

# On Reconstruction Asymmetry in Left Branch Extraction\*

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## Abstract

This article investigates aspects of the left branch extraction (LBE) construction in Japanese. I will compare two alternative analyses: the direct extraction analysis and the scattered deletion analysis. I will show that LBE resists reconstruction for the condition C, whereas it always undergoes scope reconstruction. I will explain the condition C anti-reconstruction effect in terms of the direct extraction analysis, and then account for the obligatory scope reconstruction under the semantic analysis of reconstruction.

**Keywords:** left branch extraction, the condition C, scope, syntactic vs. semantic reconstruction

## 1. Introduction

It has been observed by Ross (1967, 1986) that movement operations in English are constrained by the Left Branch Condition (LBC) in (1).

(1) The Left Branch Condition (Ross (1986: 127))

No NP which is the leftmost constituent of a larger NP can be reordered out of this NP by a transformational rule.

LBC accounts for the ill-formedness of the sentences in (2). (2a) involves wh-

movement of the possessor *wh*-phrase that was the leftmost constituent of the object NP before movement took place. (2b) is also an instance of left branch extraction (LBE) applied to the *wh*-determiner of the object NP. Furthermore, (2c) is unacceptable as a result of extracting the degree adjectival *wh*-phrase out of the object. Compare them with the acceptable counterparts in (3) that involve pied-piping of the host NPs instead of left branch extraction.

- (2) a. \*Whose<sub>i</sub> did you see [t<sub>i</sub> father]?  
 b. \*Which<sub>i</sub> did you buy [t<sub>i</sub> car]?  
 c. \*How much<sub>i</sub> did she earn [t<sub>i</sub> money]? (Bošković (2005a: 14))
- (3) a. Whose father<sub>i</sub> did you see t<sub>i</sub>?  
 b. Which car<sub>i</sub> did you buy t<sub>i</sub>?  
 c. How much money<sub>i</sub> did she earn t<sub>i</sub>?

While LBC is active in such languages as German, French, Danish, Italian, and Finnish as well as in English, he notes that LBE is not subject to LBC in Slavic languages and Latin. The examples below in (4) and (5) are from Serbo-Croatian and Latin, respectively.

- (4) a. Čijeg<sub>i</sub> si video t<sub>i</sub> oca?  
 whose are seen father  
 ‘Whose father did you see?’  
 b. Koliko<sub>i</sub> je zaradila t<sub>i</sub> novca?  
 how.much is earned money  
 ‘How much money did you earn?’ (Bošković (2005: 14-15))
- (5) a. Cuiam<sub>i</sub> amat Cicero t<sub>i</sub> puellam?  
 whose loves Cicero girl  
 ‘Whose girl does Cicero love?’ (Bošković (2005: 15))

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- b. Cuius<sub>i</sub> legis                    t<sub>i</sub> librum?  
 whose you.are.reading book  
 ‘Whose book are you reading?’                    (Ross (1986: 145))

Turning our eyes to Japanese, LBE in the language tended to be considered as ungrammatical (see Snyder, Wexler, and Das (1995), Nomura and Hirotsu (2005), and Kato (2007), among others). However, we can find acceptable instances of LBE like (6) recorded at least as early as in Yatabe (1996), whose main concern was not LBE but scrambling in general, and he did not intend to be committed to the theoretical status of LBE in Japanese.

- (6) Tanaka-sensei-no<sub>i</sub>, tabun kore-ga [t<sub>i</sub> saigo-no chosho-ni]  
 Tanaka-Prof.-GEN probably this-NOM last-GEN book-DAT  
 naru daroo  
 become-PRES it.seems  
 ‘It seems that this will probably become Prof. Tanaka’s last book.’  
 (Yatabe (1996: 304))

To my knowledge, Takahashi and Funakoshi (2013) were the first to explicitly admit the existence of acceptable LBE constructions and derive them in terms of syntactic movement. They start with an observation that while NPs resist LBE, PPs can undergo LBE, as shown in (7).

- (7) a. \*Dare-no<sub>i</sub> Taroo-ga [t<sub>i</sub> tegami]-o sute-ta-no?  
 who- GEN Taro-NOM letter-ACC discard-PST-Q  
 ‘lit. Whose<sub>i</sub> Taro discarded [a letter t<sub>i</sub>]?’

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- b. Dare-kara-no<sub>i</sub> Taroo-ga [ t<sub>i</sub> tegami]-o sute-ta-no?  
 who-from-GEN Hanako-NOM letter-ACC discard-PST-Q  
 ‘lit. From who<sub>i</sub> Taro discarded [a letter t<sub>i</sub>]?’  
 (Takahashi and Funakoshi (2013: 237))

They attempt to derive the difference in acceptability between (7a) and (7b) in the following fashion: they assume with Tateishi (1989) and Tonoike (1991) that nominal phrases in Japanese are headed by a Case particle, which they call the K(ase)P analysis. They argue that a KP constitutes a phase (Chomsky (2000, 2001)) if and only if it contains another KP' with a genitive Case-marker. If KP' remains in the base position in the KP phase, it will never be able to be LBEed in the later phases due to the Phase Impenetrability Condition (PIC). On the other hand, moving KP' beforehand to the KP edge will violate a version of anti-locality proposed by Bošković (2005b). Thus, the grammar correctly excludes the sentence (7a) with NP LBE. On the other hand, they assume that a genitive-marked PP does not make its containing KP a phase. Thus, PPs are allowed to undergo LBE without violating the PIC nor anti-locality.

