

Logical Form Constraints and Configurational Structures

In Japanese

by

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Abstract

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This study deals with the phenomena of variable binding and quantifier and wh-phrase interpretation in Japanese. The general theoretical framework that is adopted here is the Government and Binding theory of Chomsky (1981).

It is argued that the relevant data not only render support for the movement analysis of Japanese "scrambled" sentences, as proposed in Harada (1977) and further defended by Saito (1985), but also point to the conclusion that Japanese phrase structure is strictly binary.

Chapter 2 contains arguments for the hypothesis that Japanese phrase structure is strictly binary, based on the weak crossover phenomenon in Japanese. It is argued that apparently problematic cases of variable binding are parasitic gap constructions and variable binding in such cases is as expected.

Certain cases of variable binding are analyzed in chapter 3 as analogous to "reconstruction" examples discussed in Engdahl (1980),

providing further support for the movement analysis of "scrambling" in Japanese. A proposal is then made for syntactic differentiation between the topic wa-phrase and the contrastive wa-phrase, namely that while the topic wa-phrase is base-generated sentence-initially, as argued in Kuno (1973), the contrastive wa-phrase, being subject to Move alpha in syntax or at LF, is preposed to the sentence-initial position.

Some salient properties of Japanese quantificational phrases are considered in chapter 4, where a condition on quantifier interpretation in Japanese is proposed. This condition, which essentially requires that the S-structure c-command relation be preserved at the level of LF, when it is coupled with an independent assumption that Move alpha leaves a trace optionally, accounts for a range of data involving quantifier and wh-phrase interpretation .

Chapter 5 discusses three issues that are related to the discussion in the first four chapters. In addition to suggesting the generality of the condition on quantifier scope interpretation in Japanese proposed in chapter 4, the discussion in this chapter provides further support for the hypothesis that Japanese phrase structure is strictly binary.

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Chapter One

Background: Pronominal Coreference and Japanese Phrase Structure

This thesis is an attempt to provide basically descriptive analyses of certain syntactic phenomena in Japanese. The general theoretical framework adopted here is that of the Government and Binding theory in Chomsky (1981).¹

The thesis is concerned primarily with questions regarding Japanese phrase structure and those pertaining to quantifier phrase and wh-phrase interpretations, as well as to the bound variable interpretation of certain categories in this language, specifically empty pronominals and to a lesser degree the anaphor zibun.

In this chapter I will first provide a brief review of the background issue for this thesis, which has to do with pronominal coreference. In section 2, I will give an outline of the remaining chapters.

1.1 Pronominal Coreference

Relatively free word order in this language has led some linguists, with Hale (1980) and Farmer (1980) being representatives, to hypothesize that Japanese lacks a VP node and that all of the examples in (1) are base-

generated with all the non-verbal constituents being sisters to each other. The basic meanings of these sentences seem to be the same, although certain differences with respect to focus/emphasis are felt.

(1) a. John-ga Bill-ni hon-o okutta
 -nom -dat book-acc sent

(John sent Bill a book.)

b. John-ga hon-o Bill-ni okutta
 -nom book-acc -dat sent

c. Bill-ni John-ga hon-o okutta
 -dat -nom book-acc sent

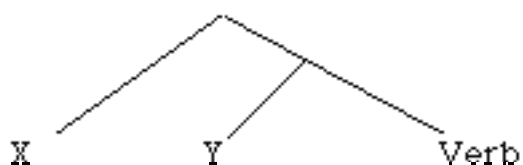
d. Hon-o John-ga Bill-ni okutta
 book-acc -nom -dat sent

e. Bill-ni hon-o John-ga okutta
 -dat book-acc -nom sent

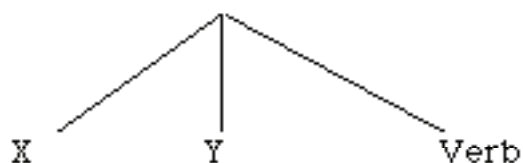
f. Hon-o Bill-ni John-ga okutta
 book-acc -dat -nom sent

It is pointed out in Whitman (1982) and Saito (1983a), however, that certain pronominal coreference facts suggest that the structural relation between the subject NP, represented as X, and the object NP, represented as Y, is as in (2a) rather than as in (2b).

(2) a.



b.



Their argument is basically as follows.² Assume the condition in (3), versions of which have been widely assumed to exist, at least as an option, in Universal Grammar; cf. for example, Lasnik (1976), Reinhart (1976), Evans (1980), Chomsky (1981), and Higginbotham (1983).³

(3) X cannot be an antecedent of Y if Y c-commands X.

The definition of "c-command" that is relevant in (3) is not uncontroversial. I will however assume, without discussion, the "first branching" definition of "c-command" of Reinhart (1976) throughout this thesis, given in (4).⁴

(4) X c-commands Y if neither dominates the other and the first branching node that dominates X dominates Y.

The condition in (3) prohibits referential dependency for the category X that is referentially dependent on another category Y if the latter c-commands the former at S-structure.

With the condition in (3) in mind, consider the examples in (5), which are from Saito (1983a).⁵

(5) a. *kare_i-ga [VP (zibun-de) John_i-no sensei-o syookaisita]
 he-nom self-by -gen teacher-acc introduced

(*He introduced John's teacher (to the audience))

b. ?John_i-no sensei-ga [VP (zibun-de) kare_i-o syookaisita]
 -gen teacher-nom self-by he-acc introduced

(John's teacher introduced him to (to the audience))

The contrast in (5) is quite analogous to the familiar contrast in English that is observed between the translations in (a) and (b). As Saito points out, optional coreference is also possible in (6), just as in the English translations.⁶

(6) a. John_i-ga [kare_i-no haha]-o semeta (koto)
 -nom he-gen mother-acc criticized

(John_i criticized his_i mother.)

b. [Kare_i-no haha]-ga John_i-o semeta (koto)
 he-gen mother-nom -acc criticized

(His_i mother criticized John_i.)

Whitman (1982) and Saito (1983a) argue that the array of data in (5) and (6), which is basically the same as what we find in English, follows if the sentential structure of Japanese is schematically as in (2a) rather than as in (2b). If the subject NP and the object NP were sisters to each other as indicated in (2b), the c-command relation between the two NP's would be symmetrical; therefore the object NP c-commands the subject NP. Hence we would, wrongly, predict that optional coreference is impossible in (5b) since, under this assumption, the pronominal kare 'he' would c-command John, which is contained in the subject NP. On the other hand, if we assume the

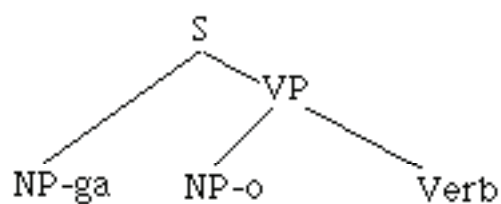
structure of the Japanese sentence to be as in (2a), we correctly predict that optional coreference is possible in (5b) since, under this assumption, the object NP does not c-command the subject NP while the latter c-commands the former; hence kare 'he' does not c-command John.

Whitman (1982) and Saito (1983a) thus argue that these pronominal coreference facts suggest that the structure for the example in (7) is as in (8a) rather than (8b).⁷

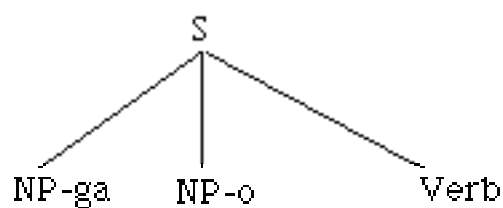
(7) John-ga hon-o katta
-nom book-acc bought

(John bought a book.)

(8) a.



b.

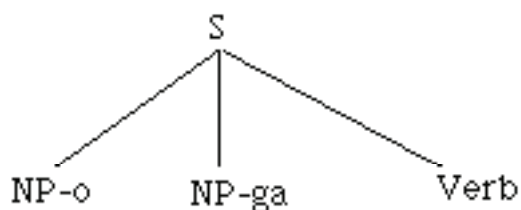


Once we assume the structure of (7) to be as in (8a), a natural question that arises is what the structure of (9) ought to be like.

(9) Hon-o John-ga katta
book-acc -nom bought

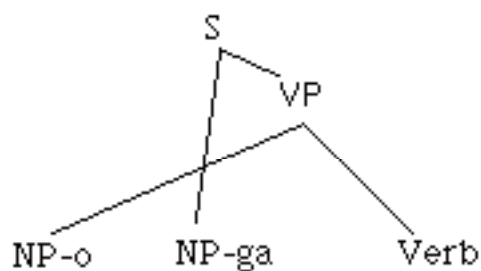
Since the VP node is assumed to exist as in (8a), (10) is not an acceptable structure for (9).

(10)



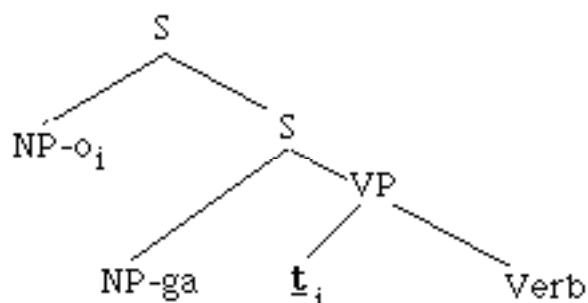
The structure in (11) seems equally dubious.

(11)



What is suggested in Whitman (1982) and Saito (1983a) is basically the proposal made in Harada (1977), namely, that the object NP hon 'book' in (9) is preposed to the sentence-initial position by syntactic movement. Saito (1983a) specifically suggests that the operation in question is an adjunction operation. Thus according to this movement analysis of "scrambling", (9) has a structure like (12) at the level of S-structure.⁸

(12)



Such a movement analysis of the "scrambled" sentences like (9) raises a new question regarding the pronominal coreference facts noted above. The question is whether a structure like (13) below, which is derived by the preposing of the subject NP, is a possible S-structure representation for examples like (6) and (7). The examples in (6), (7) are repeated here.

