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Mai Kubota

1.Introduction

The phenomenon of reconstruction has been focused on in the literature. Movement usually gives rise to semantic effects such as new scope and binding possibilities. However, there are some cases where the movement does not affect the interpretation of the sentence; that is, the copy (or the trace) left behind is interpreted in the Logical Form (LF). The fascinating aspect of the reconstruction effect is that the A-moved element does not hold the reconstruction effect, whereas A'-movement does reconstruct. Chomsky (1995) and Lasnik (1999), among many others, provide pieces of evidence supporting the absence of A-reconstruction.

However, some researchers argue against this idea and point out that A-movement exhibits a reconstruction effect based on the empirical scope or binding facts (Fox (1999), and Boeckx (2001), among others). Thus, the empirical evidence to be illustrated in the text below appears to suggest two opposite possibilities: on the one hand, A- movement does reconstruct, and on the other hand, it does not. Therefore, it is not clear in previous studies whether A-reconstruction exists or not, which needs further discussion for the development of generative grammar. Thus, this paper concentrates on the reconstruction effect of the A-moved element, discussing the scope interactions between the subject quantifiers and negation (or other scope-bearing elements).

This paper is organized as follows. We first re-examine Chomsky's (1995) and Lasnik's (1999) argument for the absence of reconstruction, then point out that Chomsky's core data actually indicates the possibility of A-reconstruction in chapter 2. Next, chapter 3 will overview Boeckx's (2001) argument, which supports the A-

reconstruction. Although we agree with his assumption in thinking that the inversed scope or lowered readings are obtained through A-reconstruction, we do not share the opinion that only weak NPs can reconstruct under A-movement. In contrast, we will provide empirical support for the A-reconstruction of the strong quantifier *every* and conclude that all QPs can be reconstructed. Then, section 4 attempts to provide an alternative analysis of the reconstruction effect. First, we will briefly overview the general argument on weak and strong quantifiers in section 4.1. Section 4.2. proposes an alternative approach to the reconstruction effect, which is based on a number of general assumptions of quantifiers. In the latter of section 4.2., we will see that the quantifiers that function as a variable, such as simple indefinites and bare numerals, are exceptions to our explanation. Chapter 5 attempts to extend the observation made in section 4.2. to the universal quantifier *every*. Chapter 6 revisits the examples from Boeckx (2001) and shows how our alternative approach accounts for the full range of data. In addition, we offer an alternative view of Chomsky's core data that is often supposed to be evidence against A-movement. Then Chapter 7 concludes our discussion.

2. The Possibility of A-reconstruction

To begin with, in this chapter, we review the core data that led Chomsky and Lasnik to the claim that A-movement does not reconstruct. Chomsky (1995) points out that *every* cannot take scope under negation in (1b), whereas the sentence in (1a) has scope ambiguity.

(1) a. (It seems that) everyone isn't there yet. (Chomsky (1995:37))

b. Everyone seems not to be there yet. (Chomsky (1995:37))

In the Minimalist Program, Chomsky (1995) proposes the copy theory of the movement that suggests the movement always leaves copies, offering the elegant account of interpreting syntactic elements in its base position (or intermediate landing position) without any form of backward movement. Under the copy theory, it is assumed that the reconstruction effect is not induced by any form of the covert (or LF) movement; instead, it is produced by the deletion of the higher copies and the

interpretation of the lower one. As for A-reconstruction, he claims that the copies left by A-movement are ignored by the interpretive mechanism; hence, the lower copy cannot contribute to the interpretation, and only the highest copy is available for interpretation. In such a way, the copy theory of movement accounts for the absence of the A-reconstruction effect. Chomsky also proposes that the reconstruction process relies on an operator-variable chain, so it would be restricted to the particular case of A'-movement that involves operators (we shall return to this point later).

However, concerning the example in (1a), he does not offer any sufficient explanation for why *every* can take a narrow scope. If A-reconstruction is absent, the sentence cannot have a partial negation reading, contrary to the fact, because the universal subject quantifier is interpreted only in its surface position. To better understand scope interaction, we should confirm the definition of the scope domain. Following the standard view of the scope domain, we assume that the quantifier scope is determined by c-command relation holding at the level of LF. (see May (1977, 1985) and Aoun and Li (1989)). In this paper, we follow the standard scope principle stated in (2)[1]

(2) The Scope Principle
A quantifier A has scope over a quantifier B in case A c-commands a member of the chain containing B. (Aoun and Li (1989 :1))

Given such a scope principle, the scope ambiguity in (1a) is still problematic under Chomsky's (1995) approach. Since the subject quantifier is not c-commanded by the sentential negation at LF, the partial negation construal would not be obtained without resorting to some special mechanism (such as reconstructions).

Lasnik (1999) also points out the absence of A-reconstruction, though he provides a slightly different explanation. He attempts to explain the absence of A-reconstruction by the hypothesis that A-movement does not leave a copy at all. In addition to Chomsky's (1993) core data, he observes the following examples involving Exceptional Case Marking (ECM) for further supporting evidence of the absence of A-reconstruction.

(3) a. The mathematician made out every even number not to be prime.

(∀ > ¬, ¬ > ∀) (Lasnik (1999:201))

b. The mathematician made every even number out not to be prime.

