2011). Ross and Chomsky attempt to explain SS by violation repair, and Fox and Lasnik address SS in terms of structural identity. Merchant and Hartman analyze SS based on semantic identity and maximal deletion.

#### **3.3.2.1 Some Evidence to Support PF Deletion Approach**

There is strong evidence to support the argument for the PF Deletion approach. We have already observed some facts related to Case-valuing and preposition stranding in the early sections and chapters. We have also seen that the assumption that fully constructed structures are deleted at a certain stage of derivation could explain these facts more naturally.<sup>5</sup> Here, let us see another empirical fact supporting the PF Deletion approach. The fact involves number agreement in the matrix clause.

- (27) a. He’s going to give us some old problems for the test, but which problems  
isn’t clear.
- b. Which problems aren’t clear and easy to do? (Ross (1969: 256))

In (27b) where the subject is a plural DP, the form of the matrix verb shows the relevant agreement in accordance with the plural subject. However, in (27a), where the antecedent clause seems to follow the remnant *wh*-phrase in the second conjunct, the verb form bears singular agreement even though the remnant is a plural *wh*-phrase. Furthermore, similar examples are given below.

- (28) a. The linguists want to solve some problems, but which problems they want to solve is/\*are still unclear.  
b. The linguists want to solve some problems, but which problems is/\*are still unclear.
- (29) a. A lot of people are coming to the conference, but exactly how many people are coming to the conference matters/\*matter to us.  
b. A lot of people are coming to the conference, but exactly how many people matters/\*matter to us.

Given the facts above, it is possible to believe that the unsaid structure has existed and entered into the agreement relation before undergoing deletion. This means that the category of the elided structure dominating the *wh*-phrase is not DP, but CP. The fact related to number agreement makes the PF Deletion approach strong and plausible enough to believe. This enables us to conclude that the approach of “What You See is What You Get (WYSIWG)” proposed by Culicover and Jackendoff (2005) can never explain these facts adequately.<sup>6</sup>

### **3.3.2.2 PF Deletion Approach: Violation Repair by Ross (1969) and Chomsky (1972)**

Now, let us see one of the proposals for the PF Deletion approach. If the PF deletion approach, under which structures once constructed are deleted at the PF, is on the right track, how is the derivation of SS accounted for? First, we will consider the analyses provided by Ross (1969) and Chomsky (1972), which rely largely on repairing a violation of conditions. Ross claims that there is a deletion rule, “Sluicing,” included in the linguistic

theory, which is assumed to follow the application of “Question Formation (*wh*-movement in a current term).” The application of this deletion rule contributes to the improvement of the violation of the island condition. See (13), for example, repeated as (30).

- (30) a. \*She kissed a man who bit one of my friends, but Tom doesn’t realize which one of my friends she kissed a man who bit.  
 b. She kissed a man who bit one of my friends, but Tom doesn’t realize which one of my friends.

In order to account for the fact above, Ross explains descriptively that “[i]f a node is moved out of its island, an ungrammatical sentence will result. If the island-forming node does not appear in the surface structure, violations of lesser severity will (in general) ensue” (Ross (1969: 277)). This means that a *wh*-phrase can move across island boundaries somehow, but its violation is canceled by the subsequent deletion rule at the PF.

Ross’s proposal had a huge impact on analyses of other elided phenomena, and is still widely accepted by linguists interested in the phenomena. Chomsky (1972), building on Ross’s (1969) argument, attempts to formalize the account in terms of violations of constraints on transformations and well-formedness on the LF/PF interfaces. According to Chomsky (1972: 72), every time a *wh*-phrase is moved across an island boundary by *wh*-movement, a sort of feature, “#,” which will eventually make sentences ill-formed, is assigned to a relevant category. The categories assigned this unwanted # feature are still interpretable in a sense, but are judged not to be well-formed by a filter-like rule. However, if the #-assigned categories are erased by applying the deletion rule, Sluicing, in the course of its derivation, the sentence will be eventually remedied. The derivation of (30) is illustrated as in (31).

- (31) a. \*She kissed a man who bit one of my friends, but Tom doesn’t realize  
 [which one of my friends]<sub>i</sub> she kissed [<sub>#NP</sub> a man [<sub>CP</sub> who bit *t<sub>i</sub>*]].  
 b. She kissed a man who bit one of my friends, but Tom doesn’t realize [which  
 one of my friends]<sub>i</sub> she kissed [~~<sub>#NP</sub> a man [<sub>CP</sub> who bit *t<sub>i</sub>*]]~~

As shown in (31), even if the # is assigned to the relevant category by the *wh*-movement violating the island condition, the grammaticality of the sentence will be obtained by the deletion as in (31b).

It is true that Chomsky's proposal is very fascinating in implying that judgement of violation of constraints can be delayed until a later stage of derivation, specifically at a later stage of PF. However, again, there seem to be some empirical and theoretical problems with Chomsky's analysis. First, as Fox and Lasnik (2003) and Merchant (2008) among others point out, even though the problematic # appears to have been deleted, there are some cases which can be judged as ungrammatical. Consider (32).

- (32) a. \*They want to hire someone who speaks a Balkan language, but I don't remember which (Balkan language) they want to hire someone who speaks.
- b. They want to hire someone who speaks a Balkan language, but I don't remember which. (Merchant (2008: 136))
- c. \*They want to hire someone who speaks a Balkan language, but I don't remember which they do. (Merchant (2008: 138))

The (un)grammaticality of the non-elided (32a) and the sluiced (32b) is what we can expect from our discussion so far. However, as in (32c), even though the lowest  $v^*P$  (VP) in the sluiced conjunct is deleted by VP Deletion and the unwanted elements seem to have disappeared, the sentence is still bad. Chomsky's analysis incorrectly expects (32c) to be grammatical because all islands or categories given #s are gone. This means that the accounts by Ross and Chomsky are not satisfactory enough to explain correctly the phenomena of SS in (32).

A second problem is about the identity between the antecedent and the elided clause. Their formulations are not strict enough to guarantee the parallelism between the antecedent and elided sites. As seen in the previous chapters, a certain kind of recoverability condition or identity condition is required in order to license deletion and provide an appropriate interpretation. Under their analyses, it is not clear what kind of identity underlies in SS or how the applicability of deletion and semantic interpretation of the elided site can be

determined.

Another problem is more theoretical than empirical. Chomsky's analysis in which the # feature is assigned in a course of derivation would not be theoretically well-supported. It is not clear enough how the # feature is introduced to the derivation. The introduction of the # feature would violate the Inclusiveness Condition within the current framework. As assumed in this paper, inserting or creating elements that have not been initially present in a derivation should be strictly prohibited. Therefore, theoretically speaking, the # assignment to relevant categories is unacceptable within the current framework. Another theoretical problem associated with this is why this kind of condition-violating movement is possible in the first place. If derivations were strictly cyclic, this kind of movement should never take place. Thus, it should be abandoned as not conforming to optimal solutions.

As an alternative analysis, Fox and Lasnik (2003) attempt to propose another account based on Choice Function by Heim (1982) and Reinhart's (1997) observation. We will see their analysis in the next section.

### **3.3.2.3 PF Deletion Approach: Violation Repair by Fox and Lasnik (2003)**

#### **3.3.2.3.1 Parallelism of LF Structures and Choice Function**

Fox and Lasnik (2003) assume a choice function suggested by Reinhart (1997) and an existential closure proposed by Heim (1982) to ensure that an operator-variable dependency is established for an indefinite noun phrase. They also claim that a kind of parallelism requirement based on the dependency forces a *wh*-phrase to move directly to the CP, which eventually provides a solution to the empirical and theoretical problems pointed out above.

Besides the examples presented by Merchant (2001), Fox and Lasnik show more grammatical differences between SS and VP Deletion. The examples below, altered here from the examples provided by Fox and Lasnik (2003: 147-148), were originally cited by CLM and Merchant (2001).

- (33) a. \*It appears that a certain senator will resign, but which senator [it appears that *t* will resign] is still a secret.

- b. It appears that a certain senator will resign, but which senator is still a secret.
  - c. \*It appears that a certain senator will resign, but which senator it does is still a secret.
- (34) a. \*Sally asked if somebody was going to fail Syntax One, but I can't remember who [Sally asked if *t* was going to fail Syntax One].
- b. Sally asked if somebody was going to fail Syntax One, but I can't remember who.
  - c. \*Sally asked if somebody was going to fail Syntax One, but I can't remember who she did.
- (35) a. \*She said that a biography of one of the Marx brothers is going to be published this year, but I don't remember which [she said that a biography of *t* is going to be published this year].
- b. She said that a biography of one of the Marx brothers is going to be published this year, but I don't remember which.
  - c. \*She said that a biography of one of the Marx brothers is going to be published this year, but I don't remember which she did.

In (32)-(35), the (a) sentences with an illegitimate island are severely ungrammatical unlike the (b) sentences. However, the (c) sentences where VP is deleted is not acceptable, either, even though all problematic violations appear to be deleted. Moreover, even when a sentence does not include any violation of the island condition at all as in (36b), it does not become grammatical.

- (36) a. They said they heard about a Balkan language, but I don't know which Balkan language (they said they heard about).
- b. \*They said they heard about a Balkan language, but I don't know which Balkan language they did.

Given these facts, it is reasonable to reject Chomsky's analysis based on the #. Thus, let us review Fox and Lasnik's proposal as an alternative analysis in this section.

In order to address the problems above, Fox and Lasnik assume, following CML's observation based on Heim (1982), that indefinite noun phrases must be bound by an existential quantifier (existential closure) and a *wh*-phrase in the sluiced clause must bind the trace of the *wh*-phrase left by *wh*-movement in a parallel way: Parallelism. Particularly, as for binding relation, they assume, following Reinhart (1997), that both an indefinite noun and a *wh*-phrase involve a dependency established by quantification over choice function. Given these assumptions, the LF representation of each clause in (37a) will be like (37b), where the pied-piped material *girl* in the *wh*-phrase is interpreted at the tail by deleting it at the head.

- (37) a. Fred said that I talked to *a certain girl*, but I don't know which girl  
~~[Fred said that I talked to *t*].~~ (Fox and Lasnik (2003: 149))
- b.  $\exists f \lambda f'$  [Fred said that I talked to  $f'$ (girl)], but I don't know  
 which ~~g~~  $\lambda g'$  <Fred said that I talked to  $g'$ (girl)>

In (37), an indefinite noun phrase is bound by existential closure in the antecedent clause while the trace of the *wh*-phrase is bound by the original *wh*-phrase in a parallel way. As a result, these identical dependencies eventually satisfy the requirement of the parallelism, and SS is correctly derived.<sup>7</sup> This is consistent with CLM's analysis. In fact, the example below is ruled out due to the mismatch of the parallelism of binding dependencies.

- (38) a. \*Fred said that *a certain girl* talked to John, but I don't know which girl  
~~[Fred said that I talked to *t*].~~
- b.  $\exists f \lambda f'$  [Fred said that  $f'$ (girl) talked to John], but I don't know  
 which ~~g~~  $\lambda g'$  <Fred said that I talked to  $g'$ (girl)>

In (38a), the position of the trace of the *wh*-phrase does not correspond to that of the indefinite noun phrase in the antecedent clause. The former is in the object position while the latter is in the subject position. Since the binding relations in this case are not identical and cannot satisfy the Parallelism, (38a) is ruled out as expected.

Based on this assumption, Fox and Lasnik attempt to explain the problems in discussion. According to them, *wh*-movement must be strictly local and successive-cyclic, and thus a *wh*-phrase has to go through intermediate maximal projections. However, the requirement of Parallelism is so strong as to force a *wh*-phrase in the sluiced clause to move to the operator position in a “one-fell-swoop” fashion. Thanks to deletion, non-successive cyclic *wh*-movement, which otherwise could cause a serious locality problem, becomes possible. This mechanism can explain normal SS in discussion without any complexities. See for example the sentences in (32), repeated as (39).

- (39) a. \*They want to hire someone who speaks a Balkan language, but I don't remember which (Balkan language) they want to hire someone who speaks.
- b. They want to hire someone who speaks a Balkan language, but I don't remember which.
- c. \*They want to hire someone who speaks a Balkan language, but I don't remember which they do.

The representation of (39) is illustrated as below.

- (40)  $\exists f \lambda f'$  [They want to hire someone who speaks  $f$ (Balkan language),  
but I don't remember  
which  $bl$  (Balkan language)  $\lambda bl'$  <they want to hire someone who speaks  
 $bl$  (Balkan language)>].

The existential quantifier binds non-locally the indefinite noun phrase *a Balkan language*. Therefore, the Parallelism requires the one-time-movement of the *wh*-phrase across the island, but its violation is repaired by deletion.

The analysis based on Parallelism and cancellation of violations can explain the problem we have presented in the last part of the previous section. See the problematic case (39c) again. Given the discussion so far, (39c) is represented as (41).

- (41)  $\exists f \lambda f'$  [They want to hire someone who speaks  $f$ (Balkan language), but I don't remember which  $bl$  (Balkan language)  $\lambda bl'$  [<sub>TP</sub> they [<sub>AspP</sub> do ~~want to hire~~ ~~someone who speaks  $bl'$ (Balkan language)~~]].

The Parallelism requires the *wh*-phrase to move directly in a one-time manner to the leftmost position even though the *wh*-phrase is supposed to move in a strictly successive cyclic way. Within a strict cyclic derivation, every maximal projection forms a sort of island. Thus, the two maximal projections, TP and ASPP in this case, should also have been deleted for the sentence to be grammatical. Fox and Lasnik's proposal seems more plausible and more convincing than those by Ross and Chomsky in that (39c) is explained as above.

### 3.3.2.3.2 Problems with Fox and Lasnik's Analysis

Unfortunately, some questions still arise immediately with Fox and Lasnik's analysis. Their proposal seems to be able to overcome the problems with the PF Deletion approach by formulating structural parallelism and identity between the antecedent and elided clauses by the parallel fashion of the existential closure of an indefinite noun and a one-fell-swoop movement of the *wh*-phrase.

However, there are some questions still unanswered. First of all, the problem of the applicability of island-crossing movement still remains unsolved. It is unclear why non-cyclic *wh*-movement is still possible when their parallelism requires it. Their most attractive suggestion is that a *wh*-phrase in the elided clause moves in a one-fell-swoop fashion to obey the parallelism based on the operator-variable dependency identical with the dependency in the antecedent clause. They assume that this movement would never cause any problems because its island violation could be ignored as a result of PF Deletion, and this is considered to be one of the special properties in SS. However, it is not clear what mechanism allows the parallelism to force a *wh*-phrase to move to the CP by a one-time operation. Given a conventional assumption that a *wh*-phrase undergoes strictly successive-cyclic movement in terms of the phase-based theory proposed by Chomsky (2000) and the syntactic component does not have much to do with semantic conditions, it should be clarified how this tricky operation is possible in the syntactic component. They

do not provide any concrete account of this.

Second, Fox and Lasnik do not define well what makes up boundaries. According to them, maximal projections such as a TP and AspP appear to be considered as possible landing sites for a *wh*-phrase to go through. One possibility to support their assumption is to suppose, as Takahashi (1994) claims, that every maximal projection can be a sort of boundaries, but no clear definition is provided. Under the phase-based theory in the current minimalist framework in discussion, a category which Fox and Lasnik take as a possible landing site are not regarded as a head attracting a movement operation, but *v*\*P and CP phases can be ones to induce movement operations when necessary. Therefore, their account for the contrast between SS and VP Deletion will not be convincing enough.

In order to solve the contrast in question, Merchant (2001, 2008) and Hartman (2011) provide alternative analyses, particularly in terms of maximal deletion, which claim that a deletion operation should be applied to as large a constituent as possible. In the following section, I will consider how their analysis explains the problem.

### 3. 3. 2. 4 PF Deletion Approach: Short Source by Merchant (2001) and Maximal Deletion by Merchant (2008) and Hartman (2011)

Merchant (2001) attempts to provide an interesting explanation based on “short source” for the applicability of *wh*-movement in SS. Furthermore, Merchant (2008) and Hartman (2011) also propose intriguing analyses with similar ideas to explain the contrast between SS and VP Deletion in (40). The basic idea of their proposals claims that deletion sites should be as large as possible, as long as the elided clause is semantically identical to its antecedent clause. Here, I will first take a look at Merchant’s (2001) analysis and then turn to Merchant (2008) analysis.<sup>8</sup>

Let us take (39a), repeated as (42), for example.

- (42) They want to hire someone who speaks Balkan language, but I don’t remember which Balkan language [~~TP they [~~VP want to hire [~~DP someone who speaks Balkan language]]].~~~~~~

Following Schwarzschild's (1999) focus condition and e-givenness, Merchant (2001) assumes that a deletable category and its antecedent must have LF structures that are semantically identical to each other. Schwarzschild assumes that for a sentence involving focused elements to be licensed, there must be elements other than focus marked elements in the antecedent clause or preceding context, and they must at least imply the content of the following clause. Based on this, Merchant assumes that an antecedent and its elided clause have to share the same implicature. In order to see how his analysis works, let us first see the definition of e-GIVENness and a condition on TP ellipsis in the case of SS. The former is slightly modified by Merchant (2001).<sup>9</sup>

(43) Focus condition on TP-ellipsis

A TP  $\alpha$  can be deleted only if  $\alpha$  is e-given. (Merchant (2001: 31))

(44) e-GIVENness

An expression E counts as e-GIVEN iff E has a salient antecedent A and, modulo  $\exists$ -type shifting,

(i) A entails F-clo(E), and

(ii) E entails F-clo(A) (Merchant (2001: 31))

(45) F-closure

The F-closure of  $\alpha$ , written F-Clo( $\alpha$ ) is the result of replacing F-marked parts of  $\alpha$  with  $\exists$ -bound variables of the appropriate type (modulo  $\exists$ -type shifting).

(Merchant (2001: 14))

Note that there are no phonetically focus-marked elements inside an elided clause. Besides, as discussed above, indefinite noun phrases and the traces or copies of *wh*-phrases count as a variable that must be bound by a relevant operator (existential closure).<sup>10</sup>

Furthermore, Merchant assumes that an island condition on a relative clause has much to do with an effect at LF, and the Sluicing operation as PF Deletion cannot rule in SS because the deleted island still can be seen at LF. Thus, he suggests that the embedded TP in the sluiced clause of (42) should be reduced and paraphrased into a smaller TP as in (46).

(46) They want to hire someone who speaks Balkan language, but I don't remember which (Balkan language) [TP she speaks *t*].

Since (46) has a “short” TP with no island involved in it, *wh*-movement does not violate any island condition. Assuming (43)-(44), Merchant claims that deletion of TP in the second conjunct will be possible when the TP has a semantically corresponding TP in the preceding clause. The first conjunct in (46) implies that there is a Balkan language *x*, and someone speaks *x* while the second clause means that the person speaks *x*. Given this meaning, the LF structure of (46) can be roughly represented as (47).

(47) F-clo (TP<sub>A</sub>) =  $\exists x$ . [TP someone who speaks *x*]  
 F-clo (TP<sub>E</sub>) =  $\exists x$ . [TP she speaks *x* ]]

Since the structures in (47) are semantically identical to each other, the TP in the second conjunct can be deleted under the conditions in (43)-(45).

However, this analysis is not satisfactory enough. The problem of the *wh*-movement violating island conditions seems to have been solved, but this analysis cannot explain the ungrammaticality of (39c), repeated as (48).

(48) \*They want to hire someone who speaks a Balkan language, but I don't remember which they do.

Since the non-reduced structure is not available in the case of VP Deletion like (48), the ungrammaticality cannot be accounted for.

In addition, Lasnik (2001) points out that it will cause another problem when a bound pronoun is included in a sentence. See (49).

(49) Every linguist<sub>*i*</sub> met a philosopher who criticized some of his<sub>*i*</sub> work, but I am not sure [how much of his<sub>*i*</sub> work] [~~every linguist<sub>*i*</sub> met a philosopher who criticized *t*~~].

If the TP in the elided clause was reduced like (46), the bound pronoun *his* in (49) would not be properly bound.<sup>11</sup> Therefore, the analysis based on short source is not well supported.

We should ask how cases of VP Deletion such as (48) can be explained. Merchant (2008) proposes an inevitable condition, called “MaxElide” below, and claims that the VP projection in SS cannot be a target to delete, because there are more maximal projections dominated by the TP, which must be candidates to undergo deletion.

(50) MaxElide

Let XP be an elided constituent containing an A'-trace. Let YP be a possible target for deletion. YP must not properly contain XP ( $XP \not\subseteq YP$ )

(Merchant (2008: 141))

Suppose that a *wh*-phrase can move, crossing island nodes as Chomsky (1972) assumes.

(51) which Balkan language x [TP they [do [VP want to hire someone who speaks x ]]]

Then, suppose also that the antecedent and elided clause have the identical LF representation, and a certain kind of parallelism is semantically satisfied. The MaxElide (50) requires that the largest category TP dominating the VP be an only possible target for deletion because the other categories are considered to be smaller than the TP. Therefore, the option of deleting the VP is not admitted. This analysis explains the ungrammaticality of VP Deletion in the SS context like (48).

Merchant's proposals are interesting in that they can explain some of the existing problems: in particular, the satisfaction of parallelism, the locality condition of *wh*-movement, and the ban on a subject and an auxiliary being left as remnants in the sluiced clause. However, there are theoretical and empirical problems raised in his analysis, too, some of which we have already seen. Considering the SMT assumed in this paper, what does MaxElide come from? It is not clarified what principle in the interfaces requires a maximal projection to be deleted? It may be argued that eliding maximal projections

reduces load of pronouncing in utterance, but no explanation on this question is presented. Besides, it is just a descriptive assumption that MaxElide only cares of an A'-trace, but not a A-trace.<sup>12</sup> No specific or principled reasons are provided at all. Therefore, the previous explanations I have just examined above are not satisfactory enough.

### 3.4 A Non-movement Analysis of Sluicing

#### 3.4.1 Proposals: Overview

To sum up the points discussed so far, it is reasonable to put my attention about SS mainly on two points. One is about the reasons for the obviation of island conditions of *wh*-movement in SS. That is, my question is why, in the first place, a *wh*-phrase can move across islands, violating island conditions in so doing, and take wide scope over a matrix clause. It is worthwhile to ask whether a *wh*-phrase in SS is literally moved across islands, namely, phase boundaries assumed in the current minimalist framework. There might be a possibility that a *wh*-phrase would not move except some cases while it can be interpreted by some device. Eventually, I will claim that violation of island conditions in SS is only apparent, but the appropriate interpretation becomes available by extending Baker's (1970) idea of Q-morpheme and the adjacent relation between the Q-morpheme and a *wh*-phrase obtained by deletion.

The other is an identity between the antecedent site and the elided site, namely parallelism. As the examples below indicate, it is obvious that there is a certain condition to license deletion of an embedded TP.

- (52) a. He likes a certain girl, but I don't know who (he likes *t*).  
b. \*He likes the girl, but I don't know who (he likes *t*).  
c. He likes ABBY, but I don't know who else (he likes *t*).  
d. \*He likes Abby, but I don't know who else (he likes *t*).
- (53) a. A certain girl loves him, but I don't know who (*t* loves him).  
b. \*?The certain girl loves him, but I don't know who (*t* loves him).  
c. ABBY loves him, but I don't know who else (*t* loves him).  
d. \*?Abby loves him, but I don't know who else (*t* loves him).

- (54) a. John saw Mary, and Bill did [<sub>VP</sub> see Mary].  
 b. \*John saw Mary, and Bill did [<sub>VP</sub> see Jane].

Like other elliptical constructions such as VP Deletion, SS would not be permitted either, unless an element in the antecedent clause corresponding to a remnant *wh*-phrase in the elided clause was an indefinite noun phrase or a focused DP. Evidently, there should be a certain formalized semantic or syntactic condition that would have to license SS. Unlike other ellipsis constructions, strict identity is not easy to apply to SS. Thus, I claim that only when intended semantics of an elided clause is presupposed or implied in the antecedent clause, deletion can be applied to the relevant structure. More specifically, when the dependencies between an operator and its variable in both the antecedent and the elided clause are identical to each other at LF: LF structural Parallelism, deletion is possible to apply. Besides, when deletion is applied, its elliptical effect should be applied maximally to the parts implied or presupposed (marked [Presupposed]) by semantics of their corresponding antecedent parts. In other words, deletion is applied to the presupposed sites except focus marked elements. Below is the brief overview of the proposals I would like to propose.

- (55) 1. In SS, a *wh*-phrase does not undergo *wh*-movement to a Spec-CP, but except some cases, it is bound in situ by Baker's abstract question morpheme (Q-morpheme) located on a C-Head.
2. The Q-morpheme has to be phonologically adjacent with a *wh*-phrase in languages with *wh*-movement such as English, but it does not have to in languages without the movement such as Japanese. (Adjacency requirement)<sup>13</sup>
3. LF Structural Parallelism: Phonological deletion is licensed only if the LF structure of a category that contains elided material is structurally isomorphic to that of the antecedent.
4. Maximal Effect of Deletion  
 Delete elements marked as [Presupposed] except focus-marked [F] elements.

Before analyzing SS under (55), I will show where these assumptions come from.

### 3.4.2 Abstract Question Morpheme (Q-morpheme) and Elements in situ

First, I would like to explore one possible alternative formation of *wh*-movement which I will depend on in this paper. My assumption on *wh*-movement is built largely on the Q-morpheme proposed by Baker (1970). I would like to extend his analysis and assume that the Q-morpheme is located on a C-Head as a sort of an operator to bind *wh*-phrases, and also requires a *wh*-phrase to be phonologically adjacent to the morpheme in certain contexts. This could explain the language variations of overt/covert properties of *wh*-movement. Under the minimalist framework, it has been assumed that in languages such as English, a *wh*-phrase is overtly moved to Spec-CP by the Edge feature on C-Head, while this does not happen in languages such as Japanese and Chinese due to the non-existence of the Edge feature in those languages. Instead, extending Baker's Q-morpheme observation into the current minimalist framework, I would like to assume that the Q-morpheme has, in nature, properties of an operator binding a *wh*-phrase in situ, and the English-type Q-morpheme requires (at least) one *wh*-phrase to be phonologically adjacent to the morpheme while the Japanese/Chinese type Q-morpheme does not. This leads to enabling us to claim that a *wh*-phrase in English SS stays in situ, receiving an appropriate interpretation when deletion under Parallelism and Maximal Effect of Deletion makes it possible for the morpheme to reach the variable in a remote position, satisfying the adjacency requirement. In this section, I would like to see Baker's observations and discuss how we can adapt his analysis to our assumption.

As a matter of fact, a *wh*-phrase in English must move to a Spec-CP in a single interrogative question, regardless of direct or indirect questions, and a lot of facts have been observed indicating that at least one *wh*-phrase moves to the position in the context. An instance of so-called "echo" questions in (56) shows a *wh*-phrase could originate in a position different from where it is actually pronounced in a normal *wh*-question. Compare (56) and (57).

- (56) A: I finally bought a BMW!  
 B: You bought what?  
 A: I said, I finally bought a Z4, BMW!
- (57) A: What car did you buy *t*?  
 B: I bought a Z4, BMW.

As seen above, in English normal *wh*-questions, a *wh*-phrase corresponding to its answer is moved to the Spec-CP. As introduced in Chapter 2, it has been assumed within the minimalist program that this movement is induced by the Edge feature on the C-Head under AGREE in the Q-feature, which is roughly illustrated as in (58).

- (58) [<sub>CP</sub> what [<sub>C</sub><sub>Edge</sub>] [<sub>TP</sub> you T [<sub>vP</sub> *t* [<sub>V</sub> [<sub>vP</sub> bought *t* ]]]]]?

Under this system, a *wh*-phrase in English must be overtly moved due to the property of the strong EDGE feature on C-Head while a Japanese *wh*-phrase is not moved because the feature is weak or not present on the head. The difference in the strength of the Edge feature is, thus, attributed to the variation of *wh*-movement while the unvalued Q-feature, if any, is valued in either case.

However, there appears to be more to the story. More accounts need to be presented to deal with other facts. For example, natural languages allow multiple *wh*-phrases to occur in a single sentence regardless of a direct interrogative or an indirect interrogative. Below is an instance of multiple *wh*-questions, which allows a pair list reading as its answer.

- (59) A: Who brought what for our White Elephant yesterday?  
 B: Dice brought a calendar, Jackie (brought) gloves, and Adam (brought) a funny pen.

The fact that (B) is a possible answer to (A) in (59) indicates that the second *wh*-phrase can be interpreted in accordance with the first *wh*-phrase even though it stays in situ.

There are more complex cases, in which the lowest *wh*-phrase in the embedded clause

serves as a question element asking for an answer even when an island intervenes between the matrix clause and the embedded clause.

(60) Who remembers where we bought which book? (Baker (1970: 215))

In fact, (60) is ambiguous in two ways. One is the case in which the sentence is concerned with the first *wh*-phrase with the other *wh*-phrases related to the embedded clause. Thus, its answer will be like (61).

(61) John and Martha remember where we bought which book. (Baker (1970: 215))

The other interpretation is worth discussing because the third *wh*-phrase can be related and interpreted together with the first upmost one even when it is deeply embedded below the second *wh*-phrase. Indeed, (62) is another possible answer to (60).

(62) John remembers where we bought the physics book and Martha and Ted  
remember where we bought *The Wizard of Oz*. (Baker (1970: 215))

These facts have long challenged linguists to clarify what mechanism makes this answer possible; indeed, several papers seeking to clarify this query have been published by Higginbotham and May (1981), Lasnik and Saito (1992) among them. Higginbotham and May propose *wh*-absorption to account for the phenomena. According to them, a *wh*-phrase in a lower position is absorbed into the *wh*-phrase in the initial position, consequently taking wide scope together with the first *wh*-phrase. Since their analysis does not rely on movement, the problem of island-insensitivity seems to be solved. Lasnik and Saito (1992) attempt to explain this by assuming that LF movement of a *wh*-phrase is insensitive to island conditions or the subjacency condition. Even if we apply this notion to the current framework, their account is still required to answer why LF-movement of a relevant *wh*-phrase is possible across island-boundaries, namely phase-boundaries in the framework assuming successive cyclicity based on phases.

Alternatively, Baker (1970) suggests, building on the arguments of Katz and Postal (1964) and Greenberg (1966), that an abstract question morpheme (Q-morpheme), a sort of question operator, binds *wh*-phrases “unselectively” in Heim’s (1982) words, providing one possible solution to the problem. Since Kuroda (1965), it has been traditionally assumed that indefinite noun phrases, noun phrases with an existential quantifier, and *wh*-phrases are considered to be “indeterminate” and function as a “restricted free variable.” Thus, they must all be bound by their appropriate operator (Heim (1982), CML among others). Evidence to support this idea is not clearly seen in English, but we can clearly see some instances in other languages such as Japanese. See (63), for example, as an instance of *wh*-phrases in Japanese.

- (63) a. Anata-wa Nani-o kaimashita ka  
 You-Nom what<sub>i</sub>-Acc bought Q<sub>i</sub>  
 ‘What did you buy?’
- b. \*Anata-wa Nani-o kaimashita.  
 You-Nom what-Acc bought

In Japanese without overt *wh*-movement, instead of moving *wh*-phrases, the Q-morpheme *ka* is supposed to bind its associate *wh*-phrase *nani* in situ, serving as a sort of *wh*-operator. In fact, the *wh*-phrase without the morpheme will be unacceptable as shown in (63b).

Interestingly, the morpheme *ka* is able to bind two *wh*-phrases in Japanese unselectively even if the second *wh*-phrase is inside an island. Observe an instance of Japanese multiple *wh*-questions and its possible answer in (64).

- (64) a. Kinou Dare-ga Nani-o kaimashita ka  
 yesterday who<sub>i</sub>-Nom what<sub>j</sub>-Acc bought Q<sub>(i,j)</sub>  
 ‘Who bought what yesterday?’
- b. Mina-wa Hon-o, Taro-wa CD-o, Jiro-wa chizu-wo kaimashita.  
 Mina-Nom book-Acc, Taro-Nom CD-Acc, Jiro-Nom map-Acc bought  
 ‘Mina bought a book, Taro a CD and Jiro a map.’

In (64a), the Q-morpheme *ka* in the sentence final position functions like a *wh*-operator and binds both *dare* and *nani* unselectively at the same time. As a result, the pair-list answer in (64b) is possible.

Furthermore, the examples below show that while the Japanese morpheme *ka* binds a *wh*-phrase locally within a clause, it can also bind a *wh*-phrase across islands.