(6) a. John_i-ga kare_i-no haha-o semeta (koto)
 -nom he-gen mother-acc criticized

(John_i criticized his_i mother.)

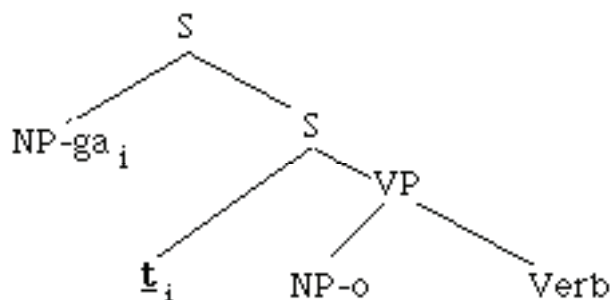
b. Kare_i-no haha-ga John_i-o semeta (koto)
 he-gen mother-nom -acc criticized

(His_i mother criticized John_i.)

(7) John-ga hon-o katta
 -nom book-acc bought

(John bought a book.)

(13)



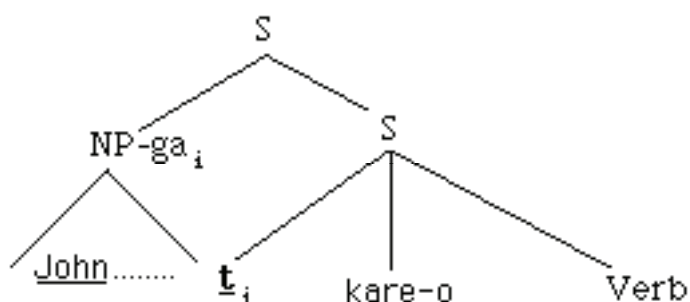
Suppose that (13) is a possible S-structure representation for (6) and (7) as the result of the adjunction of the subject NP to the S node. This will certainly weaken Whitman's (1982) and Saito's (1983a) argument, based on the pronominal coreference facts, that Japanese has a VP node. Notice that the S-adjunction like (13) will create an asymmetrical c-command relation at S-structure between the subject NP and the object NP, even under the assumption that Japanese does not have a VP node. This means that even without assuming the VP node in Japanese, we can account for the possibility of the pronominal coreference in examples like (5b), repeated here as (14).⁹

(14) John_i-no sensei-ga [_{VP} (zibun-de) kare_i-o syookaisita]
 -gen teacher-nom self-by he-acc introduced

(John's teacher introduced him (to the audience))

(15) illustrates the point.

(15)

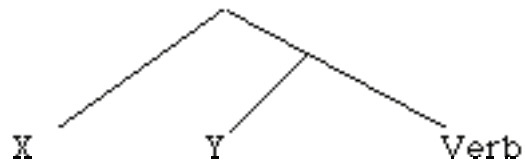


Although kare 'he' c-commands John at D-structure, it does not at S-structure as the result of the S-adjunction of the subject NP. This means that if the S-adjunction of the subject NP as indicated in (13) is possible, the possibility of pronominal coreference in examples like (14) does not necessarily mean, given the condition on referential dependency in (3), that the subject NP asymmetrically c-commands the object NP at D-structure. Notice that the condition in (3) is assumed not to hold at D-structure but at S-structure; cf. Chomsky (1981).¹⁰

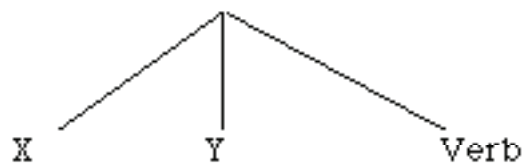
Saito (1983b), however, argues that the subject NP's do not undergo "scrambling" based on Case marking facts in Japanese, thereby rescuing the argument for the VP node in Japanese based on the pronominal coreference facts, cf. 4.3 in chapter 4 for his arguments.

In Hoji (1982), I argue that pronominal coreference data in fact suggest a stronger view, namely that the VP-internal structure is also like (2a) rather than like (2b).¹¹ The structure in (2a) and (2b) are repeated below as (16a) and (16b), respectively.

(16) a.



b.



The relevant data include the following.

(17) a. Mary-ga [John_i-no (atarasii) sensei]-ni kare_i-o syookaisita (koto)
 -nom -gen (new) teacher-dat he-acc introduced

(*Mary introduced him_i to John_i's (new) teacher.)

b. *Mary-ga kare_i-ni [John_i-no (atarasii) sensei]-o syookaisita (koto)

c. Mary-ga [kare_i-no (atarasii) sensei]-ni John_i-o syookaisita (koto)

Under the assumption that condition on referential dependency in (3) holds in Japanese, the fact that optional coreference is allowed in (17a) means that the pronominal kare 'he' does not c-command John in this example, which in turn means that the indirect object, NP-ni and the direct object, NP-o, cannot be appearing as in (16b) but that they must be appearing as in (16a) so as to yield the asymmetrical c-command relation between the two NP's. Notice that the possibility of optional coreference in (17c), as well as its impossibility in (17b), also follows from this analysis much the same way as in the cases discussed in Whitman (1982) and Saito (1983a), which involve the

subject and the object NP's.

The argument in Hoji (1982) for the VP-internal binary branching, based on the pronominal coreference facts, runs into essentially the same problem as the argument for the VP node in Japanese based on the pronominal coreference facts. It appears furthermore that the problem with the argument for the VP-internal binary branching cannot be rescued by resorting to the "non-scramblability" of one of the object NP's.

First of all, as indicated by the examples in (1a) and (1b), repeated here as (18a) and (18b), the two object NP's can appear in either order.

(18) a. John-ga Bill-ni hon-o okutta
 -nom -dat book-acc sent

(John sent Bill a book.)

b. John-ga hon-o Bill-ni okutta
 -nom book-acc -dat sent

As in the case of the "free" order of the subject and the object NP's, we can hypothesize either that both order is allowed at D-structure or that one order is given at D-structure and the other is "derived " by syntactic movement.¹²

Suppose that the order given in (18a) is the D-structure order, as will be argued for in 4.4 of chapter 4. We then have to somehow derive the order of the two object NP's in (18b). Deriving (18b) from (18a), in itself, does not seem to cause much of a problem, given the view of "scrambling" proposed in Saito (1985) that it is a syntactic adjunction operation with VP being one of the possible adjunction sites.¹³ According to this view, together with the assumption that (18a) reflects the D-structure order of the argument NP's, the

S-structure representation for (18b) is roughly as in (19).

(19) John-ga [_{VP} hon-o_i [_{VP} Bill-ni t_i okutta]]
 -nom book-acc -dat sent

If the VP-adjunction is allowed as in (19), we might also expect that (20) is a possible S-structure representation.

(20) A-ga [_{VP} B-ni_i [_{VP} t_i C-o V]]

However, if (20) is a possible S-structure representation, as the result of the VP-adjunction of NP-ni, the pronominal coreference facts noted in (17), do not necessarily mean that the VP-internal structure is binary. The relevant pronominal coreference facts can now be accounted for with the non-binary VP-internal structure as well as with the binary VP-internal structure. As illustrated in (21), the pronominal kare, even if it is in a position to c-command the NP-ni at D-structure, does not c-command the NP-ni at S-structure because of the VP-adjunction of the NP-ni.

(21) Mary-ga [_{VP} [_{NP} John_i-no (atarasii) sensei]-ni_i
 -nom -gen (new) teacher-dat

[_{VP} t_i kare_i-o syookaisita]]] (koto)
 he-acc introduced

(*Mary introduced him_i to John_i's teacher.)

As noted earlier, a similar problem that has arisen with the argument for the existence of the VP node based on pronominal coreference facts can be saved if it is indeed the case that the subject NP is not subject to "scrambling",

as argued in Saito (1985); cf. 4.3 in chapter 4. Such a solution is not available in the case of the problem with the argument for the VP-internal binary branching based on the pronominal coreference facts. This is because we have examples like (1c), repeated below as (22), in which the indirect object NP appears before the subject NP, suggesting, given the analysis adopted here of the "scrambling" in Japanese, that it has been preposed to the sentence-initial position.

(22) (=1c))

Bill-ni John-ga hon-o okutta
 -dat -nom book-acc sent

If the NP-ni in (21) is VP-adjoined as indicated there, the direct object kare 'he' does not c-command the NP-ni(hence John, which is contained in the NP-ni) at S-structure, regardless of whether kare c-commands the NP-ni at the level of D-structure. Therefore the argument for the VP-internal binary branching in Japanese based on pronominal coreference seems to lose its force.

1.2 An Outline of the Chapters

The initial goal of this thesis is to argue for the VP-internal binary branching in Japanese independent of the pronominal coreference facts. In chapter 2, I will argue that certain phenomena that are independent of pronominal coreference support the view that Japanese phrase structure is strictly binary. The first phenomenon to be dealt with is the weak crossover phenomenon. In

Saito and Hoji (1983), it is argued that the weak crossover phenomenon, which is essentially the failure of a category to be construed as a variable bound to a quantificational phrase in certain specific configurations, provides us with evidence that Japanese has a VP node; cf. footnote 7. The crucial assumption there is that the condition that governs the phenomenon of weak crossover is stated in terms of the notion "c-command" rather than in terms of "precedence."¹⁴

Continuing to employ this assumption as well as the assumption that the notion "antecedent-of" is a primitive in linguistic theory (cf. Higginbotham (1983)) I will consider cases where the empty pronominal fails to be construed as a variable bound to a quantificational NP and argue that the weak crossover phenomenon in Japanese in fact suggests that the VP-internal structure is binary. After this conclusion is drawn, certain apparently problematic cases for the analysis will be considered. It will be argued that these apparent "counterexamples" are "parasitic gap" constructions and that the availability of the intended bound variable interpretation is what we expect.