(∀ > ¬, *¬ > ∀) (Lasnik (1999:201))

Most speakers detect ambiguity in sentence (3a), whereas (3b) does not have a partial negation reading. According to Lasnik and Saito (1991), the ECM context involves the overt raising from the embedded subject position to the object position within the higher clause (see also Postal (1974) for a more detailed discussion about the derivation of ECM constructions). Under the raising approach, the fact in (3a) seemingly challenges to the absence of A-reconstruction. However, Lasnik (1999) emphasizes that in the ECM context, subject-to-object raising is optional but not obligatory. In addition, he demonstrates that the ECM subject is not raised to the higher clause in the cases with scope ambiguities, using the *make…out* construction as an excellent test for the raising. Thus, the ECM subject *every even number* in (3a) is not raised to the higher clause at all, so A-reconstruction is not needed for the inverse scope reading.

However, Lasnik's (1999) approach still does not precisely capture the curious scope interaction between clausal negation and a subject universal quantifier. He also does not clarify how the negation takes scope over the subject quantifier in (1a) under the standard definition of the scope domain. Therefore, we still need to know how precisely the scope interaction under consideration is to be obtained.

In addition, the following example provides empirical support for the A-reconstruction. May (1977) provides the argument for A-reconstruction, based on the scope ambiguity in (4), which involves the typical raising adjective *likely*.

(4) Some politician is likely to address John's constituency.

(some > likely, likely > some) (May (1977:188))

According to May (1977), the sentence in (4) has two readings; one asserts that there is a politician, e.g., Rockefeller, who is likely to address John's constituency, and another asserts that it is likely that there is some politician (or other) who will address John's constituency. The lowered reading, i.e., the latter one, is supposed to be brought about by a somewhat lowering operation of the subject existential quantifier.

Furthermore, the possibility of A-reconstruction would be supported from a theoretical perspective. Since Chomsky (1993), it has been assumed that movement leaves not a trace but a copy. If this assumption is on the right track, the null hypothesis is that A and A'-movement should reconstruct regardless of which type of movement is involved because copies should be left with both movements: that is, the syntactic distinction between A and A'-movement is effectively irrelevant at least in regard to the reconstruction.

To summarize this chapter, we have observed that Chomsky's core data against A-reconstruction is not conclusive. Unless we clarify the mechanism of the negation and quantifiers in scope ambiguities in (1a) and (3a), we cannot conclude that the unambiguity in (1a) and (3a) is due to the lack of A-reconstruction. Moreover, the possibility of A-movement reconstruction is supported by empirical and theoretical perspectives, as mentioned above. In the next chapter, we discuss in detail the scope interaction between negation and quantifiers (or other scope bearing elements) and propose an alternative analysis for the reversal scope construction in (1a) and (3a).

3. Previous Research for A-reconstruction

This section reviews the analysis proposed by Boeckx (2001), then introduces additional data which cannot be captured under his analysis.

Boeckx (2001) re-examines arguments against A-movement reconstruction and suggests that A-reconstruction is available in some situations. Particularly, he argues that an element is usually interpreted in the position where its uninterpretable Case-feature is erased[2]. As for A-movement, the Case of the moved elements is usually checked in the derived position (except for some special cases) so that the A-moved elements are often interpreted in their surface Case position. This approach accounts for why A-movement usually does not show the reconstruction effect. In addition, he points out that indefinites seem to stand on their own when it comes to A-reconstruction in that they exhibit the reconstruction effect more freely than other quantifiers. The following examples show that indefinites give rise to reconstruction effects in contrast to other quantifiers[3].

(5) a. Someone from New York is likely to win the lottery.
b. Nobody is believed to be in the reactor room.
c. Exactly one person is likely to get an offer.
d. Every coin is likely to land heads.

(Boeckx (2001:527))

Examples (5a-c) have lowered readings (e.g., *someone* takes scope under *likely)*, whereas such a reading is not available in (5d). Based on this contrast, he proposes that reconstruction with indefinites succeed in a different way from other cases of reconstruction: Indefinites reconstruct because the computational system resorts to the covert insertion of expletive *there,* which allows them to check their Case lower than the position where they appear. Accordingly, the subject quantifiers are lowered to the base-generated position. The following examples are provided as a piece of evidence of this approach:

(6) a. There is someone in the garden. (Boeckx (2001:527))
b. There is nobody in the garden. (Boeckx (2001:527))
c. There is exactly one person in the garden. (Boeckx (2001:527))
d. *There is everybody in the garden. (Boeckx (2001:527))

As illustrated in (6), in the *there* construction, weak NPs can occur as an associate of *there*, while strong NPs cannot. Such a contrast is known as the definiteness effect (see Milsark (1974, 1977) for the discussion on the definiteness effect). The parallelism between the example in (5) and (6) makes it clear that the quantifiers that can occur in *there* construction can be reconstructed. Such an observation supports his analysis where the A-reconstruction of indefinites is achieved via a covert *there* insertion and a quantifier lowering. After an expletive *there* is inserted at LF, indefinite subjects are lowered by means of literal lowering and interpreted in their base position. His approach accounts for the asymmetry between weak and strong NPs concerning A-reconstruction (for the more detailed mechanism of the lowering operation, which he assumes here, see Chomsky (1995)).

However, there is a counterexample to his account, which is based on the covert *there* insertion. As pointed out by Boeckx himself, it is observed that partial negation

reading is available even in the cases with weak quantifiers, as illustrated in (7).