- (65) a. Taro-wa Hanako-ga Dare<sub>i</sub>-o hinanshita ka<sub>i</sub> shitteimasu  
 Taro-Nom Hanako-Nom who-Acc criticized Q know  
 ‘Taro knows who Hanako criticized’
- b. A: [[Taro-wa Hanako-ga dare<sub>i</sub>-o hinanshita ka<sub>i</sub> shitteimasu]<sub>j</sub> ka<sub>j</sub>]  
 Taro-Nom Hanako-Nom who-Acc criticized Q know Q  
 ‘Does Taro know who Hanako criticized?’
- B: Hai, (kare-wa) shitteimasu.  
 Yes, (he-Nom) know  
 ‘Yes, he does.’
- (66) A: [[Dare<sub>i</sub>-ga [[Taro-ga Nani<sub>j</sub>-o doko<sub>k</sub>-de katta] ka<sub>k</sub>]  
 Who-Nom Taro-Nom what-Acc where-at bought Q  
 oboetemasu ka<sub>(i,j)</sub>]  
 remember Q  
 ‘Who remembers where Taro bought what?’
- B: Hanako-ga, [[kare-ga kono-hon-o doko-de katta] ka<sub>k</sub>]]oboete  
 Hanako-Nom he-Nom this-book-Acc where<sub>k</sub>-at bought Q remember  
 ori, Jiro-ga [[kare-ga ano-hon-o doko<sub>k</sub>-de katta ka<sub>k</sub>]]oboeteiru  
 and Jiro-Nom he-Nom that-book-Acc where-at bought Q remember  
 ‘Hanako remembers where he bought this book and Jiro remembers he  
 bought that book.’ (adapted from Nishigauchi (1999))

Given that the answer to A in (65b) is possible as B, the inner Q *ka* binds the *wh*-phrase *dare* locally within the clause in (65b), while the outer *ka* marks as a Yes-No question the whole sentence without any *wh*-phrase in the matrix clause. Just like the English example of the

multiple *wh*-question above, the fact that the pair-list answer is possible as (66B) suggests that the outer *ka* in (66A) can bind the *wh*-phrase *dare* in the matrix subject and the *wh*-phrase *nani* in the embedded object unselectively. In this case, the second binding relation is established across the *wh*-island boundary. This indicates that a *wh*-phrase in situ has, in nature, an ability to take a wide scope over a whole clause (see Huang (1982), Lasnik and Saito (1992)). In other words, a *wh*-phrase in situ can be bound by an operator even across an island boundary. Therefore, following Baker (1970), I assume that a sort of operator called Q-morpheme binds its variable even if it is in a remote position.

Extending Baker's analysis to the current framework and modifying the theory of the Edge feature-based movement, I assume that the Q-morpheme, which is located on a C-position, requires at least one *wh*-phrase to be phonologically adjacent to it in languages involving *wh*-movement, while it does not in languages without *wh*-movement. Under this assumption, a *wh*-phrase moves in Syntax to observe the PF output condition. Thus, the language variation with respect to *wh*-movement is now attributed to the phonological requirement of the Q-morpheme at PF. If so, this is roughly schematized as in (67).

(67) English-type languages

- a. [CP WH<sub>i</sub> [[C-Q<sub>i</sub>] [... [... WH<sub>i</sub> ...]]]] (Single *wh*-question)
  - b. [CP WH<sub>i</sub> [[C-Q<sub>(i,j)</sub>] [... [... WH<sub>i</sub> [...WH<sub>j</sub> ]]]]] (Multiple *wh*-question)
- (The italicized WH stands for the copy of a moved *wh*-phrase. A *wh*-phrase must move to a position which is phonologically adjacent to the Q-morpheme.)

(68) Japanese-type languages

- a. [CP [C-Q<sub>i</sub>] [... [... WH<sub>i</sub> ...]]] (Single *wh*-question)
- b. [CP [C-Q<sub>(i,j)</sub>] [... [... WH<sub>i</sub> [...WH<sub>j</sub> ]]]] (Multiple *wh*-question)

Under the mechanism assumed here, a normal *wh*-question such as (69a) is illustrated as (69b).

- (69) a. What did you buy yesterday?
- b. [What<sub>i</sub> [[C-Q<sub>i</sub>(did)] [you buy *what*<sub>i</sub> yesterday]]]

In (69b), the moved *wh*-phrase *what* is phonologically adjacent to the Q-morpheme, which binds the copy of *what*.

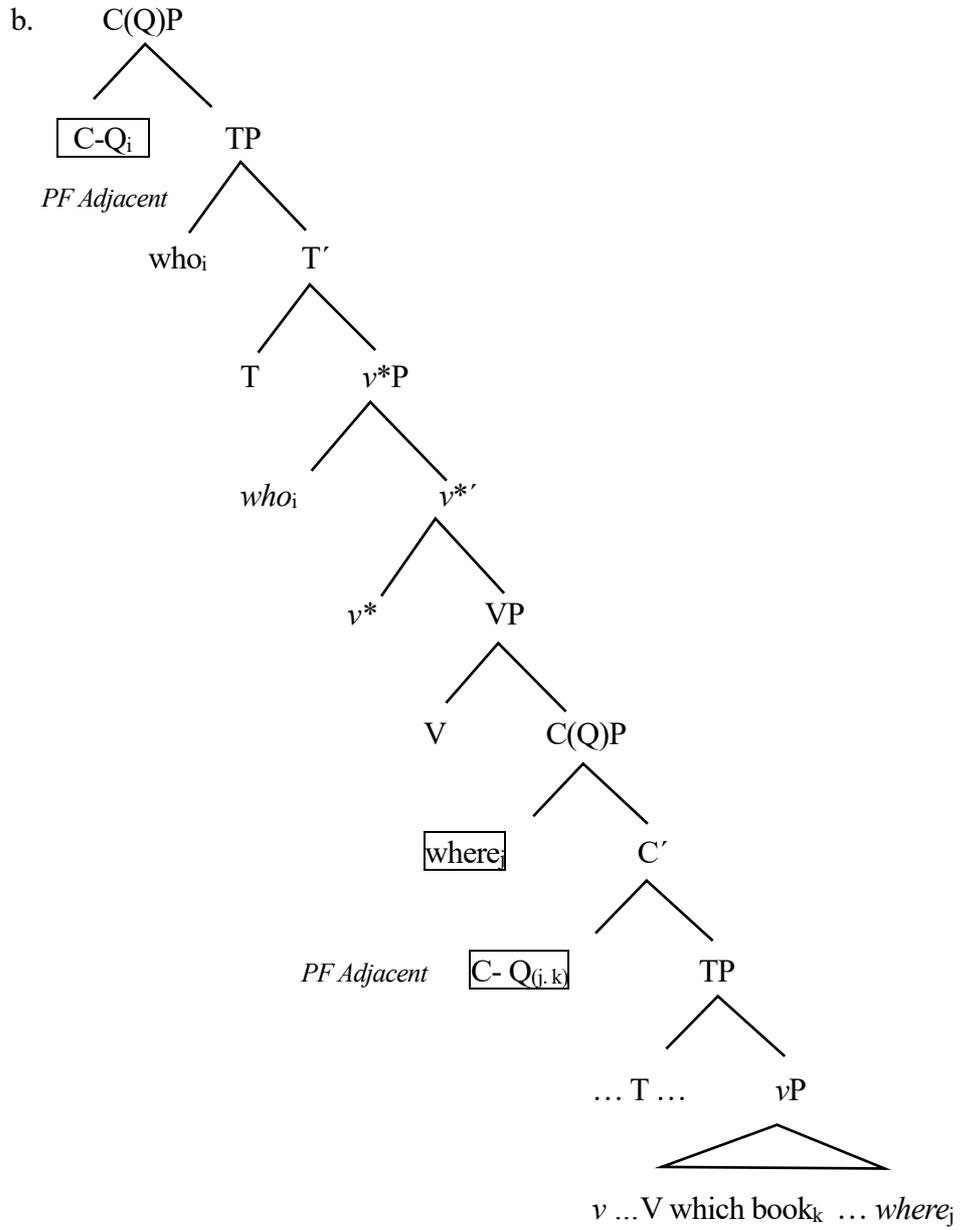
We need an additional assumption for a subject *wh*-phrase. Suppose that a T-Head has an EPP feature that attracts a subject to its Specifier position, and the EPP feature moves a subject *wh*-phrase to the Spec-TP, too. As Agbayani (2006) and Chomsky (2015b) imply, let us assume that a subject *wh*-phrase stops at a TP position because it can become phonologically adjacent to the Q-morpheme on the C-Head. If so, the position of a subject *wh*-phrase is illustrated as (70).

(70) [CP [C-Q<sub>i</sub>] [TP WH(subject)<sub>i</sub> T [<sub>v</sub>\*P WH(subject)<sub>i</sub> ...]]]

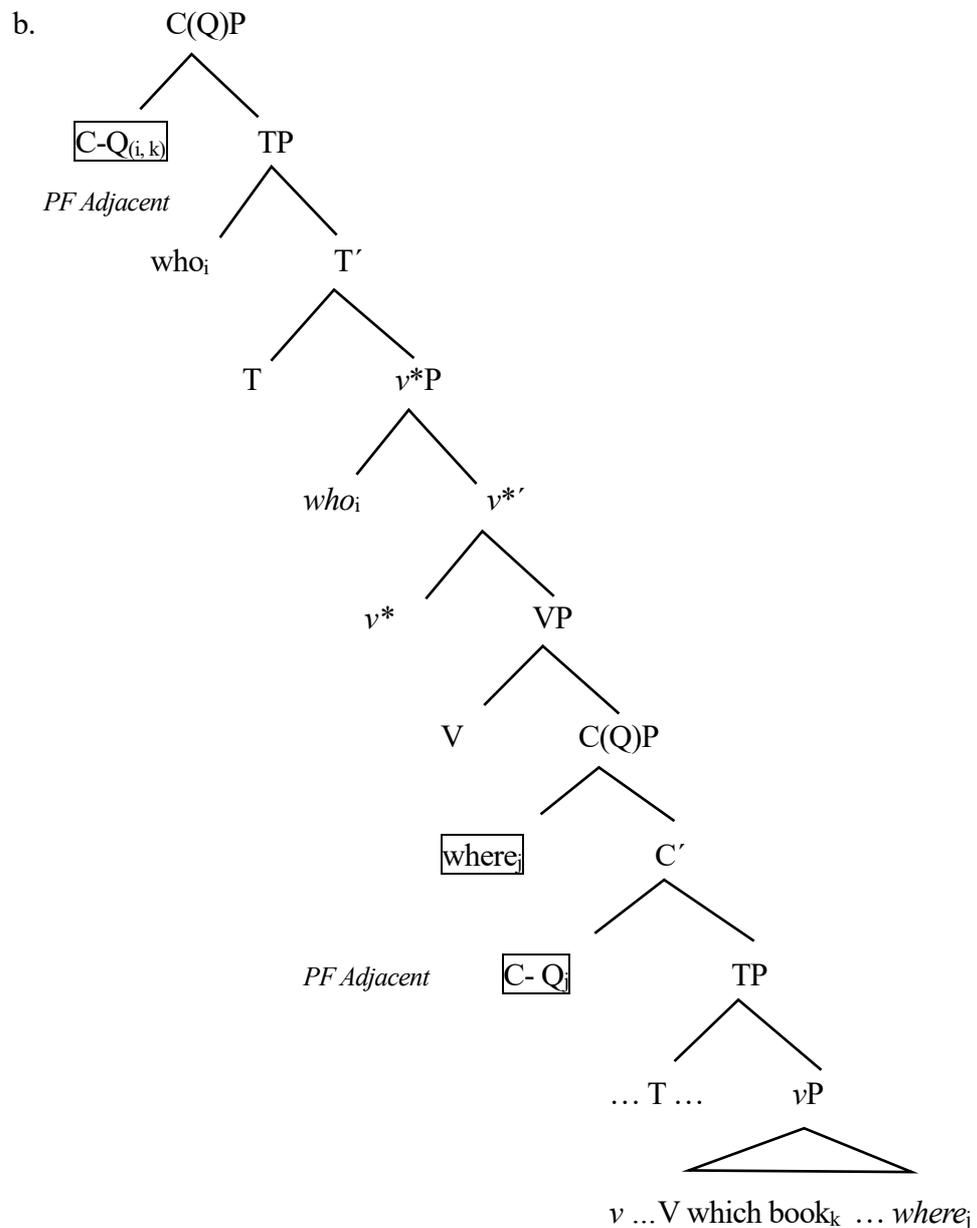
Note that the subject *wh*-phrase can be located in the Spec-TP, satisfying its EPP feature because there is no phonological element intervening between the Q-morpheme and the Spec-TP. As Agbayani (2006) suggests, there would be no outstanding output even if a subject *wh*-phrase moved to the Spec-CP. Therefore, I assume that (67)-(69) are adequate structures for *wh*-movement.

Under this system, the possible answers to (60), repeated as (71a) and (72a), come from the structures illustrated in (71b) and (72b), respectively.

(71) a. John and Martha remember where we bought which book. = (61)



- (72) a. John remembers where we bought the physics book and Martha and Ted remember where we bought *The Wizard of Oz*.



In (71), the subject *wh*-phrase in the matrix clause moves to the matrix Spec-TP to satisfy the EPP feature and as a result, it results in satisfying the PF adjacency requirement of the English-type Q-morpheme. The Q-morpheme in the embedded clause attracts *where* and the adjacency requirement is satisfied by *where* at the embedded Spec-CP. It binds unselectively the copies of the moved *wh*-phrase and the in-situ *wh*-phrase. As a result, this makes the answer in (71b) possible. On the other hand, in (72), after *who* has moved

to the matrix Spec-TP, the Q morpheme binds unselectively both the copies of *who* and *what* inside the *wh*-island.

Apparently, if CP and  $v^*P$  count as a phase, there are several phases between the Q-morpheme on C and its variable. It may be questioned, therefore, why the operator can bind its variable across phase boundaries like the structures given above. Under the Phase Impenetrability Condition (PIC) below, which prevents a syntactic object from moving directly from inside a phase except its edge, it appears to be difficult to relate the operator to a variable inside a phase.

(73) Phase Impenetrability Condition

[ $Z_P$  Z ... [ $HP$   $\alpha$  [ $H$  YP]]]

The domain (YP) of H is not accessible to operation outside HP; only H

and its edge  $\alpha$  are accessible to such operations.

(Chomsky (2001: 13))

(HP and ZP are phases ( $vP$  or CP))

However, Chomsky (2001, 2005) and Chomsky et. al. (2018) suggest that an element in the complement of the phase head is still accessible from outside the relevant phase unless the element undergoes movement or some modifications. Rather, it seems to be possible that the PIC admits a Probe-Goal relation across phase boundaries if the probe benefits from the relation. That is, as long as the properties of a Probe are affected within certain syntactic relations, inter-phase relations are still permitted. In fact, Chomsky et. al. (2017: 10) imply that those relations are the unbounded properties of operator-variable, reconstruction effects, global interpretations of Condition C of the Binding Theory, quirky-subject configurations and so on. For example, in an Icelandic counterpart to (74) of English, the T-Head can agree with the object in the complement of the phase head, although movement of the object is not permitted (Chomsky (2001: 30)).

(74) a. [Many students] [find] [the computers] not ugly.

Dative Plural Plural-Nom

b. [DAT T [ $v^*P$   $v^*$  [NOM...]]]

Therefore, following their assumption, it is possible to assume that the Q-morpheme serving as an operator can bind an element inside a remote phase.

Note that I am assuming that the phonological requirement of the Q-morpheme is an instance of PF conditions, and thus *wh*-movement is induced in Syntax. Therefore, *wh*-movement as in (75) is blocked by the PIC, because the *wh*-phrase cannot be moved across the phases.

- (75) a. \*Which Balkan language<sub>i</sub> do you want to hire someone who speaks *t<sub>i</sub>*?  
b. \*Which Balkan language<sub>i</sub> do you believe the rumor that she can speak *t<sub>i</sub>*?

Given the discussion here, we can suppose that the Q-morpheme can function as a kind of operator which binds a variable (a *wh*-phrase) or a copy in a remote phase as long as the phonological requirement is obeyed in English-type languages.

- (76) i. The Q-morpheme can bind a *wh*-phrase across phases.  
ii. The Q-morpheme requires a *wh*-phrase to be phonologically adjacent to it in English-type languages although overt *wh*-movement is sensitive to the PIC.

Based on these assumptions, I argue that English SS including an island can be derived because a *wh*-phrase in SS can be bound by the Q-morpheme without *wh*-movement except a case of a subject *wh*-phrase moved to a Spec-TP to delete its EPP feature and a deletion operation eventually makes the *wh*-phrase phonologically adjacent to the morpheme.

Huang (1982) and Lasnik and Saito (1992) argue that only overt *wh*-movement is subject to the Subjacency condition, showing extensive examples of *wh*-phrases in situ taking scope over a matrix clause embedding islands inside. We will see some examples of the facts in the next section.

### 3. 4. 3 Wide Scope of *Wh*-Phrases in situ and Indefinite Noun Phrases: Island Insensitivity

As we have just seen, in both English and Japanese, a *wh*-phrase staying in situ has the

property of being insensitive to a *wh*-island condition, which would indicate a possibility that a *wh*-phrase in a context of SS does not have to be moved except some cases. In order to see that this can be the case, I will present more examples involving islands in both languages. As for Japanese examples, regardless of whether a *wh*-phrase is located within an island, it can be an element to be answered in *wh*-interrogatives. On the other hand, in English, since only one *wh*-phrase is allowed to be moved overtly to a relevant position, it is necessary to examine how a second *wh*-phrase can be interpreted together with the first *wh*-phrase in the matrix clause.

### 3.4.3.1 *Wh*-phrases

First, let us see some examples of English multiple questions with an island. Huang (1982) and Lasnik and Saito (1992) argue that the second *wh*-phrase undergoes LF movement, which is not subject to Subjacency nor a condition on Extraction Domain (Huang (1982)). Examining the facts below would allow us to suppose that a *wh*-phrase in SS could stay in situ. Consider the interpretability of a *wh*-phrase in a complex noun phrase (relative clause) and an adjunct clause in (77) and (78), respectively.

(77) a. A: Who read the book that criticized who?

B: John read the book that criticized Chomsky, Bill read the book that criticized Hornstein, and Tom read the book that criticized Lasnik.

(Okuno and Ogawa (2002: 134))

b. Who read a book that who wrote? (Reinhart (2006: 66))

(78) a. Who went to class after he read which book?

(Lasnik and Saito (1992: 12))

b. Who fainted when you attacked whom? (Reinhart (2006: 65))

(79) Who remembers where we bought what?

It is claimed that in the examples above, the second *wh*-phrase, which is not overtly movable out of the island, can be interpreted in accordance with the *wh*-phrase in the matrix clause. Along with the account for the interpretability of the multiple *wh*-question with a *wh*-island

in (60), reproduced above as in (79), it can be claimed that the possibility of the pair-list reading of the multiple *wh*-questions in (77) and (78) comes from the binding relation between the Q-morpheme and the *wh*-phrase, instead of the LF movement, for the reasons discussed above.

Next, let us see Japanese examples of a *wh*-phrase in situ taking wide scope over the matrix clause. Just like the English examples, in addition to the Japanese instances including a *wh*-island given above, the same interpretability can be found in other contexts involving other types of islands. (cf. Huang (1982) and Lasnik and Saito (1992))

(80) Complex Nominal Phrase

- a. [Anata-wa [[Taro-ga dare-o hinanshita toiu]uwasa-o] Shinnjiteru] no.  
 You-Nom Taro-Nom who-Acc criticized that rumor-Acc believe Q  
 Lit. ‘Who do you believe the rumor that Taro criticized *t*?’
- b. [Anata-wa [dare-o hinanshita otoko]-ni atta] no.  
 You-Nom who-Acc criticized man-Acc met Q  
 Lit. ‘Who did you meet the man who criticized *t*?’

(81) Adjunct Phrase

- a. [Anata-wa [Taro-ga dare-o hinanshita kara] okotteiru] no.  
 You-Nom Taro-Nom who-Acc criticized because is-angry Q  
 Lit. ‘Who are you angry because Taro criticized *t*?’
- b. [Anata-wa [kare-ga dare-o tataita atoni] kita] no.  
 You-Nom he-Nom who-Acc hit after came Q  
 Lit. ‘Who did you come after he hit?’

(82) Chomsky desu.

Chomsky be  
 ‘It’s Chomsky.’

Note that “no” in (80) and (81) is the same as “ka,” serving as the Q-morpheme. As for each *wh*-question above, such an answer as (82) is possible. These examples show that although overtly moved *wh*-phrases are strictly restricted within islands, *wh*-phrases in situ

are insensitive to islands in both English and Japanese. If covert (LF) movement of *wh*-phrases is dispensed with in favor of the probe-goal system and derivation by phases, it can be argued that the binding of the Q-morpheme assumed here would be a plausible way of explaining these facts.

### 3.4.3.2 Specificity of Indefinite Noun Phrases

What about the properties of an antecedent clause in SS? CLM point out that there must be an indefinite noun phrase or a focused element in a position in the antecedent clause that corresponds to the original position of a *wh*-phrase in the elided clause. Furthermore, an indefinite noun phrase in the antecedent clause of the SS context tends to have a specific reading, which CLM call a “roofing effect.” According to CLM, SS is only possible when a noun phrase with an existential quantifier takes a wide scope over the first clause. In (83a), for example, the object noun phrase *a linguist* takes scope over the subject noun phrase *everyone* although the scope would be ambiguous without the following conjunct with the sluiced TP.

- (83) a. Every student criticized a linguist, but it's unclear who.  
b. She always reads a book at dinnertime. We can't figure out what/which one.  
c. Everyone relies on someone. It's unclear who.  
d. Both dogs were barking at something, but she didn't know at what/what at.  
e. Each student wrote a paper on a Mayan language, but I don't remember which one. ((b)-(e) from CLM (255))

In fact, some of my informants who agree with the scope ambiguity of an indefinite noun phrase admit that the roofing effect, under which an indefinite noun takes scope over the matrix clause, can be seen in the example like below.

- (84) A: Everybody knows that John criticized a certain linguist, but I don't know who.  
B1: Oh, you don't? He criticized Noam Chomsky.

B2: Bill knows that he criticized Noam Chomsky, and Mary knows that he criticized Howard Lasnik.

They admit that in the context above, B1 is preferred to B2. This suggests that an indefinite noun phrase in the antecedent clause of SS takes wide scope over the matrix clause, meaning that a specific thing exists.

It is, therefore, worthwhile to see whether, like *wh*-phrases in situ, an indefinite noun phrase is not sensitive to island conditions, making possible a wide scope interpretation over a matrix clause. Unlike noun phrases with a strong quantifier such as *every*, *all*, *most*, and so on, there are some examples in which an indefinite noun phrase can take scope over the whole clause including an island. See the examples below:

- (85) a. Everyone reported that Max and *some lady* had disappeared.  
b. Most guests will be offended if we don't invite *some philosopher*.  
c. All students believe anything that *many teachers* say.  
d. Each teacher overheard the rumor that *a student of mine* had been called before dean. (a-c: Reinhart (2006: 51) d: Fodor and Sag (1982: 374))
- (86) If we invite *some philosopher*, Max will be offended. (Reinhart (2006: 73))

According to Reinhart (2006), the indefinite noun phrase (the italicized noun phrase with an existential quantifier) in (85) can take a wide scope over the subject in terms of relative scope. In (86), in particular, the wide scope interpretation of the indefinite is possible in that there is some philosopher such that if we invite that philosopher, Max will be offended. In order to capture this interpretation without covert movement such as quantifier raising (QR), she introduces an existential operator inserted into above a whole sentence with the assumption that indefinites are also restricted free variables like *wh*-phrases, thus bound by the existential operator. Under this assumption, the indefinite noun phrase *some philosopher* is bound as represented in (87a), and as a result, (86) is interpreted as (87b).

- (87) a.  $\exists_i$  [if we invite [some philosopher]<sub>i</sub>, Max will be offended]

- b.  $\exists(x) ((\text{philosopher}(x) \ \& \ \text{we invite } x) \rightarrow (\text{Max will be offended}))$

The insertion of this device makes it possible to capture the island insensitivity of indefinites without assuming a traditional analysis based on QR, and provides a wide scope interpretation of an indefinite in situ just in a way similar to the Q-morpheme binding a *wh*-phrase.

Note that in Japanese, indefinite noun phrases occur with a kind of morpheme in some contexts. See (88).

- (88) a. Hanako-wa    Nani-ka-o                            kaimashita.  
           Hanako-Nom   something (what)-Prt-Acc   bought  
           ‘Hanako bought something.’  
       b. \*Hanako-wa    Nani-o            kaimashita.

In (88a), the morpheme *ka*, which seems to happen to be the same as the Japanese question morpheme, is attached to *nani*, functioning as a morphologically realized existential operator.

Given that neither *wh*-phrases nor indefinite noun phrases can occur alone, it is reasonable to assume that they must be bound by its appropriate operator at a certain point of derivation. That is, indefinite noun phrases must be bound by their relevant operators like English *wh*-phrases. Thus, if I adapt (87a) along with the analysis of the Q-morpheme, I can suppose that a sentence involving an indefinite noun phrase will be represented as (89a), where the existential quantifier is inserted into a C-Head just like the Q-morpheme.

- (89) a.  $[_{CP} [_{\exists_i-C}] [ \dots [ \dots [_{\text{Indefinite Noun Phrase}}]_i \dots ]]]$   
       b.  $[_{CP} [_{\exists_i-C}] [[_{CP(\text{adjunct})} \text{if we invite } [_{\text{some philosopher}}]_i] [_{\text{Max will be}} \text{offended}]]]]$

Under this assumption, (86) is now represented as (89b).

In the next section, we will consider under what condition SS is permitted under these assumptions.

### 3.4.4 Identity and Parallelism

In general, it is believed that elided sites in an elliptical construction must be recovered in a course of derivation for interpretation. In order to retrieve elided parts, one possibility is that they must be strictly identical to their antecedent ones. Thus, the identity determines recoverability, which licenses the applicability of deletion. This seems to be correct in some cases, but it is still controversial what the identity should be like. On one hand, it is claimed that elided sites must be syntactically identical (Chomsky (1955, 1965), Fiengo and May (1995), Fox (2000), Fox and Lasnik (2003), Williams (1977) among others). On the other hand, it is suggested that elided sites must be semantically identical, hence retrievable (Fox (2000), Merchant (2001) among others). In this section, I would like to propose that deletion is determined by LF Structural Parallelism, according to which phonological deletion is licensed only if the LF structure of a category that contains elided material is structurally isomorphic to that of the antecedent category, particularly the operator-variable dependencies of both structures in the cases of SS. I also claim that the parallelism is evaluated at a relevant phase CP within the phase-based theory. Besides, I suggest that when deleting elements under this parallelism, as many elements presupposed or implied in the antecedent structure must be deleted as possible except focused elements (Maximal Effect of Deletion).

Before analyzing SS, I take a brief look at some analyses regarding parallelism. One of the most straightforward cases of strict identity is found in VP deletion. The discussion on this goes way back to Chomsky (1955).

- (90) a. I saw the play and so did he.
- b. I will see the play and so will he.
- c. I have seen the play and so has he.
- d. I have been seeing the play and so has he.

Each deleted VP site in the second conjunct is thought to be recoverable from the VP in the antecedent clause under the strict identity. For example, the structure of (90a) is represented as (91).

(91) I [T<sub>(Past)</sub> [VP see the play] and so [T-did he [~~VP see the play~~]].<sup>14</sup>

Basically, the strict identity refers to exactly the same elements between two structures. There are, however, some cases where the strict identity condition is too strong as we will see below. How are they derived? Intuitively, in those cases, an antecedent would have to produce an input as presupposition to an elided part. Fox (2000) and Merchant (2001) provide very intriguing conditions on this. Their fundamental argument is that deletion or phonological reduction is licensed when the meaning of elided or down-stressed material is implied in its corresponding antecedent parts, and the LF structure of the antecedent site is structurally isomorphic to that of the following elided site.

In order to explain VP deletion (92a), for example, Merchant (2001) assumes that the trace of the subject left in the  $v^*P$  is a variable bound by an existential quantifier inserted at  $v^*P$  and claims that both LF structures must be identical to each other for the VP to be deleted. This is roughly illustrated below.

- (92) a. Abby sang because Ben did. (Merchant (2001: 14))  
 b. Antecedent  $v^*P = (\exists_i) [{}_{v^*P} t_i \text{ sang}]$   
 c. Elided  $v^*P = (\exists_j) [{}_{v^*P} t_j \text{ sang}]$

In each structure, the existential quantifier binds the trace of the subject. Since the LF structure of the  $v^*P$ s in (92b) is identical to that in (92c) modulo  $\exists$ -type shifting, the  $v^*P$  in the second clause can be deleted (See 3.3.2.4 for details).

We can also see that there is a certain identical dependency of LF structures for other elliptic constructions. Fox (2000) presents some instances of VP deletion involving scopal inversion, arguing that the LF structural parallelism should determine the possibility of deletion and semantics of scope in elliptical constructions. As shown below, Fox claims that the LF structure which the antecedent clause has through entailment determines the application of deletion to the VP in the second conjunct and scopal relation. Consider (93).

- (93) a. Some boy admires every teacher, and Mary does, too.  $(\exists > \forall) *(\forall > \exists)$

- b. Mary admires every teacher, and some boy does, too.  $(\exists > \forall) (\forall > \exists)$   
 (Fox (2000: 91))

Take (93b) first. If Mary admires every teacher, it logically follows through “accommodation” that for every teacher there should be at least one girl, namely Mary, who admires the teacher. This is represented as (94a), where inverse scope itself is assumed to be impossible under Scope Economy (Fox (2001)).<sup>15</sup>

- (94) a. *Mary*  $\lambda x$  every teacher  $\lambda y$  [*x admires y*]  $\Rightarrow$   
 every teacher  $\lambda y$  (*some girl*  $\lambda x$  (*x admires y*))  
 b. every teacher  $\lambda y$  (*some girl*  $\lambda x$  (*x admires y*)) is an appropriate antecedent for  
 every teacher  $\lambda y$  (*some boy*  $\lambda x$  (*x admires y*)) (cf. Fox (2000: 92))

Since the inverse scope in the second conjunct is possible, the scopal ambiguity comes out together with VP deletion in (93b) under the isomorphism.

However, the same reasoning cannot be applied to (93a). The inverse scope of the first conjunct does not necessarily entail that there is a boy who admires every teacher as indicated (95a).

- (95) a. every teacher  $\lambda y$  (*some boy*  $\lambda x$  (*x admires y*))  $\nRightarrow$   
*some boy*  $\lambda x$  every teacher  $\lambda y$  (*x admires y*)  
 b. Due to the non-availability of the targeted implication after scopal inversion,  
 only the surface structure can be the antecedent for  
*Mary*  $\lambda x$  every teacher  $\lambda y$  (*x admires y*) (cf. Fox (2000: 93))

Note that the scope inversion of the second conjunct is not possible under Scope Economy. In order for VP deletion in the second conjunct to be admitted, the scopal relation of the first conjunct is limited to the surface structure. This means that the LF structures must be identical to each other for deletion to be applied.

Another similar dependency in an elliptical construction is also observed in other contexts.

See another instance of VP deletion (96).

- (96) a. Mary wants to catch a fish.  
b. Mary wants to catch a fish, and John does, too. (Lasnik 2010: 231)<sup>16</sup>

In (96a), the sentence is ambiguous in that there is a certain fish that Mary wants to catch or that Mary hopes her fishing is successful. If so, there could be logically four readings in (96b), but only two are available to (96b). (97) show the two possible structures of (96a) in terms of the indefinite noun phrase *a fish* and the intention verb *want*.

- (97) a.  $\exists x$  [NP<sub>i</sub> want [PRO<sub>i</sub> to catch xfish]]  
b. [NP<sub>i</sub> want [ $\exists x$  [PRO<sub>i</sub> to catch xfish]]]

In fact, if the first conjunct means one of the LF structures of (97), the second conjunct must have the same LF structures. That is, each conjunct should share either of the LF structures above when the VP in the second conjunct is deleted.

Considering the discussion above, it can be claimed that in ellipsis constructions, the LF structure of a site to undergo ellipsis must be LF structurally parallel to the structure of its antecedent, and that the LF structure of an antecedent can be obtained by the implied meaning that the antecedent provides through accommodation or entailment. Besides, it is also possible to assume that the meaning of a preceding structure serves as presupposition for its following structure to be deleted. This means that it is reasonable to assume that if an elided clause involves elements that not presupposed in its antecedent, they must evade deletion or be focused in some way. Non-presupposed parts are left intact even when some structural identity exists. See an example of Gapping (98).

- (98) a. John took Harry to the beach, and Bill Mike.  
b. [John took Harry to the beach], and [Bill [~~took Mike to the beach~~]].

In (98), both *Bill* and *Mike* are semantically and phonologically outstanding in the second

conjunct because the other elements like *took* and *to the movies* in the elided conjunct have already been mentioned in the corresponding antecedent clause, and thus they are considered to be presupposed. Consequently, those elements are deleted and Gapping (98b) is derived. In fact, the second clause in (98a) can never be interpreted like (99a).

- (99) a. \*John took Harry to the movies, and Bill [~~recommended Mike the movies~~].  
 b. \*John took Harry to the movies, and Bill **took Mike the movies**.

Moreover, the bold typed elements in the second conjunct in (99b), which have already been mentioned in the antecedent clause are not phonologically focused, either. We thus assume that deletion is only possible when the LF structure of the first conjunct is shared with the intended meaning (LF structure) of the second conjunct whether directly or indirectly through accommodation or implication (Fox (2000), Merchant (2001)).

As discussed in the previous chapter, we can see this in other contexts. Recall the interesting examples presented by Fox (2000). Consider (100).

- (100) a. First, Bill called Mary an idiot. Then John<sub>(focus)</sub> *insulted her*.  
 b. \*First, Bill insulted Mary. Then Bill<sub>(focus)</sub> *called her an idiot*.

(Fox (2000: 84))

Suppose that the italicized parts in (100) have undergone phonological reduction. The grammaticality, however, depends on whether we can infer from the antecedent clause an appropriate implication for the ellipsis site. If the acceptability of deleted or reduced sites depends on whether the meaning implied in the first conjunct is shared with the targeted meaning of the second conjunct, our common intuitive inference only allows (93a) to be ruled in. Insulting does not necessarily mean calling somebody an idiot. Thus, the mismatch of the possible meaning rules (100b) out.