In chapter 3, I will take up the result in chapter 2 and consider some of its consequences. Specifically, I will first point out that there are cases in which the intended variable binding is possible despite the fact that the relevant structure does not fit either into the "normal variable binding" case or into the "parasitic gap" case. I will then suggest that these are cases of "reconstruction" very much like English "reconstruction" examples discussed in Engdahl (1980). It will then be argued that these "reconstruction" cases in fact support the analysis presented in chapter 2. The "reconstruction" examples indicate that the surface precedence of the quantificational NP over

the empty pronominal does not ensure that the latter can be construed as a variable bound to the former. Thus they constitute strong evidence that the possibility of bound variable interpretation in Japanese is, as has been argued to be the case in English, cf. footnote 14, subject to a condition that is stated in terms of hierarchical structures rather than in terms of surface precedence. The plausibility of attributing the availability of the relevant bound variable interpretation to a syntactic adjunction operation in turn constitutes further support for the movement analysis of "scrambled" sentences in Japanese

Given that the availability of bound variable interpretation for empty pronominals in these "reconstruction" cases is due to syntactic movement, I will proceed to consider whether Japanese "topicalization" constructions involve syntactic movement. The examination of the relevant examples suggests that "topicalization", with the normal "topic" reading, does not involve syntactic movement, supporting Kuno's (1973) analysis of Japanese topicalization.

It will then be pointed out that among the phrases that are followed by the "topic marker" wa, the sentence-initial wa-phrase that is taken to be "topic" does not show signs of syntactic movement while the wa-phrase that is taken to be "contrastive" does. A proposal will then be made for syntactic differentiation between the "topic" wa-phrase and the "contrastive" wa-phrase. According to this proposal, the sentence-initial "contrastive" wa-phrase that has the "function" of "object" is on a par with the sentence-initial object NP, which, we will be assuming, has been preposed to that position by a syntactic adjunction operation, as argued in Saito (1985). The proposal thus predicts that these sentence-initial "contrastive" wa-phrases show other properties of

phrases that have undergone a syntactic adjunction operation discussed in Saito (1985) such as subjacency effects and the ban on resumptive pronouns in the position that it is associated with. The remainder of chapter 3 is intended to demonstrate that these predictions are indeed borne out.

In chapter 4, I will consider certain salient properties of quantificational phrases in Japanese. Quantificational phrases, including wh-phrases, play a crucial role in chapter 2 and chapter 3 in the discussion of weak crossover, parasitic gap constructions and "reconstruction" examples. In the first part of chapter 4, I introduce quantificational phrases that have been either little discussed or not discussed at all in the first two chapters, illustrating that these phrases exhibit essentially the same properties as the quantificational phrases that have been considered up to that point with respect to such phenomena as weak crossover, parasitic gap constructions, and "reconstruction". I will then discuss quantifier scope interpretation in Japanese. Following the lead of Kuroda (1970) and Kuno (1973) in terms of descriptive generalizations, and the lead of Huang (1982) in terms of the condition that is to capture these generalizations, I propose to account for the ambiguity/unambiguity contrast in quantifier scope interpretation in Japanese by a condition on LF representations, coupled with an independent assumption that Move alpha (henceforth Move @) leaves a trace optionally, cf. Lasnik and Saito (1984).

In the last chapter, I will consider three topics. First I will consider Kuroda's (1970) generalizations regarding the scope interpretation of phrases with sae 'even', dake 'only' and mo 'also'. It will be argued that most of his generalizations follow from the analysis presented in chapter 4 for quantifier scope interpretation in Japanese. Second, I will compare the general theory of

quantifier scope interpretation adopted in chapter 4, which is basically that of May (1977), with the proposal in May (forthcoming), especially in regard to the difference between English and Japanese with respect to the possibility of scope ambiguity. In the last section, I will return to the original question raised at the outset of this chapter, namely, whether the pronominal coreference facts constitute positive evidence for the VP-internal binary branching as well as for the existence of the VP node in Japanese, by considering certain issues related to the analysis of quantifier scope interpretation in Japanese proposed in chapter 4. It will be argued there that representations like (23), which would be obtained by the application of a string vacuous syntactic adjunction, are in general disallowed, independently of pronominal coreference.

- (23) a. [S A-ga_i [S t_i VP]]
 b. [S A-ga_i [S B-o_j [S t_i [VP t_j V]]]]
 c. [S A-ga [VP B-o_i [VP t_i V]]]
 d. [S A-ga [VP B-ni_i [VP C-o_j [VP t_i [V' t_j V]]]]]
 e. [S A-ga [VP B-ni_i [VP t_i [V' C-o V]]]]

Although the nature of the condition that prohibits the structures in (23) is not clear, the relevant evidence leads to a conclusion that the structures in (23) are not allowed. Given this conclusion, the problems noted above with the arguments for the VP node in Japanese and for the VP-internal binary branching based on the pronominal coreference facts disappear. Therefore the hypothesis that Japanese phrase structure is configurational and in fact

strictly binary receives support.¹⁵

Footnotes to Chapter One

¹ For the outline of this theory, the reader is referred to Chomsky (1981, chapter 1) as well as to the introductory chapters of some recent theses written in this framework such as Stowell (1981), Pesetsky (1982) and Huang (1982).

² While drawing the same conclusion from the pronominal coreference facts in Japanese with respect to the existence of the VP node in this language, Whitman (1982) and Saito (1983a) focus on different issues when discussing the pronominal coreference facts. Whitman (1982) is mainly concerned with the comparison between an analysis of pronominal coreference in Japanese based on "precedence", suggested in Mohanan (1981), and an analysis based on "c-command". For example, he provides examples like (i) to show that a structural notion like "c-command" or (some other "command" type relation) is needed to account for the possibility of the optional coreference.

(i) (Whitman's (1982) (9) and (10))

- a. Kare_i-no uba-ga John_i-o sodate-ta
 him-gen wet nurse-nom -acc bring up-past

(His wet nurse brought John up.)

- b. Kare_i-no okusan-ga John_i-o yasinat-te i-ru rasii-i
 him-gen wife-nom -acc support-PROG BE seem

(It seems that his wife is supporting John.)

On the other hand, Saito (1983a) is mainly concerned with motivating the

movement analysis of Japanese "scrambled" sentences. He provides examples like the following. The judgments are his.

(ii) (Saito's (1983a) (4) and (5))

- a. ?John_i-no sensei-ga [VP (zibun-de) kare_i-o syookaisita]
 -gen teacher-nom self-by he-acc introduced

(John's teacher introduced him (to the audience))

- b. *John_i-no sensei-o kare_i-ga (zibun-de) syookaisita

(?*John's teacher, he introduced (to the audience))

- c. *kare_i-ga [VP (zibun-de) John_i-no sensei-o syookaisita]

(*He introduced John's teacher (to the audience))

- d. ?[NP[S John_i-ni nantuumo tegami-o kaite kita] zyosei]-ni
 -to so many letter-acc wrote woman-to

kare_i-ga itidomo henzi-o dasanakatta (koto)
 he-nom once reply-acc did not send (the fact that)

(?To the woman that wrote so many letters to John, he didn't write once)

The implication of the contrast between (iia) and (iic) that Saito (1983a) discusses is the same as in Whitman (1982) and will be reviewed directly. With respect to the contrast between (iib) and (iid), Saito attributes it to the effect of the crossover constraint in the sense of Postal (1971), which disappears when the antecedent is embedded "deeply enough." Hence his argument for "scrambling" being syntactic movement.

³ By restricting \underline{Y} to pronominals, we can avoid a potential problem for (3) that examples like (i) raise; see Saito (1985; chapter 2, footnote 27).

(i) Himself_i, John_i loves.

⁴ To the extent that the relevant data in this thesis can be accounted for based on the "first-branching" definition of "c-command" (and to the extent that the "maximal projection" definition of "c-command" given in Aoun and Sportiche (1981), for example, cannot be used in a straightforward fashion in accounting for the relevant data), the discussion in this thesis can be considered as evidence that the "first-branching" definition of "c-command" is more appropriate, at least in Japanese. Insofar as we do not expect variations in the definition of "c-command" in linguistic theory, this result in turn suggests that the "c-command" be defined in terms of "first-branching nodes", cf. Saito (1984) for more discussion of "c-command" based on certain syntactic phenomena in Japanese, including the pronominal coreference facts to be discussed below.

⁵ Essentially the same contrast as the one observed in (5) is discussed in Whitman (1982), who draws the relevant examples from Mohanan (1981); cf. footnote 2.

⁶ It has often been noted that general syntactic properties of a language, including "basic word order", are reflected in the embedded sentences more directly than in matrix sentences; cf. Emonds (1979). Such seems to be

indeed the case in languages like Japanese, in which a highly sophisticated system of discourse rules seem to be interacting with syntactic principles. For example, its heavy usage of the "theme" or "topic" marker wa often, it seems, conceals what is really going on in terms of the syntactic properties of the language. For this reason, as in a fairly large body of recent work on Japanese syntax, I will when it seems necessary add koto, which can roughly be translated as "the fact that", at the end of a sentence so as to avoid unnecessary interference from what I believe to be non-syntactic factors. What koto basically does is to create an embedded sentence, thereby making the sentence without a topic sound more natural. In translations, however, koto used for this purpose will be consistently ignored.