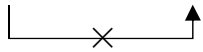
(7) a. Every man did not come. (every > not, not > every)
b. Some boys did not come. (some > not, *not > some) [4]
c. Many boys did not come. (many > not, *not > many)

(Boeckx (2001:538))

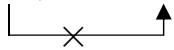
In (7), the strong NP *every* exhibit reconstruction effect, while weak NPs, such as *many* or *some*, do not. This is different from what his approach would predict. Concerning such counterexamples, Boeckx claims that these are, in fact, not problematic for his analysis, suggesting that the partial negation readings in (7a) and (7b) are not involved with A-reconstruction; instead, they are consequences of neg-raising. Based on previous work in Ladsow (1984), he presumes that neg-raising has to be extremely restricted and should be disallowed when it produces readings that do not exist. In addition, Boeckx claims that reconstruction via *there* insertion and literal lowering is preferred over neg-raising on the ground of preference of Merge over Move as in Chomsky (1995, 2000)[5]. Given these discussions, Boeckx assumes the following scenario for the sentences in (7b) and (7c); since economy consideration blocks neg-raising, the quantifier lowering is applied as the only way to derive the partial negation readings. However, such a lowering is interfered with by negation, which is assumed to be a kind of intervener in the literature (see Beck (1996), Pesetsky (2000), Tomioka (2001), among others for the definition of the intervener). Therefore, the subject quantifiers do not take narrow scope in (7b) and (7c). On the other hand, neg-raising is applied in (7a) because it is the only possible way to derive the narrow scope of the subject quantifiers; thus, inversed scope reading is obtained. This is summarized and schematized as in (8), respectively.

(8) a. Σ Every man did not come. (every> not, not > every) (=(7a))

b. Some boys did not come. (some > not, *not > some) (=(7b))



c. Many boys did not come. (many>not, *not>many) (=(7c))



However, a more detailed investigation of the interaction between subject universal quantifier and negation makes it clear that the ambiguity in (7a) is in fact derived by the reconstruction of the subject to a position lower than negation.

Before turning to the closer examination of the scope interaction between the subject quantifier and negation, a few remarks should be made concerning the scope of adverbs. In general, when the negation and the adverbs co-occur, the scopes of them are fixed in their surface position as illustrated below.

(9) Tom usually doesn't follow. (♯In fact, half the time he doesn't follow).

(Sauerland (2003:309))

In (9), the scope of negation is fixed. According to Sauerland (2003), all adverbs (and several modals) in English obligatory take scope above the negation when they occur between the subject and negation.

Similarly, Boeckx (2001) points out that there is no scope interaction between the negation and adverbs.

(10)a. John {often / usually} doesn't smoke. (often / usually > not)

b. John doesn't {often / usually} smoke. (not > often / usually)

(Boeckx (2001:537))

All the above sentences are unambiguous, exhibiting surface scope only. Boeckx (2001) assumes that negation undergoes head movement named neg-raising, and it is blocked by a quantifier head or an adverbial head in light of Relativized Minimality of Rizzi (1990). Leaving aside the detailed explanation, we have confirmed that the adverbs and negation never exhibit a scope interaction. Given this, let us now turn to the following examples.

(12)a. Everyone wasn't here (by six). (every > not, not > every)

b. Everyone usually isn't there (by six). (every > not, not > every)
(usually > not, *not > usually)

(Boeckx (2001:538)

The examples in (12a) and (12b) have partial negation readings. In addition, in (12b), negation always takes scope under the quantificational adverb *usually*. If we assume with Boeckx (2001) that the neg-raising for these examples, one would wrongly

predict that negation scopes over both subject quantifiers and the adverb *usually*. Notice here that they do not have an option where the adverb *usually* undergoes a covert raising after the neg-raising because the adverbs are usually assigned a scope in their surface position, as illustrated above. Therefore, the negation movement-based approach cannot be applied to capture the scope ambiguity in (12b). Instead, reconstruction of the subject quantifier to the position under negation is the only mechanism to achieve the wide scope of negation in (12b). We may, therefore, reasonably conclude that the scope interaction between the subject universal quantifier and negation is derived from the A-reconstruction of the subject.

The discussion about negation and a universal quantifier here in turn provides an alternative view of the reversal scope of Chomsky's core data, such as (1b). Contrary to Chomsky (1995) and Lasnik (1999), the empirical observations here indicate that the relevant scope ambiguities between the universal quantifier and negation are exactly due to the effect of A-reconstruction. With these discussions in mind, we will assume that A-moved quantifiers can reconstruct regardless of whether it is weak or strong in nature; namely, every kind of quantifier can reconstruct.

To sum up this section, we have reviewed Boeckx (2001) and observed that although most cases of A-reconstructions involve indefinites, reconstruction with A-moved strong quantifiers is necessary in some cases. Hence, we conclude that A-moved quantifiers inherently can reconstruct irrelevant to the weak/strong distinction. The question which we must consider next is why numerous cases do not exhibit the A-reconstruction effect. Before turning to this issue, we briefly observe the curious behavior of weak quantifiers in the next chapter.

4. The quantifiers as Variables

It is helpful to draw some distinctions among various types of quantifiers before moving on to the main task. This chapter mainly discusses the distinction between weak and strong quantifiers, focusing on the idea that weak NPs behave as a variable. However, such an assumption faces a puzzle regarding the scope reconstruction phenomena, which indicates that closer observation is needed to

determine the natural class of the quantifier that can behave as a variable.

Several ways have been proposed in the literature to classify quantifier phrases (QPs) based on various syntactic and semantic reasons. We concentrate on one of the most traditional distinctions; “weak” and “strong” (see Szabolcsi (1994, 1996) and Beghelli and Stowell (1997) for the alternative ways to draw the distinction).

One of the most famous differences between weak and strong QPs is that the former can occur in *there* construction, whereas the latter cannot.