Based on the observation here, I suppose that a preceding structure serves as presupposition for the following structure, which is marked as a [Presupposed] and undergoes deletion at a later stage of derivation, PF. The structure marked the

[Presupposed] can include other elements when they are the same as the elements in the preceding structure in that they function like a kind of variable, but they are different in that they have different content and phonetic features. In this case, I also suppose that those elements are focused marked [F]. Given this, suppose that the following assumptions hold, which are two-folds.

(101) a. LF Structural Parallelism

Phonological deletion is licensed only if the LF structure of a category that contains elided material is structurally isomorphic to that of the antecedent.

b. Maximal Effect of Deletion

Delete elements marked as [Presupposed] except focus marked [F] elements.

(101b) is also motivated by the following fact observed in “Sprouting” constructions, where, unlike SS, an antecedent conjunct has no indefinite noun phrase corresponding to a *wh*-phrase in the second clause. In Sprouting, even when a preposition is predictable in a context, it must occur phonologically in an elided clause, while it is optional in normal SS contexts. Compare (102) and (103).

(102) a. They are jealous, but it’s unclear \*(of) who.

b. Joe was murdered, but we don’t know \*(by) who(m)?

c. Last night he was very afraid, but he couldn’t tell us \*(of) what.

(103) a. They are jealous of someone, but it’s unclear (of) who.

b. Joe was murdered by someone, but we don’t know (by) who.

c. Last night he was very afraid of something, but he didn’t tell us (of) what.

(Lasnik (2010: 228) as originally presented in Chung (2005))

Suppose that in sprouting examples in (102), the TP in the antecedent clause is deleted after the *wh*-phrase in the following conjunct. (102) shows that elements that are not included

as a linguistic expression in the antecedent clause cannot be deleted as discussed by Hankmer and Sag (1976), but they must be overtly realized as a sort of focus element. In English *wh*-interrogatives, a preposition in a PP including a *wh*-phrase can be optionally pied-piped with the *wh*-phrase. As indicated in SS cases (103), when a preposition in a PP dominating an infinite noun phrase corresponding to a *wh*-phrase in the second conjunct is overtly realized in the antecedent clause, it is optional whether it is a part of the remnants. However, the preposition in the case of Sprouting (102) cannot be deleted because it is not present as a linguistic expression in the antecedent clause. The preposition must be salvaged from deletion even though it is predictable. Therefore, it is reasonable to assume (101).

### 3.5 An Analysis

Based on the assumptions in the previous sections, consider how English SS is derived. Take a straightforward case (104a), for example.

- (104) a. John saw someone, but I don't know who.  
 b. John saw someone, but I don't know who [~~John saw~~].

Following Heim (1982) and CLM among others, suppose that since the indefinite noun phrase in the first conjunct in (104a) is considered to be indeterminate, it is bound by an existential closure as illustrated in (105) (see the discussion in 3.4.3.2.).

- (105) [<sub>CP</sub> ∃<sub>i</sub>-C [<sub>TP</sub> John saw someone<sub>i</sub>]

This guarantees that the antecedent clause provides the meaning that there is a person John saw. The TP, thus, will serve as a presupposition.

Now, consider the second conjunct to which deletion is applied. In particular, let us consider how a *wh*-phrase in SS should be dealt with. The *wh*-phrase in the second clause is base-generated as an indeterminate element in the same position as the indefinite noun phrase in the antecedent clause. A *wh*-phrase is basically assumed to be a “restricted free

variable,” it must be bound by a relevant operator, in this case, the Q-morpheme. Under this assumption here, the structure of the second conjunct prior to deletion can be represented as below.

(106) [<sub>CP</sub> Q<sub>i</sub>-C [<sub>TP</sub> John saw who<sub>i</sub>]]<sup>17</sup>

Under my assumption, the English Q-morpheme requires a *wh*-phrase to be phonologically adjacent to it. Thus, the grammaticality depends on whether the *wh*-phrase moves to the adjacent position, the Spec-CP of the Q-morpheme or the Spec-TP. However, there is another way available for the *wh*-phrase to be adjacent to the Q-morpheme. Alternatively, deleting relevant sites would make the *wh*-phrase adjacent to the Q-morpheme. If the overt operation “Move” was a composite operation consisting of “Copy, Move, and Merge,” and another subsequent simple operation could offer the same output, the option based on non-movement would be less economical and must be chosen as a possible derivation. Thus, this option is more appealing unless other syntactic requirements such as the EPP feature force movement.

As just mentioned, the antecedent conjunct *John saw someone* includes the indefinite noun phrase *someone* functioning as a variable, and the clause serves as a presupposition for the second clause. The embedded question in the second conjunct with the *wh*-phrase base-generated in the same position as *someone* is based on the presupposed event in the first conjunct. Therefore, the first clause serves as a presupposition meaning that there was a certain person that John saw, and the embedded question asks to whom the event is applied.

Taking this respect into consideration, let us see how the LF structure of the second clause is represented. Comparing (106) with (105), we can see that while the structures are identical to each other in that they both include a variable and an operator in the same position like [OP(x) [John saw x person]], they are different in that they have a different kind of operator and a different variable with its phonological feature. Each variable is bound by its own relevant operator as indicated in (105) and (106). In this respect, I assume that the second clause is marked as [Presupposed] due to the event denoted by the first clause, and the Q-morpheme and the *wh*-phrase *who* in (106) are contrastively

semantically F-marked [F]. This is represented as (107).

(107) [ $C-Q_{i[F]}$  [ $John\ saw\ [who_{i(F)}]$ ]]  
 [Presupposed]

In the articulated LF structure (107), the relevant clause is marked as [Presupposed], and [F] is assigned to the Q-morpheme and the *wh*-phrase as focus elements.

Now see how deletion in (104a) is induced and how (104a) is derived under our mechanism. An instance of strict identity as a license condition for deletion cannot be applied because (107) includes different elements. Comparing the LF structures of the first CP with that of the embedded CP in the second clause, we can find that they satisfy the parallelism in (101a). Next, applying the Maximal Effect of Deletion in (101b) to the embedded CP in the second clause, the presupposed elements are deleted with the focus-marked element un eased. See (108b).

(108) a. John saw someone, but I don't know who.  
 b. The antecedent CP: [ $CP\ C-\exists_i\ [TP\ John\ saw\ someone_i]$ ]  
 The elided CP: I don't know [ $CP\ C-Q_{i[F]}\ [TP\ ~~John\ saw\ [who_{i(F)}]]~~]$ ]  
 [Presupposed]

As shown above, deleting the elements in the embedded CP (108b), which are presupposed based on the LF of the antecedent CP, the *wh*-phrase becomes phonologically adjacent to the Q-morpheme, and (104a) is eventually derived.

I am assuming that the Q-morpheme determines language variations and it requires at least one *wh*-phrase to be phonologically adjacent to it in English. This assumption makes it easy to explain derivations of SS. As mentioned above, if overt movement is a more complex operation and another option to do the same effect is available, a less costly operation should be preferred. Fortunately, even if the latter option is chosen and no overt movement is induced like (108b), the final structure of the second CP obtained by deletion makes the remnant *wh*-phrase phonologically adjacent to the morpheme, satisfying the requirement of the English Q-morpheme. Thanks to this derivation, the English SS of (104a) is straightforwardly derived without *wh*-movement.

The argument that a *wh*-phrase in SS stays in situ is supported by facts seen in the *the hell* construction discussed by Pesetsky (1987) and Lasnik and Saito (1992). According to them, it appears that the phrase *the hell* is not allowed to co-occur with a *wh*-phrase in situ.

(109) What the hell did you do on my car?

(110) \*Who read what the hell? (Lasnik and Saito (1992: 173))

As a matter of fact, this construction is not possible in SS.

(111) a. They were arguing about something, but I don't know what.

b. \*They were arguing about something, but I don't know what the hell.

(Sprouse (2005: 1))

(112) a. John bought something, but I don't know what.

b. \*John bought something, but I don't know what the hell.

The ungrammaticality of (111b) and (112b) indicates a possibility that a *wh*-phrase in SS does not move, but the adjacency requirement is satisfied in the base position.<sup>18</sup> Thus, this means that SS is derived not through violation repair by deletion as Ross (1969), Chomsky (1972), and Fox and Lasnik (2003) argue, but we can claim that the movement violating island conditions never takes place in the first place, but SS can be derived by deleting presupposed elements with a *wh*-phrase in situ except some cases involving features such as the EPP feature.

Next, let us see how my analysis here can explain more complicated SS involving islands. Take (13), repeated as (113), for example, in which there is a relative clause involved in the second conjunct.

(113) a. She kissed a man who bit one of my friends, but Tom doesn't realize which one of my friends.

b. \*She kissed a man who bit one of my friends, but Tom doesn't realize which one of my friends she kissed a man who bit *t*.

In this case, too, since the indefinite noun phrase *one of my friends* in the first sentence has an existential specific interpretation, it is bound over the clause by an existential closure as in (114a), which ensures that there should be a certain person of the speaker's friends such that she kissed a man who bit her. Just like (106), the LF structure of the embedded CP in the second sentence is represented with the Q-morpheme on the embedded CP binding the *wh*-phrase as in (114b).

- (114) a.  $[_{CP} \exists_i\text{-C} [_{TP} \text{She kissed a man } [_{CP} C \text{ [who bit [one of my friends]}_i]]]]$   
 b.  $[_{CP} Q_i\text{-C} [_{TP} \text{She kissed a man } [_{CP} C \text{ [who bit [which one of my friends]}_i]]]]$

The *wh*-phrase cannot undergo movement to the upper CP across the relative clause because the intervening categories form phases that block the *wh*-movement to the position, resulting in disobeying the phonological requirement of the English Q-morpheme. However, there is another way for the *wh*-phrase to satisfy the requirement. Deleting the intervening categories at PF can salvage the *wh*-phrase from the violation of the requirement. Let us see how this can be made possible. The parallelism (101a) is satisfied because the operator-binding dependencies of both structures in (114) are identical to each other as we can see in (114). The meaning of the first sentence just mentioned above serves as a presupposed proposition for the embedded question in the second sentence. As a result, the LF of the embedded CP in the second sentence is represented as (115).

- (115)  $[[[_{Q_i}\text{-C}]_{[F]} [_{TP} \text{She } [_{CP} \text{kissed a man } [C \text{ [who bit [which one of my friends]}_i]]]]]_{[F]}]_{[F]}]$   
 [Presupposed]

This structure undergoes the deletion operation at PF in accordance with Maximal Effect of Deletion (101b). As a result, the Q-morpheme phonologically becomes adjacent to the *wh*-phrase without movement. In this way, SS like (113a) including an island in a deleted structure is finally derived. It can be also claimed that if the analysis here is correct, this line of reasoning is applied to other instances of SS such as (13)-(16).

Recall, as seen in the previous sections, that, under the PIC assumed in Chomsky (2001, 2005) and Chomsky et. al. (2017), the morpheme can reach a *wh*-phrase in a remote position

across phrases even after the phrase including the *wh*-phrase is transferred or spelled out. Therefore, even in a framework which assumes that the Q-morpheme and a *wh*-phrase would have an uninterpretable feature such as a Q-feature, the uninterpretable feature could be valued. If the account I have proposed here for a derivation of SS is correct, a violation of an island condition in *wh*-movement in SS would be able to be avoided by deletion beforehand.

Note that it seems that categories to be deleted in SS do not constitute a maximal projection or constituent as seen in (115). Traditionally, it has been assumed that a maximal projection is a possible target to be deleted (Lobeck 1995). Thus, one might wonder whether non-constituent deletion is possible to assume. Investigating some examples with deletion, we can find that non-constituent deletion is admitted. Consider (116).

(116) What hope could there be of finding any supervisors? (Radford (2009: 160))

Under the copy theory, after *wh*-movement has been induced, the derived structure of (116) will be like (117a), where the *wh*-phrase forms a maximal projection *wh*-P as (117b).

- (117) a. What hope of finding any supervisors could there be *what hope of finding any supervisors?* (Radford (2009: 159))  
 b. [<sub>wh-P</sub> What [<sub>NP</sub> hope [<sub>PP</sub> of finding any supervisors]]]

(117a) is derived by deleting some parts in each maximal phrase (117b). This is illustrated in (118).

(118) [<sub>wh-P</sub> What [<sub>hope</sub> [~~of finding any supervisors~~]]] could there be [~~wh-P~~ What [<sub>NP</sub> hope [<sub>PP</sub> of finding any supervisors]]] (Radford (2009: 160))

In (118), the maximal projection PP is deleted in the left most *wh*-P, but in the second *wh*-P, *what* and *hope* which can form a phonological constituent, but does not form a maximal

projection are deleted. (118) shows that sites undergoing the deletion operation do not have to be a maximal projection, but deletion of non-constituent material could be permitted.

We can find another instance of non-constituent deletion in another ellipsis phenomenon “Pseudogapping,” which I will discuss in the later chapter. The elided sites in this construction seem neither to form a constituent nor even a continuous structure. The examples below are from Lasnik (1995).

- (119) a. The DA proved Jones guilty and the Assistant DA ~~prove~~ Smith ~~guilty~~.  
b. ?John gave Bill a lot of money, and Mary will ~~give~~ Susan ~~a lot of money~~.

In (119), the matrix verb and other elements do not form a constituent, but they have been deleted selectively. Thus, applying a deletion operation to a non-constituent is possible, and it can be concluded that the partial deletion that I have adopted for SS is not so inadequate.

### 3.6 Remaining Issues

In this section, extending the present account for regular SSs to other constructions, I will illustrate how they can be explained.

#### 3.6.1 Swiping

Let us take a look at another type of sluicing called, “Swiping,” where a complement *wh*-phrase in a PP occurs inverted with its governing preposition in a SS context.<sup>19</sup> Some examples are given in (120).

- (120) a. Lois was talking (to someone), but I don’t know who to.  
(Merchant (2001: 65))  
b. She bought a robe, but God knows who for.  
c. He was shouting to someone, but it was impossible to tell who to.  
d. A: She’s going to leave her fortune to someone.  
B: Really? Who to? (b - d: Merchant (2001: 123))

In (12), a *wh*-phrase appears to be moved with a preposition left in the original position. This construction has been one of the main topics regarding SS since Merchant (2001) pointed out the peculiarities in this construction. Although some properties have been examined in the literature (Hasegawa (2007) and Larson (2012)), its mechanism is still unclear. Ross (1969) and Merchant (2001, 2002) pointed out that this type of inversion within PP is optional and only permitted in sluicing such (120), and it is not possible in the absence of sluicing such as (121).

- (121) a. \*I don't know [who to] Lois was talking.  
 b. \*[Who to] was Lois talking? (Merchant (2001: 65))
- (122) a. \*I know Mary was working, but I can't remember [who with] she was working.  
 b. \*[Where to] are you moving? (Tyler (2017: 291))

How is Swiping in SS derived in my analysis proposed here? Let us take (120a), for example. As discussed, I have claimed that a *wh*-phrase does not have to be moved to a CP as long as it can satisfy the phonological requirement. According to Sprouse (2005), both a preposition and a *wh*-phrase in Swiping are phonologically focused. Following Bošković (2014) among others, suppose that the preposition in a PP could serve as a phase-head. Then, an edge of the P-Head would offer a possible landing site for *wh*-movement. If the *wh*-phrase can move to the edge-position of a P-Head, the second conjunct will be (123).

- (123) I don't know [<sub>CP</sub> [<sub>Q<sub>i</sub>-C</sub>]<sub>[E]</sub> [<sub>TP</sub> Lois was talking [<sub>PP</sub> who<sub>i</sub>]<sub>[E]</sub> [<sub>to</sub>]<sub>[E]</sub> who<sub>i</sub> ]]]  
 [Presupposed]

If the inversion of a *wh*-phrase and a preposition is optional only in SS, it can be induced at PF for some prosodic reasons. The inversion at PF makes the adjacency requirement satisfied, and the parallelism is also satisfied because the original copy of the *wh*-phrase exists in the parallel position of the corresponding indefinite noun phrase in the antecedent. This derives Swiping in Swiping (120).





(101b) is not observed in this case. When deletion is applied to the embedded clause in the second conjunct, as many overlapped as possible elements should be elided with the focus elements intact. That is, the subject and the auxiliary must be deleted along with other presupposed elements. This accounts for the ungrammaticality of (127b). With respect to (127a), there is no way for the *wh*-phrase to move to the CP, violating the PIC, where it can satisfy the adjacency requirement of Q-morpheme. Thus, this option is also difficult to accept.

As the other option, suppose that under the PIC, the *wh*-phrase cannot move to the Spec-CP in (127a) while it can in (127b). However, in both cases, the Q-morpheme allows the *wh*-phrase to stay in situ to avoid the complex operation Move (Copy, Move, and Merge). Because the deletion operation is applied to as many overlapped structures as possible with the focus marked sites intact, the subject *they* and the auxiliary *do* must be deleted together with other elements as represented in (129). As a result, the examples in (127a) will not be derived.

- (129)  $[_{CP} Q_i-C_{[F]} [_{TP} \text{they do [want to hire someone who speaks [which (Balkan language)]}_{i[F]}]]$   
[Presupposed]

The same analysis can be applied to (127b), too. See (130).

- (130) I don't know  $[_{CP} Q_i-C_{[F]} [_{TP} \text{they did [say they heard about [which (Balkan language)]}_{i[F]}]]$ .  
[Presupposed]

Just like (129), the Maximal Effect of Deletion requires the subject *they* and the auxiliary *did* to be elided with the other elements in the [Presupposed]-marked structure except [F]-marked elements. Therefore, (130) is not derived.

Note that the *wh*-phrase in (127b) would be moved to the Spec-CP without violating any condition on movement.

(131) I don't know [<sub>CP</sub> [which (Balkan language)]<sub>i[F]</sub>]<sub>Q<sub>i</sub>-C</sub>[<sub>F</sub>] [~~<sub>TP</sub> they did [<sub>F</sub>] say they heard about t ]]~~

However, just like (130), the subject and auxiliary should be deleted for the Maximal Effect of Deletion as (131). Therefore, as seen above, the unacceptability of SS with VP deletion is explained easily under my assumption.

### 3.6.3 Contrast Type

Finally, I will expound upon another complicated example like (132), where, unlike (127b), VP deletion is possible even in a SS context when an auxiliary is phonologically focused.

(132) I don't know which puppy you SHOULD adopt, but I know which one you SHOULDN'T.

In (132), the *wh*-phrase moves to the CP position in both conjuncts, but VP deletion is permitted unlike (127). A closer examination under the proposal here should help to explain this phenomenon. In (133), the auxiliary is phonologically focused with contrastive stress. Under the system here, the structure of each embedded clause will be represented as in (133).

(133) [<sub>CP</sub> [which puppy]<sub>F</sub>]<sub>i</sub> [<sub>Q<sub>i</sub>-C</sub> [<sub>TP</sub> you [<sub>T-SHOULD</sub>]<sub>F</sub> [<sub>adopt</sub> *t<sub>i</sub>*]]]]  
 [<sub>CP</sub> [which one]<sub>F</sub>]<sub>j</sub> [<sub>Q<sub>i</sub>-C</sub> [<sub>TP</sub> you [<sub>T-SHOULDN'T</sub>]<sub>F</sub> [<sub>adopt</sub> *t<sub>j</sub>*]]]]  
 [Presupposed]

Notice that these structures are identical to each other because the dependency between the Q-morpheme and variables, and the position of focused auxiliary are exactly the same. With this isomorphism, we can expect the presupposed elements including the subject to be deleted along with the verb except the focus-marked elements. Then, why can the subject *you* evade deletion and exist as one of the remnants? The *raison d'être* of the overlapped subject is attributed to the universal property that the T-Head has, namely, the Extended

Projection Principle (EPP) feature which needs a phonologically realized DP or an element with a D-feature in its specifier position. Unlike the cases in (127), the auxiliaries in (133) are phonologically emphasized to indicate the contrastive stress. If the auxiliary is located in the T-Head, the EPP feature of the T-Head will require a subject DP to be present in the specifier position like (134).

(134) [[which puppy]<sub>[F]</sub><sub>i</sub> [Q]<sub>j</sub>-C [TP you<sub>x</sub> SHOULDN'T<sub>[F][EPP]</sub> [<sub>i</sub><sub>x</sub> adopt <sub>j</sub>]]]

Thus, as (134) shows, even though the subject *you* is overlapped without focus-mark, the strong requirement of the EPP feature on the focus-marked T-Head does not allow the subject to be deleted. The elided VP site is the same as the VP in the first conjunct in that their structures are both [<sub>VP</sub> *t*<sub>(subj)</sub> adopt [*wh*-phrase]]. Therefore, the parallelism condition is obeyed. As a result, VP deletion in SS can be derived appropriately.

### 3.7 Conclusion

In this chapter, I have discussed derivations of SS and explored an alternative analysis of SS in a more reasonable way. I have claimed that the previous analyses are all intriguing and interesting, but there are some empirical and theoretical problems with them. I pointed out that it is still unclear how a *wh*-phrase in SS can move across islands under the PIC to create a phonological constituent to undergo a deletion operation. However, by extending Baker's Q-morpheme, I have suggested that the English Q-morpheme can bind as an operator a *wh*-phrase in a remote position. Although the English Q-morpheme should be phonologically adjacent to a *wh*-phrase, the adjacency will become possible by a deletion operation. Since SS is only possible when the corresponding antecedent clause involves an indefinite noun phrase, which is considered to be indeterminate, I have assumed, following Heim (1982), that an indefinite noun phrase is bound by an existential quantifier like the Q-morpheme. Furthermore, I have suggested that the LF isomorphism (Parallelism), which requires the elided site to be structurally isomorphic to the corresponding site in the antecedent clause. Building on these assumptions, I have proposed the Maximal Effect of Deletion, which deletes as much as possible except focus

marked material. With these assumptions, I have proposed an alternative analysis of a derivation of mysterious SS, claiming that a *wh*-phrase bound by the Q-morpheme in SS stays in situ except some cases involving some syntactic requirement such as an EPP feature, and the overlapped elements are deleted by Maximal Effect of Deletion. This analysis overcomes some problems with *wh*-movement in SS and indicates that there is a possibility that deletion can be applied to a non-constituent or non-maximal projection. In this point, my analysis has provided a new perspective to analyses of elliptical phenomena.

### Notes for Chapter 3

\* This chapter is a revised and extended version of the papers that appeared in “A Minimalist Analysis of Sluicing” (Hirai (2007)), “A Minimalist Approach to Sluicing” (Hirai (2009)), “Sakujiyo Gensyou wo Megutte -Sluicing wo Chuushin-ni (On Phenomenon of Deletion - With Special Reference to Sluicing - )” (Hirai (2014)), and “‘MaxElide’ nikansuru Ikutsukano Oboegaki (Some Notes on ‘MaxElide’) (Hirai (2016)).

1. See Ross (1969: 252-254) for details.
2. For explanatory purposes here, suppose that the subjacency condition prevents a *wh*-phrase from moving across two TP or DP at the same time. For more details of this condition, see Chomsky (1973) and his subsequent works.
3. Since, under the minimalist framework, a Case feature of a DP can be valued in a probe-goal relation, the Case feature of the DP in (24a) and (24d) can be valued by the T-Head within the AGREE relation. If so, the problem here would be attributed to the failure of erasing the [EPP] feature of the T-Head. However, if a Case feature was valued at LF, we would need some other assumptions to explain an example like (i), where the *wh*-phrase has been moved overtly to the leftmost position, and its trace (copy) has to be Case-valued at LF. Therefore, the assumption that a Case feature is valued at LF is not so convincing.
  - (i) What did you buy *t*?
4. Theoretically, the LF Recycling operation may violate no-tampering condition which prevents inner sites in a constructed structure from being changed. Some version of late-merge is suggested by Lebeaux (1988). He argues that adjoining some structure at a later

stage is necessary to explain the fact of (i).

- (i) [Which [ picture [of Bill]] [ADJ that John liked]]<sub>i</sub> did he buy  $t_i$  ?

In (i), the relation between *Bill* and *he* is impossible because of Condition C in Binding Theory, while the relation between *John* and *he* is not. Lebeaux claims that assuming that the adjunct, *that John liked* is merged later after “spell-out” obviates the violation of Condition C. This idea, however, never fits well in the cyclic derivation, either.

5. Merchant shows that similar facts related to Case-valuing in the context of SS are observed in Greek.

- (i) a. Kapjos irthe, alladhe ksero (pjos / \*pjon).  
someone came, but not know-1SG who-NOM / \*who-ACC  
'Someone came, but I don't know who.'
- b. Dhe ksero (\*i apantisi/ tin apantisi).  
not know-1SG the answer-NOM / the answer-ACC  
'I don't know the answer.' (Merchant (2001: 43))

As seen in (ib), the object of *know* in Greek is realized as Accusative Case. If Accusative Case is valued by *know*, Accusative Case should also be available to the object in the second conjunct in (ia). However, only Nominative Case is possible in the context. This shows that a Case assigner must have existed and the salvaged *wh*-element have been extracted out of the elided structure. Like English cases, however, the LF copying approach cannot possibly explain this empirical evidence.

6. As Lasnik (2010) claims, whether the category of the elided clause is CP or DP may not be so crucial to the LF Copying/Recycling approach. However, the WYSIWG analysis cannot explain the facts of SS. It must also be clarified what motivates a *wh*-phrase to be located directly in a Spec-CP position.

7. There are various ways of illustrating dependencies. Since the operator-variable relation is represented by the dependency involving the operator over choice function, the dependencies can also be shown like (i).

- (i) a.  $\exists f$  choice function [Fred said that I talked to  $f$ (girl)]  
b. but I don't know which  $g$  choice function [Fred said that I talked to  $g$ (girl)]

In the antecedent clause, the existential operator over choice function can derive (ia), and it

is presupposed that there was a specific girl such that Fred said that the speaker I talked to her. Given the Copy theory of *wh*-movement, the representation of the sluiced clause is like (ib), where the *wh*-attached noun phrase is deleted at the head in a chain and interpreted at the tail as in (37). In this case, too, the element in the tail is a variable ranging over individuals and it is questioned which girl is the one that Fred said that I talked to. This representation can also satisfy the parallelism.

8. Hirai (2016) explores the advantages and disadvantages of Merchant (2008) and Hartman (2011), and points out that the basic idea of their analyses is promising, but they both involve some theoretical problems at the same time, particularly, Inclusiveness Condition. For discussion, see Hirai (2016).

9. Merchant uses IP instead of TP. I assume that they refer to the same projection, and I uses TP for explanatory purposes.

10. More specifically, the trace left by *wh*-movement is the <e> type in terms of semantic types, which does not have a referential semantic value. Therefore, it is shifted to a variable to be bound by existential closure.

11. Moreover, some cases of VP Deletion with a category which is assumed to involve a PF island effect, are not improved, either.

- (i) a. It appears that a certain senator will resign, but which senator [~~it appears that~~ *t* ~~will resign~~] is still a secret.
- b. \*It appears that a certain senator will resign, but which senator it does [~~appear that~~ *t* ~~will resign~~] is still a secret.
- (ii) a. Sally asked if somebody was going to fail Syntax One, but I can't remember who [~~Sally asked if~~ *t* ~~was going to fail Syntax One~~].
- b. \*Sally asked if somebody was going to fail Syntax One, but I can't remember who Sally did [~~asked if~~ *t* ~~was going to fail Syntax One~~].

These facts indicate that Merchant's attempt to eliminate islands by reducing is not adequate. For more examples, see CML and Lasnik (2001).

12. Hartman (2011) attempts to provide a unified account including an A'-trace and A-trace and explain the problems in discussion. His analysis is the same as Merchant in that they both assume that parallelism is based on semantic identity, but it is different in that Hartman

uses the parallelism based on structural rebinding by  $\lambda$ -abstraction suggested by Takahashi and Fox (2005). However, the mechanism of rebinding remains to be clarified. See Hirai (2016) for discussion and problems with his analysis.

13. The basic idea proposed here is based on Chomsky (1995), Agbayani (2006), Kimura (2010), Abe and Hornstein (2012) and Abe (2015). According to Abe, for example, movement operation is two-fold: Move-F and Pied-Piping. A feature of a moved category is first moved to a relevant probing head and the remnant is moved afterwards only in the case it outputs a new result. This can derive so-called vacuous movement. However, under the system of the probe-goal system, it is still unclear what motivates two movements proposed in his analyses.

14. Chomsky suggests that auxiliaries must also be identical as shown below.

- (i) \*I will see the play and so did he.

According to Chomsky, this comes from differences in ordering of Affix Hopping rules. Depending on auxiliaries, the order of applying Affix Hopping and Deletion varies. However, as a required condition, strict identity holds for this example.

15. Fox (2000) assumes that all quantifiers are raised to a clause-denoting position. For (94), they are raised to as high as VP or TP.

16. I would like to thank Howard Lasnik and Gesoel Mendes, for presenting me the examples.

17. If an antecedent sentence serves as a presupposed proposition, one may ask if SS includes a cleft sentence as (i) or a “pseudo-cleft sentence as (ii).

- (i) Somebody just left. Guess who (~~it was t that just left~~).
- (ii) Somebody just left. Guess who it was.

However, there are a number of empirical facts that demonstrate that deleted parts in SS involve the structure of the antecedent. Merchant (2001) presents as many as ten phenomena that show an underlying structure of SS does not include a cleft sentence. Therefore, I assume that a structure to undergo deletion in SS is exactly the same structure of the corresponding antecedent. (See also Erteschik (1973))

18. Sprouse (2005) proposes that the *wh*-phrase with *the hell* is ruled out in terms of the phonological principle, called “the Accented Projection Principle”. For further discussion,

see Merchant (2001, 2002) and Sprouse (2005)

19. According to Merchant (2001), “Swiping” is tagged after “Sluicing With In-Situ Preposition In Northern Germanic,” and it is reported that this construction is observed mainly in Danish, some varieties of Norwegian, Dutch, German, English, and Swedish. See also Sprouse (2005: fn 1).

## *Chapter 4*

# *On Multiple Sluicing\**

### **4.1 Introduction**

This chapter explores a more plausible analysis of another intriguing instance of the elliptical phenomena, called “multiple sluicing” (henceforth MS) in English as (1).

- (1) I know that in each instance one of the girls got something from one of the boys. But they didn't tell me which from which.

(Lasnik (2014: 5); cf. Bolinger (1978: 109))

Since the example (1) is consistently interpreted as (2), it seems that some elements in the embedded clause in the second sentence have been deleted with multiple *wh*-phrases left intact.

- (2) I know that in each instance one of the girls got something from one of the boys. But they didn't tell me which got something from which.

The example (1) is similar to single sluicing (SS) like (3a) discussed in the previous chapter in that elements in the embedded question seem to have been deleted with *wh*-phrases undeleted.

- (3) a. Ralph is going to invite somebody from Kankakee to the party, but they don't know who.
- b. Ralph is going to invite somebody from Kankakee to the party, but they don't know who he's going to invite to the party. (Ross (1969: 252))

Assuming that the PF Deletion approach is basically on the right track, I have claimed that SS like (3a) is derived by deleting the TP without *wh*-movement. Thus, I expect that we can apply the same analysis to MS and claim that MS is derived by deleting elements in the embedded question of the second sentence without moving two *wh*-phrases.

It is important to consider a derivation of MS, because MS like (1) is also interesting and mysterious in its derivation. Like SS, there are also some syntactic differences between regular multiple *wh*-questions and MS. For example, it is widely known that in English, only one *wh*-phrase is allowed to be moved to a Spec-CP, and thus multiple *wh*-fronting is never possible as below unlike other languages such as Bulgarian.<sup>1</sup>

- (4) a. Who<sub>i</sub> t<sub>i</sub> bought what?
- b. \*Who<sub>i</sub> what<sub>j</sub> t<sub>i</sub> bought t<sub>j</sub>?
- c. \*What<sub>j</sub> who<sub>i</sub> did t<sub>i</sub> buy t<sub>j</sub>?
- d. Who<sub>i</sub> did John ask t<sub>i</sub> to buy what?
- e. \*Who<sub>i</sub> What<sub>j</sub> did John ask t<sub>i</sub> to buy t<sub>j</sub>?
- f. \*What<sub>j</sub> Who<sub>i</sub> did John ask t<sub>i</sub> to buy t<sub>j</sub>?

The examples in (4) show that only one *wh*-phrase can be fronted even in a multiple *wh*-question with the other *wh*-phrases located in their base-generated positions. Therefore, it is impossible to suppose that two *wh*-phrases in the embedded clause in MS are fronted to the embedded Spec-CP to create a pre-elliptical structure like the second sentence as below.

(5) I know that in each instance one of the girls got something from one of the boys.

\*But they didn't tell me which from which got something. (Lasnik (2014: 5))

Just like (4b), (4c), (4e), and (4f), the second sentence in (5) can never be derived. Strangely enough, however, if certain elements are deleted as (1), the sentence will become dramatically grammatical. This indicates that MS is another theoretically and empirically interesting phenomenon, and thus its derivation must be explored. If a sentence like (5) is never possible to derive, it is necessary to ask how the surface form of MS (1) can be obtained. That is, as has been conventionally assumed by Lobeck (1995) and other generative linguists, if a deletion operation was applied to a maximal projection, namely a phonological constituent, it would be hard to explain how MS in (1) would be derived in English without multiple *wh*-fronting. Given the facts in (4) and (5), it is unclear how the phonological constituent itself can be constructed in the syntactic component before the deletion operation is applied.<sup>2</sup>

Furthermore, there is another fact observed in MS. While island conditions are ignored in SS, MS is subject to so-called a “clause-mate condition.” See (6).