Although their solution works well as far as the pair in (7) is concerned, I have to note that Takahashi and Funakoshi (2013) will make several incorrect predictions. Firstly, notice that Yatabe's example in (6) involves LBE of not a PP but a NP, which would cause the PIC or anti-locality violation by their account. Second, as Shiobara (2016) observes, it is not the case that all the genitive-marked PPs are immune to the LBC. For example, the PP *dare-e-no* 'to whom' are not so easily extracted as the PP *dare-kara-no* 'from whom.' Compare (7b) with (8):

- (8)?? Dare-e-no<sub>i</sub> Taroo-ga [ t<sub>i</sub> tegami]-o sute-ta-no?  
 who-to-GEN Hanako-NOM letter-ACC discard-PST-Q  
 ‘lit. To who<sub>i</sub> Taro discarded [a letter t<sub>i</sub>]?’ (Shiobara (2016: 146))

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Shiobara (2016) accounts for acceptable and unacceptable cases of LBE by a phonological condition that requires that the resulting string of LBE exhibit a strong -weak-strong prosodic contour. In her analysis, genitive PPs are more likely to receive prosodic prominence than genitive NPs due to containing a meaningful element, namely P, so PP LBE is better than NP LBE. As for the contrast between *dare-kara-no* and *dare-e-no*, the phonological length of them matters; since the latter is phonologically shorter, it is less likely to be prominent than the former. Thus, the sentence (8) is less acceptable. I assume with Takahashi and Funakoshi (2013) and Shiobara (2016) that Japanese does allow for certain instances of LBE.

The main concern in this article is not to draw a precise line between the grammatical LBE derivations and ungrammatical ones, but to explore interpretive properties of well-formed LBE constructions. In particular, I will investigate how the LBEed elements behave with regard to scope interaction and anaphoric relations (the condition C). It will be observed in section 2.1 that a LBEed quantifier cannot take scope at the landing site, suggesting that LBE of quantifiers are followed by obligatory scope reconstruction. In addition, I will point out that under a certain condition, an R-expression contained in an LBEed element exhibits the so-called condition C anti-reconstruction effect (section 2.2), and even does so when its containing phrase is quantified and undergoes obligatory scope reconstruction (section 2.3). In section 3, I will provide an account for the facts. Specifically, comparing two possible analyses of LBE, the direct extraction analysis and the scattered deletion analysis, it will be shown that only the former is compatible with the condition C facts and that the latter also makes an incorrect prediction about scope (section 3.1). In section 3.2, I will account for the scope facts under the direct extraction analysis and show that a semantic analysis of scope reconstruction rather than a syntactic one is needed to explain the interaction of scope and the condition C in LBE. Section 4 is a conclusion.

## 2. Data

### 2.1. Quantifier Scope

Japanese is a scope rigid language that, in the canonical word order, generally excludes the inverse scope in favor of the surface scope. For example, the sentence (9a) in the canonical SOV order allows for the surface scope interpretation that asserts the existence of a person such that he or she respects everyone, but not for the inverse scope reading under which everyone is respected by a possibly different person. The latter can be obtained by scrambling the lower quantified NP (QNP) *daremo-o* ‘everyone’ across the higher one *dareka-ga* ‘someone’ as in (9b).

- (9) a. *dareka-ga daremo-o sonkee-siteru*  
 someone-NOM everyone-ACC respect-PRES  
 ‘Someone respects everyone.’      some > every, \*every > some
- b. *daremo-o dareka-ga sonkee-siteru*      some > every, every > some

Let us now consider how the LBE construction behaves with regard to scope. In the sentences in (10), the indefinite/existential QNP *dareka* is the subject, and the universal QNP *daremo* is marked with the genitive Case marker *no* and is contained in the object. The sentence (10a) in the canonical SOV order allows for the surface scope interpretation that asserts the existence of a person such that he or she respects everyone’s father, but not for the inverse scope reading under which for everyone, a possibly different person respects his or her father. Notice the contrast between (10b) and (10c): While the inverse reading is made available in (10b) by scrambling of the whole object NP containing the universal as was in (9b), it is not available for the LBE example (10c), which only extracts the left branch QNP out of the object NP.

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- (10) a. dareka-ga daremo-no titioya-o sonkee-siteru  
 someone-NOM everyone-GEN father-ACC respect-PRES  
 ‘Someone respects everyone’s father.’ some > every, \*every > some
- b. daremo-no titioya-o dareka-ga sonkee-siteru  
 some > every, every > some
- c. daremo-no dareka-ga titioya-o sonkee-siteru  
 some > every, \*every > some

Apparently, the scope options available in the LBE sentences are limited to those already permitted in their counterpart without LBE. In other words, LBE does not extend scope of the moving QNP. This suggests that LBE is interpretively undone, or reconstructed, as far as scope interpretation is concerned.<sup>1</sup>

Variable binding provides another test for whether a fronted element can take scope from the landing site, because taking scope over a pronoun is a necessary (though not adequate) condition for variable binding of it. (11b) involves scrambling of the object *3-tu-no kaisya-o* ‘three companies’ and it can bind the variables *soko* ‘it’ that it has weakly crossed over, while the reading is unavailable without scrambling as in (11a). On the other hand, in (12b) involving LBE of the genitive *3-tu-no kaisya-no* ‘of three companies,’ the bound variable reading is not available as it is not in (12a) (see Takahashi and Funakoshi (2013) for a similar remark on LBE of wh-phrases).