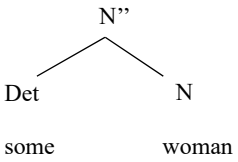
(13)a. There are some / three / many / few / no children in the garden.
(weak)

b. *There is (are) every / each/ all / most child(ren) in the garden.
(strong)

In order to account for the definiteness effect, Milsark (1977) claims that while determiners of strong QPs are truly quantificational, the determiners of weak QPs should be analyzed as non-quantificational. This leaves weak QPs without any quantificational force, unlike strong QPs. Instead, their quantificational force is provided by the element outside of them. In the case of *there* construction, an existential quantifier hidden in the expletive *there* plays a role as a binder. In contrast, strong QPs are ruled out in there-construction because their determiner is quantificational. Thus, the presence of an existential quantifier with expletive *there* induces vacuous quantification (see Milsark (1974, 1977) and Herburger (1997) for further discussion on the analysis of the definiteness effect). What is important for our discussion is that weak QPs can function as a variable bound by quantificational elements outside given QPs.

Similarly, following Higginbotham (1985), Reinhart (1998) describes that a standard existential NPs, or more generally weak NPs, such as *some woman* has a following structure:

(14) a.



b. (∃x) (woman(x))

c. f {x|woman (x)}

It is well accepted that NPs are headed by N, and N is always a set with a variable. Reinhart describes that the weak NPs and strong NPs are interpreted using the different mechanism, thereby the variables are bound by the operator (in this case quantifier). On the one hand, as for strong NPs, a variable is bound by the quantificational determiner in its specifier position. On the other hand, variables in weak NPs have two options to be bound; In some cases, as is the case with the strong QP, the determiner of the NP takes responsibility for the variable binding (as in (14b)), while the quantificational operator outside the QP does so in other cases (as in (14c))[6]. The latter option is attributed to the assumption that variables in weak NPs do not necessarily correspond to an operator; thus, it can be bound by an existential operator outside of the NPs, along the line proposed in Heim (1982) (see Reinhart (1998) for the semantical problem of unselective binding or other similar approaches to the indefinite and the alternative proposal)[7].

However, the simple indefinites, such *a* or *an*, and other weak NPs behaves slightly different regarding the scope assignment. In particular, the simple indefinites can take a scope which is wider than their actual syntactic scope position at LF. For example, it is often suggested that QR cannot escape from the boundary of a finite clause, thus the long distance QR is prohibited. However, indefinites ignore the clause boundedness and take the widest scope relative to other scope-bearing elements within the same clause. Moreover, the simple indefinites do not obey the scope island constraint. Consider the following examples from Heim (1982).

(15)a. John overheard the rumor that each of my students had been called before the dean.

b. John overheard the rumor that a student of mine had been called before the dean.

(Heim (1982:33))

The complex NPs are generally supposed to be a scope island. Thus, as illustrated in (15a), even the quantifier *each*, which tends to prefer wide scope, cannot escape from

the scope island. Therefore, (15a) does not have an inverse scope reading according to which for each student x, John overheard the rumor that x was called before the dean. On the other hand, (15b) seems quite naturally understood in such a way in a particular situation; *a student of mine* ignores the scope island, being assigned the widest scope.

Heim (1982) attempts to account for the peculiar widest scope of indefinites, assuming that an indefinite determiner has no quantificational force of its own at all. Instead, they behave like variables, which need to be bound by quantificational elements. Given this, Heim proposes the operation called unselective binding, where an existential quantifier outside of the relevant QP unselectively binds all the variables in indefinites and provides the quantificational force for them. Therefore, the indefinite does not undergo any movement; instead, it gets interpreted via unselective binding. Thus, the absence of clause boundedness and island effects follows as a natural consequence.

It is worth noting here that Heim does not rely on the classification based on weak/strong distinction. Instead, she assumes only simple indefinite NPs and bare plurals lack the quantificational force and function as a variable. More concretely, Heim describes that QPs of either the form [indefinites article N'] or the form [__ N'] (with an empty determiner position) is different from true QPs (such as strong NPs) in that their determiners have no quantificational force, or they have no determiner at all (we shall return to this point later).

For now, we have overviewed some different types of approaches that relate to the interpretation of indefinite, or in more general weak QPs, and almost all of them assume that indefinites or weak NPs can be treated as variables.[8]

Recall here that Boeckx (2001) points out only weak NPs can undergo A-reconstruction, while strong ones cannot. However, as demonstrated in section 3, we cannot rely on such a classification regarding the scope reconstruction of A-movement since it cannot accommodate the scope interaction between A-moved universal quantifiers and negation. Therefore, the weak/strong distinction seems to be irrelevant to the possibility of the A-reconstruction. This is not to say that the variable-hood of

the quantifier is not related to the availability of the reconstruction effect at all. Rather, our observation in the following chapter presents that variability is actually one of the crucial factors in considering why some kinds of QP can reconstruct, whereas others cannot, but the picture of the variable-like quantifier is presumably more complex than the weak/ strong distinction.

In the following section, we will propose that the variability of the moved element is crucial to the A-reconstruction effect. In addition, we will demonstrate that the quantifiers that can behave as a variable are actually limited to the simple indefinites, bare numerals, and the universal quantifier *every*, as opposed to the assumption in Mirsalrk (1974, 1977), Reinhart (1998) among others.