⁷ As noted in Whitman (1982), the pronominal coreference facts themselves do not constitute decisive evidence for the existence of a node that is a maximal projection of V and that is distinct from the S node. Under the assumption that the relevant condition on the pronominal coreference is something like (3), those pronominal coreference facts constitute evidence that the subject position and the object position bear an asymmetrical c-command relation as indicated in (8a).

Saito (1982) and Kuroda (1983) argue for the existence of the VP node in Japanese as the maximal projection of V based on the distribution of empty categories that can be interpreted as having arbitrary reference, cf. also Whitman (1982) and Hasegawa (1984) for relevant discussion. Hasegawa (1980) contains arguments for the existence of the VP node in Japanese from

a different perspective. While the arguments for the existence of the VP node in Japanese as the maximal projection of V are not yet overwhelming, arguments for the view that Japanese lacks a VP node, cf. Hinds (1973), for example, do not seem to me to be quite convincing, either; cf. Whitman (1982) for relevant discussion.

I will use the node VP in the subsequent discussion since the hypothesis that a language has a VP node is the null hypothesis at least in the light of the distinction between the internal and external arguments both from syntactic and from semantic considerations, cf. Marantz (1981), Hasegawa (1981) and Williams (1981).

⁸ See footnote 2 for one of the arguments advanced by Saito (1983a).

⁹ Saito (1983a) gives one question mark to this example, as indicated in (5b). Since I find (14) fully acceptable, with the intended coreference, I leave out the question mark in (14).

¹⁰ The following examples in (i) as well as examples like (iic) and (iid) in footnote 2 are some of the typical cases that have motivated that the condition in (3) applies at least at S-structure but not at D-structure; cf. Chomsky (1981), for example.

(i) a. *He_i hates (every) picture(s) that John_i drew.

b. [Which picture that John_i drew]_k did he_i hate t_k?

Given that which picture that John drew in (ib) has been preposed from the position of t_k , John in (ib) is in a position that is c-commanded by he at the level of D-structure. The possibility of optional coreference in (ib) thus indicates that the condition in (3) does not apply at D-structure. If it applied at D-structure, (ib) would be ruled out on a par with (ia). (Examples like (ia) have typically been taken as evidence that the relevant condition does not apply at the level of LF, at which the phrase every picture that John drew is assumed to be adjoined to the S node, cf. May (1977), thereby making the c-command relation between John and he identical to that in (ib).)

¹¹ The arguments in Hoji (1982) are much inspired by Huang (1982). In fact, Mamoru Saito has informed me later that James Huang, when he was at MIT, was seriously considering the idea that the Japanese phrase structure is strictly binary.

¹² Another possibility is that the order that is distinct from the D-structure order is obtained at the level of PF, i.e., that the "scrambling" in this case is a stylistic rule. However, the surface order of NP's does affect semantic interpretation. As will become clear, not only does the surface word order affect focus (cf. Rochemont (1978)) but it also plays a crucial role in such phenomena as variable binding and quantifier scope ambiguity. Thus treating the "free" word order in terms of "stylistic" movement seems dubious at best.

¹³ The adjunction sites for "scrambling" are not restricted to S and VP in Saito

(1985). He in fact adopts the most general view of "scrambling", taken to be an instance of Move @, i.e., that it adjoins anything anywhere, leaving the task of constraining the actually possible adjunction sites to other independent principles. For our discussion in this thesis, it suffices to assume that the relevant adjunction sites for "scrambling" are S and VP, and possibly S'.

¹⁴ In terms of the two basic approaches to the weak crossover phenomenon, i.e., the "c-command" and the "precedence" approaches, Reinhart (1976), Koopman and Sportiche (1982/83) and Higginbotham (1980b) fall in the first category and Chomsky (1976) and Higginbotham (1980a) as well as classical studies in Postal (1971) and Wasow (1972) fall in the second category. More recent works like Haik (1983), Aoun (1983), Jaeggli (1984) and Safir (1984) also fall in the former category. As long as the phenomenon is thought of belonging to the LF component, which not every author cited above agrees on, and if the properties of LF are, as Higginbotham (1983) suggests, invariant across languages, the notion "c-command" ought to be the relevant notion since languages obviously differ in their surface word order.

¹⁵ It is not immediately clear at this point how this hypothesis relates to Kayne's (1981,1984; Introduction) hypothesis that binary branching is the only permissible branching in any language. Insofar as Kayne's hypothesis is independently supported, evidence that supports the binary branching hypothesis in Japanese lends support for his hypothesis. If, as briefly suggested in Hoji (1982) and pointed out also by M. Saito (USC lecture, fall

1984), there is difference between, for example, English and Japanese in terms of the strictly binary property of phrase structure, the hypothesis that Japanese phrase structure is strictly binary must be thought of as independent of Kayne's hypothesis. See also Saito (1983b) for some relevant discussion on the relation between Kayne's hypothesis and the hypothesis proposed here.

Chapter Two

Weak Crossover and Japanese Phrase Structure

In Saito and Hoji (1983), it is pointed out that the weak crossover (WCO) phenomenon in Japanese provides evidence regarding Japanese phrase structure. More specifically, it is argued there that the WCO phenomenon in Japanese suggests the existence of a VP node in Japanese, contrary to Hale (1980) and Farmer (1980).¹ Since the WCO phenomenon provides us with evidence regarding the structural relation between the subject NP and the object NP, one might wonder whether it will also shed some light on how Japanese phrase structure should look in general.

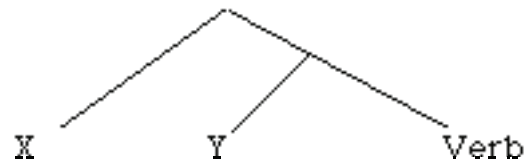
Consider, for example, the two non-verbal constituents in (1a) and (1b) appearing in the order given below:

(1) a. Adjunct NP-o Verb
-acc

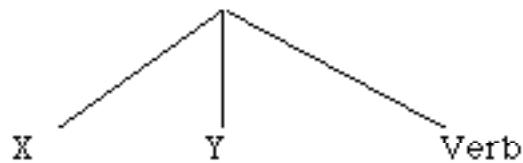
b. NP-ni NP-o Verb
-dat -acc

The question is whether the two constituents appear as in (2a) or as in (2b), representing the first constituent X and the second Y.

(2) a.



b.



In this chapter, I will argue that the WCO phenomenon in Japanese suggests that the non-verbal constituents in (1) appear as in (2a), supporting the hypothesis that Japanese phrase structure is strictly binary; see footnote 15 in chapter 1.

In section 1, I present a brief summary of Saito and Hoji's (1983) argument that the WCO phenomenon in Japanese suggests the existence of a VP node in this language. There I also lay out basic notions in the account of WCO adopted in this thesis. The goal of section 2 is to show that while zibun 'self' cannot be used in the relevant constructions that would crucially differentiate between (2a) and (2b), "zero pronouns" can. Section 3 contains evidence that Adjuncts and Object NP(s) are not sisters to each other. Section 4 contains evidence that the indirect object NP and the direct object NP are not sisters to each other. In section 5, I reexamine some of the examples in section 3 and section 4, in the light of the hypothesis that "scrambling" in Japanese is an instance of Move @.² There, it is first observed that some of the relevant examples seem to be problematic to the proposed analysis. It is then argued

that such examples can be analyzed as parasitic gap constructions, suggesting that they either constitute further evidence for the hypothesis that Japanese phrase structure is strictly binary or are, at least, consistent with this hypothesis.

2.1 Weak Crossover and the VP node in Japanese

In this section I will review the argument in Saito and Hoji (1983) for the existence of a VP node in Japanese based on the WCO phenomenon. First, consider the contrast in (3) and (4):

- (3) a. Everyone_i loves his_i mother.
 b. Who_i loves his_i mother?
- (4) a. *His_i mother loves everyone_i.
 b. *Who_i does his_i mother love?

In (4) unlike in (3), his cannot be construed as a variable bound by everyone or who. Thus the examples in(4) are ungrammatical under this intended reading. The unavailability of this intended variable binding is, as far as I understand it, what has been called weak crossover effects.³

Assuming that quantifiers like everyone get adjoined to the S node at the level of LF, as in May (1977), the LF representations of (3) and (4), are as in (5) and (6), respectively.

(5) a. [S everyone_i [S t_i [VP loves his_i mother]]]

b. [S' who_i [S t_i [VP loves his_i mother]]]

(6) a. [S everyone_i [S his_i mother [VP loves t_i]]]

b. [S' who_i [S his_i mother [VP loves t_i]]]

We see that t c-commands his in (5) while in (6) neither t nor his c-commands the other.^{4, 5} The configuration in (6) can be schematized as in (7):

(7) *[Operator_i [...pronoun_i...t_i...]]

where neither the pronoun nor the variable
c-commands the other.

It is noted in Saito and Hoji (1983) that Japanese sentences that have a configuration like (8) at LF do not allow the bound variable interpretation for the anaphor zibun.

(8) *[Operator_i [... anaphor_i ...t_i...]]

where neither the anaphor nor the variable
c-commands the other.

Notice that (8) is identical to (7) except for the alteration between pronoun and anaphor. The relevant examples are given in (9) and (10):

(9) (= (14) in Saito and Hoji (1983))

a. [S[NP John-ga zibun_i -no kuruma-o kowasita koto]-ga
-nom self-gen car-acc broke fact-nom

[VP Mary_i-o odorokaseta]]
-acc surprised

(The fact that John broke her_i car surprised Mary.)

b. ?*[S[NP John-ga zibun_i -no kuruma-o kowasita koto]-ga
-nom self-gen car-acc broke fact-nom

[VP daremo_i-o/dareka_i-o odorokaseta]]
everyone-acc/someone-acc surprised

(*The fact that John broke his_i car surprised everyone_i/someone_i.)

c. ?*[S[NP John-ga zibun_i -no kuruma-o kowasita koto]-ga
-nom self-gen car -acc broke fact -nom

[VP dare_i-o odorokaseta]] no
who-acc surprised

(*Who_i has the fact that John broke his_i car surprised?)