(6) A certain boy said that Fred talked to a certain girl. \*I wish I could remember which boy to what girl. (Lasnik (2014: 12))

(6) indicates that the second *wh*-phrase is only limited within a minimal clause and cannot be related to an element outside the embedded clause. That is, MS must obey a clause-mate condition (Takahashi (1994), Nishigauchi (1998, 1999), Fox and Pesetsky (in prep.)). Thus, the task here is to clarify what the derivation of MS comes from.

Although instances of MS do not occur very often, it is very attractive, and thus important to consider how they are derived in the theory of syntax to cast additional light on the human language faculty. In this chapter, I would like to address phenomena of MS and provide

an alternative account of how MS is derived within the phase-based theory advocated by Chomsky (2000), where derivations are assumed to proceed phase by phase. More specifically, I claim that *wh*-phrases in MS do not undergo *wh*-movement except some situations where certain syntactic requirements force movement of *wh*-phrases, but they are bound by Baker's (1970) Abstract Question Morpheme (Q-morpheme) as an operator. Furthermore, I suggest that the second *wh*-phrase behaves like a strong quantifier sensitive to clause-mate conditions. I also argue that MS is subject to LF parallelism as an identity condition for deletion, in which the operator-variable relation in both the antecedent and the elided clause must be structurally isomorphic at LF just like other elliptical structures such as SS. In addition, I propose that the LF parallelism is evaluated at a CP, one of the phases, and as long as the parallelism is satisfied, deletion can apply maximally to elements presupposed in an antecedent (Maximal Effect of Deletion). This will lead to showing that MS is the same as other elliptical phenomena in that it obeys the LF structural isomorphism and that contrary to the conventional assumption that deletion is applied to a maximal projection, if inner elements in a parallel structure are presupposed in the antecedent, they are deleted with focus elements like an operator and its variable intact.

This chapter is organized as follows: In the next section, I will review previous analyses by Richards (2001) and Lasnik (2014), and point out some problems that arise with them. In section 3, extending Baker's proposal like the account of SS, I will provide an alternative analysis and give some consequences to support my analysis by examining some other phenomena. Section 4 will discuss more complex facts in MS. In section 5, I conclude this chapter.

## 4.2 Previous Analyses

English is one of the non-multiple *wh*-fronting languages. Thus, English MS has drawn a lot of attention with respect to its derivation, and there have been some analyses presented so far within the generative grammar; to name a few, Bolinger (1978), Nishigauchi (1998),

Richards (2001), Fox and Pesetsky (in prep.), Lasnik (2014), and Takahashi (1994). Finding a lot of empirical phenomena, they attempt to provide various proposals on how MS is derived within the framework of the generative grammar. However, with the development of the theory, there have been some problems found with the previous analyses. As some of the recent outstanding studies, I will review Richards (2001) and Lasnik (2014), which both address MS within the minimalist framework I assume here.<sup>3</sup> I will begin with the analysis by Richards (2001) in the following section.

#### **4.2.1 Richards (2001)**

##### **4.2.1.1 Deletion and PF Ambiguity**

In order to solve issues on the derivation of MS, Richards (2001) assumes the principles given in (7) and claims that (7) can determine which element should be pronounced in a feature-driven chain. Besides, Richards suggests that violation of the principles in a course of derivation can be repaired by a deletion operation, arguing that MS is derived straightforwardly by deleting an illegitimate or unidentified element that is not correctly interpreted at the PF interface.

- (7) a. PF must receive unambiguous instructions about which part of a chain to pronounce.
- b. A strong feature instructs PF to pronounce the copy in a chain with which it is in a feature-checking relation. (Richards (2001: 105))

As has been long assumed in the literature, syntactic objects moved in the syntactic component need to be phonologically realized by phonological rules. Specifically, under the Copy Theory of movement in which a moved element leaves its copy in the original or intermediate positions, there must be phonological rules at the PF interface which should decide which *wh*-phrase must be phonologically realized in *wh*-movement like (8).

Otherwise, which copy should be pronounced or realized on the surface will be ambiguous.

(8) What<sub>i</sub> did you buy what<sub>i</sub> yesterday?

In order to avoid the ambiguity, the PF should be able to interpret or see which element in a chain must be pronounced. Then, Richards proposes the principles in (7) and claims that the PF interface will receive appropriate instructions, based on an attracting strong feature, and it is instructed to pronounce an element moved by a strong feature in the chain of movement. According to the principles, a *wh*-phrase in a normal English *wh*-interrogative, which has been moved by a strong feature on the C-head, will be correctly pronounced in the sentence in its initial position as shown in (9). Note that the inner detailed structures are ignored for an explanatory purpose here.

(9) [**What** [C<sub>(strong)</sub> [did you buy *what* yesterday]]]?

Richards also assumes that there is a head which has a weak feature that attracts overtly another element, and suggests that a C-head can have both strong and weak features at the same time. This can move multiple *wh*-phrases overtly, but it can explain straightforwardly the ungrammaticality of multiple *wh*-fronting in English. One example is given in (10).

(10) \*Who what bought?

The ungrammaticality of (10) can be explained thusly: Suppose that the C-head has both strong and weak features, as illustrated in (11a). After the attraction of the first *wh*-phrase by the strong feature as in (11b), the weak feature on the C-head also moves overtly the second *wh*-phrase as given in (11c).<sup>4</sup> However, the sentence becomes ungrammatical. If

the second *wh*-phrase is moved overtly by the weak feature after the *wh*-movement by the strong feature, an ambiguity arises under the principles in (7).

- (11) a. [C <sub>(strong, weak)</sub> [who bought what]]  
 b. [**Who**<sub>i</sub> [C <sub>(strong, weak)</sub> [who<sub>i</sub> bought what<sub>j</sub>]]]  
 c. [**Who**<sub>i</sub> [**what**<sub>j</sub> [C <sub>(strong, weak)</sub> [who<sub>i</sub> bought what<sub>j</sub>]]]]  
 d. \***[Who**<sub>i</sub> [**what**<sub>j</sub> [C [*who*<sub>i</sub> bought *what*<sub>j</sub>]]]]?

In (11), the PF interface cannot determine which copy of the second *wh*-phrase should be pronounced. Consequently, Richard's analysis correctly rules out the multiple *wh*-fronting due to (7).

Richards claims that this analysis can be extended to an analysis of MS. Let us take the following examples.

- (12) a. I know somebody talked to somebody, but I don't remember who to whom.  
 b. \*I know somebody talked to somebody, but I don't remember who to whom talked.

Again, (12a) is interpreted as (12b). Suppose that like (11), the C-head of the embedded clause has two *wh*-features: a strong and a weak *wh*-feature. The strong feature attracts the first *wh*-phrase to the Spec-CP in the embedded clause as indicated in (13a) while the second *wh*-phrase (*to whom* in (13)) is overtly fronted by the weak feature of the same head just as the multiple *wh*-fronting we have seen above. This is illustrated in (13b).

- (13) a. I know somebody talked to somebody, but I can't remember  
 [who [C <sub>(strong, weak)</sub> [*who* [talked to whom]]]].

- b. \*I know somebody talked to somebody, but I can't remember  
 [who [to whom] [C <sub>(strong, weak)</sub> *who* [talked *to whom*]]].

If the structure in (13b) is spelled out as it is, the sentence will be as ungrammatical as (10). In this case, the PF interface cannot decide which *wh*-phrase in the second movement should be pronounced, because the attraction by the weak feature is involved. As the next step, if the TP structure below the CP undergoes a deletion operation as in (14), the trace (copy) of the second *wh*-phrase will be deleted along with the other elements.

- (14) I know somebody talked to somebody, but I can't remember [CP **who** [ **to whom**  
 [C [<sub>TP</sub> ~~*who* talked *to whom*~~]]]]

This operation allows the PF interface to easily find the element to pronounce because there is no candidate to pronounce under (7). As a result, MS can be derived eventually without any violation.

As seen above, if Richards' explanation is correct, it can be concluded that MS is also one of the phenomena that can be derived through a kind of violation repair. In the next subsection, I argue that this violation repair does not necessarily fix the problem of ambiguity in PF realization.

#### 4.2.1.2 PF Violation is not Salvaged.

In this subsection, I assert that there are some empirical and theoretical problems with Richards' analysis. First, let us take a look at some empirical problems. If the grammaticality of MS depends on the erasure of the PF ambiguity created by the copy of a *wh*-phrase moved by the weak feature, it should be explained why the examples in (15) remain to be ungrammatical, where all the copies of the second *wh*-phrase *with which tool* seem to have been deleted.

(15) A: The students talked about one of the topics in the given list with one of the recommended tools: Power Point, handout, slides, or OHP.

B1: \*Do you remember [which topic]<sub>i</sub> [with which tool]<sub>j</sub> they did [~~talked~~—  
about ~~t<sub>i</sub> t<sub>j</sub>~~ ]?

B2: \*Do you remember [with which tool]<sub>j</sub> [which topic]<sub>i</sub> they did [~~talked~~—  
about ~~t<sub>i</sub> t<sub>j</sub>~~ ]

In (15), two *wh*-phrases are fronted to the Spec-CP, and the second *wh*-phrase has been moved overtly by the weak feature on the embedded C-head. However, even if the copies of the second *wh*-phrase left in the base-generated position and a possible intermediate landing site such as the embedded *v*\*P are all deleted by VP Deletion, the grammaticality is not improved. In fact, contrary to the expectation, B1 and B2 in (15) are unacceptable just like SS with VP deletion as in (16b).

(16) a. They said they heard about a Balkan language, but I don't know which Balkan language (they said they heard about).

b. \*They said they heard about a Balkan language, but I don't know which Balkan language they did.

Under Richards' analysis, since the phonological ambiguity never occurs in (16b), (16b) should be judged as grammatical. However, this is not the case.

Second, looking more closely into his analysis in terms of the minimalist program, namely, the Strong Minimalist Thesis, some theoretical problems will arise. It is necessary to examine whether assuming the strong/weak distinction on features is plausible or not. Of course, it is ideal to dispense with such feature distinctions in the syntactic theory we have been pursuing. In fact, Chomsky (1998: 127) mentions that "optimal design should eliminate such strange and difficult properties as strength." Therefore, under the Strong

Minimalist Thesis, it is not desirable to assume the strong/weak feature distinction in a syntactic movement which Richards' analysis mainly depends on. This means that we need a different approach in order to provide a more reasonable analysis of MS. In the following subsection, I will highlight another interesting analysis by Lasnik (2014).

#### 4.2.2 Lasnik (2014)

##### 4.2.2.1 Rightward Movement of the Second *Wh*-phrase

Lasnik (2014), examining closely facts observed in MS, provides another interesting analysis of MS. He argues that the second *wh*-phrase undergoes rightward movement to a higher position than the deleted constituent, and then MS is derived by deleting the inner projection. His argument comes from some facts observed in MS. One of the facts is related to the properties of the second *wh*-phrase. As we see below, in MS, the second *wh*-phrase as a preposition phrase (PP) would be preferable to that as a determiner phrase (DP). Compare (17a) with (17b).

- (17) a. ?Someone talked about something, but I can't remember who about what.  
b. ?\*Someone saw something, but I can't remember who what.

(Lasnik (2014: 8))

The grammaticality of MS with the second *wh*-phrase as a PP like (17a) is considered to be somewhat better than that with the second *wh*-phrase as a DP like (17b). Interestingly, this fact is similar to other constructions where rightward movement is assumed to be involved. Unlike DPs, PPs can be a focus element undergoing rightward movement even when it is informationally light or literally short. Compare (18) with (19).

- (18) a. \*Mary saw yesterday Harry.  
b. Mary saw yesterday her old friend Mary.

c. Mary saw yesterday Harry Hetherington. (Lasnik (2014: 9))

(19) Mary spoke yesterday to him. (Lasnik (2014: 9))

In (18b) and (18c), the object DP is moved rightward over the adverbial phrase by Heavy DP Shift (HDPS), but HDPS of the object is not admitted when the DP is comparatively light like (18a). On the other hand, the PP *to him* in (19), which is as light as the object in (18a), can be extraposed rightward to the end position, but the sentence will not be degraded. Based on this observation, Lasnik claims that while the first *wh*-phrase moves leftward to the Spec-CP, the second *wh*-phrase moves rightward like HDPS. As a result, (17a) is derived as shown below.

(20) Someone talked about something,  
but I can't remember who<sub>i</sub> [~~*t<sub>i</sub>* talked *t<sub>i</sub>*~~] [about what]<sub>j</sub>.

In (20), while the first *wh*-phrase is moved to the Spec-CP in the embedded clause as is normally expected, the second *wh*-phrase is moved rightward like HDPS. These operations create a phonological constituent for the deletion operation to be applied. Then, the inner constituent can be deleted as illustrated in (20). As a result, MS like (17a) can be correctly derived.

Lasnik's analysis that the second *wh*-phrase in MS undergoes HDPS is very intriguing and plausible because it could explain another property of MS. As seen above, it is pointed out by Takahashi (1994), Nishigauchi (1998, 1999), Fox and Pesetsky (in prep.) among others that basically, the second *wh*-phrase cannot be related to a *wh*-phrase outside a minimal clause including the second *wh*-phrase. See (6), represented as (21).

(21) A certain boy said that Fred talked to a certain girl. \*I wish I could remember  
which boy to what girl. (Lasnik (2014: 12))

In (21), the first *wh*-phrase *which boy* and the second *to what girl* in the second clause corresponds to the DP *a certain boy* and the PP *to a certain girl* in the antecedent clause, respectively. However, the MS in this case is not acceptable. This shows that the relation between the matrix and embedded clause is not possible in MS and MS is subject to a clause-mate condition, which rules out (21).

(21) will be easily explained without any further complexities or assumptions if the second *wh*-phrase in MS undergoes rightward focus movement such as HDPS. Since HDPS is subject to Right Roof Constraint (Ross (1967)), which requires that rightward movement be limited within a minimal clause, the ungrammaticality of (21) follows from the constraint on HDPS.<sup>5</sup> Thus, Lasnik's proposal that the second *wh*-phrase in MS involves rightward focus movement, seems to be able to explain more straightforwardly the derivation of MS. The following section examines whether his proposal is adequate enough.

#### 4.2.2.2 Where Does the Second *Wh*-phrase Go?

As we have seen above, Lasnik's analysis is very interesting and thus seems to be very plausible because it can capture the facts seen in MS. However, even on his analysis, some questions remain to be addressed. Although the most prominent point in his proposal is that the second *wh*-phrase in MS undergoes rightward focus movement, it has not been discussed precisely how the rightward moved second *wh*-phrase is interpreted as a questioned element together with the first *wh*-phrase, which I claim is still controversial. In fact, his account stops short of showing clearly how and to which position the second *wh*-phrase is moved in MS. Besides, as Nishigauchi (1998) pointed out, MS prefers a pair list reading, but it is not clarified how this will come out. Lasnik (2014) only mentions that the second *wh*-phrase is raised rightward to a position high enough where it is interpreted as a *wh*-operator, but the final landing site and its interpretation procedure are not precisely specified. Since his proposal seems to be very impressive and appealing in explaining

some facts in MS, it is worthwhile to pursue in detail what movement the proposed rightward focus movement of the second *wh*-phrase involves and consider how it can be interpreted together with the first one as question elements. Thus, it is important to see how we can formalize the rightward focus movement of the second *wh*-phrase in MS. In other words, we need to consider whether the rightward *wh*-movement itself in MS is possible at all.

For a moment, intuitively, there could be two possible ways to move the second *wh*-phrase rightward. One possibility is that the second *wh*-phrase moves rightward to a position outside the TP exactly like HDPS or focus movement and then rises to the CP position, whether overtly or covertly for interpretation. The other is that since multiple *wh*-fronting is prohibited, the second *wh*-phrase is moved overtly rightward to the right edge of the CP with the first *wh*-phrase fronted leftward. Let us see these two possible ways in turn. We will eventually see that the rightward *wh*-movement is difficult to formalize.

Let us begin with the first option. Suppose that the movement of the second *wh*-phrase is exactly a kind of focus rightward movement like HDPS. If so, Lasnik's account would be inconsistent with "Criterial Freezing Effect" proposed by Rizzi (2006, 2010). Rizzi claims that an element attracted by a discourse-related head, a criterial head in his term, such as FOC(US), TOP(IC), Q(UESTION), and so on, is prevented from moving further to another criterial head. This is exemplified in (22).

- (22) a. Who thinks that Mary hates which problem?  
b. \*Who thinks that which problem, Mary hates *t*?  
c. Who thinks that this problem, Mary hates *t*? (Rizzi (2010: 23))

In (22b), the *wh*-phrase *which problem* is moved to the topicalized position within the embedded clause just like the object DP in (22c). Due to the freezing effect, however, the topicalized *wh*-phrase gets "frozen" in the place, and thus, even the covert *wh*-movement to

a higher position as a question operator is blocked. As a result, the sentence (22b) fails to receive appropriate interpretation unlike (22a). If this is correct, the same reasoning would hold for MS under Lasnik's analysis. Observe the following derivation of (20), repeated as (23).

- (23) Someone talked about something,  
 but I can't remember who<sub>i</sub> [~~t<sub>i</sub> talked t<sub>j</sub>~~] [about what]<sub>j</sub>.

No problem will be raised with regard to the first *wh*-phrase which has moved leftward to the embedded CP. What about the second one? If it was moved rightward like in a way such as HDPS or other focus movement, the *wh*-phrase would get frozen in the position and become unable to receive appropriate interrogative interpretation after it has landed on the right end position. It is, however, pointed out that in an MS context, pair-list reading is preferred in a subsequent conversion, contrary to expectation. Consider (24)-(26).

- (24) a. I know that in each instance one of the girls got something from one of the boys. Namely, Jane from Tom, Susan from Tim, etc.  
 (Nishigauchi (1999: 190))
- b. I know that in this instance one of the girls got something from one of the boys. \*Namely, Jane from Tom, Susan from Tim, etc.  
 (Nishigauchi (1999: 191))
- (25) a. I know that in each instance one of the girls got something from one of the boys. But they didn't tell me which from which.  
 (Nishigauchi (1998: 122) cf. Bolinger (1978: 109))
- b. I know that in this instance one of the girls got something from one of the boys. \*But they didn't tell me which from which.  
 (Nishigauchi (1999: 190))

(26) A: In every class, one of the students had to talk about one of the topics given by the professor, but do you remember which one about which topic?

B: Yes, as far as I know, Brandon talked about the NFL, Dice about the NHL, Cindy about the MLB, and Denver about the NBA.

As shown in (25) and (26), multiple sluicing is only possible when a pair-list reading is available. The fact above shows that in MS, the second *wh*-phrase is required to receive the interrogative interpretation in accordance with the first *wh*-phrase. This means that the second *wh*-phrase would have to move to a position where it can serve as an operator even if it underwent rightward movement. Although Lasnik (personal communication) comments that the second *wh*-phrase moves close to a position where it is interpreted as an operator, it is not clear enough how the procedure of interpreting *wh*-phrases will be dealt with.

Take the second option; is there any possibility that the second *wh*-phrase could move rightward to a CP, instead of being fronted leftward? If the second *wh*-phrase cannot be interpreted after focus-related movement or alike for reasons we have just seen, this option may be worth examining. Let us see whether the second *wh*-phrase in MS will be able to move rightward to the CP to receive the interrogative interpretation. In English multiple *wh*-questions, the second *wh*-phrase is normally considered to be frozen in the original position, I expect that this option of rightward movement in MS would also be less possible.

In fact, there is some evidence that a rightward moved *wh*-phrase cannot function as an element to be questioned. According to some of my informants, the examples in (27) and (28), where the second *wh*-phrase in a multiple *wh*-question appears to have moved rightward across an adverbial phrase, are somewhat difficult to interpret as expecting a pair-list reading.

(27) a. Which student talked about which topic at the PE class?

- b. ?Which student talked  $t_i$  at the PE class [about which topic]<sub>i</sub>?
- (28) a. Which student played which instrument in the concert?
- b. ?Which student played  $t_i$  in the concert [which instrument]<sub>i</sub>?

In (27) and (28), the relevant second *wh*-phrase is a PP and a DP, respectively. My informants judged that the (a) sentences in (27) and (28) are acceptable as requesting a pair-list answer such as (29), but the (b) sentences are not as unnatural as the (a) sentences, and expecting such answers is difficult.

- (29) a. Brandon talked about the NFL, Dice about the NHL, Cindy about MLB, and Denver about the NBA.
- b. Brandon played the guitar, Dice the sax, Cindy the trumpet, and Denver the piano.

In addition, as (30) and (31) show, the embedded multiple *wh*-questions involving rightward *wh*-movement are also unnatural. However, they get much improved when they are put in an MS context in terms of requesting their pair-list answers.

- (30) a. Do you remember which student talked about which topic in the PE class?
- b. ?Do you remember which student talked  $t_i$  in the PE class [about which topic]<sub>i</sub>?
  - c. In every class, one of the students talked about some topic in the PE class, but I don't remember which student about which topic.
- (31) a. Do you remember which student played which instrument in the concert?
- b. ?Do you remember which student played  $t_i$  in the concert [which instrument]<sub>i</sub>?

- c. One of the students played one of the instruments in the concert, but do you remember which student which instrument?

Note that it has been pointed out that a PP is more preferable than a DP as the second *wh*-phrase in MS, but the example in (31c) is not judged to be degraded at all. They each permit the answers like (29). This means that although Lasnik's rightward movement analysis is very attractive, it is not plausible enough that rightward movement is involved in MS.<sup>6</sup>

Besides, even in MS contexts, the second *wh*-phrase that seems to have been overtly moved across an adverbial phrase is judged as degraded or unacceptable.

- (32) In every class of our PE course, one of the students has to talk about one of the presented topics. ?\*Do you remember which student in yesterday's class about which topic?

In (32), the second *wh*-phrase *about which topic* is moved across the adverbial phrase *in yesterday's class*, but the sentence is not acceptable as an embedded multiple question.

As demonstrated in this section, the analyses by Richards and Lasnik are very interesting and appealing, but as long as examined here, they still include both empirical and theoretical problems to solve. In the next section, I will tackle this mysterious phenomenon and propose an alternative analysis of how MS should be derived.

### **4.3 An Alternative Analysis Based on Non-Constituent Deletion**

#### **4.3.1 A Non-movement Analysis of Multiple Sluicing**

Given the discussion above, there are mainly two aspects related with a derivation of MS. One has to do with interpretation of multiple *wh*-phrases. It is important to consider what makes pair-list reading possible in MS. In addition to this, we have to consider how the

deletion operation is applied in MS. The other is the clause-mateness of multiple *wh*-phrases in MS. Unlike SS, where a *wh*-phrase can take wide scope out of an island, the multiple *wh*-phrases in MS are subject to the clause-mate condition, under which the *wh*-phrases in MS must be related within the same clause (the CP category in our framework). I expect that clarifying a mechanism of explaining these points will provide a more adequate analysis of the derivation of MS.

#### 4.3.1.1 The Clause-mateness of *Wh*-phrases in MS

Before exploring an alternative analysis, recall that there is a clause-mate condition imposed on *wh*-phrases in MS. This is another intriguing phenomenon and one of the most difficult problems to solve. To see again that MS is subject to the clause-mate condition, I begin with an example of SS such as (33), which looks ambiguous with respect to the scope of *which comet* corresponding to the subject in the embedded clause in the antecedent clause.

- (33) The scientist suggested that a comet is approaching the earth, but it's unclear  
which comet. (Nishigauchi (1999: 191))

In (33), *which comet* in the second clause can be interpreted either as taking wide (larger) scope over the matrix clause or as taking narrow scope over the embedded clause as paraphrased below.

- (34) a. The scientist suggested that a comet is approaching the earth, but it's unclear  
which comet the scientist suggested is approaching.  
b. The scientist suggested that a comet is approaching the earth, but it's unclear  
which comet is approaching.

In the former case, the *wh*-phrase *which comet* takes scope over the matrix clause while it

takes only the embedded clause in the latter case. Either of these cases can be easily available.

However, Nishigauchi points out that in MS like (35a), the relation of the multiple *wh*-phrases is only limited within the embedded clause and the relation across the clause boundary as (35b) is degraded.

(35) a. Mary said everybody will buy something, but ??it's not clear who what.  
(Nishigauchi (1999: 192))

b. Mary said everybody will buy something, but ??it's not clear who Mary said will buy what.

If the second conjunct in (35a) is changed so that the *wh*-phrases are in the same CP like (36), the sentence will be much better.

(36) Mary said everybody will buy something, but she didn't say who what.

The examples in (35) and (36) show that it is difficult to take *who* out of the embedded clause and interpret it at a position in the matrix clause.

There is another example that indicates one *wh*-phrase in the matrix clause is not associated with the second one in the embedded clause.

(37) a. \*One of the students said that Mary spoke to one of the professors, but I don't know which student to which professor. (Lasnik (2013: 6))

b. In each instance, one of the students talked about one of Chomsky's works, but I don't know exactly which about which. (Lasnik (2013: 6))

(37b), where the *wh*-phrases are in the same clause unlike (37a), is judged to be improved

in the acceptability. This shows that *wh*-phrases in MS must observe the clause-mate condition. Recall that in order to explain this property, Lasnik attempts to argue that the second *wh*-phrase undergoes focus rightward movement which is sensitive to Ross's Right Roof Constraint, but in the previous section I argued that this rightward movement analysis is not adequate enough because more complex assumptions would be required for the interpretation of the multiple *wh*-phrases. Thus, it becomes necessary to explain the clause-mateness seen above in an alternative way. For the moment, putting this problem of clause-mateness aside, I would like to see briefly again the alternative analysis of pair-list interpretation, based on Baker's abstract question morpheme (Q-morpheme), which has been introduced in the previous chapter.

#### 4.3.1.2 Baker's Q-morpheme Again

In this section, I will discuss how *wh*-phrases in an elided clause can be interpreted in MS and what its structure is like. As I have discussed in the previous chapter, extending the Q-morpheme by proposed by Baker (1970), I assume that the Q-morpheme on a C-Head binds *wh*-phrases *unselectively* (in Heim's term) without ordinary *wh*-movement to a CP. Building on this assumption, I would like to propose that *wh*-phrases in MS, bound by the Q-morpheme, stay in situ except some cases where other syntactic features require movement. Moreover, I will explore a possibility that the second *wh*-phrase in MS is different from a regular multiple *wh*-question, but it behaves like a strong quantifier *every* in its interpretation.

First, let us review quickly the assumptions I adopted in the last chapter to see how a multiple question is interpreted. Here, I pay attention mainly to multiple *wh*-questions. As for multiple *wh*-phrases and their interpretations, several analyses have been presented in the literature. In particular, in languages with limited application of *wh*-movement such as English, how multiple *wh*-questions are interpreted is one of the most difficult topics. To see how they are interpreted, take an example like (38A), which allows a pair-list answer

(38B) even though only one *wh*-phrase is fronted to the Spec-CP.

(38) A: Who brought what for our white elephant yesterday?

B: Dice brought a calendar, Jackie (brought) gloves, and Adam (brought) a funny pen.

In (38), although only one *wh*-phrase seems to have been moved to the Spec-CP, the second *wh*-phrase is allowed to be interpreted in the same position. To account for this, Baker (1970) assumes the traditional assumption that a *wh*-phrase functions as a “restricted free variable,” which must be bound by its appropriate operator, and claims that *wh*-phrases can be bound by the Q-morpheme on a C-Head. (For Baker’s examples, see Baker (1970: 215).)

Looking at English examples doesn’t give us clear evidence to support the existence of the Q-morpheme, but Japanese examples, in which no *wh*-fronting is involved, indicate that there is a Q-morpheme serving as an operator on a C-Head.

(39) A: Kinou Dare<sub>i</sub>-ga Nani<sub>j</sub>-o kaimashita ka<sub>(i,j)</sub>  
yesterday who-Nom what-Acc bought Q  
‘Who bought what yesterday?’

B: Mina-wa Hon-o, Taro-wa CD-o, Jiro-ha chizu-wo katta.  
Mina-Nom book-Acc, Taro-Nom CD-Acc, Jiro-Nom map-Acc bought  
‘Mina bought a book, Taro a CD and Jiro a map.’

In (39), the morpheme *ka* binds *dare* and *nani* unselectively at the same time, asking for a pair-list answer like (39B). Considering this observation, I have presented the following assumptions.

- (40) a. The Q-morpheme has to be phonologically adjacent with a *wh*-phrase in languages with *wh*-movement such as English, but it does not have to be adjacent in languages without the movement such as Japanese.

(Adjacency requirement)

- b. The Q-morpheme can bind variables unselectively.

This is illustrated as in (41) and (42). See also (67) and (68) in Chapter 3.

(41) *English-type Languages*

- a. [CP WH<sub>i</sub> [[C-Q<sub>i</sub>] [... [*WH*<sub>i</sub> ...]]]] (Single *wh*-question)  
 b. [CP WH<sub>i</sub> [[C-Q<sub>(i,j)</sub>] [... [*WH*<sub>i</sub> [...WH<sub>j</sub> ]]]]] (Multiple *wh*-question)

(The italicized WH stands for the copy of a moved *wh*-phrase.)

(42) *Japanese-type Languages*

- a. [CP [C-Q<sub>i</sub>] [... [*WH*<sub>i</sub> ...]]] (Single *wh*-question)  
 b. [CP [C-Q<sub>(i,j)</sub>] [... [*WH*<sub>i</sub> [...WH<sub>j</sub> ]]]] (Multiple *wh*-question)

I assume that (41) and (42) are basic structures of *wh*-questions.

As discussed in the previous chapter, however, there are some different means by which the requirement of the phonological adjacency is satisfied. Recall that the requirement of the phonological adjacency between the Q-morpheme and a *wh*-phrase can also be satisfied in some contexts where a *wh*-phrase does not move to a CP. One of the cases is a situation when the first *wh*-phrase is a subject, which is moved to a Spec-TP by the EPP feature in the T-Head as illustrated in (43).

- (43) [CP [C-Q<sub>i</sub>] [TP WH(subject)<sub>i</sub> T [<sub>v</sub>\*P *WH*(subject)<sub>i</sub> ...]]]

In this case, the phonological requirement can be satisfied by a *wh*-phrase in the Spec-TP as

(43).

Another case is when a deletion operation is applied to a relevant category. The deletion will enable a *wh*-phrase in a different position from a CP to be adjacent to the Q-morpheme. That is, as long as one *wh*-phrase and Q morpheme eventually result in being phonologically adjacent, overt *wh*-movement to a CP is not necessarily required even in *wh*-fronting languages. This explains the insensitivity of the island condition in SS without serious problem of applying island-violating movement. This is roughly illustrated as below.

- (44) a. She kissed a man who bit one of my friends, but Tom doesn't realize which one of my friends.  
b. [[Q<sub>i</sub>-C][<sub>TP</sub> ~~She~~ [<sub>CP</sub> ~~kissed a man who bit~~ [which one of my friends]<sub>i</sub>]]]

In (44), the deletion operation makes the *wh*-phrase adjacent to the morpheme.

(40) is also supported by the evidence involving MS as below.

- (45) a. I know John was talking with somebody about something, but I don't know who with about what.  
b. \*I know John was talking with somebody about something, but I don't know with who what about.  
c. \*I know John was talking with somebody about something, but I don't know what with who about.  
d. \*I know John was talking with somebody about something, but I don't know who with what about.  
e. \*I know John was talking with somebody about something, but I don't know who what with about. (Richards (2001: 139))

In (45), only the first *wh*-phrase can be fronted before the preceding preposition. In the

last chapter, I claimed that in a Swiping context, the (first) *wh*-phrase could move before the preposition at PF and this movement could help the *wh*-phrase to satisfy the adjacency requirement of the Q-morpheme, instead of the *wh*-phrase itself moving to the Spec-CP.

(46) a. Lois was talking (to someone), but I don't know who to.

(Merchant (2001: 65))

b. I don't know [<sub>CP</sub> [Q<sub>i</sub>-C] [~~TP~~ Lois was talking [<sub>PP</sub> who<sub>i</sub> [to t<sub>i</sub> ]]]]

In (46), the movement to the edge of PP (if PP counted as one of the phases in the current theory) makes the *wh*-phrase adjacent to the Q-morpheme.

If the overt operation “Move” was a composite operation consisting of “Copy, Move, and Merge,” and another operation was expected to be available in a later stage of derivation, it would be possible to assume that *wh*-phrases in MS do not have to move unless there is any other strong feature attracting them such as the EPP feature on a T-Head.<sup>7</sup>

Considering the discussion here and the assumption that the availability of a pair-list reading in multiple *wh*-questions follows from the properties of the Q-morpheme binding *wh*-phrases unselectively, we can expect that MS can be derived just like SS. It is also possible that unlike the first *wh*-phrase, the second *wh*-phrase in MS is not motivated to move at all. Note that it may also be reasonable to assume that the uninterpretable Q-features or [-WH] of a *wh*-phrase, if any, could be valued thanks to the unselective binding by the Q-morpheme.

#### 4.3.1.3 Unselective Binding of Indefinite Nouns in MS

Next, let us see an antecedent clause in MS. Just like SS, there should be indefinite noun phrases corresponding to the *wh*-phrases in a sluiced clause in MS, too.

(47) SS

- a. He likes a certain girl, but I don't know who (he likes *t*).
- b. \*He likes the girl, but I don't know who (he likes *t*).
- c. A certain girl loves him, but I don't know who (*t* loves him).
- d. \*?The girl loves him, but I don't know who (*t* loves him).

(See Chapter 3, Section 3.1 for details.)