5. Alternative Analysis

This chapter aims to offer a plausible reason why A-movement does not exhibit a reconstruction effect in many cases, while some cases show the necessity of A-reconstruction. I will first argue that, in numerous cases, the A-reconstruction effect is masked by the general restriction on quantifier scope. In addition, we observe that simple indefinites and bare numerals ignore such a restriction due to their variability. Then, section 4.2. concentrates on the curious behavior of *every* and argues that the universal quantifier *every* also behaves as a variable in some cases. In section 4.3. we provide an alternative proposal for the reconstruction effect of A-movement.

5.1. Background Assumption of Quantifier Scope

In this section, we first introduce the standard theory of quantifier scope and propose that quantifier movement always creates the operator-variable chain regardless of whether it involves A or A'-movement. Then, following in part Chomsky (1995), we discuss that their operator-variable chain allows quantifiers to reconstruct into their lower copy (or trace) position.

It is well accepted in the literature that quantifiers must undergo some scope-related movement to satisfy their scope properties. May (1977, 1985) argues that all quantifiers must undergo quantifier raising (QR) from their Case position to a distinct

scope position at LF, which implies Case position cannot be served as a scope position for quantifiers. In contrast, Hornstein (1995) proposes that every link in the A-chain of a given quantifier is available as a scope position for that quantifier, including both the Case position and its θ-position. This paper adopts the idea of Hornstein (1995) and pursues the idea that QPs inherently take scope in both their Case-position and θ-position; namely, they can reconstruct arbitrarily.

This paper also adopts another general assumption that QR, like *wh*-movement, creates an operator-variable configuration. This idea is derived from the parallelism between wh-movement and QR, in that, they both induce Weak Cross Over effects. Many researchers analyze that Weak Cross Over effects are triggered by operator-variable configuration (see Fox (1999) and Cecchetto (2004) for further discussion about Weak Cross Over effects of QR).

QR is often assumed to be a phonetically null operation responsible for the scope inversion or solving type mismatch. However, at least according to some researchers, QR is also assumed to be necessary even for the θ-assignment in narrow syntax (see Cecchetto (2004) for the relevant discussion). Given this, we assume that the quantifier movement always forms the operator-variable chain regardless of whether it is QR at LF or the quantifier movement in narrow syntax. Hence, the A-movement motivated by Case and Agreement checking also creates the operator-variable configuration as far as quantifiers are concerned.

Recall here that Chomsky (1995) stipulates that reconstruction is a property of operator-variable constructions to explain why there is no A-movement reconstruction. He provides this explanation based on the assumption that A-movement does not involve any operator-variable chain. That is, the A-movement does not usually exhibit a reconstruction effect because it often does not involve an operator-variable chain. However, as we noted a little earlier, the quantifier movement obligatorily introduces the operator-variable chain even when it is an instance of A-movement. Based on these observations, we believe that Chomsky's explanation for reconstruction can be extended to accommodate the quantifier movement. That is to say, the reconstruction of the A-moved quantifier is inherently available because the quantifier movement

necessarily forms the operator-variable configuration irrespective of the A/A' distinction of the target landing site. We want to stress here that our proposal is based on Chomsky's idea that the operator-variable configuration is necessary for the reconstruction operation.

Taking the above discussion together, it is possible to build up the following hypothesis: The reconstruction is available as far as the preceding movement creates the operator-variable configuration. Thus, the quantifier movement (or generally, the operator movement) inherently can reconstruct regardless of whether they involve A or A'-movement because it is always related to the operator-variable chain.

The question we must consider next is why the reconstruction effect of A-moved quantifiers is unavailable in most cases. The answer to this question would be associated with the specific condition on quantifiers or, in more general, the restriction on the operator-variable chain. Under the standard assumption, every quantifier phrase must bind at least one trace (or copy) as a variable at LF. Otherwise, they would give rise to vacuous quantification, yielding ungrammatical sentences. If QPs are interpreted in their thematic position, the vacuous quantification must be induced because there are no variables in a lower position. Thus, the reconstruction of true QPs to their θ-position is excluded. The innovative aspect of this approach is that the A-reconstruction operation itself is not problematic, but θ-positions are not available for quantifier interpretation. In other words, quantifiers can reconstruct freely as far as they bind variables in their θ-positions. This approach allows us to explain the peculiar reconstruction phenomena of some quantifiers, as in (16).

(16)a. Some politician is likely t' to t address John's constituency.
(some > likely, likely > some) (Boeckx (2001:507))

b. Someone hasn't arrived yet. (some > not, *not > some)
(Boeckx (2001:532))

In (16a), the lowered reading, where *some politician* is interpreted under the adjective *likely*, is available. In such a case, the QP does not reconstruct to its θ-position; instead, it reconstructs to its intermediate landing site, binding a variable in a lower (thematic) position. On the other hand, in (16b), the inverse scope reading is not obtained because

the existential quantifier *someone* cannot be interpreted in its θ-position, and there is no intermediate position under the negation. In this way, our hypothesis accounts for the empirical facts concerning the A-reconstruction effect (we will return to this point later and give more empirical scope facts that our hypothesis can explain correctly).

Here, I would like to note the unique properties of simple indefinites and bare plurals. It was observed in the preceding chapter that the indefinites and bare plurals faction as a variable. To put it another way, they do not have to bind any variables since they do not function as a genuine operator. Therefore, simple indefinites and bare plurals are allowed to reconstruct into their vP-internal thematic position, whereas true QPs are not, as illustrated in (17) and (18).