- (11) a. \*soko<sub>i</sub>-no syain-ga 3-tu-no kaisya<sub>i</sub>-o uttae-ta  
 there-GEN employee-NOM 3-CL-GEN company-ACCsue-PST  
 ‘There are three companies such that each of them was sued by its employees.’
- b. 3-tu-no kaisya-o<sub>i</sub> soko<sub>i</sub>-no syain-ga uttae-ta

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- (12) a. \*soko<sub>i</sub>-no syain-ga 3-tu-no kaisyai-no datuzee-o  
 it-GEN employee-NOM three-companies-GEN tax.evasion-ACC  
 kokuhatu-si-ta  
 accuse-do-PST  
 ‘There are three companies such that for each of them, its employees  
 blew the whistle on its tax evasion.
- b.\* 3-tu-no kaisyai-no soko<sub>i</sub>-no syain-ga datuzee-o kokuhatu-si-ta

We can make sense of this observation by assuming that LBEed QNPs reconstruct for scope. If so, the pronoun is eventually out of the scope of the antecedent. Since an antecedent operator’s taking scope over a pronoun is a prerequisite for variable binding, it straightforwardly follows that the pronoun cannot be bound.

A generalization in this section is that LBE is followed by reconstruction for scope.<sup>2</sup>

## 2.2. The Condition C Effect

In this section, we will explore the anaphoric properties of the LBE construction. But before that, let me have a preliminary discussion of the condition C (anti-)reconstruction effect, taking English (13) for example.

- (13) a. \*Which argument that John<sub>i</sub> is a genius did he<sub>i</sub> believe?  
 b. Which argument that John<sub>i</sub> made did he<sub>i</sub> believe? (Fox (1999: 164))

In (13a), the R-expression *John* inside the complement clause to the fronted wh-phrase cannot be interpreted as the antecedent of the matrix subject pronoun *he*. One way to make sense of this is to invoke a kind of reconstruction operation that puts the fronted constituent back into the pre-movement position at LF, as in (14).



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- (14) which <sub>i</sub> did he believe [argument that John is a genius]

This LF representation has the configuration where *he* c-commands *John*, so their coreference is not admitted under the condition C of the binding theory. It can be confirmed that the condition C is relevant here by considering (15), where *he* is replaced by *his teacher* in order for the pronoun not to c-command its antecedent after reconstruction at LF, and the coreference is indeed permitted.

- (15) a. Which argument that John<sub>i</sub> is a genius did his<sub>i</sub> teacher believe?  
 b. which <sub>i</sub> did his teacher believe [argument that John is a genius]

(13a) is called the condition C reconstruction effect since the condition C appears to refer to the reconstructed LF to regulate the coreference between an R-expression and a pronoun. On the other hand, when *John* is embedded within the relative clause modifying the wh-phrase as in (13b), *he* comes to be able to refer to it, which is called the condition C *anti*-reconstruction effect since it appears as if the condition C is checked without applying reconstruction.

Now I will turn to the interaction of LBE and the condition C (anti-)reconstruction effect. The sentences in (16) are meant to be constructed as follows; the matrix subject is the pronoun *kare-ga* ‘he,’ and the relative clause *Taroo-ga kai-ta* ‘that Taro wrote’ modifies the genitive NP *ronbun-no* ‘of the paper,’ that in turn modifies the dative object *mondai-ni* ‘to the problem’ of the matrix verb *kidui-ta* ‘noticed.’ The sentences are minimally modified in (17), where the subject *kare* in each sentence is replaced by *kare-no sensee* ‘his teacher’ so that the pronoun cannot c-command the elements within T’. In the canonical SOV word order (16a), the pronoun *kare* must be interpreted as referentially disjoint from the R-expression *Taroo*. In contrast, (17a) allows for the coreference between *kare* and *Taroo*. The contrast is naturally attributed to the condition C of the binding theory; in the former,

the pronoun c-commands the R-expression, but not in the latter.