(48) MS

- a. In every class, one of the students had to talk about one of the topics given by the professor, but do you remember which one about which topic?
- b. \*In every class, the student had to talk about one of the topics given by the professor, but do you remember which one about which topic?
- c. \*In every class, one of the students had to talk about the topic given by the professor, but do you remember which one about which topic?
- d. \*In every class, the student had to talk about the topic given by the professor, but do you remember which one about which topic?

As noted above, MS prefers a pair list reading as its answer. This means that just as CLM's "roofing effect" in SS, an antecedent clause in an MS context denotes that there are two specific elements presupposed to exist. Then, the *wh*-phrases in the second conjunct are supposed to ask about the corresponding indefinite noun phrases. Just like cases of SS, since indefinites are assumed to be undetermined with respect to their interpretation, they must be bound by an operator. Therefore, an existential operator binds multiple indefinites in the first conjunct unselectively in the same way as the unselective Q-morpheme binding in the second conjunct. This is roughly illustrated as in (49).

(49)  $[[C-\exists_{(i,j)}] [\dots [\dots \text{Indef}_i [\dots \text{Indef}_j ]]]]$

Thus, (49) ensures that it is presupposed that in the grammatical case (48a), there are one student and one topic present in each class.

Given this, I assume that an appropriate operator located on a C in each relevant clause in MS binds unselectively its variables in situ unless there is no other motivation present in the structures.

#### 4.3.2 The Clause-mateness and Properties of the Second *Wh*-phrase in MS

Now, I turn to the difficult problem of clause-mateness of MS. It is this problem that worries a lot of linguists interested in explaining the derivation of MS. I will claim that the clause-mateness of MS actually comes from the properties of the second *wh*-phrase, which behaves like a strong quantifier *every*.

##### 4.3.2.1 Is MS an Instance of Gapping?

Although Lasnik's analysis of rightward movement is not entirely satisfactory in that the analysis based on the rightward movement of the second *wh*-phrase in MS is not plausible enough, his insight on the second *wh*-phrase basically seems to be correct in a sense. Lasnik (personal communication) suggests that unlike regular multiple *wh*-questions, the second *wh*-phrase in MS is phonologically stronger or higher in accent than the first one while the *wh*-phrases are both semantically focus-marked as new information. Thus, suppose that both of the *wh*-phrases have a kind of focus feature [F], and the second *wh*-phrase involves relatively higher stress marked as high stress (HS) than the first one marked as low stress (LS). This is illustrated as (50).

- (50) a. Somebody bought something, but nobody told me  $\frac{\text{who}_{[F]}}{\text{LS}} <\text{bought}>$   
 $\frac{\text{WHAT}_{[F]}}{\text{HS}}$ .

- b. ?\*Somebody bought something, but nobody told me  $\frac{\text{WHO}_{[F]}}{\text{HS}}$  <bought>  
 $\frac{\text{what}_{[F]}}{\text{LS}}$ .

(51) Who brought what for our white elephant yesterday?

In this point, the second *wh*-phrase in MS is innately different from that in a multiple *wh*-question (51). That the remnants have a kind of phonological focus is reminiscent of Gapping, which would support the analyses by Nishigauchi (1998) and Abe (2016). Abe (2016) claims that MS is similar to Gapping in that the behavior of remnants in an elided clause is similar to that of Gapping with respect to clause-mateness. See the examples below.

(52) \*One of the students said that Mary spoke to one of the professors, but I  
 don't know which student to which professor. (Lasnik (2013: 6))

(53) \**John* thinks that *Bill* will see Susan, and *Harry* \_\_\_ *Mary*.

(Abe (2016: 151), originally, Abe and Hoshi (1997: 103))

According to Abe, in Gapping, only the focus feature [Focus] of the focus elements in each conjunct first undergoes covert movement. Then, if it creates string vacuity as a result of the covert movement, their phonological feature [PF] will be left in its trace position, but if it ends in non-string vacuity, the phonological feature should be pied-piped to the position where the focus feature has been moved, obeying the locality condition such as Right Roof Condition. Under this analysis, due to the string-vacuous movement, in the mono clause Gapping example (54), all the focus-related elements don't move phonologically at all.

(54) a. John like pizza and Bill spaghetti.

- b. [TP <John><sub>[Focus]</sub> [TP <John><sub>[PF][Focus]</sub> Pres [VP like <Pizza><sub>[PF][Focus]</sub>]]  
 <pizza><sub>[Focus]</sub> and [TP <Bill><sub>[Focus]</sub> [TP<sub>[Delete]</sub> <Bill><sub>[PF][Focus]</sub> Pres [VP like  
 <spaghetti><sub>[PF][Focus]</sub> <spaghetti><sub>[Focus]</sub>] (Abe (2016: 151))

In (54), the [Focus] feature of the subject is covertly left-adjoined to the TP while the feature of the object is right-adjoined to the same TP. Note that a category which will undergo deletion is given a [Delete] feature. This feature instructs the PF interface to delete its category except elements with the [PF] feature. Then, (54a) is finally derived by deletion.

The same analysis is applied to the case of MS. Take (55a), for example.

- (55) a. ?One of the students spoke to one of the professors, but I don't know  
 which to which. (Abe (2016: 149))
- b. I don't know [CP <which><sub>[Focus]</sub> [TP<sub>[TP[Deletion]]</sub> <which><sub>[PF][Focus]</sub> Past  
 [VP speak <to which><sub>[PF][Focus]</sub>] <to which><sub>[Focus]</sub>] (Abe (2016: 152))

As illustrated in (55b), the [Focus] feature of the first *wh*-phrase is left-adjoined while the second *wh*-phrase is right-adjoined. Then, the TP marked as [Deleted] is elided with the elements with the [PF] left undeleted. As a result, MS (55a) is derived like (54a).

Adopting this analysis, Abe provides an explanation of the ungrammaticality of MS such as (52), repeated as (56), where the second *wh*-phrase is related to the first *wh*-phrase in the matrix clause. Abe assumes for unspecified reasons that the focus movement of the second *wh*-phrase is “inherently covert,” and thus it is subject to locality conditions such as Right Roof Constraint and the island conditions (Abe (2016: 152)). Thus, the movement of the second focus phrase in each conjunct is blocked by the locality condition Abe assumes, hence the ungrammaticality of (56) just like (53).

(56) \*One of the students said that Mary spoke to one of the professors, but I don't know which student to which professor.

It is claimed that in (56), the second *wh*-phrase cannot move out of the embedded *that*-clause.

Abe's analysis depends largely on the fact that Gapping usually involves more or less contrastively stressed elements in the antecedent clause. In (57a), there are two paired focus relations between <*John, Bill*> and <*pizza, spaghetti*>. However, in MS such as (57b), indefinite noun phrases *someone* and *something* in the first conjunct corresponding to the remnant *wh*-phrases are given a normal or flat tone, and they don't have such a salient property.<sup>8</sup>

- (57) a. *John* likes *pizza*, and *Bill* *spaghetti*.  
b. Someone talked about something, but I don't know who about what.

Second, Richards (1997, 2001) and Lasnik (2014) also conclude that MS is not absolutely similar to Gapping. In fact, it is pointed out that there are two differences between Gapping and MS. The first argument against the claim that MS is another instance of Gapping is that while "Gapping obeys an extraordinary strict locality condition," MS is not subject to such a condition. Compare (58) and (59), which are from Lasnik (2013).

- (58) a. Mary talked about *Syntactic structures* and John about "Conditions and Transformations."  
b. \*Mary talked about *Syntactic structures* and I think John about "Conditions and Transformations." (Lasnik (2013: 6))

(59) In each instance, one of the students talked about one of the Chomsky's works, but I don't know exactly which about which. (Lasnik (2013: 6))

In Gapping (58), the gapped clause must be conjoined with the antecedent clause, but this is not true for MS (59).

The second argument is that MS is more like SS than Gapping because it allows the first *wh*-phrase to precede the preposition which it follows.

- (60) a. I know John was talking with somebody, but I don't know who with.  
b. I know John was talking with somebody about something, but I don't know  
who with about what. (Richards (2001: 139))

However, Gapping doesn't permit this order.

- (61) Mary was talking with John about ergativity,  
a. ...and with Bill about the stock market.  
b. \*...and Bill with about the stock market. (Richards (2001: 139))

Unlike (60b), (61b), where the first remnant cannot move before the preposition, is judged to be ungrammatical. These facts show that MS is not an instance of Gapping at all, but it is similar to SS, but different in that it includes another *wh*-remnant which acts on par with the first *wh*-phrase within the same clause. In the next section, I will see more closely the properties of the second *wh*-phrase.

#### **4.3.2.2 The Properties of the Second *Wh*-phrase in MS**

##### **4.3.2.2.1 The Behavior of a Strong Quantifier**

Now that it is clear that MS does not involve movement related to *wh*-movement, HDPS and Gapping, I would like to propose a different approach to MS. In order to do this, it is appealing to attempt to pay attention to behavior of another kind of syntactic element located in an embedded clause: noun phrases with a strong quantifier, *every*, in terms of Reinhart

(2006).

Interestingly, we can find that the second *wh*-phrase in MS is very similar to a strong quantifier such as *every* in the possibility of taking scope out of a clause. Thus, we will see it is possible that the clause-mateness of MS would come from the same property of the second *wh*-phrase as the strong quantifier. As seen in the previous chapter, indefinite noun phrases do not obey the island conditions in terms of scope. However, noun phrases with a strong quantifier such as *every* are subject not only to the island conditions, but also a stricter locality condition, the clause-mate condition, in general. Let us see some examples, beginning with (62).

(62) ( $\forall > \exists / \exists > \forall$ )

Someone attended every seminar.

(Hornstein (1995: 155))

(62) is ambiguous with respect to a scopal relation between the indefinite noun phrase *someone* and the noun phrase with *every*. In addition, the same ambiguity is observed in the case of a sentence includes an infinitival complement of matrix verbs like *want* or *expect*.

(63) ( $\forall > \exists / \exists > \forall$ )

- a. Someone expects to dance with every woman.
- b. Someone wants to dance with every woman.

(Hornstein (1995: 78 (24a, b)))

However, this ambiguity will disappear when the strong quantifier is located inside an island.

(64) ( $\exists > \forall / \forall > \exists$ )

- a. Someone met the child that talked to everyone.
- b. Someone wondered whether I talked to everyone.

- c. Someone left the meeting before I talked to everyone.

(Johnson (2000: 188))

In (64), the strong quantifier *every* cannot scope out of the island. Note that just like the strong quantifier in (64), focused (topicalized, in the sense of Johnson (2000)) phrases are also “trapped” in an island as shown in (65).

- (65) a. \*It’s Mary that someone met the child that I talked to *t*.  
b. \*It’s Mary that someone wondered whether I talked to *t*.  
c. \*?It’s Mary that someone left the meeting before I talked to *t*.

(Johnson (2000: 188))

The examples in (65) indicate that an element inside an island cannot be a pivot in a cleft sentence.

In addition to the cases of the islands (64), the strong quantifier is subject to a much tighter locality constraint than the focused phrase as shown in (66).

(66) Clause-mateness ( $\exists > \forall$  /  $*\forall > \exists$ )

- a. I told someone you would visit everyone. (Johnson (1999: 188))  
b. One girl knows that every boy bought a present for Mary.

(Fox (2000: 64), (cf. Moltmann and Szabolcsi (1994))

- c. Someone thinks that everyone saw you at the rally. (Williams (1986))

The fact seen in (66) shows that the scope of *every* is only limited within the embedded clause. In fact, according to Fox (2000), the sentences in (67) sound awkward in the real world, but still possible when the quantifier is interpreted inside the clause.

- (67) a. Someone said that everyone is married to Sue. ( $\# \exists > \forall / * \forall > \exists$ )  
 b. Someone said that Sue is married to everyone. ( $\# \exists > \forall / * \forall > \exists$ )  
 (Fox (2000: 62))  
 c. At least one professor claims that Ann reads every journal. ( $\exists > \forall / * \forall > \exists$ )  
 (Grano and Lasnik (2018: 466))

In (67), the strong quantifier cannot take scope over the matrix clause, but it can be interpreted in the lower position.

Notice that unlike (63), the infinitival complement of matrix verbs like *hate* and *claim* prevents the strong quantifier from escaping out of the infinitival clause. Compare (63) and (68).

- (68) a. Someone hates to kiss everyone. ( $\exists > \forall / * \forall > \exists$ ) (Hornstein (1995: 169))  
 b. Someone claimed to hate everyone. ( $\exists > \forall / * \forall > \exists$ )

The facts on control infinitives in (63) and (68) may result from the applicability of “restructuring” an infinitival complement. As discussed in Roberts (1997), Matsuyama (1999), and Hirai (2004), there are some strategies of restructuring to make the complement of verbs such as *want* and *hope* more transparent than those such as *claim*, *hate* and so on.<sup>9</sup> If this restructuring effect is available for the infinitival clauses in (63), sentences like (63) will count as a single sentence. Thus, we can see while a noun phrase with the strong quantifier can take scope over the other element in a mono clausal context such as (62) and (63), it cannot take scope out of an embedded clause as shown in (64) and (66)-(68). These facts lead us to the following generalization.

- (69) a. Strong quantifiers are bound in a minimal CP. (cf. Reinhart (2006))<sup>10</sup>  
 b.  $*_{[CP_1 [c' C-OP_1 [TP_1 \dots [CP_2 [TP_2 \dots \text{every}_i \dots ]]]]$

(69) requires that the strong quantifier be bound in the same clause as its operator. Otherwise, it cannot be correctly interpreted. In the next, we will see similar properties of the second *wh*-phrase in MS.

#### 4.3.2.2.2 The Second *Wh*-phrase in MS as a Strong Quantifier

Now let us turn to MS. Interestingly, the MS construction has phenomena similar to clauses involving the strong quantifier just seen above. Once again, the second *wh*-phrase in MS can act with the first *wh*-phrase only within the same clause, but not across the clauses. See the sentences in question, reproduced as (70).

- (70) a. I know that in each instance one of the girls got something from one of the boys. But they didn't tell me which from which.
- b. \*One of the students said that Mary spoke to one of the professors, but I don't know which student to which professor.

This phenomenon is similar to the facts observed in the behavior of the strong quantifier *every*. We have already seen in the previous section that the strong quantifier located in an embedded clause cannot take scope out of the clause as given in (66) and (67). However, there are some exceptions where the quantifier can take scope out of an apparent embedded clause. We have just seen that the subject control infinitival complement of some verbs such as *except* or *want* is more transparent than that of other verbs such as *claim* or *hate* in terms of the relative scope of the quantifiers. Interestingly, the similar phenomena are found in the case of MS involving an infinitival complement. MS with the complement selected by the same verbs as discussed above is permitted by some speakers. Compare (63) and (71). (71b) is from Lasnik (2014: 10).

- (71) a. ?Some of the students expected to go to some of the lectures, but I'm not sure which to which.?
- b. ?Some of the students wanted to go to some of the lectures, but I'm not sure which to which. (Lasnik (2014: 10))

(71) show that the second *wh*-phrase can be one of the remnants together with the first *wh*-phrase in the matrix clause even when it is inside the infinitival clause. Similarly, the verbs that disallow the quantifier to extend out of their complement do not allow the second *wh*-phrase located inside the clause to be a remnant in MS. Compare again (68) and (72)

- (72) a. \*?Some of the editors claimed to have commented on some book, but nobody knows which on which book.<sup>11</sup>
- b. \*?Some of the students hated to talk to some of the linguists, but nobody told me which to which.

As (72) shows, MS with verbs like *claim* and *hate* is not admitted. This means that the restructuring effect is available for the second *wh*-phrase, too and the second *wh*-phrase is similar to the strong quantifier.

Another similarity is found in sentences with other infinitival complements.

- (73) a. Someone persuaded John to attend every class. ( $\exists > \forall / * \forall > \exists$ )  
(Hornstein (1995: 156))
- b. Some of the teachers wanted Bill to attend every course. ( $\exists > \forall / * \forall > \exists$ )
- c. \*Some of the students wanted John to go to some of the lectures, but I'm not sure which to which. (Lasnik (2013: 10))

(73a, b) are unambiguous because *every* is interpreted only within the infinitival

complement, and it cannot take scope over the subject. Likewise, MS, where the second *wh*-phrase is related to the first *wh*-phrase out of the infinitive, is not permitted.

More interestingly, there is another similarity between the strong quantifier and the second *wh*-phrase with respect to the possibility and interpretability of inverse scope. Actually, we can see another instance of obviation of the clause-mate condition of MS pointed out by some speakers. Grano and Lasnik (2018) present an example in (74c), where the inverse scope is possible exactly in the same environment where MS is admitted. Compare (74a) and (74b) with (74c).

- (74) a. ?[Some of the students]<sub>i</sub> thought they<sub>i</sub> would go to some of the lectures, but I'm not sure which<sub>j</sub> (~~thought they<sub>i</sub> would go~~) to which.

(Lasnik (2013: 11) originally from Merchant (2001: 113))

- b. ?Someone<sub>i</sub> claims that they<sub>i</sub> are worried about something, but I don't know who<sub>j</sub> (~~claims that they<sub>i</sub> are worried~~) about what.

(Grano and Lasnik (2018: 471))

- c. ?At least one professor<sub>i</sub> claims that she<sub>i</sub> reads every journal. ( $\forall > \exists$ )

(Grano and Lasnik (2018: 467))

(74) show that when an embedded clause includes a bound pronoun in the subject position, an MS and an inverse scope across the clause boundary become possible. According to Grano and Lasnik, in these examples, the CP boundary is extended to the upper CP because bound pronouns optionally enter the derivation with unvalued features, which voids and extends a locality domain for a syntactic operation if phases are propositional and convergent as assumed by Chomsky (2000). Therefore, (74) show that the second *wh*-phrase is very similar to the strong quantifier.

Given these similarities presented above, it is reasonable to suppose that although the second *wh*-phrase in MS is phonologically focused, it has properties of a strong quantifier

like *every* in nature. Therefore, we can assume that the second *wh*-phrase in MS must be bound in the same way as a strong quantifier. This alternative idea on the second *wh*-phrase seems to be more adequate because the explanation based on rightward movement of the second *wh*-phrase is not satisfactory enough for some reasons discussed above.

Recall that multiple *wh*-phrases are bound by the Q-morpheme in a multiple question. However, as just pointed out, the second *wh*-phrase in MS is innately similar to a strong quantifier and essentially different from *wh*-phrases in a multiple *wh*-question in that it is phonologically focused. If the second *wh*-phrase in MS, which behaves like the quantifier *every*, can be bound in situ by the Q-morpheme, the structure including it can be illustrated as (75).

- (75) a. Since the second *wh*-phrase in MS has a property of the strong quantifier, it must be bound by the Q-morpheme in the minimal CP along with the first *wh*-phrase.
- b.  $*[CP_1 [c' C-Q_{i,j} [TP_1 WH_i [CP_2 [TP_2 \dots WH_{(strong\ quantifier)_j} \dots ]]]]]$   
 (cf.  $* [CP_1 [c' C-OP_i [TP_1 \dots [CP_2 [TP_2 \dots every_{(strong\ quantifier)_i} \dots ]]]]]$ )

In (75a), the second *wh*-phrase in MS must be bound by the Q-morpheme in the minimal CP. The clause-mateness in MS follows from the properties of the second *wh*-phrase, which are not present in normal multiple *wh*-questions. I will turn to the clause-mateness of MS in the 4.4. (We need to assume that this property of the second *wh*-phrase is obtained as a result of an accompanied operation of deletion applied to the relevant clause in MS.)

### 4.3.3 LF Parallelism

Now, I would like to consider under what condition the deletion operation can be applied to MS and claim that the LF parallelism which I have proposed for SS as a licensing

condition can also be applied to MS in question. More specifically, I argue that just like SS, the applicability of the deletion operation for MS depends on the LF structural parallelism of the operator-variable relation between the antecedent category and the elided one and that under this identity condition, elements implied in the first conjunct are deleted except focus-marked elements to avoid overlapped expression.

#### 4.3.3.1 LF Structural Isomorphism for VP Deletion

Although we have discussed a licensing condition of deletion in some detail in the previous chapter, I will take a moment to see quickly this point again. As for the applicability of deletion, strict identity between an antecedent and an elided clause may be easily characterized in terms of recoverability. In a case of VP deletion like as (76) (= (90) in Chapter 3), whose underlying structure is (77), the strict identity between the antecedent and the elided clause is straightforwardly formalized to determine the possibility of deletion.

- (76) a. I saw the play and so did he.  
 b. I have been seeing the play and so has he.
- (77) a. I [<sub>T(Past)</sub> [<sub>VP</sub> see the play]] and so [T-did [he [<sub>VP</sub> ~~see the play~~]]] (76a)  
 b. I [T-ASP-have [<sub>VP</sub> been seeing the play]] and so [T-ASP-has [he [<sub>VP</sub> ~~been seeing the play~~]]] (76b)

Similarly, the same condition underlies to license deletion in a case of Gapping like (78). See the discussion on (98) and (99) in Chapter 3.

- (78) a. John took Harry to the beach, and Bill Mike.  
 b. John took Harry to the beach, and [Bill [~~took Mike to the beach~~]].  
 c. \*John took Harry to the beach, and [Bill [~~took Mike to the movies~~]].

- d. \*John took Harry to the movies, and [**Bill** [~~recommended Mike the movies~~]].
- e. \*John took Harry to the movies, and [**Bill** [~~recommended Mike the beach~~]].

The possible LF structure of (78a) is only (78b), and the other structures in (78) cannot be an interpretation available to (78a).

In the last chapter, we have seen that phonological reduction or deletion is licensed only if the LF of the elided or down-stressed site is structurally isomorphic to that of its antecedent (Fox (2000), Merchant (2001), Fox and Lasnik (2003)). Under this condition, VP deletion as in (79) seems to be explained. If this turns out to be plausible, it is expected to play a crucial role in determining the applicability of the deletion operation for MS. Suppose that (79a) is derived by deleting the VP *met Bill* in the second conjunct.

- (79) a. Mary met Bill and Sue did too
- b. Mary met Bill and Sue did [~~VP met Bill~~] too.

Since the subject in the  $v^*P$  in each conjunct is moved to the Spec-TP to satisfy the EPP feature, it leaves its trace in the original position. This is illustrated as in (80).

- (80) a. The antecedent clause = [TP Mary<sub>i</sub> ... [ $v^*P$   $t_i$  met Bill]]
- b. The elided clause = [TP Sue<sub>j</sub> ... [ $v^*P$   $t_j$  met Bill]]

As seen in the previous chapter, Merchant (2001) claims that the traces of the subjects are bound by an existential quantifier inserted into the  $v^*P$ .<sup>12</sup> This is roughly illustrated below.

- (81) a. The antecedent  $\nu^*P = \exists x.x \text{ met Bill}$   
 b. The elided  $\nu^*P = \exists x.x \text{ met Bill}$

Note that the trace left by the moved subject is taken as a variable bound by the existential quantifier (Merchant (2001: Chapter 1)). Based on Schwarzschild's (1999) GIVENness, Merchant proposes a version of parallelism, under which the  $\nu P$  in the second clause can be deleted if and only if the LF structure of the  $\nu^*P$  in the second conjunct is identical to that of the antecedent  $\nu^*P$ .<sup>13</sup> Thus, the VP deletion in (79a) is admitted because the parallelism is satisfied as illustrated in (81).

Given this, it can be claimed that phonological reduction or deletion can only be admitted only if the LF dependency of an operator and its variable in the antecedent site and the elided site is structurally isomorphic to each other. This is also supported by other empirical facts, which could be disambiguated or narrowed down in their meaning when deletion is involved. One example is as follows. Consider (82) (= (96) in Chapter 3).

- (82) a. Mary wants to catch a fish.  
 b. Mary wants to catch a fish, and John does, too. (Lasnik 2010: 231)

Since (82a) is ambiguous, (82b) would be ambiguous in four ways. However, only two meanings are available in (82b). It is suggested that the limited meanings in (82b) come from the parallelism under which the existential operator for *a fish* should be inserted in the parallel position in both conjunct. Therefore, that the fact observed in (82b) is explained under the parallelism based on an operator-variable relation means that LF structural parallelism is adequate for a possible analysis of elliptical phenomena. As shown here again, it is reasonable that the parallelism I proposed in the previous chapter is also applicable to cases of MS. The Parallelism I am assuming for SS is (83).

**(83) LF Structural Parallelism**

Phonological deletion is licensed only if the LF structure of a category that contains elided material is structurally isomorphic to that of the antecedent.

However, as discussed in the previous chapter, the parallelism in (83) is not strong enough to decide how deletion is applied to relevant sites in MS any more than the strict identity condition is. Such a simple and straightforward condition cannot serve as an identity condition for MS. Unlike VP deletion, more has to be said in order to apply a deletion operation appropriately to a structure in MS because there are *wh*-phrases left undeleted in the parallel structure while the antecedent structure has indefinite noun phrases. Therefore, in addition to the parallelism in (83), I suppose that the preceding structure serves as presupposition or implication for the corresponding structure, and a deletion operation is applied to as many presupposed or implied elements as possible. This is formalized as (84), which holds for elliptical constructions. Note that this idea is originated in “MaxElide” by Merchant (2008), Hortman (2011) among others.

**(84) Maximal Effect of Deletion**

Delete elements marked as [Presupposed] except focus-marked [F] elements.

With the assumptions above, I attempted to explain the derivation of SS in the previous chapter. A complex instance of SS like (85) is derived as follows.

(85) She kissed a man who bit one of my friends, but Tom doesn't realize which one of my friends (\*she kissed a man who bit *t*).

As assumed above, the indefinite noun phrase inside the relative clause in the first sentence has a specific existential interpretation, bound by an existential closure as illustrated in (86a).



- (87) a. I know that in each instance one of the girls got something from one of the boys. But they didn't tell me which from which.
- b. I know that in each instance one of the girls got something from one of the boys. But they didn't tell me which got something from which.

Once again, (87a) is interpreted as (87b). First, see what the structure of the antecedent clause of MS will be like. Recall CLM's "roofing effect" in SS. As we have seen in the previous chapter (3. 4. 3. 2), SS is only possible when the antecedent clause implies that there is something specific in a given context.

- (88) a. She always reads a book at dinnertime. We can't figure out what/which one.
- b. Everyone relies on someone. It's unclear who.
- c. Both dogs were barking at something, but she didn't know what/what at.

(CLM: 255)

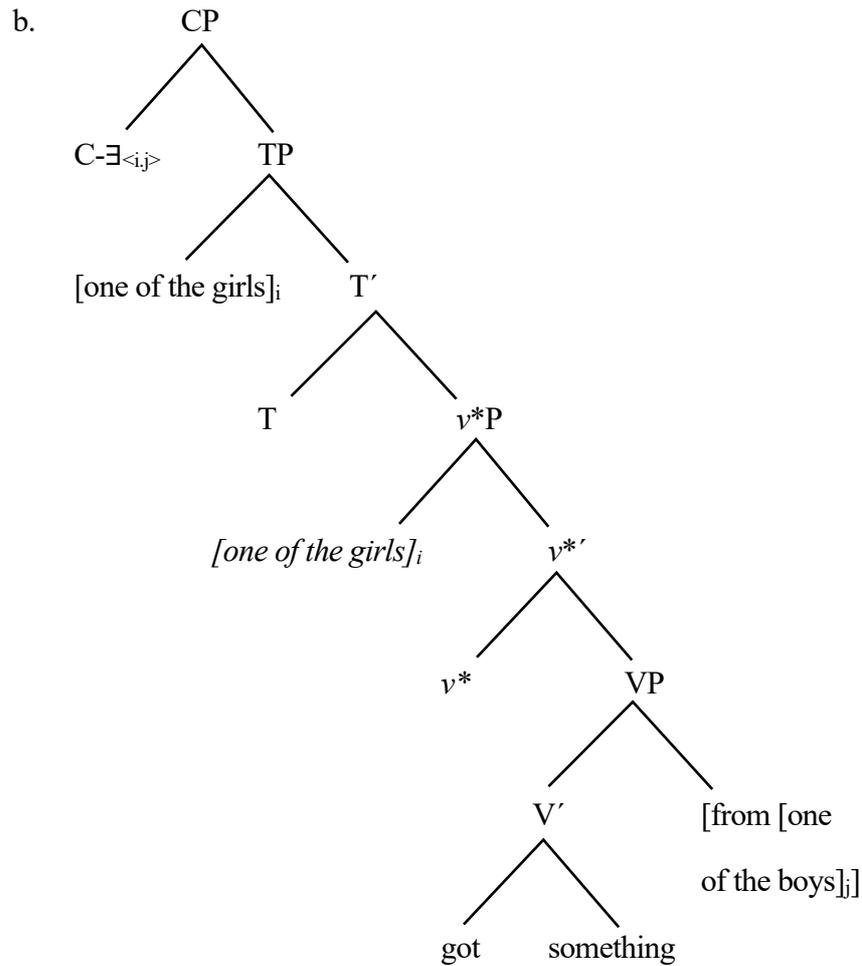
According to CLM, The SS in (88a), for example, is only admitted when there is a book she always reads at the dinner time. The similar judgement is applied to the other example, too. That is, SS requires an indefinite noun phrase in the antecedent clause to take scope over the whole clause. Likewise, MS is only admitted when the existence of a certain pair is presupposed by the antecedent clause. Consider again the examples in (89) and (90).

- (89) a. I know that in each one of the girls got something from one of the boys. Namely, Jane from Tom, Susan from Tim, etc.
- b. I know that in this instance one of the girls got something from one of the boys. \*Namely, Jane from Tom, Susan from Tim, etc.

- (90) a. I know that in each one of the girls got something from one of the boys. But they didn't tell me which from which.
- b. I know that this instance one of the girls got something from one of the boys. \*But they didn't tell me which from which.

(89) shows that a pair-list reading is forced when the event in the embedded clause is modified by the adverb *each*. Just like (89), the MS in (90) becomes possible only in the same context. This means that MS is not permitted unless there is a specific pair list presupposed in the antecedent clause. If an indefinite noun phrase must be bound by an existential operator so that they are properly interpreted, the LF structure of the antecedent CP will be schematized as (91).

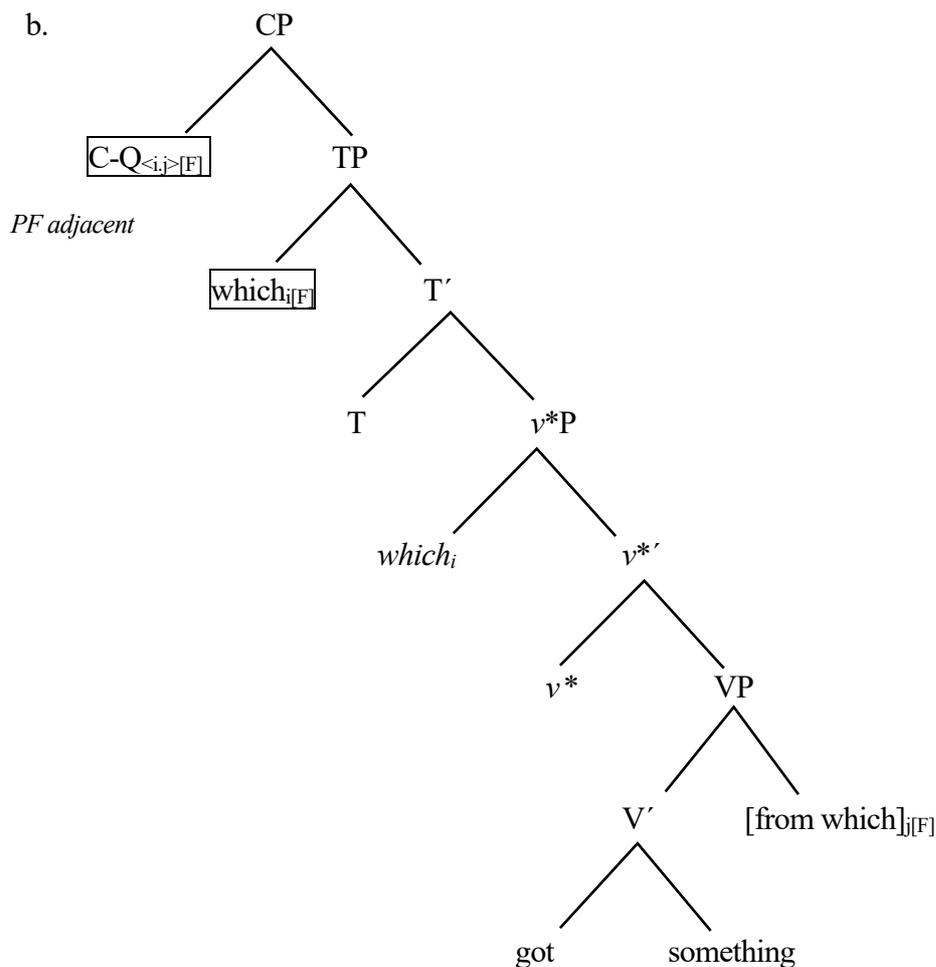
- (91) a.  $[C-\exists_{\langle i,j \rangle} [TP [one\ of\ the\ girls]_i T [v^{*P} [one\ of\ the\ girls]_i v^* [VP\ got\ something\ [from\ [one\ of\ the\ boys]_j]]]]]$



In (91), the existential quantifier on the C-Head binds the indefinite noun phrases unselectively. Note that the subject *one of the girls* is moved from the  $v^*P$  internal subject position to the Spec-TP for the EPP feature with its copy left in the position.<sup>14</sup>

Just like the antecedent clause, the indirect question in the second clause also force a pair-list reading. Thus, under the assumption, the Q-morpheme in the C-Head binds unselectively the *wh*-phrases exactly in the same way as in the antecedent clause. This establishes within the CP clause an embedded interrogative requesting a pair-list reading. This is illustrated as (92).