(10) a. Daremo_i-ga /Dareka_i-ga [NP[S John-ga
everyone-nom/someone-nom -nom

[VP zibun_i-no kuruma-o kowasita]] koto]-ni odoroitā
self-gen car-acc broke fact-at was surprised

(Everyone_i/Someone_i was surprised at the fact
that John broke his_i car.)

b. Dare_i-ga [NP[S John-ga [VP zibun_i-no kuruma-o kowasita]] koto]-ni
who-nom -nom self-gen car-acc broke fact-at

odoroitā no
was surprised

(Who_i was surprised at the fact that John broke his_i car?)

(9a) is one of the examples of "backward reflexivization" in McCawley (1976), where the antecedent of zibun, i.e., Mary, does not c-command the anaphor. Let us consider the schematic LF representations of (9b) and (10a) to see the similarity between what we have in (9) and (10) on the one hand and what we have in (3) and (4) on the other.⁶

(11) a. schematic LF representation for (9b)

*[_S daremo-o_i [_S [_{NP} ...zibun_i...]-ga [_{VP} t_i V]]]⁷

b. schematic LF representation for (10a)

[_Sdaremo-ga_i [_S t_i [_{VP} [_{NP} ...zibun_i...]-ni V]]]

(11a) is clearly analogous to (6), and (11b) to (5). Just as the variable t does not c-command his in (6) so the variable t does not c-command zibun in (11a). Neither in (6) nor in (11a) (=9b) can his/zibun be construed as a variable bound to the quantified NP. On the other hand, in both (5) and (11b) (=10a) his/zibun can be construed as a variable bound to the quantified NP. This seems related to the fact that just as the variable t c-commands his in (5) so the variable t c-commands zibun in (11b). Thus what is crucial in determining the availability of the bound variable interpretation of a pronoun or an anaphor seems to be its c-command relation with the variable.⁸ Reinhart's (1976) condition in (12) captures the English part of the above generalization.

(12) A variable cannot be the antecedent of a pronoun that it does not c-command.

To incorporate the Japanese part of the above generalization, we proposed (13) as the condition that must be deduced from the general principle that

accounts for the WCO effect:

- (13) A variable cannot be the antecedent of a pronoun or an anaphor that it does not c-command.
(Saito and Hoji; 1983, 256)

Given the account of WCO in (13), we must conclude that there is a VP node in Japanese as indicated in (11). For otherwise, the variable \bar{t} would c-command zibun in (11a) and we would wrongly predict that the bound variable interpretation of zibun is available in (11a) (=9b)). This is basically the argument in Saito and Hoji (1983) for the existence of a VP node in Japanese.

Before proceeding, I would like to comment on Kuno's (1985) critique on the analysis in Saito and Hoji (1983). Kuno casts doubt on the argument in Saito and Hoji (1983) basically for the following two reasons.

- (A) It is harder to use McCawley's backward reflexivization patterns in the interrogative form, independently of the use of quantificational sentences.
- (B) The antecedent of the reflexive in the emotive sentence pattern, i.e., McCawley's (1976) backward reflexivization sentences under discussion, is the topic of the preceding discourse, and not a coindexed NP in the same sentences; and quantificational NP typically cannot be a topic.

Recall that the analysis in Saito and Hoji (1983) is intended to capture the contrasts between the patterns in (14a) and (14b) as well as between (14b) and (14c). R-NP means a Referential NP and Q-NP's include wh-phrases; cf. the examples in (9) and (10).

- (14) a. [NP ...zibun_i ...]-ga R-NP_i-o V
 b. ?*[NP ...zibun_i...]-ga Q-NP_i-o V
 c. Q-NP_i-ga [NP ...zibun_i...]-o V

The point in (A) and (B) is to attribute the lack of bound variable interpretation and hence the marginality of (14b) to reasons independent of a condition like (13). According to (A), the marginality of (14b) with Q-NP being a wh-phrase has an independent reason, since, even with an R-NP in the position of Q-NP, (14b) is marginal. The point in (B) is that the antecedent of zibun in the pattern of (14b) as well as (14a) is not the matrix object NP but rather a discourse topic. Since a Q-NP typically cannot occur as a topic, (14b), in contrast to (14a), is independently ruled out. Thus if the points in (A) and (B) are valid, the marginality of the examples of the pattern in (14b) can be attributed to reasons independent of the condition in (13) above.

In the following, I will point out (i) that it is not clear that (A) is a valid generalization, (ii) that even if (A) is a valid generalization, a condition like (13) is needed for non-interrogative sentences, and (iii) that a condition like (13) is needed for cases in which the intended variable binding is not allowed in the pattern of (14b) even when the matrix object NP can serve as a topic of a sentence, thus presumably being able to serve as a discourse topic.

First, let us consider the point in (A). Kuno (1985) reports the contrast in the following two sentences. The judgments are his.

(15) (=Kuno's (16) in section 6 with additional brackets for clarity)

a. [_{NP}Hanako-ga zibun_i-o kiratte iru koto]-ga
 -nom self-acc hating is that -nom

Ziroo_i-o yuuutu ni site iru
 -acc depressed making is

(That Hanako dislikes him_i has depressed Ziroo_i.)

b. ??[_{NP}Hanako-ga zibun_i-o kiratte iru koto]-ga

Ziroo_i-o yuuutu ni site iru no?

((supplied by HH) Has the fact that Hanako dislikes him_i depressed Ziroo?)

Kuno claims:

"the sentences of the pattern of [(15a)], since they ordinarily describe an emotive state of the referent of the main clause object, require a high degree of speaker identification with the experiencer of the emotive state. Otherwise, the speaker would not be able to tell what is going on in the third party's mind. Therefore, these sentences are at their best when they are used in a nonreportive narrative in which the speaker has completely identified himself with the experiencer. [(15b)] is marginal because the speaker is asking the hearer to tell directly what is going on in Ziroo's mind -- a task that the hearer is not expected to be able to perform. But if [(15b)] is already marginal, there is no expecting that [examples of the form (14b) with the Q-NP being a wh-phrase, for example, (9c)] would be any better.

He thus claims that the marginality or unacceptability of the weak crossover examples in Saito and Hoji (1983) that are wh-questions "can be attributed to a great extent to the fact that [those sentences are] in interrogative form".

I agree that the pattern in (14a) cannot be used as freely as regular "non-emotive" sentences. Thus while (15a) is quite acceptable, the status of (16a)

and (16b) seems slightly lower than that of (15a).

- (16) a. ?[_{NP}[_S Hanako-ga zibun_i-o kiratteiru] koto]-ga/-wa
 -nom self-acc dislikes fact-nom/-top

Ziroo_i-o yuutuni sinakatta
 -acc did not depress

(Lit. The fact that Hanako dislikes self_i did not depress Ziroo_i)

- b. ?Kimi-wa [_{NP}[_S [_{NP}[_S Hanako-ga zibun_i-o kiratte iru] koto]-ga
 you-top -nom self-acc dislike fact-nom

Ziroo_i-o yuutunisiteiru] koto]-o sitteimasu ka
 -acc has depressed fact-acc know Q

(Lit. Do you know [the fact that [the fact that Hanako dislikes self_i] has depressed Ziroo_i]?)

However, a sentence like the following sounds fairly good despite the fact that it is an interrogative sentence.

- (17) (Honto?) [_{NP}Hanako-ga (hoka no hito-no jya nakute) zibun_i-no
 (Really?) -nom (not other persons' but) self-gen

taipuraitaa-o tukatta koto]-ga Ziroo_i-o hungai saseta no?
 typewriter-acc used fact-nom -acc infuriated Q

(Lit. (Really?) Is it true that the fact that Hanako used self_i's typewriter (not other persons') has infuriated Ziroo_i?)

It seems that in (17) as well as in Kuno's example in (15b), the intended anaphor binding becomes readily acceptable if zibun is taken to be emphatic, i.e., if zibun is taken to mean something like "not other people but Ziroo himself." As a matter of fact, the context in which (17) can be felicitously uttered is when the speaker is surprised to find out that Ziroo is furious about

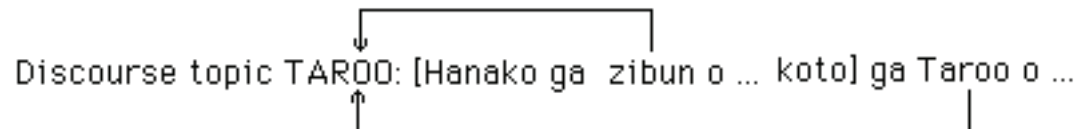
Hanako's using his own typewriter since for example Hanako and Ziroom are close and Hanako often uses Ziroom's typewriter; hence the speaker's expectation is that while it is possible that Ziroom gets furious with Hanako's using someone else's typewriter, it is not likely that Ziroom gets furious with Hanako's using his own typewriter. Similarly, (15b) seems to become acceptable in a situation where the speaker's expectation is that Ziroom might become depressed if Hanako dislikes someone else other than Ziroom but that Ziroom would not become depressed when Hanako dislikes Ziroom himself. However, such a situation is less likely to occur in the real world than the situation that is depicted by (17). This might be the reason that the sentence in (15b) is low in acceptability for some speakers.