- (16) a. \**kare<sub>i</sub>-ga Taroo<sub>i</sub>-ga kai-ta ronbun-no mondai-ni kidui-ta*  
           he-NOM T.-NOM write-PST paper-GEN problem-DAT notice-PST  
           (koto)  
           fact  
           ‘(The fact that) he<sub>i</sub> noticed the problem of the paper that Taro<sub>i</sub> wrote.’
- b. [*Taroo<sub>i</sub>-ga kai-ta ronbun-no*]<sub>k</sub> *kare<sub>i</sub>-ga t<sub>k</sub> mondai-ni kidui-ta (koto)*
- c. \**[Taroo<sub>i</sub>-ga kai-ta]<sub>k</sub> kare<sub>i</sub>-ga t<sub>k</sub> ronbun-no mondai-ni kidui-ta (koto)*
- (17) a. *kare<sub>i</sub>-no sensee-ga Taroo<sub>i</sub>-ga kai-ta ronbun-no mondai-ni*  
           he-GEN teacher-NOM T.-NOM write-PST paper-GEN problem-DAT  
           kidui-ta (koto)  
           notice-PST fact  
           ‘(The fact that) his<sub>i</sub> teacher noticed the problem of the paper that  
           Taro<sub>i</sub> wrote.’
- b. [*Taroo<sub>i</sub>-ga kai-ta ronbun-no*]<sub>k</sub> *kare<sub>i</sub>-no sensee-ga t<sub>k</sub> mondai-ni kidui-*  
           *ta (koto)*
- c. [*Taroo<sub>i</sub>-ga kai-ta*]<sub>k</sub> *kare<sub>i</sub>-no sensee-ga t<sub>k</sub> ronbun-no mondai-ni kidui-*  
           *ta (koto)*

We obtain (16b-c) by moving different items: LBE of the genitive NP with the relative clause yields (16b), and (16c) results from LBE of the relative clause alone. (17b-c) are also derived from (17a) in the same way. In (16b), *kare* comes to be able to refer to *John*. In other words, we observe the condition C anti-reconstruction effect here. On the other hand, (16c) still exhibits the condition C reconstruction effect, excluding the coreference between *kare* and *Taroo*. I argue that the deviance of (16c) under the coreference is indeed due to the condition C violation; compare it with (17c), where the pronoun *kare* is not the matrix subject but the Spec thereof. The

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pronoun does not lie in a position to c-command the pre-movement position of LBE and the coreference between *kare* and *Taroo* is available.

In summary, contrary to the observation in section 2.1 that the LBEed elements are subject to obligatory reconstruction for scope, they do not necessarily reconstruct for the condition C. Specifically, the anti-reconstruction effect is seen if the relative clause containing an R-expression is LBEed along with its host, but not when it alone undergoes LBE.

### 2.3. Scope + the Condition C

Last but not least, let us combine the scope test and the condition C test. First, we look at the relation between the scope interaction of QNPs and the condition C. In the sentences in (18), the subject and the genitive within the direct objects are QNPs, and the latter is modified by a relative clause containing the R-expression *Taroo*. In the canonical word order (18a), the indirect object pronoun *kare* ‘he’ c-commands into the relative clause of the direct object. This sentence only allows the surface scope (due to scope rigidity) and the pronoun cannot refer to the R-expression. Crucially, when the left branch is fronted as in (18b), the condition C anti-reconstruction effect obtains while the scope of the fronted QNP is obligatorily reconstructed.

- (18) a. *hitori-no gakusee-ga kare\*<sub>i/j</sub>-ni Taroo<sub>i</sub>-ga kai-ta subete-no*  
 one-GEN student-NOM he-DAT T.-NOM write-PST all-GEN  
*ronbun-no mondai-o siteki-sita*  
 paper-GEN problem-ACC point.out-PST  
 ‘A student pointed out to him\*<sub>i/j</sub> some problem(s) of every paper that  
 Taroo<sub>i</sub> wrote.’  
 a student > every paper, \*every paper > a student

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- b. [Taroo<sub>i</sub>-ga kai-ta subete-no ronbun-no]<sub>k</sub> hitori-no gakusee-ga  
 kare<sub>i/j</sub>-ni [t<sub>k</sub> mondai-o] siteki-sita  
 a student > every paper, \*every paper > a student

Second, let us examine the interaction between the condition C and variable binding, the latter requiring the binder to take scope over the bound pronoun. The LBE sentence (19b) is derived from (19a), where the matrix subject pronoun *kare* ‘he’ c-commands, and hence is disjoint from, the R-expression *Taroo* within the relative clause, and the pronoun *sore* ‘it’ cannot be variable-bound by the QNP *mittu-no uwasa* ‘three rumors.’

- (19) a. kare<sub>i/j</sub>-ga sore<sub>2</sub>-o hirome-ta gakusee-ni Taroo<sub>i</sub>-no yuuzin-ga  
 he-NOM it-ACC spread-PST student-DAT T.-GEN friend-NOM  
 kii-ta mittu-no uwasa<sub>2</sub>-no singi-o tazune-ta (koto)  
 hear-PST three-GEN rumor-GEN truth-ACC reveal-PST fact  
 ‘(the fact that ) he<sub>i/j</sub> asked the student who spread it<sub>2</sub> the truth of  
 three rumors<sub>2</sub> that Taroo<sub>i</sub>’s friend heard.’
- b. [Taroo<sub>i</sub>-no yuuzin-ga kii-ta mittu-no uwasa<sub>2</sub>-no]<sub>k</sub> kare<sub>i/j</sub>-ga  
 sore<sub>2/3</sub>-o hirome-ta gakusee-ni t<sub>k</sub> singi-o tazune-ta (koto)

In (19b), where the left-branch QNP with the relative clause is fronted, the bound variable interpretation for the pronoun *sore* is still not available, indicating that the QNP has undergone scope reconstruction. However, at the same time, the coreference between *Taroo* and *kare* becomes available, i.e., we find the anti-reconstruction effect with respect to the condition C.