(17) Two / some students didn't read this book.
(two/some > not, *not > two/some) (Beghelli and Stowell (1997:82))

(18)a. A student didn't write this book. (ambiguous)
b. Students didn't write this book. (ambiguous)
(Beghelli and Stowell (1997:83))

In (17), true QPs, such as *two students* or *some students*, cannot be interpreted in their thematic position. On the other hand, the simple indefinite in (18a) and the bare plural in (18b) can reconstruct to their thematic position, yielding the scope inversion (see Heim (1982), Kratzer (1988), and Beghelli and Stowell (1997) for the relevant discussion). Given that, we can conclude that the quantifier that functions as a variable can be interpreted in its thematic position.

It is worth noting here that the examples in (17) and (18) indicate that, as for A-reconstruction, some kinds of weak quantifiers, such as *some* or *two*, and simple indefinites or bare numerals behave differently. Therefore, this fact provides further support for our assumption that weak/strong distinction is irrelevant to A-reconstruction. Moreover, the difference discussed here implies that some weak NPs cannot behave as a variable contrary to the general assumptions (we will concentrate on this issue more concretely in the following section).

To summarize this section, we have observed various general assumptions on quantifiers and proposed that true QPs can reconstruct based on the operator-variable

configuration in nature. Then, we discussed why A-moving quantifiers do not usually exhibit a reconstruction effect in terms of the particular condition on the quantifier. The usual QPs behave as an operator; thus, they cannot be interpreted in their base position. In addition, we have demonstrated that simple indefinites and bare plurals can ignore the relevant condition because they can function as a variable. In the following section, we will discuss the variability a little more fully before going on to the consequences of our alternative proposals.

5.2. Variability of *Every* and Alternative Classification for Quantifiers

In the previous section, we observed that syntactically and semantically, indefinites and bare numerals function as a variable rather than a true quantifier. In this section, we would like to propose that the same reasoning can be extended to the universal quantifier *every*.

The universal quantifier *every* exhibits syntactic or semantic behaviors that are parallel to the simple indefinites or bare plurals. For one thing, the universal *every* is assigned a scope that is wider than its actual syntactic scope in some cases. Fox and Sauerland (1996) provides the following examples:

(19)a. Yesterday, [a guide]$_{\exists}$ ensured [$_{CP}$ that [every tour to the Louvre]$_{\forall}$ was fun]. ($\exists > \forall$, $*\forall > \exists$)

b. In general, [a guide]$_{\exists}$ ensures [$_{CP}$ that [every tour to the Louvre]$_{\forall}$ is fun. ($\exists > \forall$, $\forall > \exists$)

(Fox and Sauerland (1996:72))

In (19a), the guides cannot vary with the tours, which indicates that *every* in an embedded clause cannot take scope over the indefinite matrix subject *a guide*. This scope fact follows from the well-known clause-boundedness of the quantifier scope. On the other hand, in (19b), such a clause-boundedness is ignored, and *every* can take scope over the matrix subject, which is called scope illusion.

What is more, *every* can be interpreted via a kind of unselective binding. Groenendijk and Stokhof (1993) notes the following examples, where *every*-QP functions as variables that are bound by external quantifiers.

(20) For the most part, John knows which book every student bought.

(Beghelli and Stowell (1997:101))

In (20), *every* seems to be interpreted neither as the universal *all* nor distributive *each*; rather, it is interpreted like *most*. Therefore, such an example exhibits an instance of unselective binding effects.

Moreover, Fox and Sauerland (1996) also argues that the illusive wide scope of *every* is derived from a kind of unselective binding. More particular, they argue that a null generic quantifier binds the variable *every*, based on the following examples. Suppose that Heidi has a house in this area.

(21)a. In general, a master craftsman builds a house in this area.

≠ b. A master craftsman built Heidi's house.

(Fox and Sauerland (1996: 80))

In (21), the indefinite object *a house* is unselectively bound by a null generic operator, which is usually supposed to be tolerant of exceptions. Therefore, the sentence in (21b) allows the exception, such as a house that a master craftsman does not build.

On the other hand, *every* cannot tolerate exceptions, as illustrated in (22).

(22)a. A master craftsman built every house in this area.

= b. A master craftsman built Heidi's house.

(Fox and Sauerland (1996 : 80))

The sentence in (22) means that when someone built a house in the area, it must be built by a master craftsman without any exception. However, when a universal quantifier occurs in the generic tensed sentence, it allows exceptions.

(23)a. In general, a master craftsman builds every house in this area.

≠ b. A master craftsman built Heidi's house.

(Fox and Sauerland (1996 :80))

(23) shows that the object QP-*every house* in genetic sentences allows the exception. Such tolerance is more like the generic quantifier than the universal quantifier. Therefore, the interpretation of *every* in a generic sentence does not come from the universal quantifier; rather, the relevant interpretation is brought about via the unselective binding in which the generic quantifier unselectively binds a variable

every.

All these things make it clear that *every* can be a variable potentially, as well as simple indefinites and bare plurals. It is worth noting here that we preserve the apparent fact that *every* is a kind of universal quantifier. Therefore, *every* can behave either as a variable or as a true QP.

We can now propose an answer to the question we posed in chapter 3; how we should classify the quantifiers regarding A-reconstruction. Given the discussion on the variability of some quantifiers, this paper draws distinctions among various quantifier types as follows:

(24)a. quantifiers as variables
simple indefinite, bare numeral, every

b. true quantifier.
some, many, modified numeral (e.g., more than five)

Notice here that the variablehood-based classification in our discussion is slightly different from the weak/strong distinction. As illustrated in chapter 4, it is widely assumed in the previous literature that every weak NPs can behave as a variable. However, the fact is incompatible with the assumption; some of weak quantifiers such as *some, many*, and modified numerals (except bare numerals) cannot function as a variable. Instead, they always behave as true quantifiers.