Therefore, given an appropriate context sentences of the pattern of (14a) can be used in interrogative form felicitously.⁹ Suppose, for the purpose of discussion, that (A) in fact holds. As is also implied in Kuno (1985), this does not necessarily obviate a condition like (13) since the relevant examples in Saito and Hoji (1983) also include non-interrogative sentences containing quantified NP's, in which the intended variable binding is not allowed. Kuno's point in (B) is to eliminate the need for (13) by attributing the impossibility of bound variable interpretation in such examples to a reason independent of (13).

Noting that the sentence pattern in (14a) "requires a high degree of speaker identification with the experiencer," Kuno (1985) attributes the marginality of example of the form (14b) to the "fact" that "the speaker cannot readily identify himself with someone who is faceless." He concludes that "what controls reflexives in the emotive sentence pattern under discussion is

the topic of the preceding discourse, and not a coindexed NP in the same sentence." He gives the following schematic structure to illustrate the point.

(18) (Kuno's (23) in section 6)



In our terms, (18) suggests that the antecedent of zibun is not the matrix object Taroo but the topic TAROO. According to Kuno, therefore, the examples of the form (14b) such as (9b) and (9c) do not allow a bound variable interpretation for zibun since quantifiers like daremo 'everyone', dareka 'someone' and wh-phrases like dare 'who' cannot occur as a discourse topic. As noted in Kuno (1973), the following examples are not acceptable.¹⁰

- (19) a. *Daremo-wa kita
 everyone-top came
 (*As for everyone, he came.)
- b. *Dareka-wa kita
 someone-top came
 (*As for someone, he came.)
- c. *Dare-wa kita no
 who-top came
 (*As for who, he came?)

Thus Kuno's proposal seems attractive.¹¹ However, there are cases that resist the analysis proposed in Kuno (1985).¹² The relevant examples involve conjoined NP's and phrases like NP dake 'only NP'.

First, as illustrated in (20), a conjoined NP and NP dake can appear with wa immediately following them.

- (20) a. John to Bill-wa (sorezore) yasui yubiwa-o katta
and -top (each) cheap ring-acc bought

(John and Bill (individually) bought cheap rings.)

- b. John dake-wa takai yubiwa-o katta
only-top expensive ring-acc bought

(Only John came here.)

The examples in (21), in turn, show that the plural NP and NP dake can bind zibun as a variable.¹³

- (21) a. [_{NP}John to Bill]_i-ga (sorezore) [_{NP}Mary-ga zibun_i-o semeta
and -nom (each) -nom self-acc criticized

koto]-ni odoraita (koto)
fact-at was surprised

(Approximate: [Each of John and Bill]_i was surprised at the fact that Mary criticized him_i.)

- b. [_{NP} John dake]_i-ga [_{NP}Mary-ga zibun_i-o semeta
only-nom -nom self-acc criticized

koto]-ni odoraita
fact-at was surprised

([Only John]_i was surprised at the fact that Mary criticized him_i.)

In the examples in (22), however, the intended bound variable interpretation is not as readily available as in (20).

(22) a. ?*[_{NP} Mary-ga zibun_i-o semeta koto]-ga
-nom self-acc criticized fact-nom

[_{NP} John to Bill]_i-o (sorezore) odorokaseta
and -acc (each) surprised

(Approximate: ?*The fact that Mary criticized him_i surprised [each of John and Bill]_i.)

b. ?*[_{NP} Mary-ga zibun_i-o semeta koto]-ga
-nom self-acc criticized fact-nom

[_{NP} John dake]_i-o odorokaseta
only -acc surprised

(*The fact that Mary criticized him_i surprised [only John]_i.)

That John to Bill and John dake can appear in the matrix object position in sentences of this pattern is illustrated by the examples in (23), which are obtained simply by making Mary the antecedent of zibun.

(23) a. [_{NP} Mary_i-ga zibun_i-o semeta koto]-ga
-nom self-acc criticized fact -nom

[_{NP} John to Bill]-o (sorezore) odorokaseta
and -acc (each) surprised

(The fact that Mary_i criticized herself_i surprised [each of John and Bill].)

b. [NP Mary_i-ga zibun_i-o semeta koto]-ga
 -nom self-acc criticized fact -nom

[NP John dake]-o odorokaseta
 only -acc surprised

(The fact that Mary_i criticized herself_i surprised [only John].)

The unavailability of the intended bound variable interpretation in examples like (22) strongly suggests that the possibility and the impossibility of bound variable interpretation for zibun is governed, at least in part, by some principle that is independent of the discourse-related condition that is proposed in Kuno (1985).

I must agree that much more must be understood about the properties of zibun, in connection with its bound variable interpretation (as well as in connection with its "regular" interpretation as an anaphor).¹⁴ In regard to its bound variable interpretation, zibun seems to behave less "systematically" than the empty pronominal, as we will see shortly. For this reason, it might be more fruitful at this point to examine the cases of empty pronominals as bound variables to see more clearly in what configurations the intended bound variable interpretation is allowed in Japanese. At the same time, however, examples like (22) indicate that a structural condition on the bound variable interpretation for zibun such as stated in Saito and Hoji (1983) indeed has a place in the grammar of Japanese.¹⁵

Before moving to the next section, I would like to make a few remarks regarding the WCO condition as formulated in (13), which is repeated here as (24).

(24) (=13)

A variable cannot be the antecedent of a pronoun or an anaphor that it does not c-command.

(Saito and Hoji; 1983, 256)

First, as far as the arguments in this chapter for the hierarchical structure in Japanese are concerned, what is crucial in (24) is the notion "c-command" but not the notion "antecedent-of". In other words, it is not imperative for the purpose of the discussion in this chapter that the WCO condition be stated in terms of "antecedent-of" rather than in terms of "coindexation" as in Koopman and Sportiche (1982/83), Reinhart (1983) and Safir (1984), for example. Since we have reason to assume that the notion "antecedent-of" need to be incorporated in linguistic theory, as pointed out in Higginbotham (1983) and Montalbetti (1984), however, I will continue to use the formulation of the WCO condition in (24).¹⁶ The choice of "antecedent-of" over "coindexation" in the statement of the WCO condition in (24) is thus arbitrary as far as the main purpose of this chapter is concerned. For this reason as well as for ease of exposition, I will continue to use coindexation freely in the example sentences that will follow.

Second, I want to make explicit the notions such as "variable", "antecedent-of" so as to clarify the following discussions. I will do so by adopting the basic mechanism of "linking" proposed in Higginbotham (1983). The rule of "linking" is stated as in (25).

(25) Link X to Y

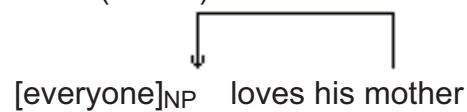
This rule applies freely among A-positions at S-structure and the resulting linking between positions will be preserved after movement.¹⁷ The rule in (25)

also applies, automatically, in the case of movement.¹⁸ Consider (3a), which is repeated below, for illustration.

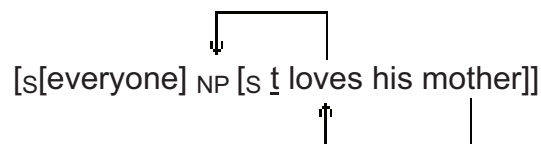
(3) a. Everyone_i loves his_i mother.

The schematic S-structure and LF representations of (3a) are given in (26).

(26) a. S-Str(ucture)



b. LF



What is meant by a "variable" in (24) is an empty category (ec) that is in an A-position and that is linked to an A'-position.¹⁹ In (26b) t̄ is a variable, which is bound to everyone. His in (26b) is also bound to everyone, i.e., is construed as a variable bound to everyone, but it is not a variable since it is not linked to everyone nor is it an empty category. We might call t̄ and his in (26b) as a formal variable, and a semantic variable, respectively; cf. Higginbotham (1983; 409) as well as Koopman and Sportiche (1982/83; footnote 1).

Viewed in these terms, what is implicit in (24) is the assumption that in order for a pronoun or an anaphor to be a semantic variable bound to a quantified NP (Q-NP), it must have the Q-NP as its antecedent. The relation "antecedent-of" is defined as in (27):

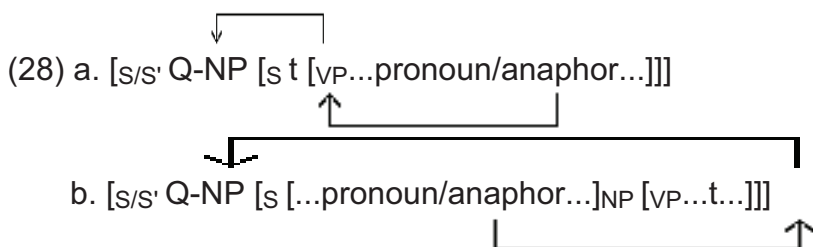
(27) (Higginbotham's (32))

Y is an antecedent of X if X is linked to Y or
for some Z, X is linked to Z and Y is an antecedent of Z.

Thus, in (26b), both everyone and t are antecedents of his, and only everyone is the antecedent of t.

Notice that in (26b) the position of his cannot be linked to the position of everyone, which is created at LF by the application of Quantifier Raising, since free linking at LF is not allowed. Since his is linked to t, which in turn is linked to everyone, however, everyone is an antecedent of his, by the transitivity of "antecedent-of" as it is defined in (27). Following Higginbotham (1983), I will say that Y is a direct antecedent of X if X is linked to Y. Thus in (26b) t is a direct antecedent of his while everyone is an indirect antecedent of his.

What is stated in (24) is then the condition under which a pronoun or an anaphor cannot be a semantic variable, i.e., construed as a bound variable. Or to put it differently, (24) can be viewed as stating the necessary structural requirement for a pronoun or an anaphor to be construed as bound variable.²⁰ Let us consider the configurations for WCO in (7) and (8) in these terms. Consider the schematic LF representations in (28):²¹



The structure in (28a) corresponds to the English examples in (3) and the Japanese examples in (10) whereas the structure in (28b) corresponds to the English examples in (4) and the Japanese examples in (9b) and (9c).