From these observations, we can conclude that scope reconstruction is not accompanied by reconstruction for the condition C.

### 3. Analysis

There have been at least two analytical options proposed for the LBE construction. The first, as the name of the construction *LBE* presupposes, literally moves the left branch out of the host NP across the preceding elements as schematized in (20a), which I will call the *direct extraction analysis*. The second is labeled as the *scattered deletion analysis* (20b) where not the left branch but the whole NP that contains it undergoes movement followed by copy deletion applying in such a way that the left branch portion of the NP realizes phonologically at the top of the chain while the rest of the NP does at the bottom of the chain (see Ćavar and Fanselow (2000) and Fanselow and Ćavar (2002) for this idea).

- (20) a. the direct extraction analysis  
 $X_{[NP\ LB\ N]}\dots \rightarrow LB_i X_{[NP\ LB_i\ N]}\dots$
- b. the scattered deletion analysis  
 $X_{[NP\ LB\ N]}\dots \rightarrow [NP\ LB\ N]_i X_{[NP\ \underline{LB}\ N]_i}\dots$

Now I will compare them in light of the facts observed in the previous section, concluding in section 3.1 that only the direct extraction analysis equipped with late merger operation (Lebeaux (1988)) accords well with the condition C (anti-)reconstruction effect. Then, in section 3.2, I account for the scope fact under the direct extraction analysis, implementing scope reconstruction in terms of a semantic approach to reconstruction.

#### 3.1. Comparison of the Alternatives

Let me begin with examining the direct extraction analysis. Given the copy theory of movement, I assume that the condition C is checked at LF (Chomsky (1993)). Then, the contrast in (13), repeated in (21), is accounted for in the following fashion: (21a), where the *wh*-phrase has a complement, is assumed to have the

structure (22) at LF. Here, the subject *he* c-commands the lower copy of wh-movement, and hence the R-expression *John* contained in it. Therefore, they cannot be coreferential.

- (21) a. Which argument that  $John_i$  is a genius did  $he_{*i/j}$  believe?  
 b. Which argument that  $John_i$  made did  $he_{i/j}$  believe?  
 (22) [which argument that John is a genius] did he believe  
 [which argument that John is a genius]

On the other hand, adjuncts like the relative clause in (21b) can be late-merged into the landing site (Lebeaux (1988)). Thanks to this, the derivation in (23) is available for (21b). First, the wh-phrase without the relative clause is merged as the complement of the verb in (23a). Then, wh-movement maps (23a) to (23b). Lastly, the relative clause is late-merged to the higher copy of the wh-phrase to yield the structure (23c). In this structure, the pronoun *he* has no copy of *John* to c-command. Thus, there is no violation of the condition C.

- (23) a. did he believe which argument  
 b. [which argument] did he believe [which argument]  
 c. [which argument [that John made]] did he believe [which argument]

With this account of the (anti-) reconstruction effect in mind, now let us move on to the sentences (16c, d) repeated below in (24). Remember that (24a) involves LBE of the possessor as well as the relative clause and allows for the coreference between *kare* ‘he’ and *Taroo*, while in (24b), only the relative clause undergoes LBE and exhibits the condition C reconstruction effect.

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- (24) a. Taroo<sub>i</sub>-ga kai-ta ronbun-no kare<sub>i</sub>-ga mondai-ni kidui-ta  
 b. \*Taroo<sub>i</sub>-ga kai-ta kare<sub>i</sub>-ga ronbun-no mondai-ni kidui-ta

The direct extraction analysis gives the following derivation to (24a): First, pre-LBE structure is given in (25a), where the object of the verb contains the genitive *ronbun-no* not modified by the relative clause yet. Then, LBE applies to yield (25b). Finally, the relative clause is late-merged into the higher copy of LBE as in (25c).

- (25) a. kare-ga ronbun-no mondai-ni kidui-ta  
 b. [ronbun-no] kare-ga [ronbun-no] mondai-ni kidui-ta  
 c. [Taroo-ga kai-ta ronbun-no] kare-ga [ronbun-no] mondai-ni kidui-ta

In this representation, *kare* does not c-command *Taroo*, so their coreference does not violate the condition C. Thus, the anti-reconstruction effect is derived.

On the other hand, (24b) cannot have the same kind of derivation, since there is no head NP to which to apply late-merger of the relative clause; the sentence keeps the possessor NP *ronbun* ‘paper’ in situ. If one wanted to avoid violating the condition C and directly merged the relative clause to the root node as in (26), nothing could guarantee the modification relationship between the relative clause and the head NP *ronbun*. If one maintained their modification relation by merging them as in (27a), the LBE of the relative clause would leave its copy as in (27b), entailing the condition C violation. Thus, there is no way of deriving (24b) without ignoring constituency required in modification nor violating the condition C.