(92) a. [C-Q<i,j> [TP which<sub>i</sub> T [v<sub>P</sub> which<sub>i</sub> v [v<sub>P</sub> got something [from [which]<sub>j</sub>]]]]]]



Since the CP structure constructed this way counts as a phase, it is the point for the structure to go through TRANSFER, which sends the construed the CP to the PF and LF interfaces. At the same time, both of the LF structures undergo interpretation. In Chomsky (1995) and subsequent works, it has also been suggested that some syntactic objects can be constructed independently of each other and they will be merged at a certain stage of their derivation. If so, the embedded CPs of the antecedent and the elided will be sent to the interfaces simultaneously. At the interfaces, the LF parallelism I have proposed above, as restated below, will be checked for both CPs.

(93) LF Structural Parallelism

Phonological deletion is licensed only if the LF structure of a category that contains elided material is structurally isomorphic to that of the antecedent.

Keep (93) in mind, let us see the LF structures of the relevant category represented in (94).

- (94) a. [C- $\exists_{\langle i, j \rangle}$  [TP [one of the girls]<sub>i</sub> T [vP [*one of the girls*]<sub>i</sub> v [VP got something [from one of the boys]<sub>j</sub>]]]]]  
b. [C-Q $\langle i, j \rangle$  [TP which<sub>i</sub> T [vP *which*<sub>i</sub> v [VP got something [from which]<sub>j</sub>]]]]]

As shown in (94), like the case of SS, the LF structures of each CP are identical to each other in that they have the same dependencies of operator and variable relationship as in (95), where the operator binds the variables unselectively.

- (95) OP $\langle x, y \rangle$  [... [xthing/one] ... [ything/one]]

As a result, the LF structural parallelism in (93) is correctly satisfied, and the second clause is now ready to undergo an elliptic operation.

However, under the mechanism of the parallelism, it is not precisely specified what are deleted for MS to be correctly derived? Then, the second condition (96) will work on the structures.

(96) **Maximal Effect of Deletion**

Delete elements marked as [Presupposed] except focus-marked [F] elements.

Although the LF structures of the antecedent and the elided clause are identical in that they each consist of an operator and its variable in the same manner, the innate properties of the



preposition are percolated up to each PP and the PPs.

- (100) a.  $[[[C-\exists_{\langle i, j \rangle}] [TP \text{ John was-T } [_{VP} v [_{VP} \text{ talking } [\text{with somebody}]_i [\text{about something}]_j]]]]]$   
 b.  $[[[C-Q_{\langle i, j \rangle}]_{[F]} [TP \text{ John was-T } [_{VP} v [_{VP} \text{ talking } [\text{with who}]_{i[F]} [\text{about what}]_{j[F}]]]]]]]$

Based on the presupposition denoted by (100a), the *wh*-phrases as well as the operator are [F]-marked because they are indeterminate elements just like the indefinite noun phrases in (100a) but they are bound by the different operator. (100b) is isomorphic to (100a), the LF structural parallelism is satisfied as required, the Maximal Effect of Deletion is applied to (100b) as illustrated in (101).

- (101)  $[[[C-Q_{\langle i, j \rangle}]_{[F]} [TP \text{ John was-T } [_{VP} v [_{VP} \text{ talking } [\text{with who}]_{i[F]} [\text{about what}]_{j[F}]]]]]]]$   
 [Presupposed]

As (101) shows, the deletion operation makes the first *wh*-phrase with *with* phonologically adjacent to the Q-morpheme. As a result, MS (99) is correctly derived. However, the deletion operation assumed here is against the conventional assumption that a deletion operation must be applied to a maximal projection or syntactic constituent. In the following section, I will consider this problem.

#### 4.3.4 Partial Deletion in a Syntactic Constituent

The traditional assumption widely accepted regarding deletion is that deletion operations should be applied to a syntactic constituent, namely a maximal projection. This general assumption seems to be correct in a sense. See an instance of VP deletion (102), for example.

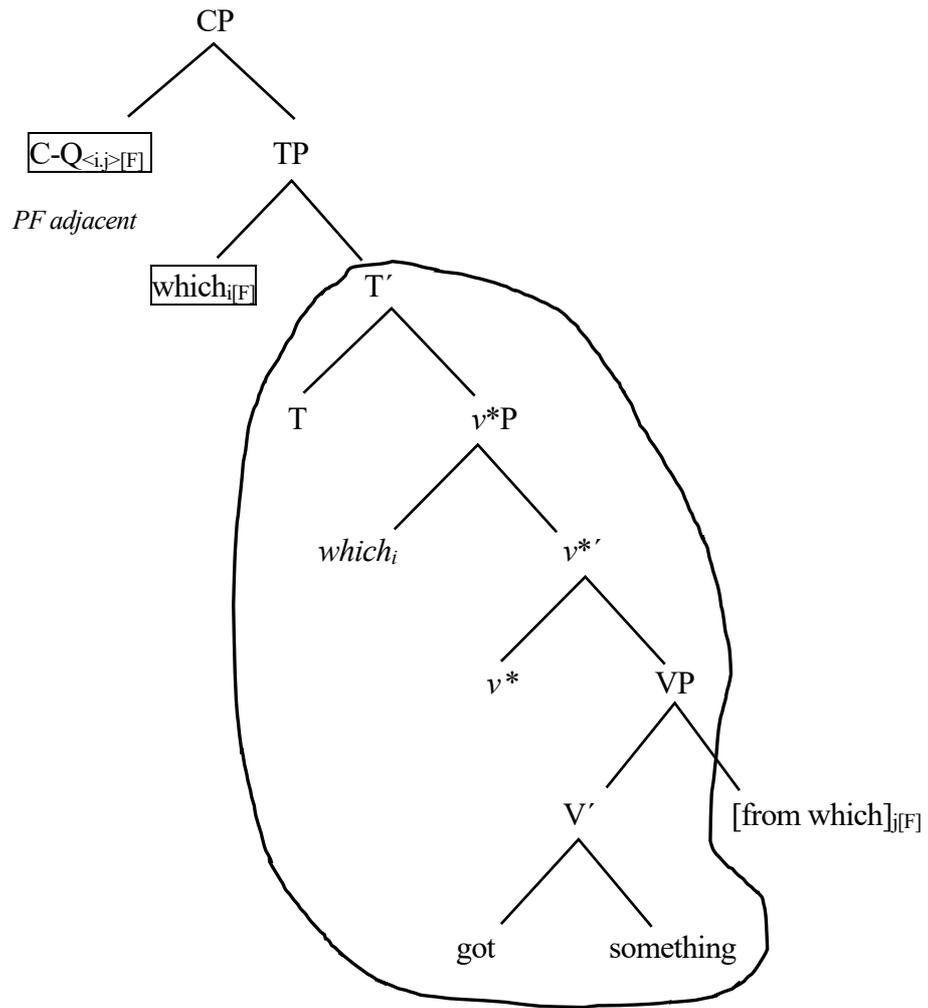
- (102) a. John saw Mary and Bill did, too.

- b. John [<sub>VP</sub> saw Mary] and Bill did [~~<sub>VP</sub> saw Mary~~], too.

In the case of VP Deletion above, the deletion site is identified under strict identity and the syntactic constituent, the maximal projection VP, is deleted. Since a deletion operation is assumed to be applied to a syntactic constituent in this way, how remnants base-generated in ellipsis sites escape from the deletion operation has long been discussed.

In the analysis of MS I have proposed, however, I claim that a non-maximal projection undergoes a deletion operation as just seen above. This means that my analysis here seems to run counter to this traditional assumption. However, my analysis is not necessarily so unreasonable if we look into other elliptical phenomena. First, see the structure of (98) in discussion as schematized in (103).

(103)



As seen above, since the *wh*-phrase *from which* stays in situ, the deletion operation is applied to the inner elements inside the TP. In this respect, my analysis is not consistent with the conventional assumption.

Next, let us take an instance of MS in Japanese, in which *wh*-phrases are basically assumed not to be overtly moved.

- (104) a. Minna-ga nanika-o katta ga, watashi-wa [CP dare-ga  
 everyone-Nom something-Acc bought but, I-Nom who-Nom  
 nani-o ka] shiranai.  
 what-Acc Q know-not  
 ‘Everyone bought something, but I don’t know who what.
- b. Minna-ga nanika-o katta ga, watashi-wa [CP [TP [dare-ga]<sub>i</sub> [~~TP~~ [~~\*P~~ ~~t<sub>i</sub>~~ nani-o  
~~katta~~]]] ka] shiranai.

Since, in Japanese *wh*-questions, *wh*-phrases are assumed not to be moved except in some contexts such as scrambling, the deletion operation applied to MS as shown in (104b) is quite natural.

Another example to support the operation of the partial deletion can be observed in Gapping within a DP (105). Some of my informants judge (105b) as marginally acceptable.

- (105) a. John read Bill’s few books about syntax and Mary’s about semantics.  
 (Yoshida (2004: 257))
- b. I like Jeff’s exciting story about his success, but I don’t like Cindy’s about her life.

In (105), the NP within the object DP in the second conjunct appears to be deleted. If deletion is applied to a maximal projection, *Cindy’s* in the Spec-DP and the complement *about her life* must be moved out of the projection. However, it is unclear where and how they are moved within the DP. Therefore, it is reasonable to suggest that (105b), for example, can be derived as illustrated in (106).

- (106) I don’t like [DP Cindy’s [~~NP~~ ~~exciting~~ [~~NP~~ ~~story~~ [~~about her life~~]]]].

In (106), the deletion is applied selectively to the elements in the DP. Therefore, I can conclude that it is possible to apply the similar partial deletion to an inner structure in MS.

#### 4.4 Consequences

So far, I have proposed the following points: (i) that the Q-morpheme has a phonological condition that requires one *wh*-phrase to be phonologically adjacent to it in English and it can also binds unselectively multiple *wh*-phrases, (ii) that the second *wh*-phrase has an innate property of a strong quantifier such as *every*, which is strictly subject to locality condition that it should be bound in the minimal CP dominating the *wh*-phrase, (iii) that LF structural parallelism must be properly satisfied at the CP for deletion and (iv) as many elements in a structure to undergo deletion that are presupposed in the antecedent structure are deleted as possible. Let us see how my analysis here can explain other phenomena of MS.

Let us turn to the clause-mateness of (21) again, repeated as (107), where *which boy* and *what girl* in the sluiced clause correspond to the matrix subject and the embedded object in the preceding clause, respectively.<sup>16</sup> Suppose that the LF structure of (107a) is represented as (107b).

- (107) a. A certain boy said that Fred talked to a certain girl. \*I wish I could remember which boy to what girl.
- b. A certain boy said that Fred talked to a certain girl. \*I wish I could remember [<sub>CP</sub> which boy [<sub>TP</sub> said [<sub>CP</sub> that [<sub>TP</sub> Fred talked to what girl]]]].

The *wh*-phrases, however, cannot be remnants for the MS in this case. The ungrammaticality of (104) is explained straightforwardly under the assumptions just summarized above. The existential operator inserted in the matrix C-Head of the antecedent clause binds the indefinite nouns unselectively as (108a). On the other hand, if

the Q-morpheme is located in the parallel position in the embedded C-Head, the LF structure of the CP will be like (108b).

- (108) a.  $[_{CP} C-\exists_{\langle i,j \rangle} [_{TP} \text{a certain boy}_i \text{ said } [_{CP} \text{that } [_{TP} \text{Fred talked to } [a \text{ certain girl}]_j]]]]]$   
 b.  $[_{CP} C-Q_{\langle i,j \rangle} [_{TP} \text{which boy}_{i[F]} \text{ said } [_{CP} \text{that } [_{TP} \text{Fred talked } [to \text{ what girl}]_{j[F}}]]]]]$

Although the LF structures in (108) satisfy the LF structural parallelism, the second *wh*-phrase in the remote CP cannot be bound by the Q-morpheme because of the innate nature of a strong quantifier borne by the second *wh*-phrase in MS. The unavailability of the binding results in ruling out the MS in (107a).

Here is another example of MS that supports my analysis. See (35a) and (36) again, repeated as (109a) and (109b), respectively. The fact that (109b) is a little better than (109a) comes from the proposals here.

- (109) a. ??Mary said everybody will buy something, but it's not clear who what.<sup>17</sup>  
 b. Mary said everybody will buy something, but she didn't say who what.

Take (109b), first. Recall that a strong quantifier must be interpreted only within a minimal clause. Indeed, a strong quantifier such as *every* in an embedded clause cannot take wide scope over its matrix clause, and the interpretation is only limited to an embedded clause as shown in (110).

- (110) One girl knows that everybody bought a present for Mary. ( $*\forall > \exists / \exists > \forall$ )  
 (Fox (2000: 65))

(110) can be true if and only if there is only a certain girl who knows that persons each bought one present for Mary, instead of the situation that there is one person for each girl



b. I wish I could remember **which boy**; [~~Fred thinks [~~t<sub>i</sub>~~ talked to **what girl**]]].~~

If (113a) could be interpreted as (114b), (107a) should be acceptable, too, contrary to the fact. Fox and Pesetsky claim, based on the Ordering Table, that as long as the *wh*-phrases are in the same phase, MS would be possible even out of the embedded clause. However, Lasnik points out that if the matrix verb *think* was replaced with verbs such as *deny* or *doubt*, MS will be still unacceptable.

(114) Fred denied that a certain boy talked to a certain girl.

??? I wish I could remember which boy to what girl. (Lasnik (2013: 12))

(115) Fred doubts that a certain boy talked to a certain girl.

?\* I wish I could remember which boy to what girl. (Lasnik (2013: 12))

(116) ?\* Fred asserted/claimed/urged that a certain boy talked to a certain girl.

I wish I could remember which boy to what girl.

Following Lasnik's speculation, suppose that a short source, a sort of accommodation, is applied to the second sentence in (113), and that it is paraphrased into a sentence like *I wish I could remember which boy talked to what girl* because the verb *think* is not informationally valuable. However, this accommodation procedure is not available to (114)-(116) because those matrix verbs imply more than thinking or saying. Thus, the relevant structure of (116) will be (117) because the matrix verb *asserted*, for example, is not omitted,

(117) [<sub>CP</sub> C- $\exists_{\langle i, j \rangle}$  [Fred asserted [that a certain boy<sub>i</sub> talked to a certain girl<sub>j</sub>]]]

I wish I could remember ...

[<sub>CP</sub> C-Q<sub>\langle i, j \rangle</sub>[<sub>F</sub>] [~~Fred asserted [that [which boy<sub>i</sub>[<sub>F</sub>] [to what girl<sub>j</sub>[<sub>F</sub>]]]]].  
[Presupposed]~~

In (117), although the parallelism and the phonological requirement of the Q-morpheme are

both satisfied, the second *wh*-phrase is unreachable from the matrix C-Head. Thus, (114)-(116) are ruled out.

#### **4.5 Conclusion**

In this chapter, I have proposed an alternative analysis of MS by arguing that remnant *wh*-phrases in a sliced clause of MS are not moved unless there is any requirement such as the EPP feature on a T-Head, but they are bound in their base generated positions by Baker's Q-morpheme. Assuming that indefinite noun phrases and remnant *wh*-phrases are indeterminate elements to be bound by their relevant operator, I have claimed that the applicability of a deletion operation to MS is determined under the LF structural parallelism of the operator-variable relation in both an antecedent and its corresponding elided structure. Moreover, supposing the phase-theoretic minimalist framework that TRANSFER is applied to each phase, mapping a constructed phase to LF and PF, I have suggested that the LF parallelism is evaluated at a CP phase and that with the satisfaction of the parallelism, the Maximal Effect of Deletion requires as many elements presupposed in an antecedent to be deleted as possible except focus elements. That is, it is demonstrated that the LF parallelism determines the applicability of deletion, and partial deletion at PF is a possible operation to explain the phenomena of MS. Consequently, my analysis here presents a new idea that a deletion operation can be applied even to elements that don't form a syntactic constituent, contrary to the conventional assumption that deletion should be applied to a constituent or a maximal projection.

#### **Notes for Chapter 4**

\* This chapter is a revised and extended version of the papers that appeared in *Kindai University Center for Liberal Arts and Foreign Language Education Journal, Foreign Language Edition*, 6 (2), (Hirai (2015)) and *JELS* 34, (Hirai (2017)), the latter of which was

presented at the 34th Conference of the English Linguistic Society of Japan, held at Kanazawa University on November 12-13, 2016. I would like to thank my colleagues, Joshua Cohen and Alison Kitzman, for their comments as informants and the participants of the conference for their helpful comments and discussion.

1. Some languages such as Bulgarian allow multiple *wh*-phrases to be fronted. For some examples and extensive discussion on how they are derived, see Richards (1997) among others.

2. As I have discussed in the previous chapters, I assume that the PF Deletion approach to elliptical phenomena is basically correct and the deletion operation is applied to a structure built in the syntactic component. See the discussion in the previous chapters.

3. Fox and Pesetsky (2004) and (in prep.) imply that MS can be analyzed in terms of phonological linearization within the phase-based theory. Although their analysis is intriguing and worth examining more closely, precise explanation of its derivation has not been presented. See note 5.

4. It is also suggested that the strong feature should be erased as soon as it is introduced in the derivation. Thus, even if the head has the strong and weak feature at the same time, the strong one must be the first to induce movement.

5. Fox and Pesetsky (2004) and (in prep.) imply that the clause-mateness of MS in terms of phonological linearization within the phase-based theory and imply that in MS, all *wh*-phrases must be in the same phase, more specifically, a *vP* phase, in order for all the *wh*-phrases to be phonetically linearized at PF. Their fundamental proposal is that “when two *wh*-phrases are not phase mates, they are not ordered directly. Their relative order is determined via elements which are at the edge of the intervening phases. If these connecting links are deleted, phonology doesn’t know what to do with the remaining elements” (Fox and Pesetsky (in prep. : 27)). I will turn to their analysis in the section 4.

6. Lasnik’s analysis may be worth pursuing further if we assumed that the rightward

movement could be induced by a stylistic operation at PF and the *wh*-phrase can be interpreted at LF. As another possibility, rightward *wh*-movement could be real, and there could be something illegitimate left in the (b) examples, which was erased in the case of MS. However, I have no idea what could be involved in this analysis.

7. Howard Lasnik (personal communication) pointed out that this analysis would contain a problem of “look-ahead” derivation. However, as long as there is no feature attracting an overt movement, the *wh*-phrase does not have to move.

8. Howard Lasnik (personal communication) showed to me that the indefinite element in the first conjunct in SS is never phonologically focused, either, but the matrix verb is even more strongly stressed than the indefinite noun phrase as presented in (i).

- (i) John MET somebody, but I don't know who.

In (i), *who* is also considered to be stressed due to a property of new information.

Abe notes that in an instance of Exceptional Case Marking constriction (ECM), Gapping is admitted as in (ii).

- (ii) *John* expected *Bill* to leave, and *Bill John*.

(Abe (2016: 152) originally (Abe and Hoshi (1997: 129))

Although Abe states that the ECM subject undergo “non-string vacuous ‘covert’ movement at the right edge,” it is not clearly explained why the second element in the antecedent clause does not have to be overtly moved to the edge in a parallel way.

9. Particularly, Hirai (2004) claims that this difference follows from the categorial difference in CP phases, instead of restructuring relevant clauses. While the category of the infinitival complement of verbs such as *hate*, *claim* and so on is a “strong CP phase” with a factive operator in its Spec-CP, forming a full (embedded) clause, the category of the infinitival clause of verbs such as *expect* or *want* is a weak CP phase, which makes the clause a mono-clause.

10. Reinhart (2006: 60) claims that “[S]trong quantifiers are ‘roughly’ clause-bound” because strong quantifiers can be interpreted out of small clauses, ECM and infinitival

clauses although Hornstein (1995) claims that in the *believe*-type ECM, the scope of the embedded strong quantifier is limited within the complement.

11. Grano and Lasnik judge (i) given below to be somewhat acceptable.

- (i) Someone claims/tends to be worried about something but I don't know who (claims/tends to be worried) about what.

See Grano and Lasnik (2018) for some statistic data.

12. For the details of this operation, see Merchant (2001: 26-27) and the previous chapter of this paper.

13. It would not be problematic that the operator is inserting into the level of a  $v^*P$ . As Chomsky (2000) and his subsequent works suggest, a  $v^*P$  and a CP count as a phase and they are subject to a derivational operation TRANSFR, which hands constructed objects over to LF and PF. Under this assumption, they form units to go through such syntactic operations related with interpretation. Thus, it is possible to assume that the parallelism of the structural isomorphism proposed here should be checked in accordance with other procedures of interpretations.

14. Since the movement of the subject in (91) is an instance of A-movement, the trace (copy) of the subject may be considered not to be a variable. However, the structure assumed in (91) is not a devastating problem to my analysis because the first conjunct has the same structure as the second conjunct in the binding relation, and each operator binds its variable in the parallel way.

15. The preposition with the second *wh*-phrase can also be focus marked even though it is mentioned in the first conjunct because the *wh*-feature of the second *wh*-phrase in the complement of the P-Head percolates up to the PP, which serves as an amalgamated *wh*-phrase as mentioned in the previous chapter.

16. See also 4.3.2.2.2. for more examples.

17. Some of my informants judged (109a) repeated as (i) as possible if it is interpreted as (ib). Thus, their judgement matches the analysis here.

(i) a. ??Mary said everybody will buy something, but it's not clear who what.

b. Mary said everybody will buy something, but it's not clear [who ~~will buy~~ what].

As a possible interpretation of (ia), only the embedded clause in the first conjunct is considered to be deleted as (1b).

## *Chapter 5*

### *On Pseudogapping\**

#### **5.1 Introduction**

So far, I have explored an alternative derivation of Single Sluicing (SS) and Multiple Sluicing (MS) by making the following proposals related with the LF Parallelism and Maximal Effect of Deletion as (1).

(1) a. **LF Structural Parallelism**

Phonological deletion is licensed only if the LF structure of a category that contains elided material is structurally isomorphic to that of the antecedent.

b. **Maximal Effect of Deletion**

Delete elements marked as [Presupposed] except focus marked [F] elements.

In this last chapter, extending the assumptions above, I would like to explore an alternative analysis of another interesting elliptical phenomenon, referred to as “Pseudogapping” by Levin (1978). Some examples of the phenomenon are given in (2), which are interpreted as (3). The  $\phi$  in (2) indicates a phonological blank, which corresponds to the bracketed material in (3). The examples in (2a)-(2c) are from Jayaseelan (1990) (originally cited from Sag (1976) and Halliday and Hasan (1973)), and those in (2d)-(2f) from Levin (1978).<sup>1</sup>

(2) a. Mary hasn't dated Bill, but she has  $\phi$  Harry.

b. It doesn't bother Harry that Bill left, but it does  $\phi$  me  $\phi$ .

c. A: Is she suing the hospital?

- B: She is  $\phi$  the doctor.
- d. If you don't believe me, you will  $\phi$  the weatherman.
- e. I rolled up a newspaper, and Lynn did  $\phi$  a magazine.
- f. Kathy likes astronomy, but she doesn't  $\phi$  meteorology.
- (3) a. Mary hasn't dated Bill, but she has [dated] Harry.
- b. It doesn't bother Harry that Bill left, but it does [bother] me.
- c. A: Is she suing the hospital?  
B: She is [suing] the doctor.
- d. If you don't believe me, you will [believe] the weatherman.
- e. I rolled up a newspaper, and Lynn did [roll up] a magazine.
- f. Kathy likes astronomy, but she doesn't [like] meteorology.

As shown above, in Pseudogapping, a matrix verb is deleted with an auxiliary and elements in the VP left as remnants in the second clause.

Looking at these examples, we can see that Pseudogapping is a mixed construction with Gapping as (4) and VP Deletion as (5), which are also interpreted as (6) and (7), respectively.

- (4) a. John loves Mary, and Bill  $\phi$  Jane. (Jayaseelan (1990: 73))  
b. A: Ivan is now going to peel an apple.  
B: And Jorge,  $\phi$  an orange. (Hankamer and Sag (1976: 410))
- (5) John loves Mary, and Bill does  $\phi$  too.
- (6) a. John loves Mary and Bill [loves] Jane.  
b. B: Jorge [is (now) going to peel] an orange.
- (7) John loves Mary, and Bill does [love Mary], too.

In Gapping (4), an auxiliary and the following verb are deleted with some elements left as remnants out of deletion while in VP deletion (5), there is an auxiliary left intact with the following VP deleted. Thus, we can see that Pseudogapping has properties of both Gapping and VP Deletion.

In addition to these properties, Pseudogapping has another empirical fact that other elements in a separate position within a VP can also be deleted along with a matrix verb as shown below.

- (8) a. I didn't expect your mother to like the picture, but I did  $\phi$  you  $\phi$ .  
b. I didn't expect your mother to like the picture, but I did [expect] you [to like the picture].

In (8a), the embedded infinitive clause following the direct object is deleted together with the matrix verb. Given the standard assumption adapted in the generative grammar that a deletion operation is applied to a constituent or a maximal projection, it is important to explore a more adequate analysis of Pseudogapping because this construction appears to involve a sort of non-constituent deletion. In fact, there have been a lot of debates on its derivation in the literature. Specifically, since Jayaseelan (1990), it has been assumed that Pseudogapping involves a derivational procedure similar to VP deletion with all remnants moved out of a projection (VP or  $v^*P$ ) which undergoes deletion. Therefore, it has been discussed how a VP domain to delete will be created, and there are some analyses proposed on movement of remnants out of a deleted domain. However, it is still unclear how a derivation should proceed within the framework I am pursuing. Thus, Pseudogapping is another construction worth examining with respect to its derivation just as I have done for the sluicing constructions. In this chapter, I would like to explore a possible derivation of Pseudogapping under the assumptions proposed so far.<sup>2</sup> This chapter consists of four sections. In the next section, I will review the previous analyses by Jayaseelan (1990) and Lasnik (1999), and consider some empirical and theoretical problems with their analyses. Then, in the section 3, I will propose an alternative analysis by arguing that a Pseudogapping element is not moved, but it is marked in its base-generated position as a Focus [F] element by a Peripheral [P-] feature on  $v^*$ -Head suggested by Chomsky (2000) and that by adopting (1), Pseudogapping is derived with non-constituent deletion. In the later part of the section 3, I will consider some phenomena in Pseudogapping involving a double object construction

and a dative construction. The discussion in this chapter presents a new analysis that contrary to the conventional assumption, non-constituent deletion is also applicable to Pseudogapping just like SS and MS discussed in the previous chapters.

## 5.2 Previous Analyses

First, I examine two previous analyses proposing two different kinds of movement of remnants in an elided clause. Then, I will consider the adequacy of the proposals and point out problems associated with these analyses.

### 5.2.1.1 Jayaseelan (1990) -HNP(DP)S Approach-

Jayaseelan (1990) proposes an intriguing analysis, arguing that Pseudogapping remnants is focused invariably undergoing Heavy DP Shift (HDPS) and a VP dominating their original positions is deleted by VP Deletion, which is roughly illustrated in (9).<sup>3</sup>

- (9) a. Mary hasn't dated Bill, but she has  $\phi$  Harry.  
 b. ...but she has [<sub>VP</sub> [<sub>VP</sub> dated ~~t<sub>i</sub>~~] Harry<sub>i</sub> ]. (Harry is HDP-Shifted)

According to Jayaseelan, the HDP-Shifted remnant *Harry* is right-adjoined to the matrix VP (Stowell (1981) and Kayne (1985)) and the inner projection is deleted as (9).

His argument that Pseudogapping is related to HDPS is based on some facts as shown below. One instance is that a possible remnant would receive contrastive stress. He suggests that Pseudogapping is impossible unless contrastive stress is possible. Compare (2c) with (10).

- (10) A: Is she suing the hospital?  
 B: \*Yes, she is  $\phi$  it. (Jayaseelan (1990: 65))

He assumes that contrastive stress makes a relevant element “heavy” and argues that (10) is ungrammatical because the pronoun *it* cannot be contrastively stressed and thus it cannot be

HDP-Shifted. If contrast stress and heaviness are involved with HDPS, Jayaseelan's claim is consistent with a fact that a candidate undergoing HDPS is not limited to DP.<sup>4</sup>

(11) You can't count on a stranger, but you can  $\phi$  on a friend. ( $\phi$ =count)

(Jayaseelan (1990: 64))

In (11), the PP is left as a remnant and the sentence is still as good as the examples above. In fact, the same PP can be right-adjoined over the adjunction to be focused as presented in (12b).

(12) a. John counted [<sub>PP</sub> on a total stranger] for support.

b. John counted for support on a total stranger. (Jayaseelan (1990: 66))

(12b) with the shifted PP is as acceptable as (11) where the same PP is left undeleted. The similar grammaticality can be found in another example. In a case where an object cannot be HDP-Shifted with its preceding preposition stranded as (13a), the corresponding Pseudogapping is not possible, either. Compare (13a) with (13b).

(13) a. \*John counted on for support a total stranger.

b. \*You can't count on a stranger; but you can a friend.

(Jayaseelan (1990: 66))

(13b), where the phrasal verb *count on* is deleted, is as unacceptable as (13a). This means that there is a possibility that remnants in Pseudogapping undergoes HDPS in order to move out of a deletion site.

Another argument can be seen in a fact discussed by Stowell (1981) that only one constituent can be adjoined to VP, which Jayaseelan calls "Double Adjunction Constraint."

(14) a. It proved his guilt to the jury that John was seen with the murder weapon.

b. \*It proved  $t$  to the jury his guilt that John was seen with the murder weapon.

(Jayaseelan (1990: 66), Originally, Stowell (1981: 161))

Suppose that the finite clause in (14a) is first extraposed and adjoined to the matrix VP. In (14b), the direct object *his guilt* cannot be adjoined to the same projection by the following operation because this violates the constraint. The similar phenomenon is also observed in Pseudogapping with a dative construction, where two elements are not allowed to move out of the deletion site as remnants. Consider (15).

(15) \*I didn't give a dime to Mary, but I did  $\phi$  a nickel to Jane.

(Jayaseelan (1990: 66))

In (15), the Double Adjunction Constraint prevents the object and the dative phrase from being adjoined to the VP. Thus, it is claimed that (15) is ruled out because HDPS is involved in Pseudogapping.

Now, one may wonder why (2b) repeated as (16a), in which the direct object seems to be adjoined to VP to which the finite clause is assumed to be obligatory extraposed (Stowell (1981)), is acceptable if this constraint holds.

(16) a. It doesn't bother Harry that Bill left, but it does  $\phi$  me  $\phi$ .

b. It doesn't [<sub>VP</sub> [<sub>VP</sub> [<sub>VP</sub> bother  $t_i$   $t_j$ ] ] [that Bill left]<sub>j</sub>] Harry<sub>i</sub> ],

but it does [<sub>VP</sub> [<sub>VP</sub> [<sub>VP</sub> bother  $t_k$   $t_l$ ] ] [that Bill left]<sub>l</sub>] me<sub>k</sub> ]

(adapted from Jayaseelan (1990: 73))

According to Jayaseelan (1990: 73), "adjunction is an option available to any constituent, in any component of the grammar," and the finite clause and the object in the antecedent VP are adjoined at LF while the adjunction in the deleted VP takes place in the Syntax. Moreover, it is assumed that Double Adjunction Constraint only matters at PF. Therefore, the LF adjunction in the antecedent VP does not become a problem, and the adjunction in

the deleted VP is not a problem, either, because the adjoined finite clause is deleted at PF. Note that the movement of the focused remnant *me* over the relatively heavy finite clause is permitted because the surface string does not come out as it has been moved at the Syntax.<sup>5</sup> Therefore, (16) is correctly derived without violating the constraint.

As demonstrated above, Jayaseelan's analysis based on HDPS is interesting and provides the first stepping stone for analyses of this construction. In the following section, I will consider possible problems with his analysis.

### 5.2.1.2 Problems with Jayaseelan's Approach

Although Jayaseelan's suggestion that Pseudogapping involves HDPS of a remnant out of VP undergoing deletion is very attractive and interesting, there are some problems that his approach immediately faces. Some of the empirical problems have been pointed out by Lasnik (1999). First, Lasnik pointed out that while the first object in a double object construction can be a remnant in Pseudogapping, HDPS of the first object in the same construction is impossible though the acceptability is judged as very subtle.

(17) a. ?John gave Bill a lot of money, and Mary will ~~give~~ Susan ~~a lot of money~~.

b. \*John gave *t* a lot of money the fund for the preservation of VOS languages.

(Lasnik (1999: 153-154))

On the contrary, the second object cannot occur as a Pseudogapping remnant, but HDPS of the direct object in a double object construction becomes fairly acceptable.

(18) a. \*John gave Bill a lot of money, and Mary will ~~give~~ ~~Bill~~ a lot of advice.

b. John gave Bill *t* yesterday more money than he had ever seen.

(Lasnik (1999: 154))

Jayaseelan's analysis cannot explain correctly the grammaticality of (17a) and the ungrammaticality of (19a).

Second, there are other facts related to verbs of “reanalysis.” Although the ungrammaticality of Jayaseelan’s examples in (13) is not entirely clear, verbs apparently forming a strong constituent with a preposition (reanalyzed verbs) show different facts. Lasnik pointed out, based on Levin (1979) that those verbs usually allow both Pseudopassivization and Pseudogapping. Compare (19) and (20) with (21) and (22). The former involves a reanalyzed verbs while the latter involves a non-reanalyzed one.