Consider the following examples.

(25)a. In general, [a guide]$_{\exists}$ ensures [$_{CP}$ that [every tour to the Louvre]$_{\forall}$ is fun]]. ($\exists > \forall$, $\forall > \exists$)

b. In general, [a guide]$_{\exists}$ ensures [$_{CP}$ that [many tours to the Louvre]$_{M}$ are fun]]. ($\exists > M$, *$M > \exists$)

c. [A guide]$_{\exists}$ accompanies [many tours]$_{M}$. ($\exists > M$, $M > \exists$)

(Fox and Sauerland (1996 : 79))

As illustrated in (25), the many-QP does not take the scope above the matrix subject because of the clause boundedness. Quantifiers such as *many* does not show the scope illusion effect even in a generic context, i.e., the *many*-QPs keep to the clause boundedness. If the relevant QP functions as a variable, one would wrongly detect

that it can be bound by the external null generic operator, enabling it to be assigned the widest scope without any movement. The absence of such a semantic effect indicates that the relevant quantifier cannot function as a variable (see Fox and Sauerland (1996) and Beghelli and Stowell (1997) for the relevant discussion).

In this section, we have observed that not only indefinites and bare plurals but also the universal quantifier *every*, which is usually supposed to be an instance of strong quantifiers, also functions as a variable, while some of the weak quantifiers cannot. Such an observation is incompatible with the well-known assumption that every weak NPs can behave as a variable. Accordingly, we have provided the alternative view of distinguishing the quantifiers as illustrated in (25) based on our observation on variability. The next chapter will demonstrate how our alternative proposal correctly captures the empirical fact.

6. The Consequences of Alternative Proposal

As discussed in the previous chapter, we provide an alternative approach to the absence of the reconstruction effect. This section will confirm the validity of our alternative analysis from empirical and theoretical perspectives.

First, we can account for the differences between various quantifiers in regard to A-reconstruction. More concretely, our analysis can explain why the subject quantifiers can take scope under negation in some cases but not in others. See the following examples from Boeckx (2001).

(26)a. Every man did not come. (every > not, not > every) (=(7a))

b. Some boys did not come. (some > not, *not > some)[9] (=(7b))

c. Many boys did not come. (many > not, *not > many) (=7c))

d. More than two guests didn't show up (∃ > ¬) ??(¬ > ∃)

(Mayr and Spector (2010: 23))

Under our analysis, true QPs cannot be interpreted in their thematic position, while the QPs which function as a variable can. In (26a), *every* can be interpreted either in its surface position or in its θ-position because it has the potential to behave as a variable. Thus, the sentence is ambiguous. On the other hand, the QPs in (26b,c,d)

cannot be interpreted in their base position since they are true QPs, which must bind at least one trace (or copy) as a variable. Therefore, they cannot take scopes under negation.

Secondly, our analysis also accounts for the following contrast regarding the scope interaction between the subject quantifiers and adverbs.

(27) a. Every window is rarely open in this building.
→inverse-scope available: 'It is rarely the case that every window is open'
b. More than two windows are rarely open in this building.
→inverse-scope unavailable: 'It is rarely the case that more than two windows are open in this building'

(Mayr and Spector (2010:17))

Under our alternative analysis, the inverse scope reading for (27b) is correctly ruled out. In contrast, *every* may be counted as a variable in (27a); thus, it is assigned the scope in its thematic position under the adverb rarely, yielding the inverse scope reading.

Thirdly, we are now able to explain Chomsky's core data and Lasnik's ECM paradigm. Recall that Chomsky (1995) and Lasnik (1999) argue for the absence of A-reconstruction, providing the following data, respectively.

(28)a. (It seems that) everyone isn't there yet. (=(1a))
b. The mathematician made out every even number not to be prime.
($\forall > \neg, \neg > \forall$) (=(3a))

Both sentences in (28) have partial negation readings, which is exactly detected under our analysis. In (28a), the subject universal quantifier *everyone* can reconstruct into its thematic position, the spec of vP, due to the variability. The scope ambiguity of the sentence in (28b) is accounted for in the same way. The ECM object *every even number* reconstructs to its base position, embedded spec-vP, producing the partial negation reading. Recall that we do not abandon the strong quantifier interpretation of the subject quantifier *every*. Thus, in (1b), repeated below as (29), the universal quantifier *every* cannot reconstruct to its thematic position because it is interpreted as a strong quantifier. Much further work is needed for the proper understanding of the

alternation of these two distinct scope-taking strategies.

(29) Everyone seems not to be there yet. (every > not, *not > every) (=(1b))

Furthermore, our alternative approach is based on the idea that reconstruction is available as far as the operator-variable configuration is constructed, regardless of whether it concerns A or A'-movement. In the minimalist framework, it is more desirable to treat reconstruction in the same way without any stipulation. Accordingly, our analysis is also supported by the theoretical perspective.

To sum up, this section has observed that our analysis can accommodate the problematic empirical facts under the previous work by Boeckx (2001). In addition, we propose an alternative view for Chomsky's core data and claim that the relevant data in fact indicates the necessity of the scope reconstruction effect with A-movement.

7. Conclusion

To conclude this paper, we have demonstrated sufficient evidence to show that A-movement does reconstruct as well as A'-movement. Under our approach, the quantifier constantly reconstructs, no matter whether it is A or A'-movement. A-reconstruction is often absent not because A-movement cannot reconstruct or leaves no copy but because the θ-position is generally unavailable for quantifier interpretation. Such an approach follows from some fundamental restrictions on quantifiers.