- (26) a. kare-ga ronbun-no mondai-ni kidui-ta  
 b. [Taroo-ga kai-ta] kare-ga ronbun-no mondai-ni kidui-ta

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- (27) a. *kare-ga* [[*Taroo-ga kai-ta*][*ronbun-no*]] *mondai-ni kidui-ta*  
 b. [*Taroo-ga kai-ta*] *kare-ga* [[*Taroo-ga kai-ta*][*ronbun-no*]] *mondai-ni kidui-ta*

In sum, the crucial difference between (24a) and (24b) is the presence/absence of the NP modified by the relative clause at the landing site. It is possible to late-merge the relative clause outside the c-command domain of the subject pronoun in the former case but not in the latter.

Let us move on to the scattered deletion analysis, according to which what appears to be LBE is in fact movement of a full NP whose copies are deleted in an unusual fashion. In this analysis, the scrambling construction (28a) and the LBE construction (28b) have essentially the same structure (29).

- (28) a. *Taroo-kara-no tegami-o Hanako-ga sute-ta*  
 T.-from-GEN letter-ACC H.-NOM discard-PST  
 ‘Hanako discard a letter from Taro.’  
 b. *Dare-kara-no Hanako-ga tegami-o sute-ta*
- (29) [*Taroo-kara-no tegami-o*] *Hanako-ga* [*Taroo-kara-no tegami-o*] *sute-ta*
- (30) a. [*Taroo-kara-no tegami-o*] *Hanako-ga* [~~*Taroo-kara-no tegami-o*~~] ...  
 b. [~~*Taroo-kara-no tegami-o*~~] *Hanako-ga* [~~*Taroo-kara-no tegami-o*~~] ...

The only difference between them is the way deletion applies at PF. In the former, the whole copy at the landing site survives and the whole bottom copy undergoes deletion as in (30a) at PF. In the latter, deletion applies to the head noun at the higher copy and the left branch at the lower one as in (30b).

In this analysis, we expect no syntactic nor interpretational differences between scrambling and LBE because they involve the same structure at LF. Now let us consider (31). Whatever rules in the coreference of *kare* and *Taroo* (31a) will





while the direct extraction analysis can. The scattered deletion analysis has also been shown to make incorrect predictions about scope.

### 3.2. The Direct Extraction Analysis and Scope Reconstruction

In this section, under the direct extraction analysis, I will account for the fact that the condition C effect is independent of scope reconstruction. Remember that the LBEed QNP in (33) cannot take wider scope than the quantified subject it moved across:

- (33) daremo-no dareka-ga titioya-o sonkee-siteru  
 some > every, \*every > some

The task consists of two parts: to motivate scope reconstruction, and then to give specific implementation of it in such a way that is compatible with the condition C anti-reconstruction effects in the LBE environment.

Regarding the first task, I argue that scope reconstruction is due to the scope island-hood of NPs (Larson (1985), May (1985)). Given this assumption, it is impossible for a QNP1 embedded in another QNP2 to escape from it and to adjoin to a propositional projection like TP for scope taking; the highest possible position for quantifier raising of QNP1 is the edge of QNP2 and thus they must take adjacent scope. Specifically, it accounts for the (un)available scope options of (34). Quantifier raising adjoins QNP1 to QNP2, yielding the relative scope *every* > *some*. If the whole QNP2 with QNP1 on its edge is quantifier-raised beyond the subject *two politician*, we obtain the reading (34b); otherwise, (34a). The missing reading (34c), where the subject takes scope between QNP1 and QNP2, would be derived if QNP1 could move out of NP2 to adjoin above the subject, but this is not an option under the assumption that NPs constitute scope island.

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- (34) Two politicians spy on [<sub>QNP2</sub> someone from [<sub>QNP1</sub> every city]].
- a. 2 > every > some
  - b. every > some > 2
  - c. \*every > 2 > some

We can observe a similar effect in the Japanese scrambling construction below:

- (35) [<sub>QNP2</sub> [<sub>QNP1</sub> subete-no too-no] koohosya hitori-o]<sub>i</sub> hutari-no  
 all-GEN party-GEN candidate one-ACC two-GEN  
 yakunin-ga t<sub>i</sub> supaisi-ta  
 officer-NOM spy-PST  
 ‘Two officers spied on some candidate from every party.
- a. 2 > every > some
  - b. every > some > 2
  - c. \*every > 2 > some

In (35), QNP1 takes wider scope than its host nominal, which is assumed to be derived by adjoining QNP1 to QNP2. QNP2, in turn, can take scope over the subject by virtue of scrambling, resulting in the reading (35b). If QNP2 reconstructs into below the subject with QNP1, the sentence will be interpreted as (35a). On the other hand, it does not allow for the reading (35c) where the scope of QNP1 and QNP2 is split by the subject. This reading would be derived if QNP2 could reconstruct below the subject somehow stranding QNP1 at the sentence initial position. This suggests that in Japanese, too, NPs constitute scope islands, forcing QNPs inside them to take scope at their edges (although the scope island-hood of NPs itself requires an explanation, I cannot provide an answer to this problem in this article and have to leave it for future research, taking this property as given for now).

Then, it follows that the possessor QNPs that underwent LBE have to

reconstruct to take scope within their host NPs; since the left branch element originates in its host NP, it must take scope not at the landing site but at the pre-LBE, NP-edge position.

Now the next question is how to implement scope reconstruction. In the literature, the strategies for scope reconstruction are divided roughly into two groups: syntactic reconstruction (Chomsky (1993), Fox (1999, 2000) among others) and semantic reconstruction (Cresti (1995)), which I will examine in turn.