- (19) a. Bill was spoken to by John.  
 b. Bill spoke to Bill and Mary should Susan.  
 c. \*John spoke to yesterday the man he met at the beach.
- (20) a. Linguistics was talked about by John.  
 b. John talked about linguistics and Mary will philosophy.  
 c. \*John talked about yesterday the man he met at the beach.
- (21) a. \*Bill was swum beside by John.  
 b. \*John swam beside Bill, and Mary did Susan.  
 c. \*John swam beside yesterday the man he met at the beach.
- (22) a. \*Bill was stood near by John.  
 b. \*John stood near Bill, and Mary should Susan.  
 c. \*John stood near yesterday the man he met at the beach.

As seen in (19) and (20), phrasal verbs such as *speak to* or *talk to* are likely to undergo reanalysis and count as one unit, permitting Passivization and Pseudogapping, but they usually disallow HDPS. As expected, on the other hand, non-analysis verbs as (21) and (22) do not permit any of them.<sup>6</sup> Given these examples, I can conclude that other syntactic relations than HDPS should involve Pseudogapping.<sup>7</sup>

If the discussion above is correct, we cannot adopt Jayaseelan’s HDPS approach as a reasonable analysis of Pseudogapping, but Jayaseelan’s argument may not be that far off. Recall that he assumes that the remnant of Pseudogapping invariably receives contrastive stress (focus), and argues that (10B), repeated as (23), is unacceptable because the pronoun

*it* cannot bear phonologically contrastive stress and undergo HDPS due to its innate property. Looking more closely into (23), we can see that his analysis of (23) seems to be fundamentally correct, but not exactly so.

(23) A: Is she suing the hospital?

B: \*Yes, she is  $\phi$  it. (Jayaseelan (1990: 65))

Suppose that contrastive stress changes a light constituent into so heavy a one as to undergo HDPS. Under this assumption, (23) would be accounted for in a different way. Although pronouns basically resist HDPS, a sentence with an HDP-Shifted pronoun will be rather improved when the pronoun is phonologically accented or highly pitched as Jayaseelan acknowledged. See (24).

(24) a. \*Mary will date next Saturday you.

b. ?Mary will date next Saturday **YOU**.

In (24b), if the pronoun *you* is phonologically focused, it can undergo HDPS over the adjunct phrase. Besides, pronouns can survive as a Pseudogapping remnant in a different context as shown in (25).

(25) a. Jackie will date me, and Maggie will **you**.

b. ?Jackie will date me, and Maggie will **me**, too.

(25a) improves when the remnant can be focused but when a phonological focus is not available in a context, the sentence becomes unacceptable.

Jayaseelan attributes the ungrammaticality of (23B) to the inability for the pronoun *it* to bear a phonological focus. As Lasnik (1999) points out, however, the same situation where the pronoun is replaced with the full DP is not acceptable, either.

- (26) A: Is she suing the hospital?  
B: \*Yes, she is  $\phi$  the hospital. (Lasnik (1999: 154))

That is, as (26) shows, the context in (23) does not require the pronoun to be focused. Thus, the ungrammaticality of (23) is not related with the inability for the pronoun *it* to be focused and shifted. As a matter of fact, in a context such as (27), the pronoun *it* can bear a phonological focus.

- (27) A: Oh, I forgot his name.  
B: Brandon? Jeff? Steve?  
A: No. Probably, something beginning with “D.”  
B: Oh, Dice?  
A: Yes! That’s IT!

This means that the focus itself is not applied to the pronoun in the situation of (23), and that the ungrammaticality of (23B) is not directly relevant to the lexical properties of *it*, but it depends on the possibility of focusing on the element.

Therefore, it is hard to accept the analysis based on HDPS involving rightward movement, but Jayaseelan’s analysis that remnants in Pseudogapping are focused or contrasted sheds new light on this construction. In the next section, I examine another analysis by Lasnik (1999) based on Object Shift (OS).

#### **5.2.2.1 Lasnik (1999) -Object Shift Approach-**

Arguing against Jayaseelan’s HDPS approach, but pursuing in part his core idea, Lasnik (1999) argues that Pseudogapping is derived by VP Deletion with a prior salvage operation, namely, OS, to move remnants out of a VP domain to a Spec-Agr<sub>o</sub> proposed by Koizumi (1993, 1995). Koizumi (1993, 1995) suggests the following finely articulated structure, which is derivationally built up from the bottom. A stage of derivation of a normal transitive sentence is illustrated in (28), where Agr<sub>s</sub> has been merged to TP with the subject

base-generated in the higher Spec-VP.

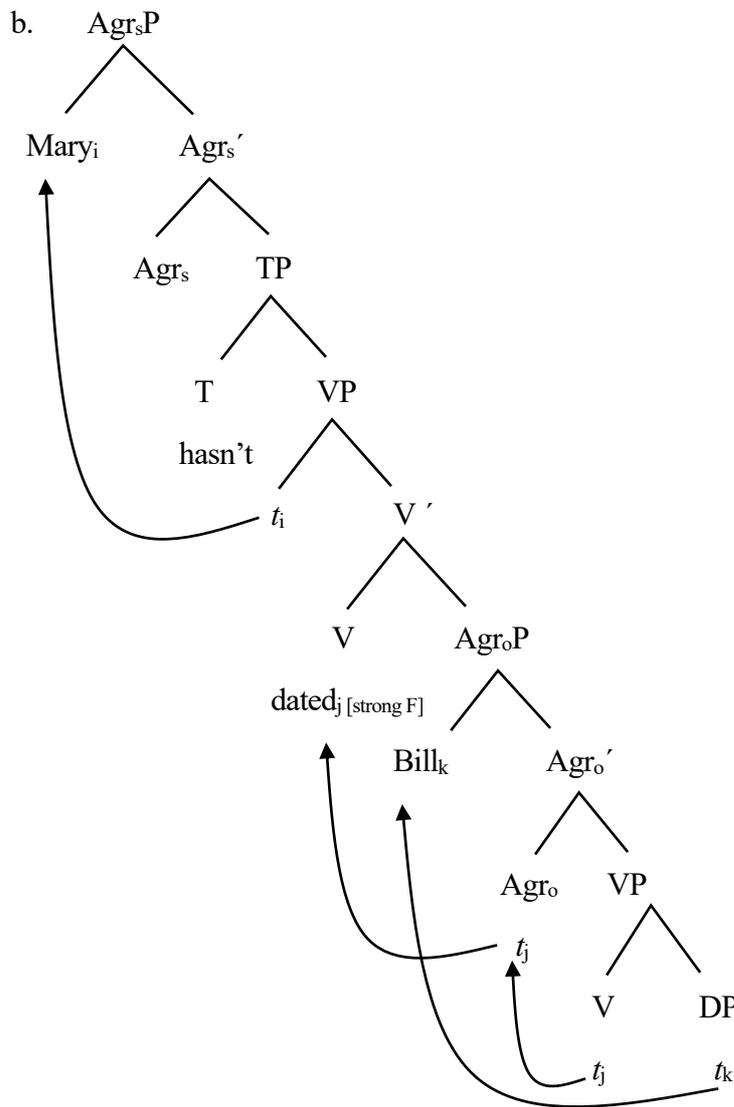
(28) a. [<sub>AgrsP</sub> Agr<sub>s</sub> [<sub>TP</sub> T [<sub>VP</sub> DP<sub>Subj</sub> [V [<sub>Agr<sub>o</sub>P</sub> Agr<sub>o</sub> [<sub>VP</sub> V DP<sub>Obj</sub>]]]]]]]]

With the structure above, Lasnik assumes that an object DP moves overtly up to the Spec-Agr<sub>o</sub>P by OS in the same way that a subject DP moves to the Spec-Agr<sub>s</sub>P. These two heads Agr<sub>s</sub> and Agr<sub>o</sub> are fundamentally the same and these instances of movement are assumed to be induced by satisfaction of the EPP feature (in Chomsky's term) on each head. The idea that OS to the Spec-Agr<sub>o</sub>P can be "the sought-after alternative to HDPS" is based on the observation that Pseudogapping is basically better-formed with an accusative-marked object as a remnant: for example, the direct object in a (simple) transitive construction (29), the first object in a double object construction (30), the object in a dative construction (31), the object of a reanalyzed verb (32) or an exceptional case-marked subject (33).<sup>8</sup> Relevant examples in question, some of which are repeated, are given below.<sup>9</sup>

- (29) a. Mary hasn't dated Bill, but she has ~~dated~~ Harry. (=2a)  
b. It doesn't bother Harry that Bill left, but it does ~~bother~~ me ~~that Bill left~~.  
 (=2b)
- (30) a. ?John gave Bill a lot of money, and Mary will ~~give~~ Susan ~~a lot of money~~.  
 (=17a)  
b. \*John gave Bill a lot of money, and Mary will ~~give~~ ~~Bill~~ a lot of advice.  
 (=18a)
- (31) a. ?John gave a lot of money to Bill, and Mary will ~~give~~ a lot of advice ~~to Bill~~.  
b. ?\*John gave a lot of money to Bill, and Mary will ~~give~~ ~~a lot of money~~ to Susan.
- (32) a. Bill spoke to Bill and Mary should ~~speak~~ ~~to~~ Susan. (=19b)  
b. Bill was spoken to by John. (=19a)
- (33) a. The DA proved Jones guilty and the Assistant DA will ~~prove~~ Smith ~~guilty~~.  
b. I didn't expect your mother to like the picture, but I did ~~expect~~ you ~~to like~~ ~~the picture~~.

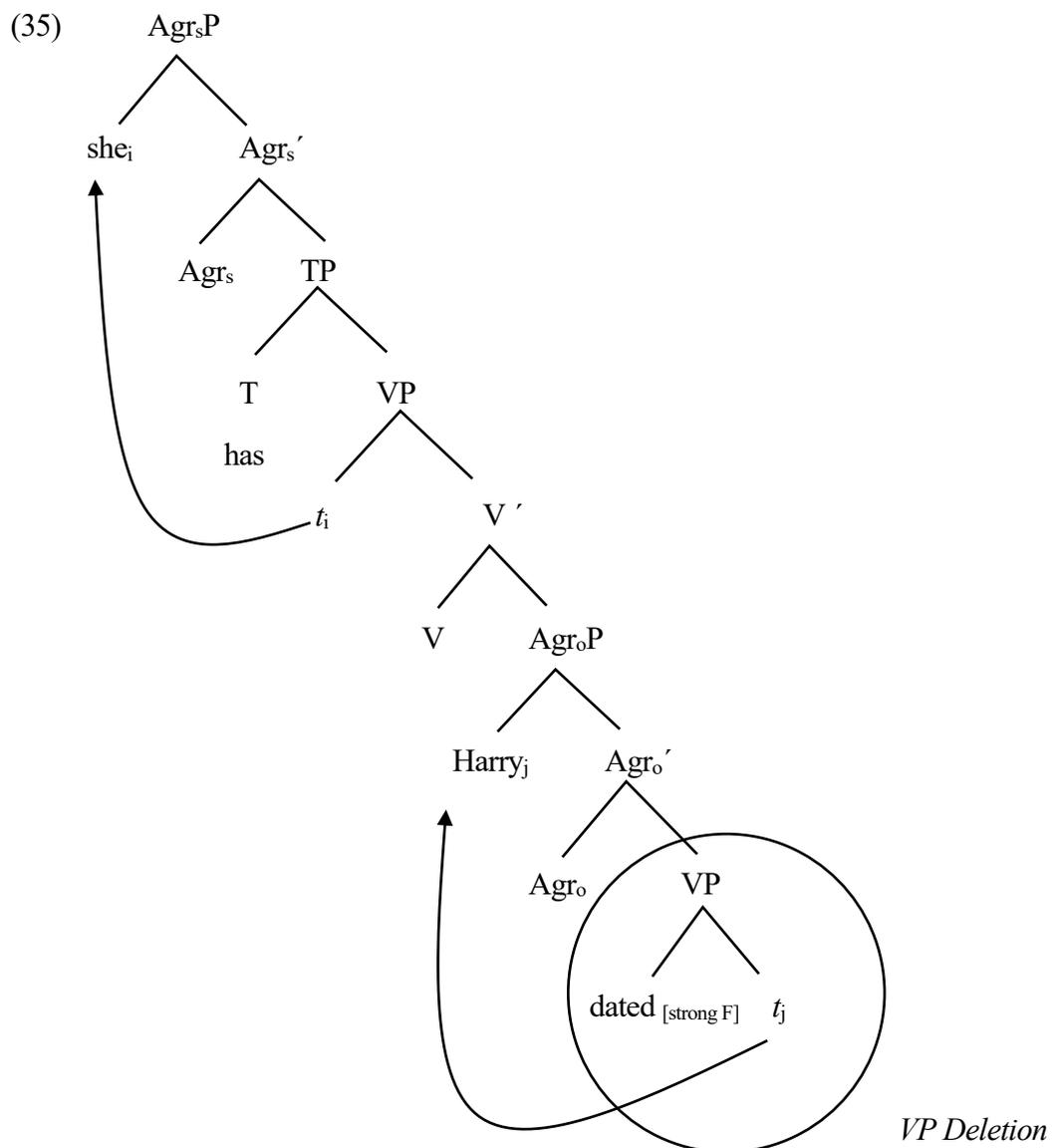
Lasnik also assumes that the verb base-generated in the lower V-head bears a strong feature, which must be checked in a higher head at a later stage of a derivation. Under this mechanism, the structure of the first clause of Pseudogapping like (29a) repeated as (34a) is illustrated as (34b) with irrelevant details ignored for explanatory purposes. (34b) is adapted from Lasnik (1999: 160).

(34) a. Mary hasn't dated Bill, but she has Harry.



In (34b), the object is raised to the Spec-Agr<sub>o</sub>P out of the lower VP by the EPP feature on the Agr<sub>o</sub> after the  $\theta$ -role has been discharged by the V-Head in the base position. The verb *dated* head-moves to the higher V-Head through the Agr<sub>o</sub>-Head and discharges the  $\theta$ -role to

the subject. Then, the subject *Mary* moves to the Spec-Agr<sub>s</sub>P for the same reason as the object. On the other hand, the structure of the second conjunct is illustrated as (35).



Just like (34b), the subject and the object are moved to the Spec-Agr<sub>s</sub>P and the Spec-Agr<sub>o</sub>P, respectively by the EPP feature. The  $\theta$ -role of the object is discharged by the V-Head within the lowest VP. The verb remains in the base-generated position with the strong feature unchecked. Under Chomsky (1993), an unchecked strong feature will be illegitimate at the PF interface as an uninterpretable PF object. However, since Pseudogapping is derived by deleting VP at PF, the harmful feature on the V that would

otherwise cause a PF crash has been removed.<sup>10</sup> Therefore, (34a) can come out.

#### 5.2.2.2 Problems with Lasnik's Approach

Although Lasnik's analysis based on OS provides promising insights into the nature of Pseudogapping, there are some problems with his proposal, particularly with the applicability of OS. As both Jayaseelan and Lasnik claim, remnants in Pseudogapping are relatively semantically and phonologically contrasted or focused. In fact, the examples in (10) and (26), reproduced as (36) and (37), respectively, are not acceptable, where the remnants are not different from the corresponding element in the antecedent clause.

(36) A: Is she suing the hospital?

B: \*Yes, she is  $\phi$  it. (Jayaseelan (1990: 65))

(37) A: Is she suing the hospital?

B: \*Yes, she is  $\phi$  the hospital. (Lasnik (1999: 154))

These examples show that remnants in Pseudogapping are semantically and phonologically focused. Under Lasnik's analysis, it is unclear how this is guaranteed. That is, the movement of an object in Pseudogapping to the Spec-Agr<sub>o</sub>P seems to be the same as that in transitive constructions.

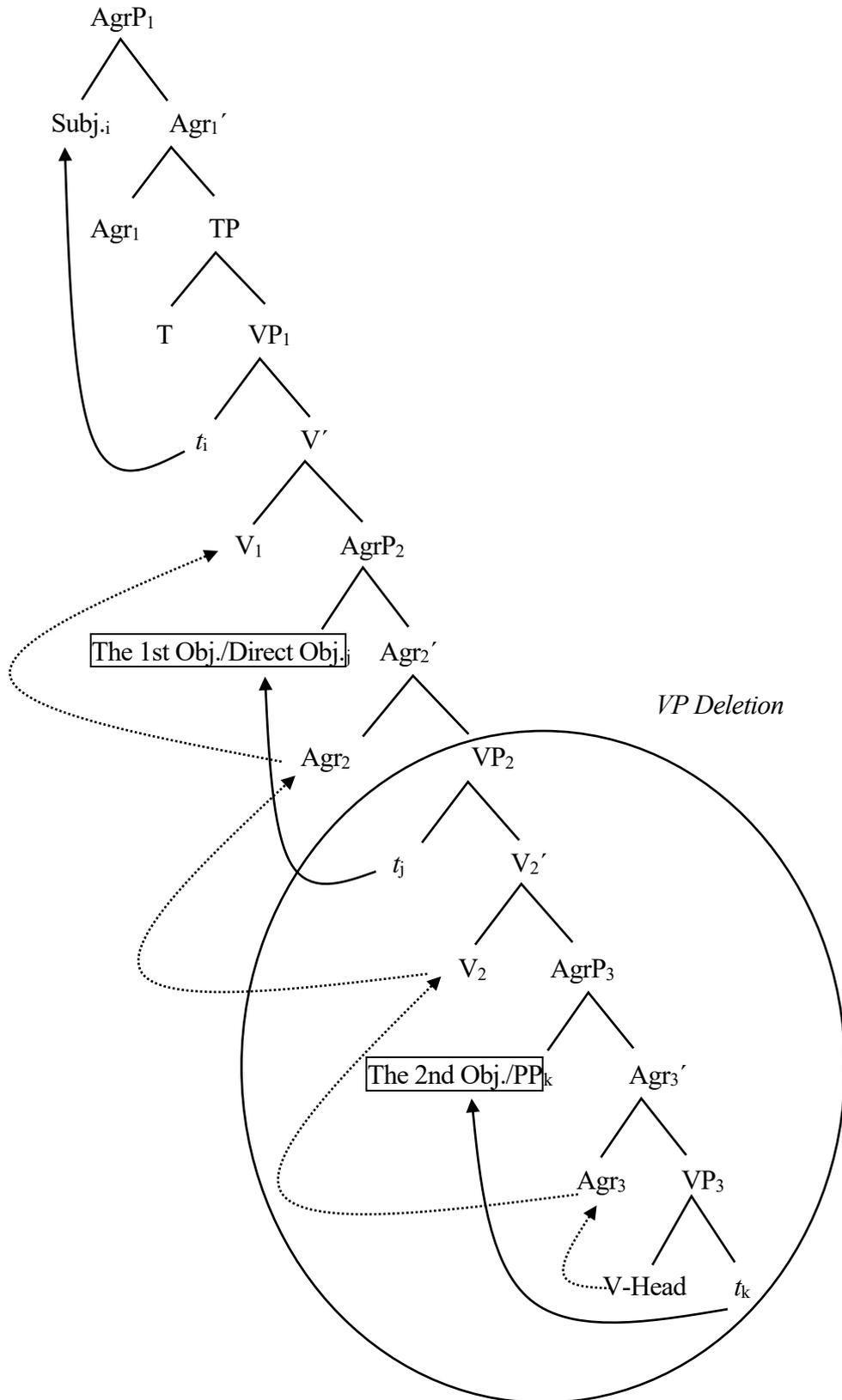
A second problem, partly related with the first one, is that it is not clarified well what condition determines the applicability of deletion of Pseudogapping. Since Pseudogapping is another instance of elliptical phenomena, there should be a certain kind of condition on deletion as we have been assuming so far.

Furthermore, although Lasnik proposes an interesting account for Pseudogapping involving a double object construction and a dative construction, there is a problem with assignment of a  $\theta$ -role to each argument. To see this, let us take (17) and (31), repeated as (38) and (39), respectively. According to Lasnik, these examples are really subtle in their grammaticality, but there exists a slight contrast in each pair.

- (38) a. ?John gave Bill a lot of money, and Mary will ~~give Susan a lot of money~~.  
 b. \*John gave Bill a lot of money, and Mary will ~~give Bill~~ a lot of advice.
- (39) a. ?John gave a lot of money to Bill, and Mary will ~~give a lot of advice to Bill~~.  
 b. ?\*John gave a lot of money to Bill, and Mary will ~~give a lot of money~~ to Susan.

In both cases, Pseudogapping with the first object as a remnant is judged to be slightly better than the other. Although there are some arguments against Lasnik's analysis (Larson (1988)), Lasnik assumes, based on binding phenomena observed by Barss and Lasnik (1986), that in a double object construction, the first object is base-generated in a higher position than the second one. Besides, it is assumed that a direct object in a dative construction is originated in a higher position than a dative phrase.<sup>11</sup> Under his assumption, the structure of a double object construction is the same as that of a dative construction and the structure is illustrated in (40), where the dative phrase in the dative construction is represented as PP. The structure below is adapted from Lasnik (1999: 165-169).

(40) Double Object / Dative Construction



Utilizing this structure, Lasnik attempts to explain (38) and (39). Let us see the improved examples of (38a) and (39a), represented as (41a) and (42b), respectively.

- (41) a. ?John gave Bill a lot of money, and Mary will ~~give~~ Susan a lot of money.  
b. ?John gave a lot of money to Bill, and Mary will ~~give~~ a lot of advice to Bill.

In (40), the first object in a double object construction and the direct object in the dative construction are assumed to be located in a higher position than the second object and the dative phrase, respectively. Thus, the Relativized Minimality evacuates the higher one to the AgrP<sub>2</sub> out of the VP<sub>2</sub> which is supposed to be deleted. As a result, the sentences in (41) can both be derived correctly.

On the other hand, in the degraded examples of (38b) and (39b), reproduced as (42a) and (42b), the second object and the dative phrase are base-generated below the first object and the direct object, respectively.

- (42) a. \*John gave Bill a lot of money, and Mary will ~~give~~ Bill a lot of advice.  
b. ?\*John gave a lot of money to Bill, and Mary will ~~give~~ a lot of money to Susan.

The lower element is not allowed to move across the first element to the AgrP<sub>2</sub> by the Relativized Minimality. Thus, it cannot escape from the elliptical site, the VP<sub>2</sub>, and as a result, (42) are ruled out.

Lasnik extends his proposal to explain Jayaseelan's example (15), repeated as (43).

- (43) \*I didn't give a dime to Mary, but I did  $\phi$  a nickel to Jane.

Under Lasnik's assumption, in a normal dative construction such as (44), the head verb *give* raises to the V<sub>1</sub> via the Agr<sub>3</sub>, V<sub>2</sub>, and Agr<sub>2</sub>.

- (44) I gave a nickel to Jane.

On the way to  $V_1$ , *give* with three  $\theta$ -roles gets them discharged to the first object, the second object and the subject. However, in (43), even though two complements are raised somehow from their original position to a higher position than  $VP_2$ , only one complement *to Jane* is assigned a  $\theta$ -role and the other object and the subject are not assigned the  $\theta$ -role because the head verb is deleted in the original position. Therefore, (43) is judged as degraded. According to Lasnik, this is why Pseudogapping itself, including (38) and (39) is “somewhat degraded.” If the account here is correct, however, it is still unclear why a lot of speakers judge Pseudogapping as acceptable and interpret it as an intended meaning. In addition, it must be answered why the first object in a double object construction and the object in a dative construction can be a remnant in a Pseudogapping construction although they are not perfectly acceptable.

As discussed in this section, although the accounts provided by Jayaseelan and Lasnik are both appealing and tempting, it is necessary to pursue another possibility because there are some problems with their analyses as pointed above. In the next section, building on the Parallelism and Maximal Effect of Deletion I have proposed in the previous chapters and extending Chomsky’s (2000) idea on a peripheral (P-) feature, I would like to explore another account within the minimalist framework, specifically Chomsky (2001).

### **5.3 How Is Pseudogapping Derived?**

In this section, I would like to propose an alternative analysis of derivation of Pseudogapping. Even in the face of some problems that we have seen with the arguments by Jayaseelan and Lasnik, their fundamental insights appear to be on the right track. Thus, I assume that remnants in Pseudogapping are contrastively semantically and phonologically focused. In addition, considering that when the first object in a double object construction and the direct object in a dative construction left as a remnant in Pseudogapping, their sentences are slightly better than when the second object and the dative phrase are undeleted in each construction, Lasnik’s core idea on OS of a remnant seems to be attractive. Therefore, it is necessary to yield to the temptation of the OS approach, and I would like to pursue this line of explanation.

Extending Chomsky's (2001) argument, I propose that a remnant constituent in Pseudogapping can be treated like a focus-marked phrase in non-OS languages. I also claim that a Pseudogapping remnant remains in situ, a base-generated position, probed by  $\phi$ -features and a Peripheral (P-) feature as a sort of Focus assigner on the  $v^*$ -Head and that the remnant is spelled out in situ because no new outcome is created due to deletion. Then, I argue that applying the LF structural Parallelism and Maximal Effect of Deletion to a  $v^*$ P constituent will result in deriving a final string of Pseudogapping.

### 5.3.1 Object Shift in English?

Before analyzing Pseudogapping, let us see some of the properties of OS discussed in Chomsky (2001). As is well known, in Icelandic or Mainland Scandinavian, when a direct object bears a complex interpretation such as specificity-definiteness, focus, or topic, a syntactic operation of OS is applied to the object, which is shifted to a Spec- $v^*$ P position, where an interpretive complex *Int* is assigned to the object. This movement is induced by the optional EPP feature (the Edge feature in this paper) on the  $v^*$ -Head with a prior  $\phi$ -feature agreement between the  $v^*$ -Head and the object. A certain point of its derivation is roughly illustrated as (45a), where the object receives *Int* at the edge (EPP) position of the  $v^*$ P. In Icelandic or Mainland Scandinavian, a V-Head is supposed to be raised to a T- or C-Head via a  $v^*$ -Head. If an object stays in situ, there will be no phonological element left above the object in the  $v^*$ P as shown in (45b).

- (45) a. [TP Subject<sub>i</sub> T [ $v^*$ P Object<sub>j</sub> [ $t_i$   $v^*$  [ $v^*$ P V  $t_j$  ]]]]
- b. [TP Subject<sub>i</sub> T-V<sub>j</sub> [ $v^*$ P [ $t_i$   $v^*$ - $t_j$  [ $v^*$ P  $t_j$  Object]]]]]

According to Chomsky, a position not commanded by any phonological elements in a phase as (45b) is considered to be “the phonological boarder,” and OS languages observe the parametric rule (46) while non-OS languages do not.

(46) a. At the phonological boarder of  $v^*P$ , XP is assigned Int'.

(Chomsky (2001: 34))

b. The Phonological Boarder  
In [<sub>HP</sub> Spec [ H XP]], XP is at a phonological boarder if there is no phonological element in the H-Head and the Spec of HP.

In (46a), “Int'” means a non-complex interpretation unlike Int' for topic or focus. Building on this, Chomsky (2001) proposed the following principles.

(47) a.  $v^*$  is assigned an EPP-feature only if that has an effect on outcome.  
b. The EPP position of  $v^*$  is assigned Int.  
c. At the phonological boarder of  $v^*P$ , XP is assigned Int'. (=46a)

(Chomsky (2001: 35))

Take the EPP feature in (47) as the same as the EDGE feature in this paper. (47a) and (47b) are invariant in all languages, but (47c) is applied only to OS languages such as Icelandic. In OS languages where a V-Head is raised higher than a  $v^*P$ , when an object requires Int such as specificity or focus, it must be shifted to the  $v^*P$  because the object receives Int' in the complement position and yields extreme deviance. Likewise, if an Int'-requiring object is moved to the position, the same result would come out due to mismatch in the meaning.

On the other hand, non-OS languages such as English do not observe (47c). Thus, the assignment of Int or Int' for interpretation is free in the object position. Since the Int-Int' distinction is available in situ in non-OS languages, movement to a  $v^*P$  is only induced when some new outcome other than this Int-Int' assignment is expected.<sup>12</sup> Note that under the phase impenetrability condition (PIC) proposed by Chomsky (2000), a phase is evaluated at the next higher strong phase. Thus, if we keep to this PIC, it is unknown whether the assignment of Int-Int' is completed at a  $v^*P$ , which counts as a unit of PF/LF integrity which denotes proposition.

### 5.3.2 P-Feature

Under the mechanism of (47), however, a salient semantic outcome like focus or topic is not necessarily guaranteed because the Int-Int' assignment is assumed to be free in English. Besides, it is hard to tell whether a new syntactic outcome is actually yielded by moving a direct object in a Pseudogapping context because the relevant  $v^*P$  is gone. Therefore, extending Chomsky's (2000) argument, suppose that an optional feature, a "Peripheral (P-)" feature, is assigned to a remnant constituent in Pseudogapping. According to Chomsky (2000: 108-110), in addition to  $\phi$ -features (agreement features for Case), a phase head can have a P-feature of the peripheral (discourse-related) system such as force, topic, focus and so on. Building on this assumption, suppose further that just like the  $\phi$ -/Case feature relation, there is a P-/Focus relation in a probe-goal relation, where the uninterpretable P-feature [-P] on a phase-head is valued by an interpretable P-feature on a focus element [+P], and as a by-product, [-Int] on the relevant element is valued as [+INT] as a focus interpretation. Under this system, a remnant in Pseudogapping is expected to receive a focus interpretation without movement to a  $v^*P$ .

### 5.3.3 An Analysis

We have seen that although the proposals by Jayaseelan and Lasnik are very interesting, they both focus on how an elided site for Pseudogapping is created by moving remnants. Examining their analyses empirically and theoretically, I have pointed out that their analyses include some problems and thus, it is necessary to clarify how Pseudogapping is derived. Therefore, in this section, I would like to propose an alternative analysis of derivation of Pseudogapping under the mechanism I am proposing here.

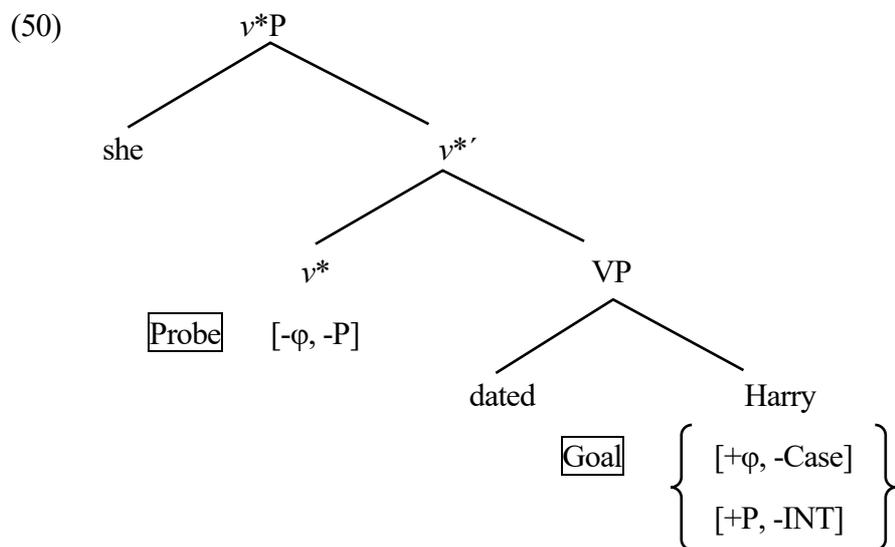
Let us first take a basic Pseudogapping example with a simple direct object as (2a), repeated as (48). I assume, following Jayaseelan (1990) and Lasnik (1999), that a deletion operation for Pseudogapping is applied to a  $v^*P$ , where the V-Head is not overtly raised.

(48) Mary hasn't dated Bill, but she has  $\phi$  Harry. ( $\phi$  = dated)

Suppose that the derivation of the second conjunct has reached the stage of (49), where  $v^*P$  is completed.

(49) [ $v^*P$  she [ $v^*$   $v$  [ $VP$  dated Harry]]]]

If  $\phi$ -features and P-feature both are assigned to the relevant items, the structure is illustrated as (50).



In the structure (50), the uninterpretable  $\phi$ - and P- features seek the matching goal *Harry* in its c-commanding domain. After Agree, the uninterpretable features on the object are valued and the valuation makes the uninterpretable [-Case] and [-INT] on the goal the interpretable [+Case] and [+INT]. The same procedure holds for the first conjunct, too because the element corresponding to the remnant DP is also contrastively focused. Under the valuation system based on probe-goal, all the uninterpretable features get valued at the  $v^*P$  as represented in (51).

(51) Mary hasn't dated Bill, but she has  $\phi$  Harry. ( $\phi$  = dated)

Antecedent  $v^*P$ : [ $v^*P$  Mary [ $v^*$   $v^*$ <sub>(-φ, +P)[F]</sub> [ $VP$  dated Bill ((+φ, +Case), (+P, -+NT))[F]]]]

Elided  $v^*P$ : [ $v^*P$  she [ $v^*$   $v^*$ <sub>(-φ, +P)[F]</sub> [ $VP$  dated Harry ((+φ, +Case), (+P, -+INT))[F]]]]

However, under the PIC assumed here, phases are evaluated at the next higher phase. Thus, each  $v^*P$  is evaluated after the subsequent derivation of the merger of T (and C) to the  $v^*P$  in (51). Therefore, the LF Structural Parallelism and Maximal Effect of Deletion, reproduced in (52), are not applied to the  $v^*P$  yet.

(52) a. **LF Structural Parallelism**

Phonological deletion is licensed only if the LF structure of a category that contains elided material is structurally isomorphic to that of the antecedent.

b. **Maximal Effect of Deletion**

Delete elements marked as [Presupposed] except focus marked [F] elements.