In (28a) the pronoun/anaphor can have the Q-NP as its (indirect) antecedent, predicting correctly the availability of the bound variable interpretation for it in the corresponding sentences. On the other hand, the pronoun/anaphor in (28b) cannot have the Q-NP as its (indirect) antecedent due to the WCO condition in (24). The pronoun/anaphor cannot take the Q-NP as its direct antecedent either since the linking from the A-position of the pronoun/anaphor to the A'-position of the Q-NP is not allowed. Recall that free linking is allowed only among A-positions at S-structure.²² Thus we correctly predict the unavailability of the bound variable interpretation for the pronoun/anaphor in the examples corresponding to (28b).

2.2 "Zero Pronouns" and Weak Crossover

Now that we have seen that the WCO phenomenon in Japanese provides evidence for a VP node in this language, we are in a position to consider whether it also provides evidence regarding the structural relations among other constituents in the language, for example, among the non-verbal constituents in (1), repeated below as (29).

(29) a. Adjunct NP-o Verb
 -acc

 b. NP-ni NP-o Verb
 -dat -acc

The position of the antecedent of zibun is quite restricted, generally to the subject position that c-commands it.²³ Thus the examples in (30) are ungrammatical with the intended interpretations.

- (30) a. *John-ga [kaisya -ga zibun_i-o kubinisita] atode Bill_i-o
 -nom company-nom self-acc fired after -acc

nagusameta (koto)
 consoled fact

(Lit. John consoled Bill_i after the company had fired self_i.)

- b. *John-ga [NP[S e_i zibun_j-ni F-o tuketa]sensei_i]-ni
 -nom self-dat -acc gave teacher-dat

Bill_j-o awaseta (koto)
 -acc had meet

(Lit. John had Bill_j meet the teacher who gave self_j an F.)

Thus it is not clear that the fact that zibun cannot be a semantic variable bound to dare 'who' and daremo 'everyone' in (31) is due to the violation of (24).

- (31) a. *Kimi-wa [kaisya -ga zibun_i-o kubinisita] atode
 -top company-nom self-acc fired after

dare_i-o nagusameta no
 who-acc consoled

(Lit. Who_i did you console after the company had fired self_i?)

b. *John-ga [_{NP}[_S e_i zibun_j-ni F-o tuketa]sensei_j]-ni
 -nom self-dat -acc gave teacher-dat

daremo_j-o awaseta (koto)
 everyone-acc had meet

(Lit. John had everyone_j meet the teacher who gave self_j an F.)

Therefore zibun cannot be used for the WCO test that we want to conduct.

Unlike zibun, an overt pronoun kare, 'he' can have its antecedent in non-subject positions and the position of its antecedent is much less restricted.

Thus the intended pronominal coreference is possible in (32).

(32) a. John-ga [kaisya -ga kare_i-o kubinisita] atode Bill_i-o
 -nom company-nom he-acc fired after -acc

nagusameta (koto)
 consoled fact

(John consoled Bill_i after the company had fired him_i.)

b. John-ga [_{NP}[_S e_i kare_j-ni F-o tuketa]sensei_j]-ni
 -nom he-dat -acc gave teacher-dat

Bill_j-o awaseta (koto)
 -acc had meet

(John had Bill_j meet the teacher who gave him_j an F.)

Now observe the following:

(33) a. *Kimi-wa [kaisya -ga kare_i-o kubinisita] atode
 -top company-nom he-acc fired after

dare_i-o nagusameta no
 who-acc consoled

(Who_i did you console after the company had fired him_i?)

b. *John-ga [NP[S e_j kare_j-ni F-o tuketa]sensei_i]-ni
 -nom he-dat -acc gave teacher-dat

daremo_j-o awaseta (koto)
 everyone-acc had meet

(John had everyone_j meet the teacher who gave him_j an F.)

Kare 'he' cannot be construed as a semantic variable in (33). However, this does not necessarily mean that the examples in (33) violate the WCO condition. This is so because overt pronominals such as kare 'he' can never become semantic variables; cf. Nakai (1976) and Nakayama (1982). Thus the bound variable interpretation for kare is not possible even in (34), where kare is in fact c-commanded by the formal variable t_j at LF as indicated in (34b).²⁴

(34) a. *Dare_i-ga [Mary-ga kare_i-o yobu]-maeni koko-ni kita no
 who-nom -nom he-acc call -before here-to came

(Who_i came here before Mary called him_i?)

b. LF [S' dare-ga_i [S t_j [Mary-ga kare_i-o yobu]-mae-ni
 koko-ni kita]] no

Thus the unavailability of the bound variable interpretation for kare 'he' in (34) could be accounted for independently of the WCO condition in (24).

Empty pronominals, in contrast with overt pronominals, can become

semantic variables; cf. Nakai (1976).²⁵ Thus in (35) e_i can be construed as a variable bound to dare 'who' and daremo 'everyone'.

(35) a. Dare_i-ga [Mary-ga e_i yobu]-maeni koko-ni kita no
 who-nom -nom call -before here-to came

(Who_i came here before Mary called him_i?)

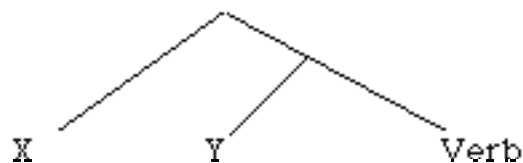
b. Daremo_i-ga [NP[e_i (waza waza hitoban kakete) e_j kaita] ronbun_j]-o
 everyone-nom by spending one night wrote paper-acc

gomibako-ni suteta (koto)
 trash box-into threw away

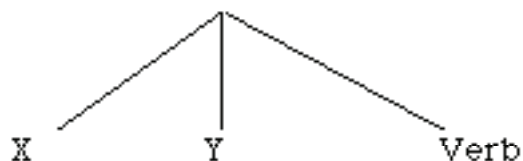
(Everyone_i threw away the paper that he_i wrote (by spending one night) into a trash box.)

This means that empty pronominals should provide us with evidence regarding the choice between (2a) and (2b), repeated below as (36a) and (36b), as the schematic structure of (29),

(36) a.



b.



provided that they (empty pronominals) invoke WCO effects in accordance with the WCO condition in (24). The contrast observed in (37) and (38) suggests that empty pronominal in fact fail to become semantic variables, in accordance with the WCO condition in (24).

- (37) a. [NP[S e_i hitome e_j mita]hito_i]-ga [VP Bill_j-o sukininatta] (koto)
 one glance saw person-nom -acc fell in love

(The person that took a glance at him_j fell in love with Bill_j.)

- b. *[NP[S e_i hitome e_j mita]hito_i]-ga [VP dare_j-o sukininatta] no
 one glance saw person-nom who-acc fell in love

(*Who_j did the person that took a glance at him_j fall in love with?)

- (38) a. [NP[S e_i itidomo e_j atta-koto-ga-nai] hito_i] -ga [VP Bill_j-no
 once has not met person-nom -gen

waruguti-o itteiru] (koto)
 ill-remarks-acc is saying

(A person that has never met him_j is speaking ill of Bill_j.)

- b. *[NP[S e_i itidomo e_j atta-koto-ga-nai] hito_i] -ga [VP dare_j-no
 once has not met person-nom -gen

waruguti-o itteiru] no
 ill-remarks-acc is saying

(*Whose_j ill remarks is a person that has never met him_j making?)

Thus we should be able to conduct the relevant test by substituting a Q-NP for Bill in (39).²⁶

(39) a. John-ga [kaisya-ga e_i kubinisita]-atode Bill_i-o nagusameta
 -nom company-nom fired -after -acc consoled

(John consoled Bill_i after the company had fired him_i.)

b. John-ga [_{NP} e_i e_j F-o tuketa]sensei_i-ni Bill_j-o awaseta (koto)
 -nom -acc gave teacher-dat -acc had meet

(John had Bill_j meet the teacher who gave him_j an F.)

2.3 Adjuncts and Object NPs

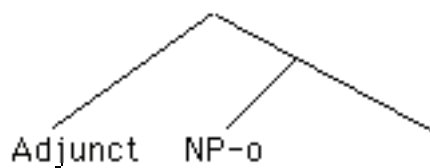
In (40), which is obtained by replacing Bill with dare 'who' in (39a), e_i cannot be a semantic variable bound to dare 'who'.

(40) *Kimi-wa [kaisya-ga e_i kubinisita]-atode dare_i-o nagusameta no
 you-to company-nom fired -after who-acc consoled

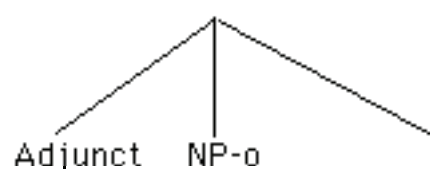
(Who_i did you console after the company had fired him_i?)

This indicates, given the analysis of WCO adopted here, that the adjunct and NP-o appear as in (41a) rather than as in (41b).

(41) a.

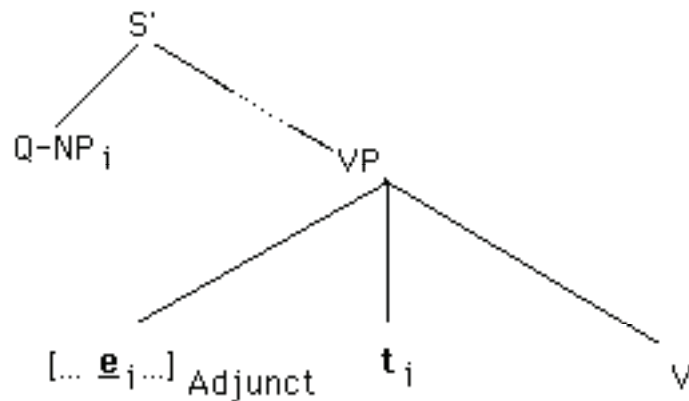


b.