Let me begin with the outline of the syntactic reconstruction strategy. Given the copy theory of movement, the sentence (36a) has the structure of (36b). When the structure is mapped to LF, deletion applies to either copy of *someone from NY*. The LF (36c) obtained by deleting the lower copy corresponds to the surface scope reading. On the other hand, if the higher copy is deleted as in (36d), the inverse scope reading results. This latter derivation is said to involve syntactic reconstruction.

- (36) a. Someone from NY is very likely to win the lottery.  
 b. [someone from NY] is very likely [someone from NY] to ...  
 c. [someone from NY] is very likely \_ to ... (someone > likely)  
 d. \_ is very likely [someone from NY] to ... (likely > someone)  
 (Fox (2000: 145))

The semantic analysis of scope reconstruction, on the other hand, makes use of two kinds of trace, an ordinary trace of type <e> and a higher order trace of generalized quantifier type <et, t>. If the former is used, the LF will be like (37a) and correspond to the surface scope reading. On the other hand, if the latter option is taken, the LF will be (37b) and make the QNP take scope at the trace *T* position, resulting in the reconstructed scope reading.

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- (37) a. someone from NY  $\lambda t_{<e>}$  [is very likely  $t$  to ...] (someone > likely)  
 b. someone from NY  $\lambda T_{<et,t>}$  [is very likely  $T$  to ...](likely > someone)

The crucial difference between syntactic and semantic reconstruction is the place where the QNP is situated at LF. Under syntactic reconstruction, it is located in the very place you want in the end. Under semantic approach, it is always at the fronted position regardless of which type of the traces are chosen.

As such, a syntactic analysis of scope reconstruction entails that scope reconstruction is always accompanied by the condition C reconstruction effect while a semantic one lets scope reconstruction apply without inducing the condition C reconstruction effect (Romero (1998), Fox (1999, 2000)). In the literature, it has seemed hard to determine whether scope reconstruction actually correlates with the condition C reconstruction effect. For example, providing the example in (38), Fox (1999) argues that *she* cannot refer to *Dianna* when *many* takes narrower scope than *likely* and pursues the syntactic approach to reconstruction. On the other hand, Lechner (2013) points out that (39) is acceptable under the coreference of *he/him* and *Anton* even if *many* undergoes scope reconstruction and argues for a semantic analysis of semantic reconstruction.

- (38) How many stories about Dianna's brother is she likely to invent?  
 (Fox (1999: 167))
- (39) How many students who hate Anton does he hope will buy him a beer?  
 (Lechner (2013: 175))

Choosing between the two approaches is thus a controversial topic, but as far as the condition C facts we observed in section 2 are concerned, the semantic analysis seems to be adequate. The relevant example is repeated below from (18b)

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- (40) [Taroo<sub>i</sub>-ga kai-ta subete-no ronbun-no]<sub>k</sub> hitori-no gakusee-ga kare<sub>i</sub>-ni  
 [t<sub>k</sub> mondai-o] siteki-sita  
 a student > every paper, \*every paper > a student

The syntactic approach would analyze the sentence as follows. The structure of (40) in narrow syntax is given below in (41a). Suppose that we implement the scope island-hood of NP by stipulating that in LBE, the lower copy must be retained by deleting the higher one. Then the LF will be that in (41b). Notice that in this representation the pronoun *kare* c-commands the R-expression *Taroo*, which would wrongly exclude the coreference between them.

- (41) a. [Taroo-ga kai-ta subete-no ronbun-no] hitori-no gakusee-ga  
 kare-ni [Taroo-ga kai-ta subete-no ronbun-no] mondai-o...  
 b. \_ hitori-no gakusee-ga kare-ni [Taroo-ga kai-ta subete-no ronbun-  
 no] mondai-o siteki-sita

It is important to note that in the case of syntactic reconstruction, the late merger of the relative clause is not an option. This operation will give the structure (42a), where the relative clause is only present at the higher copy of LBE movement. Now, if we deleted the higher copy in order for the QNP to reconstruct for scope, the LF structure would look like (42b) and the relative clause has disappeared, which means the relative clause fails to contribute to the interpretation.

- (42) a. [[Taroo-ga kai-ta] subete-no ronbun-no]<sub>k</sub> hitori-no gakusee-ga  
 kare-ni [subete-no ronbun-no]<sub>k</sub> mondai-o siteki-sita  
 b. \_ hitori-no gakusee-ga kare-ni [subete-no ronbun-no] mondai-o  
 siteki-sita

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On the other hand, the semantic approach appears to accord well with the condition C effect. That will assign the sentence (40) the LF representation (43).

- (43) [Taroo-ga kai-ta subete-no ronbun-no]  $\lambda T_{\langle et, t \rangle}$  [hitori-no gakusee-ga  
kare-ni [*T* mondai-o] siteki-sita]

In this LF, the higher order trace of type  $\langle et, t \rangle$  is used to guarantee reconstruction for scope, and crucially, the pronoun *kare* does not c-command the R-expression *Taroo*. Thus, under the semantic analysis, *Taroo* and *kare* can be coreferential even when the LBEed QNP undergoes scope reconstruction.<sup>4</sup>

#### 4. Conclusion

In this article, I examined the LBE construction in Japanese in the light of two kinds of reconstruction effect: the condition C and scope. I have shown that reconstruction for scope is independent from the condition C reconstruction effect. I have derived the condition C effects from the direct extraction analysis. Then, given the semantic analysis of scope reconstruction, I accounted for the obligatory scope reconstruction of LBEed QNP and its independence from the condition C reconstruction.