If a derivation proceeds phase by phase, it is natural to assume that (52) should be applied in accordance with the PIC.

Suppose that the semantics in the antecedent  $v^*P$  serves as a presupposed proposition for the elided clause. In fact, the antecedent  $v^*P$  denotes that there is at least an event where there are specific persons involved. More specifically, there is an event of a specific person (x) who loves a different specific person (y) as roughly shown in (53). The trace of a constituent could also count as a focus-marked material just like other focus elements (Schwarzschild (1999), Merchant (2001), Gengel (2013) among others). Thus, the trace of a subject in the Spec- $v^*P$  must also be bound by an operator like (53b).

(53) a.  $[\lambda y: y \exists D_e [\lambda x: x \exists D_e. x \text{ dated } y]]$  (x: she, y: Bill)

b.  $\exists \langle x, y \rangle [x \text{ dated } y]$

Given the PIC and the presupposition denoted by the antecedent clause (53), the second clause can be represented as (54), where the  $v^*P$  is marked as [Presupposed].

(54)  $[CP\ C\ [TP\ she_i\ [T'\ T\ [_{v^*P}\ t_i\ [_{v^*P}\ v^*_{(-\phi, +P)[F]}\ [VP\ \text{dated Harry}_{(+\phi, +Case), (+P, +INT)[F]}]]]]]]$   
[Presupposed]

On the hand, the LF structure of the first conjunct is illustrated in (55).

(55) [CP C [TP Mary<sub>i</sub> [T' T [<sub>v\*P</sub> *t<sub>i</sub>* [<sub>v\*' v\*</sub> (-φ, +P)[F] [VP dated Bill<sub>((+φ, +Case), (+P, +INT))[F]</sub>]]]]]]]

When the C-Head is merged, we can see that the *v\*P* in (54) has the structure identical to that in (55), sharing the identical feature dependency. Then, the Maximal Effect of Deletion forces elements except [F]-marked elements to be deleted. As a result, (51) is derived without moving the remnant out of the deletion site.

Notice that the ungrammaticality of (37), reproduced as (56), can also be explained in a similar way.

(56) A: Is she suing the hospital?  
 B: \*Yes, she is  $\phi$  the hospital.

In (56), the object in the second conjunct is the same as the corresponding object in the first conjunct. Thus, it doesn't have to be contrastively focused, and the P-feature is not assigned to it. Since the P-feature is not available, each *v\*P* structure is shown as (57).

(57) Antecedent *v\*P*: [<sub>v\*P</sub> she [<sub>v\*' v\*</sub> (-φ) [VP suing the hospital (+φ, -Case)]]]  
 Elided *v\*P*: [<sub>v\*P</sub> she [<sub>v\*' v\*</sub> (-φ) [VP suing the hospital (+φ, -Case)]]]

After the higher Heads are merged to the *v\*P*, the LF structure of the second conjunct will be like (58).

(58) [CP C [TP she<sub>i</sub> T-is [<sub>v\*P</sub> *t<sub>i</sub>* [<sub>v\*' v\*</sub> (+φ) [VP suing the hospital (+φ, +Case)]]]]]  
 [Presupposed]

Under the assumptions, the object *the hospital* will also count as a target of deletion, which has to be deleted at PF as (59).

(59) Yes, [TP she<sub>i</sub> T-is [~~VP~~ [~~\*-v\*~~ (~~φ~~) [~~VP~~ ~~suing the hospital~~ (~~φ~~ Case)]]]]  
 [Presupposed]

As (59), all the overlapped parts deleted and therefore (60B) comes out.

(60) A: Is she suing the hospital?

B: Yes, she is.

Likewise, (36), where the pronoun refers to the same thing, is ruled out for the same reasons.

The analysis that I have proposed here can explain the (un)grammaticality of (61) and (62), in which the verb is not reanalyzed with the following preposition as an instance of transitive verbs. The impossibility of passivization with these verb phrases (63) indicates that the preposition is structurally separated from the verb, forming a stronger constituent with the following noun phrase.

(61) a. \*John swam beside Bill, and Mary did Susan. (=21b)

b. ?John swam beside Bill, and Mary did beside Susan. (Lasnik (1999: 163))

(62) a. \*John stood near Bill, and Mary should Susan. (=22b)

b. ?John stood near Bill, and Mary should near Susan. (Lasnik (1999: 163))

(63) a. \*Bill was swum beside by John. (= 21a)

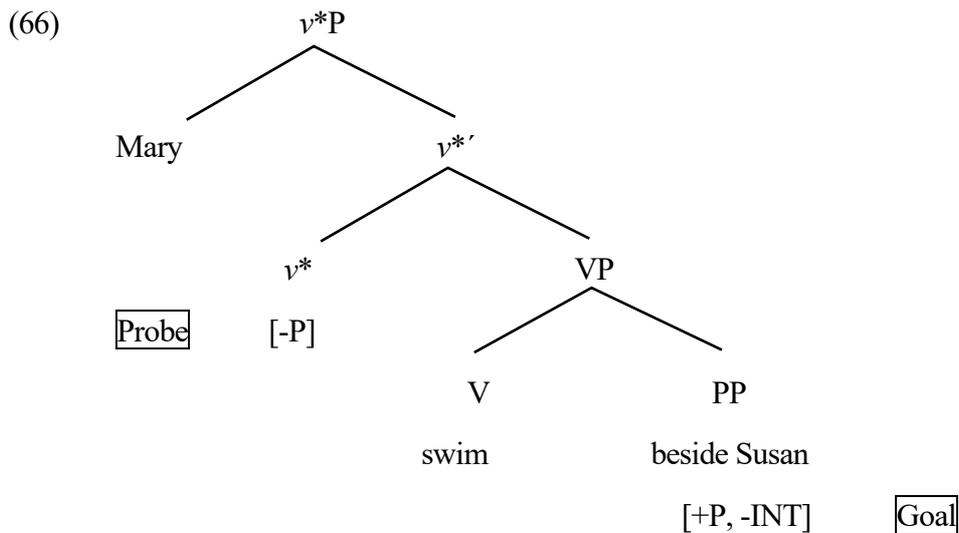
b. \*Bill was stood near by John. (= 22a)

Suppose that the PP is separated from the verb and it serves not as an argument of the verb, but as an adjunct phrase. Thus, let us assume that the PP in this case does not have the  $\phi$ -features which would be otherwise related to an object, but the PP itself has only the uninterpretable P-feature. This assumption is supported by the examples (63) and (64), where the PP is moved across the adverbial phrase while the DP in the PP cannot. (See Lasnik (1999: 163) and Levin (1976)).

(64) a. Mary will swim [beside Susan] tomorrow.

- b. Mary will swim  $t_i$  tomorrow [beside Susan]<sub>i</sub>.
  - c. \*Mary will swim beside  $t_i$  tomorrow [the man she met at the beach]<sub>i</sub>.
- (65)
- a. Mary stood [near Bill] yesterday.
  - b. Mary stood  $t_i$  yesterday [near Bill]<sub>i</sub>.
  - c. \*Mary stood near  $t_i$  yesterday [the man she met at the beach]<sub>i</sub>.

If a movement operation is induced by a feature agreement under a probe-goal relation and the EDGE (EPP) feature on the attracting head, it is possible to assume that the  $v^*$ -Head and the PP share the P-features as the agreeing features to create (64) and (65). The initial structure of the  $v^*$ P of the second conjunct in (61a), for example, is illustrated like (66), in which the PP functions as a single focus adjunct because of its strong cohesion.



Under this assumption, (64b) and (65b) are derived as shown below. Let us take (43b), for example, the  $v^*$ P in which is represented as (67).

- (67) a. [<sub>v\*P</sub> Mary [<sub>v\*'</sub> [<sub>v\* (+P, EPP)</sub> [<sub>VP</sub> swim [<sub>PP</sub> beside Susan (+P, +INT)]<sub>[F]</sub>]] tomorrow]]
- b. [<sub>v\*P</sub> Mary [<sub>v\*'</sub> [<sub>v\* (+P, EPP)</sub> [<sub>VP</sub> swim  $t_i$ ]] tomorrow] [<sub>PP</sub> beside Susan (+P, +INT)]<sub>[F]</sub>]

In (67a), the uninterpretable [-P] on the  $v^*$ -Head is valued by the interpretable [+P] on the

PP *beside Susan*. The EDGE (EPP) feature is assigned because it creates a new outcome of the PP crossing the adverbial phrase. Then, as shown in (67b), the PP is moved by the P-feature agreement and the EDGE (EPP) feature. Note that I am assuming here that this movement is rightward only for explanatory purposes. See the note 7.

Under this mechanism, consider how (60) and (61) are derive. Let us take (60), for example. The structure of each conjunct in (60) is illustrated like (68).

(68) The first conjunct:

[<sub>TP</sub> John<sub>i</sub> T [<sub>v\*P</sub> t<sub>i</sub> [<sub>v\*'</sub> v\*<sup>(+P)</sup> [<sub>VP</sub> swim [<sub>PP</sub> beside Bill<sub>(+P, +INT)</sub>]<sub>[F]</sub>]]]]

The second conjunct:

[<sub>TP</sub> Mary<sub>i</sub> T [<sub>v\*P</sub> t<sub>i</sub> [<sub>v\*'</sub> v\*<sup>(+P)</sup> [<sub>VP</sub> swim [<sub>PP</sub> beside Susan<sub>(+P, +INT)</sub>]<sub>[F]</sub>]]]]  
[Presupposed]

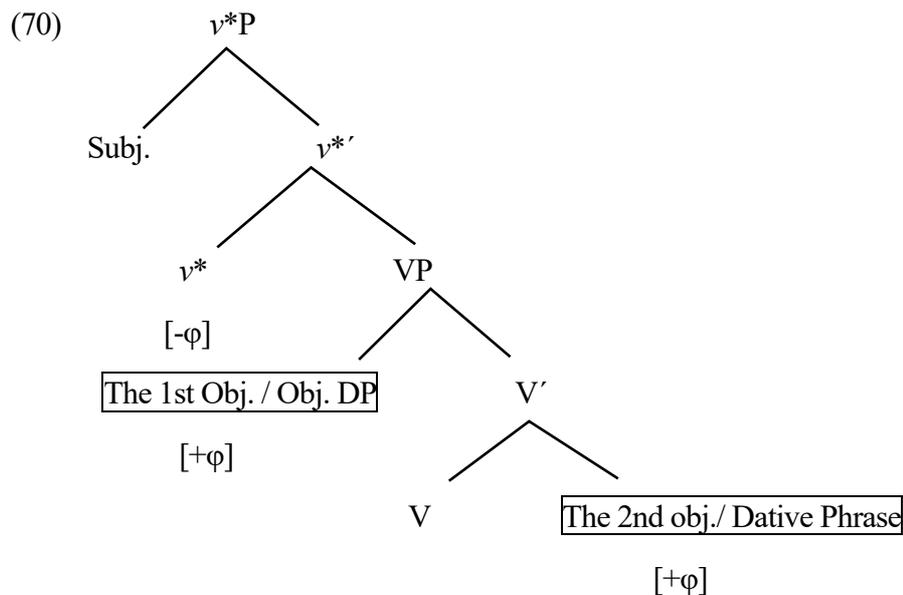
In (68), the PP as a single unit is focus-marked as the result of the P-feature agreement with the v\*-Head. The agreement relation is structurally identical between both conjuncts. Thus, the structures in (68) satisfies the LF structural parallelism. Then, under the Maximal Effect of Deletion, the presupposed elements undergo deletion while the Int-marked PP, namely, the focus-marked PP is left intact because the PP serves as one focus phrase. In this way, (61b) and (62b) are derived while (61a) and (61b) are ruled out.

Now, let us turn to the ungrammaticality of (43), repeated as (69).

(69) \*I didn't give a dime to Mary, but I did  $\phi$  a nickel to Jane.

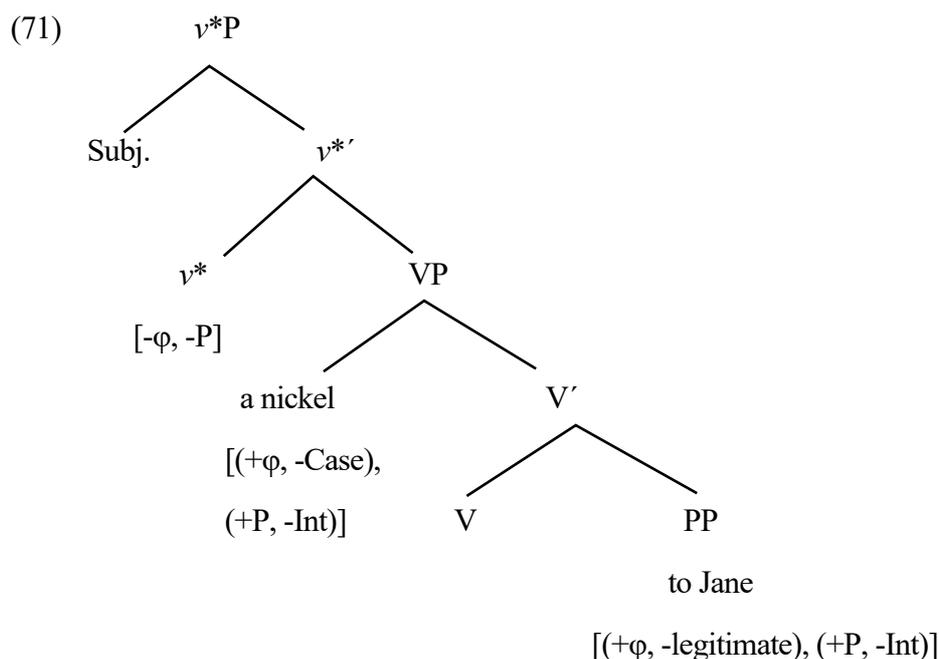
Recall that while Jayaseelan attempts to explain the ungrammaticality of (69) in terms of Double Adjunct Constraint based on HDPS, Lasnik attributes it to the failure of the  $\theta$ -features on the V-Head to be discharged to the subject and first object in the second conjunct. Basically following Lasnik (1999), I assume that a double object construction and a dative construction have the same structure. Instead of the articulated Agr system advocated by Koizumi (1993, 1995), I speculate that a v\*-Head in a double object construction has  $\phi$ -features that value the Case features of the direct object and indirect object while a v\*-Head

in a dative construction also has  $\phi$ -features that value the Case feature of the first object and license the dative phrase as legitimate because those two elements are arguments for the verb. Thus, I assume a double object construction and a dative construction share the structure illustrated in (70).



I assume that in a normal double object construction based on the structure (70), the V-Head rises to the  $v^*$ -Head, extending the minimal domain of the V to the  $v^*P$ , making the first object and the second object equi-distant from the  $v^*$ -Head. As a result, the Cases of the two objects below the  $v^*$ -Head are valued under the probe-goal relation. The similar thing holds true for an object DP and a dative phrase in a dative construction. In a similar way, if the first object and the dative phrase match with the  $\phi$ -features on the  $v^*$ -Head, the Case of the first object is valued, and the dative phrase is licensed as one of the arguments in a dative construction.

Under these assumptions, the ungrammaticality of (69) can be attributed to the unvalued features of the second element. Suppose that the remnants generated under the  $v^*$ -Head in (68) could be focus-marked with P-features assigned. Under the mechanism above, the  $v^*P$  structure in the second conjunct of the dative construction (69) is illustrated as (71), where the relevant features have been assigned.



In (71), the direct object and the dative phrase have the feature set that consists of  $\phi$ -features and P-features. The  $v^*$ -Head as a probe tries to seek its matching goal in the c-commanding domain to be valued. However, the V-Head is not raised to the  $v^*$ -Head in Pseudogapping as claimed by Lasnik (1999). Therefore, under the Minimality Condition, roughly defined in (72), the  $v^*$ -Head first matches the direct object *a nickel* and its uninterpretable features are valued at this point, making the [-Case] and [-INT] interpretable.

(72) Minimality Condition

$\alpha$  is closer to H than  $\beta$  in [ H [...  $\alpha$  ...  $\beta$  ...] ] if and only if  $\alpha$  c-commands  $\beta$ .

Valuing the first object will create the Defective Intervention Effect for the second object (Chomsky 2000). Suppose that when  $\beta$  and  $\Gamma$  in (73) can match the probe head  $\alpha$ , if  $\beta$  is valued and thus inactive,  $\Gamma$  doesn't enter into a matching relation with  $\alpha$ .

(73)  $\alpha > \beta > \Gamma$  ( $> =$  c-command)

Under this constraint, the dative phrase below the direct object whose uninterpretable

features are valued is not accessible to the  $v^*$ -Head in (74).

(74)  $[_{v^*P} I [_{v^*} ( +\phi, +P) [ [a\ nickel]_{( +\phi, +Case), ( +P, +INT) } ] [ give [ [to\ Jane]_{( +\phi, -Case), ( +P, -INT) } ] ] ] ] ]$   
 [Presupposed]

In (74), the second element is left with its uninterpretable features [-Case] and [-Int] unvalued. As a result, the second remnant is not properly interpreted at LF. Moreover, it should be phonologically erased under the assumptions because it is not focus-marked. Thus, (68) is derived as unacceptable.<sup>14</sup>

### 5.3.4 A Remaining Issue - Degraded, but Somewhat acceptable? -

In this section, let us turn to (30) and (31) judged to be marginally acceptable. The examples in questions are reproduced below as (75) and (76).

- (75) a. ?John gave Bill a lot of money, and Mary will ~~give~~ Susan ~~a lot of money~~.  
 b. \*John gave Bill a lot of money, and Mary will ~~give Bill~~ a lot of advice.  
 (76) a. ?John gave a lot of money to Bill, and Mary will ~~give~~ a lot of advice ~~to Bill~~.  
 b. ?\*John gave a lot of money to Bill, and Mary will ~~give a lot of money~~ to Susan.

Recall that Pseudogapping involving a double object construction will be slightly better when the first object is left as a remnant. Likewise, in Pseudogapping with a dative construction, the direct object DP becomes a more acceptable remnant than the dative phrase. The grammatical differences observed between the examples above are not crystal clear, but the contrasts are more or less found by some speakers. With the structure (70), I would like to provide a possible account of the differences.

Take the degraded examples (75b) and (76b). If  $\phi$ -features and P-features are assigned to the relevant elements, the  $v^*P$  of the second conjunct in each construction will be like (77).

(77) a.  $[_{v^*P} Mary [_{v^*} ( -\phi, -P) [_{VP} Bill_{( +\phi, -Case) } [ give [ [a\ lot\ of\ advice]_{( +\phi, -Case), ( +P, -INT) } ] ] ] ] ]$

- b. [<sub>v\*P</sub> Mary [<sub>v\*(-φ, -P)</sub> [<sub>VP</sub> a lot of money ((+φ, -Case) [give [[to Susan]<sub>((+φ, -legitimate), (+P, -INT))</sub>]]]]]]]

Under the probe-goal relation, the φ-features and P-feature on the probe *v\** seek the closest matching goal. In (76), there is a possible matching goal *Bill* and *a lot of money* in the closest c-commanded position from the *v\**-Head in (77a) and (77b), respectively. However, while the goal has only the φ-features, the probe has another uninterpretable feature, the P-feature. Extending Chomsky's (2001) idea on a maximize matching effect defined below, I assume that deleting more uninterpretable features at one time is preferred than deleting fewer features.<sup>15</sup>

(78) Maximize Matching Effect (Chomsky (2001: 15))

[U]ninterpretable features must be eliminated at once as fully as possible; partial elimination of features under Match, followed by elimination of the residue under more remote Match, is not an option.

The probe overrides the first matching goal and the deeper search is carried out to value more features because the Syntax based on bottom-up structure building knows that the second goal in a lower position has more features than the first goal. That is, since the first matching goal only has [-Case] with its φ-features, the probe with the additional P-features goes over it and reaches for the second goal *a lot of advice* and *to Susan* in (77a) and (77b), respectively. However, not only does this valuation need a kind of deeper search, which imposes load on computation, but also the Case feature of the first object *Bill* and the object DP *a lot of money* are left unvalued as shown in (79a) and (79b), respectively.

- (79) a. [<sub>v\*P</sub> Mary [<sub>v\*(+φ, +P)</sub> [<sub>VP</sub> ~~Bill~~<sub>(+φ, -Case)</sub> [<sub>VP</sub> ~~give~~ [[a lot of advice]<sub>((+φ, +Case), (+P, +INT))</sub>]]]]]]  
[Presupposed]

- b. [<sub>v\*P</sub> Mary [<sub>v\*(+φ, +P)</sub> [<sub>VP</sub> ~~a lot of money~~<sub>((+φ, -Case)</sub> [<sub>VP</sub> ~~give~~ [[to Susan]<sub>((+φ, +legitimate), (+P, +INT))</sub>]]]]]]  
[Presupposed]

This results in deriving the less acceptable sentences (75b) and (76b).

Next, let us consider how the slightly improved sentences (75a) and (76a) will come out. Adopting the structure (70) and the focus marking by the P-feature, the  $v^*P$  of the second conjunct in each construction can be represented as (80).

- (80) a. [ $v^*P$  Mary [ $v^*_{(-\phi, -P)}$  [ $VP$  Susan<sub>((+\phi, -Case), (+P, -INT))</sub> [give [a lot of money]<sub>(+\phi, -Case)</sub> ]]]]  
 b. [ $v^*P$  Mary [ $v^*_{(-\phi, -P)}$  [a lot of advice]<sub>((+\phi, -Case), (+P, -INT))</sub> [ give [[to Bill] <sub>((+\phi, -legitimate))</sub>]]]]

In (80), the first c-commanding constituent has both of the uninterpretable features unlike (77). The probe features on the  $v^*$ -Head in each structure can get themselves valued by the closest matching goal *Susan* in (80a) and *a lot of advice* in (80b), and it doesn't have to conduct the deeper search requiring some extra loads unlike (79). The requirement for the probe to value its uninterpretable features is satisfied easily and quickly by the first matching goal and the deeper search by the probe is not carried out. Then, the parallelism and Maximal Effect of Deletion proposed here are applied to the structures in (81) where the and the presupposed elements will be deleted. However, although the probe can get valued easily without deeper search, the features of the second element are still unvalued.

- (81) a. [ $v^*P$  Mary [ $v^*_{(+\phi, +P)}$  [ $VP$  [~~Susan~~<sub>((+\phi, +Case), (+P, +INT))</sub>] [~~give~~ [~~a lot of money~~]<sub>(+\phi, -Case)</sub> ]]]]  
 [Presupposed]  
 b. [ $v^*P$  Mary [ $v^*_{(+\phi, +P)}$  [ $VP$  [~~a lot of advice~~]<sub>((+\phi, +Case), (+P, +INT))</sub>] [~~give~~ [~~to Bill~~]<sub>(+\phi, -legitimate)</sub> ]]]]  
 [Presupposed]

Therefore, the slightly better, but still degraded result will come out with the relevant elements deleted under the LF structural parallelism and the Maximal Effect of Deletion. These cases also show that non-constituent deletion is involved with deriving Pseudogapping.

#### 5.4 Conclusion

In this chapter, I explore an alternative account of the derivation of Pseudogapping. Adopting the proposals I made for SS and MS: the LF structural parallelism and the

Maximal Effect of Deletion, I have claimed that a remnant in Pseudogapping does not undergo movement, but it is focus-marked in situ through valuation by a P-feature (Focus) on a  $v^*$ -Head and that the parallelism and the effect on a deletion operation yield an eventual Pseudogapping construction. I also argued that in this valuation system, the slight differences in the acceptability of double object constructions and dative constructions involving Pseudogapping are also explained. The claim here provides another argument against the conventional assumption that a deletion operation is applied to a constituent or maximal projection and presents a new possibility that partial elements in a maximal projection can be deleted.

### **Notes for Chapter 5**

\* This chapter is a revised and extended version of the paper that appeared as “A Minimalist Approach to Pseudogapping,” in Kinki (Kindai) University Department of Language Education Bulletin, Vol. 8, No.2, pp. 75-92.

1. According to Jackendoff (1971), Pseudogapping is judge as ungrammatical. In fact, these examples are not observed so frequently, but a lot of informants admit that they are more or less acceptable and grammatical like MS discussed in the previous chapter.

2. I am assuming that the PF Deletion approach is on the right track. As (2c) and (3c) show, even though a target sentence including deletion is not in a single clause with its antecedent, deletion is still allowed as long as relevant parts are overtly indicated in the given utterance or context. Following Hankamer and Sag (1976), I assume that Gapping and Pseudogapping also involve PF Deletion. Williams (1977) argues, against Hankamer and Sag’s analysis, that Gapping is not possible when relevant speeches are not in a single sentence. However, a lot of problems are pointed out with his analysis (see Lobeck (1995), Shima (2015) among others) as discussed in Chapter 2. Since deletion in Gapping and Pseudogapping is permitted when an elided part is overtly present in its relevant context, the PF Deletion approach is also applicable to this construction. For discussion, see Hankamer and Sag (1976) and Chapter 2 in this paper.

3. In Jayaseelan (1990), NP is used to refer to an noun phrase, instead of DP. Thus, he takes movement of heavy elements as Heavy NP Shift. Following the current framework, I use DP and Heavy DP Shift (HDPS) to mean these terms.

4. Levin (1978) notes that adjectives cannot survive deletion in Pseudogapping, but noun phrases can be survivors from ellipsis. For more examples, see Levin (1978).

- (i) a. \*Rona {looked/sounded} annoyed, and Sue did frustrated.
- b. A: These leeks {look/smell/taste} terrible.  
      B: \*Your steak will better. / \*The onion rings do even worse.
- c. \*The watchdog {appeared/seemed/turned out} (to be) friendly, but the house  
          dog did ferocious. (Levin (1978: 233))

In (i), when the remnants are adjectives, the examples including them are ungrammatical.

5. For more details to support the assumption that the constituent corresponding to the remnant can undergo covert movement, see Jayaseelan (1990: 72-73).

6. Lasnik's examples here are based on Levin (1986). See Levin (1986) for further details on reanalysis verbs.

7. The HDPS approach may also become problematic in terms of a linear ordering of right-adjoined phrases, as is discussed by Kayne (1994). Kayne's "Linear Corresponding Axiom (LCA)" rejects a instance of rightward movement and suggests that a typical c-command relation should determine linear precedence relation. If this is correct, it is unclear how rightward movement of HDPS will be able to spell out a word order correctly. Thus, it may also be necessary to examine whether rightward HDPS itself is possible as an instance of movement. Given the LCA, it is not likely that even a focus constituent can be moved rightward to be adjoined to VP.

8. Lasnik notes that it is not clear enough why (13b), repeated as (ia), is degraded while the instance of Pseudopassive (ib) with the same phrasal verb is fairly acceptable.

- (i)a. \*You can't count on a stranger; but you can a friend. (=13b)
- b. A total stranger was counted on for support. (Lasnik (1999: 157))

Levin (1979/1986) suggests that Pseudogapping with a reanalysis verb is better when the preposition forms a constituent with the verb, not with the NP. Thus, the ungrammaticality

of (ia) may be related to a possibility that the preposition forms a constituent with the following noun phrase, not with the verb.

9. As noted in the note 4, adjectives cannot be remnants of Pseudogapping. This fact also supports Lasnik's argument. See the note 4 for the examples.

10. Following Chomsky (1994), Lasnik further assumes that even though a VP constituent is deleted, all elements in the projection will be moved to each relevant position at LF in order to delete the other features that would cause a LF crash.

11. The argument that the first object in the double object construction is structurally higher than the second one comes from the following examples involving binding relation.

- (i) a. I showed John<sub>i</sub>/him<sub>i</sub> to himself<sub>i</sub> (in the mirror).
- b. \*I showed himself<sub>i</sub> to John<sub>i</sub> (in the mirror).
- (ii) \*I showed himself<sub>i</sub> John<sub>i</sub> (in the mirror).
- (iii) a. I showed the professors each other's students.
- b. \*I showed each other's students the professors.

(Barass and Lasnik (1986: 347))

Given the binding principle (Chomsky (1981)), we can assume that the first object is structurally higher than the second object. For more examples, see Barss and Lasnik (1986).

12. One of the possible instances of movement to the  $v^*P$  in non-OS languages is successive A'-movement. See Chomsky (2000, 2001) for details.

13. If the PIC is checked at the next strong phase, as Chomsky (2001: 14) assumes, the phase evaluation of  $v^*P$  is supposed to be induced when the next phase head C is merged. Thus, deletion is also applied at this level. If so, the subject, originated in the Spec- $v^*P$ , will not be present in the position. The subject will have moved out of the  $v^*P$  when the  $v^*P$  undergoes deletion. This may not be a crucial problem even under a stricter version of the PIC, in which a phase is evaluated when it is completed, because only the complement of the phase head will be spelled out and the subject still exists in the syntax.

14. The ungrammaticality may be attributed to a different reason that if the LF structural parallelism and the following deletion operation based on the Maximal Effect of Deletion

were applied only to legitimate constituents spelled out from the Syntax, the second conjunct in (69) could not even become a possible candidate to undergo deletion. Another explanation would be that the way of valuing the features in the second conjunct is different from that in the first conjunct due to the inapplicability of the verb raising. This would make the LF structural parallelism unsatisfied. Thus, from these regards, too, it would also be possible to conclude that the derivation of the second conjunct in (69) crushes and Pseudogapping is blocked.

15. Given Chomsky's (2001) discussion, it may be possible that an uninterpretable feature on an intermediate element is valued and the probe can still search for another element with other uninterpretable features in a lower position. Here, extending (78), I assume that a search goes over an intermediate element.

## *Chapter 6*

### *Conclusion*

In this paper, I have dealt with some empirical phenomena involving deletion under the Strong Minimalist Theme (Chomsky (2000)) that language is an optimal solution to interface conditions of PF and LF. Among the phenomena, I have explored an alternative derivation of elliptical phenomena: Single Sluicing (SS), Multiple Sluicing (MS), and Pseudogapping, in which some elements are left undeleted. Traditionally, it has been assumed that a deletion operation is applied to a phonological constituent or maximal projection. Thus, it has been a focus of study how elliptical constructions with remnants are derived. In this paper, against the conventional assumption, I have argued that remnants in these constructions do not undergo movement, but they are bound by the Q-morpheme based on Baker (1970) or given an appropriate interpretation by a certain feature [P-feature] in a structure. Based on this, I have presented two proposals with respect to a derivation of these constructions as below.

#### **LF Structural Parallelism**

Phonological deletion is licensed only if the LF structure of a category that contains elided material is structurally isomorphic to that of the antecedent.

#### **Maximal Effect of Deletion**

Delete elements marked as [Presupposed] except focus marked [F] elements.

Extending Baker's Q-morpheme, I have argued that it has properties of binding a remote *wh*-phrase in situ, but the English Q-morpheme is different from the Japanese one in that the former requires one *wh*-phrase to be phonologically adjacent to it. In English case, the requirement is satisfied by movement to a Spec-CP or a Spec-TP for a subject *wh*-phrase,

or deleting relevant constituents between the morpheme and a *wh*-phrase under certain conditions. Under the Maximal Effect of Deletion, *wh*-phrases in SS and MS do not undergo deletion. An antecedent clause in SS and MS presupposes that there should be something/somebody involved in the preceding event. Its corresponding *wh*-remnant also functions as an indeterminate element just like an indefinite noun phrase in the antecedent, bound by the Q-morpheme. Since they are different from each other in this respect, the former is focus-marked, escaping from deletion. An important consequence of this analysis is that the island insensitivity of Sluicing is easily explained, though the previous analyses have more or less assumed that a *wh*-phrase moves across islands, violating some version of island conditions, which is repaired by deletion. Under this analysis, violation repair is not real or promising. Another consequence of this analysis is that the (im-)possibility of VP deletion involving Sluicing is also explained; the auxiliary must be deleted along with other materials while it should be left intact when phonologically or semantically focused.

I have also proposed a possible derivation of MS, where multiple, normally two *wh*-phrases, remain undeleted like a Sluicing construction. Since in English only one *wh*-phrase is allowed to be moved to Spec-CP, it has been unclear how a deletion operation is applied to derive MS under a conventional assumption that deletion would be applied to a constituent. However, under the mechanism of the LF structural parallelism and Maximal Effect of Deletion given above, the derivation of multiple sluicing can be also treated on par with SS. Furthermore, it was suggested that the clause-mateness of multiple sluicing is attributed to the properties of the second *wh*-remnant in MS. Looking closely into some peculiar facts of the second *wh*-phrase in the construction, it turns out that the second *wh*-remnant in MS is relatively phonologically focused, behaves like a strong quantifier *every*. By assuming that the second *wh*-phrase is bound by the Q-morpheme just like the way the strong quantifier is bound, I have suggested that the properties of MS are also explained under the proposed assumptions.

Furthermore, I have dealt with the derivation of pseudogapping under the LF structural parallelism and Maximal Effect of Deletion. Following Chomsky (2000), a remnant

object is marked as a focus element in situ by a peripheral [P-] feature, which could be accompanied with  $\phi$ -features on a  $v^*$ -Head. Since no new stylistic change comes out due to deletion, the EPP feature is not assigned to the  $v^*$ -Head. This makes the focus element in the construction unmoved. The proposed parallelism is checked against  $v^*$ Ps in terms of the PIC, and the parallelism and the Maximal Effect of Deletion output the final derivation of Pseudogapping. The P-feature based on the probe-goal system also accounted for some slight grammatical difference of Pseudogapping involving double object constructions.

Given these discussions, the proposals presented in this paper have provided a new analysis of these three elliptical constructions, suggesting, against the conventional assumption, that a non-constituent deletion is a possible solution to derive elliptical phenomena with remnants.

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