In addition, we have drawn attention to the scarcely recognized fact that universal quantifier *every*, traditionally considered as a genuine (or strong) quantifier, actually behaves as a variable in some specific environment as well as simple indefinites and bare plurals. Unlike the true quantifier, the variable-like quantifiers can be interpreted in their θ-position, enabling the scope reconstruction effect. A number of puzzling scope interactions between various subject quantifiers and negation or other scope-bearing elements can be more readily explained under our approach. Moreover, our analysis is more preferred under the economy consideration within the minimalist framework because A and A'- movements are dealt with equally concerning the reconstruction effect.

Notes

[1.] Notice here that the current discussion is based on the following assumption called the Isomorphic Principle:

(i) The Isomorphic Principle
Suppose A and B are QPs. Then if A c-commands B at S-structure, A c-command B at LF.

[2.] Following Chomsky (1995), Boeckx (2001) assumes that Case is an uninterpretable feature and proposes that Case checking renders the element visible for interpretation. It also assumed that once the Case is checked, the scope is frozen in the position where Case is checked.

[3.] It is worth noting here that Boeckx (2001) does not use the term "indefinites" to refer to indefinite articles a/an. Rather, "indefinites" can be defined as weak NPs because it also involves *some*, *many*, and plurals under the relevant discussion.

[4.] The existential quantifier *some* is assumed to be a positive polarity item (PPI) in general. As for the distribution of PPI, many previous researchers point out that PPI does not occur within the domain where the negative polarity items (NPI) are licensed, such as in the scope of negation and within the interrogative and conditional clauses. Therefore, one conceivable possibility is that the lowered reading of (7b) is ruled out independent of the possibility of the reconstruction. Instead, such a reading is excluded due to the licensing condition; in (i), for the lowered reading of *some*, it should be reconstructed into the scope of negation, yielding the undesired configuration.

[5.] Chomsky (1995, 2000) describes that Merge is preferred over Move under economic consideration because Move is more complex. Boeckx (2001) assumes that the reconstruction effect is derived once the covert *there* is inserted in LF. This operation is an instance of Merge; therefore, when deciding whether to merge *there* or move negation, the computational system prefers applying *there*-insertion.

[6.] More strictly, Reinhart (1998) argues that an alternative strategy is to bind the variable by forming a set of propositions and turning them into a functional variable. Then existential closure is applied and binds the functional variable.

[7.] Reinhart points out the problem raised by Heim's unselective binding and proposes the operation Choice Function as an alternative mechanism for the correct semantic representation

of indefinites. A more detailed discussion of her argument is beyond the focus of this paper. It is sufficient for our discussion to note that weak quantifiers do not have any quantificational force and behave as variables in some cases.

[8.] There is an alternative way of accounting for the different behaviors between weak and strong determiners in taking their scope at LF. Although the classical view is that both of the determiners are supposed to move together with their sister NP, it has also been proposed by Heim (1982) and others that only the determiner moves, stranding the NP. Given these discussions and following in part, Higginbotham (1987), Herberger proposes a hybrid approach to the scope-taking strategy of DPs, in which strong determiners are obligatorily glued to their NP complement, whereas weak determiners can rise with or without their complement optionally. The important point to note here is that this approach also implies that the weak determiners can be separated from the variables, and the relevant variables can be assigned their scope interpretation in a different way from the variables in the strong DP.

[9.] The current account would predict that the sentence in (i) will be ambiguous because the intermediate landing site is available for reconstruction. However, the quantifier many cannot take scope under the negation.

(i) a. Many boys didn't seem to come to the party. (many > not, *not > many)

b. Someone doesn't seem to come to the party. (some > not, *not > some)

One possibility would be to say that the reconstruction is sensitive to the intervention effect induced by negation, other negative expressions, or other downward-entailing phrases, and as a result, the reconstruction under the negation is blocked. Although the way to form a natural class of potential interveners is different depending on the researchers, they share the basic idea that the intervention effect is not a property of narrow syntax; rather, it is concerned with LF movement or semantic component (See Beck (1996), Pesetsky (2000), and Tomioka (2007) for further discussion on the element yields the intervention effects). Given the idea, it is not a surprise to assume that the reconstruction of genuine quantifiers is interfered with by the intervener. On the other hand, the reconstruction of the quantifier with the variability is not sensitive to the intervention effect since they are assigned their scope via binding.

Moreover, Pesetsky (2000) observes the data from the separation construction in German and points out that the target of the intervention effect is actually a movement of an operator part or

a feature movement in his term. Obenauer (1984) also provides an instance of the intervention effect in the separation construction of French, where a wh-element like *combine* can be extracted from the DP as in (iib).

(ii) a. [Combien de véhicules] a-t-il conduit ____?
how-many of cars did he drive
`How many cars did he drive?'

b. Combien a-t-il conduit [____ de véhicules]?

(iii) a. [Combien de véhicules] n'a-t-il pas conduit _____?
how-many of cars did-he not drive?
`How many cars didn't he drive?'

b. *Combien n'a-t-il pas conduit [____ de véhicules]?

In (ii), the extraction of the entire DP or the DP specifier is equally acceptable. However, if extraction tales place across a negation, an apparent asymmetry arises between the two; that is, the extraction of the DP specifier is completely excluded. The facts empirically show that it is the operator part that is actually sensitive to the intervention effect; therefore, we may say that the quantifier, which behaves as a variable, is not affected by the intervention effect at all.

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