\*I am grateful to Yoshiaki Kaneko and Etsuro Shima, who gave me invaluable comments and suggestions. I would also like to express my gratitude to Yusuke Chiba, Tetsuroo Hiratsuka, Takaaki Hirokawa, Takayuki Kimura, Takanori Nakashima, Shogo Saito, Maya Suzuki, Jun Tamura, Masashi Totsuka, Kunio Yanagisawa, for their insightful comments. All remaining errors are, of course, of my own.

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**Notes**

1) The sentence (i) allows for a non-reconstructed reading where the LBEed indefinite *dareka-no* ‘someone’s’ takes scope over the universal subject *daremo-ga* ‘everyone.’

- (i) *dareka-no daremo-ga titioya-o sonkee-siteru*  
 someone-GEN everyone-NOM father-ACC respect-PRES  
 ‘Everyone respects someone’s father.’      every > some, some > every

This may seem at first sight to be a counter-example to the claim that LBE always undergoes scope reconstruction. However, notice that this reading is already available for the corresponding sentence (ii) with the canonical word order.

- (ii) *daremo-ga dareka-no titioya-o sonkee-siteru*      every > some, some > every

I assume with Reinhart (1998) that existential scope of indefinites is not brought about by QR nor scrambling that affects their syntactic position at LF but by existential closure of choice functions ( $f_{CH}$ ) applying their NP restrictors as in (iii).

- (iii) LF:  $\exists f_{CH}$  [everyone respects  $f(\lambda x.$ person(x))’s father]

Since this operation can introduce existential operator at any height in the structure regardless of the LF position of indefinites, the *some > every* reading in (i) can be obtained even if LBE is undone at LF.

2) Notice that scrambling of a wh-phrase across a focused item helps obviate the focus intervention effect.



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- (i) a. \*Taroo-dake-ga dare-o nagut-ta-no?  
 T.-only-NOM who-ACC hit-PST-Q  
 ‘lit. Only Taro hit who?’  
 b. dare-o Taroo-dake-ga nagut-ta-no?

Beck (2006), for example, explains the focus intervention effect by positing the ban on a wh-phrase taking narrower scope than a focus. Then it will be expected that LBE does not obviate this effect since the LBEed material reconstructs for scope as we have seen in this section. However, the fact is rather unclear. Some informants report that the sentence (iib) is as bad as (iia), while other find the former better than the latter.

- (ii) a. \*Taroo-dake-ga dare-no-tomodati-o nagut-ta-no?  
 T.-only-nom who-gen-friend-acc hit-pst-q  
 ‘lit. Only Taro hit whose friend?’  
 b.(\*) dare-no Taroo-dake-ga tomodati-o nagut-ta-no?

I leave the status and analysis of (iib) for future research.

3) The genitive QNP in (32) does not literally c-command the elements that they take scope over, but it is the whole NPs containing them that c-command the subject quantifier. I assume with Ruys (2000) that possessors are licensed to take scope over the clause as a result of scope transitivity; the possessors takes scope over their host NPs (the possessor > the host NP), which in turn takes scope over its c-command domain (the host NP > the clause). By transitivity, the wanted scope relation obtains (the possessor > the clause).

4) However, it should be noted that semantic reconstruction is so powerful that it fails to rule out the coreference between *Taroo* and *kare* in (i) and that between *John* and *he* in (ii), repeated from (13a). In both examples, the R-expressions are embedded not in a

relative clause; (i) has *Taroo* as the possessor argument, and in (ii), *John* is inside the complement clause, which means that late merger is not an option here.

- (i) \* [Taroo<sub>i</sub>-no hahaoya-no]<sub>k</sub> kare<sub>i</sub>-ga t<sub>k</sub> tegami-o yon-da  
 T.-gen mother-gen he-nom letter-acc read-pst  
 ‘lit. Taroo’s mother’s, he read letter.’
- (ii) \* Which argument that John<sub>i</sub> is a genius did he<sub>i</sub> believe?

The semantic analysis in its simplest form would fail to account for the deviance of these sentences under the intended coreference. This is because traces *t/T* should be able to replace the lower copy at LF containing the viral R-expressions as demonstrated in (iii) and (iv), where, the pronouns have no R-expressions to c-command.

- (iii) [Taroo<sub>i</sub>-no hahaoya-no] λ $T_{\langle et, t \rangle}$  [kare-ga [*T* tegami-o] yon-da]  
 (iv) [which argument that John is a genius] λ $t_{\langle e \rangle}$  [he believed *t*]

To deal with the problem, one can assume that the condition C is checked not only at LF but must be observed throughout the derivation, as a result of which, the sentences (i) and (ii) will violate the condition C as soon as the pronouns are merged to the position to c-command the coindexed R-expressions (see Lebeaux (1988)).

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