If the adjunct and NP-Q appeared as in (41b), the schematic LF representation of the relevant portion of (40) would be as in (42).

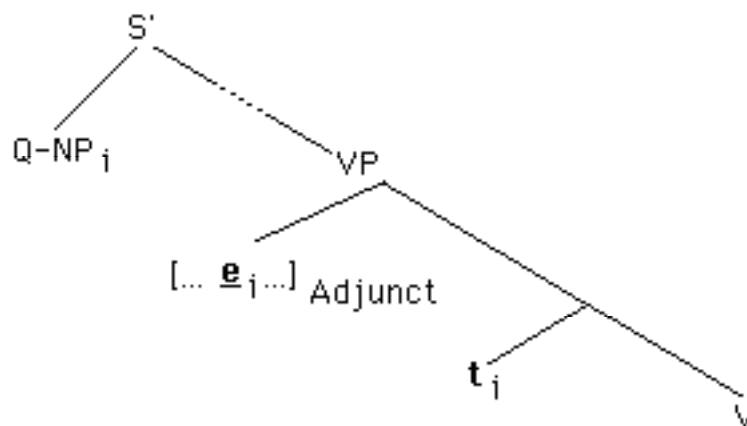
(42)



Since e_i is c-commanded by t_i in (42) the linking from the position of e_i to the position of t_i , which can be established at S-structure, does not violate the WCO condition in (24). Thus, in (42), e_i can take t_i as its direct antecedent; hence it can take $Q-NP_i$ as its indirect antecedent. Therefore e_i should be able to become a semantic variable bound to $Q-NP_i$. As shown above, however, e_i cannot be construed as a variable bound to dare 'who' in (40).

On the other hand, if the adjunct and NP-Q appear as in (41a), we can straightforwardly account for the unavailability of the bound variable interpretation of e_i based on the WCO condition in (24). The relevant portion of the LF representation of (40), in accordance with the structure in (41a), should look like (43).

(43)



The failure of t_i 's c-commanding e_i correctly predicts the failure of e_i 's becoming a semantic variable bound to Q-NP_i, dare 'who', in (40).

The following examples make the same point as the pair of (39a) and (40).

(44) a. John-ga [Mary-ga e_i yomu]-maeni sono honi-o suteta (koto)
 -nom -nom read-before that book-acc threw away

(John threw away that book_i before Mary read it_i.)

b.*Kimi-wa [Mary-ga e_i yomu]-maeni dono honi-o suteta no
 -top -nom read-before which book-acc threw away

(Which book_i did you throw away before Mary read it_i?)

Let us now consider the structural relation between the adjunct and the indirect object NP. Observe the following:

(45) a. John-ga [Mary-ga t_i atta]-atode sono hito -ni atta (koto)
 -nom -nom met-after that person-dat met

(John met that person_i after Mary had met him_i.)

b. John-ga [sono kaisya-ga e_i kubinisuru]-maeni
 -nom that company-nom fired-before

Billi-ni sono syorui-o watasita (koto)
 -dat that paper-acc handed over

(John passed that paper to Bill_i before that company fired him_i.)

(46) a. *John-ga [Mary-ga t_j atta]-atode dono hito -ni mo_i atta (koto)
 -nom -nom met-after every person-dat met

(John met every person_i after Mary had met him_i.)

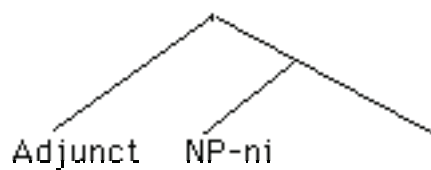
b. *Kimi-wa [sono kaisya-ga e_i kubinisuru]-maeni
 you-top that company-nom fired-before

dare_i-ni sono syorui-o watasita (no)
 who-dat that paper-acc handed over

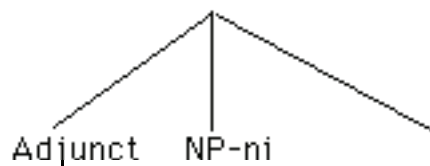
(Who_i did you pass that paper to before that company fired him_i?)

As indicated above, the bound variable interpretation for e_i is not available in (46). By the same reasoning as in the case of (40) and (44b), this fact can be regarded as suggesting that the adjunct and the NP- n_i appear as in (47a) rather than as in (47b).

(47) a.



b.



It thus seems that we have evidence that adjuncts and object NPs are not sisters to each other in Japanese, supporting the hypothesis that Japanese phrase structure is strictly binary.

As the relatively free word order in the language suggests, adjuncts can appear after the object NPs, as shown in (48).

(48) a. John-ga Bill_i-o [kaisya-ga e_i kubinisita]-atode
 -nom -acc company-nom fired -after

nagusameta (koto)
 consoled

(John consoled Bill_i after the company had fired him_i.)

b. John-ga sono hon_i-o [Mary-ga e_i yomu]-maeni
 -nom that book-acc -nom read -before

suteta (koto)
 threw away

(John threw away that book_i before Mary read it_i.)

Consider the examples in (49), which show that e_i can be a semantic variable here; cf. (40) and (44b).

(49) a. Kimi-wa dare_i-o [kaisya-ga e_i kubinisita]-atode nagusameta no
 -top who-acc company-nom fired -after consoled

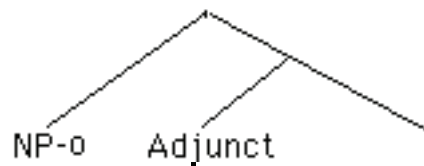
(Who_i did you console after the company had fired him_i?)

b. Kimi-wa nani_i-o [Mary-ga e_i yomu]-maeni suteta no
 -top what-acc -nom read-before threw away

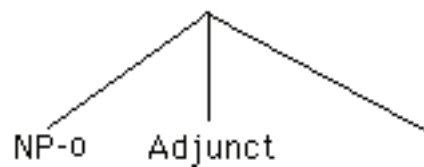
(What_i did you throw away before Mary read it_i?)

The fact here is consistent with the hypothesis that Japanese phrase structure is strictly binary although it does not constitute positive evidence for it. Note that whether we take (50a) or (50b) as the schematic structure of the relevant portion of (49),

(50) a.



b.



the empty pronominal e_i , which is inside the adjunct, will be c-commanded by the formal variable linked to the Q-NP at LF. This is so since NP- \underline{o} c-commands the adjunct in either structure.

The examples in (51) and (52) illustrate the same point regarding the structural relation between the adjunct and the indirect object NP.²⁷

(51) a. John-ga sono hito_i -ni [Mary-ga e_i atta]-atode atta (koto)
 -nom that person-dat -nom met-after met

(John met that person_i after Mary had met him_i.)

b. John-ga Bill-ni [sono kaisyaga e_j kubinisuru]-maeni
 -nom -dat that company-nom fired -before

sono syorui-o watasita (koto)
 that paper-acc handed over

(John handed that paper to Bill_i before that company fired him_i.)

(52) a. John-ga dono hito -ni mo_i [Mary-ga t_j atta]-atode atta (koto)
 -nom every person-dat -nom met-after met

(John met every person_i after Mary had met him_i.)

b. Kimi-wa dare_i-ni [sono kaisyaga e_j kubinisuru]-maeni
 -top who-dat that company-nom fired-before

sono syorui-o watasita (no)
 that paper-acc handed over

(Who_i did you pass that paper to before that company fired him_i?)

2.4 VP-Internal Phrase Structure

Consider again the example in (39b), which is repeated here as (53).

(53) John-ga [_{NP} e_j e_j F-o tuketa] sensei_i-ni Bill_j-o awaseta (koto)
 -nom -acc gave teacher-dat -acc had meet

(John had Bill_j meet the teacher who gave him_j an F.)

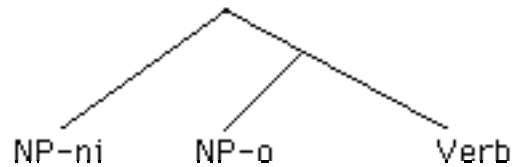
Although the intended pronominal coreference is possible in (53), the intended bound variable interpretation for e_j is not available in (54).

(54) *Kimi-wa [_{NP} e_j e_j F-o tuketa] sensei_i-ni dare_j-o awaseta (no)
 you-top -acc gave teacher-dat who-acc had meet

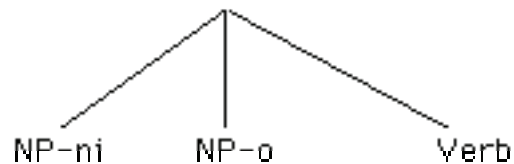
(Who_j did you have meet the teacher who gave him_j an F.)

By the same line of reasoning as in 2.3, this fact can be taken to suggest that the indirect object NP and the direct object NP appear as in (55a) rather than as in (55b).

(55) a.



b.



A few more examples that illustrate the same point are given below.

(56) a. John-ga [NP[e_i e_j tukutta]kodomo_i]-ni sono ningyoo_j-o ageta (koto)
 -nom made child -dat that doll-acc gave

(John gave that doll_j to the child who made it_i.)

b. John-ga [NP e_i e_j okutte_{kita}]hito_i]-ni
 -nom sent over person-dat

sono hon_j-o okurikaesita (koto)
 that book-acc sent back

(John sent back that book_j to the person that had sent it_i to him.)

(57) a. *Kimi-wa [NP[e_i e_j tukutta]kodomo_i]-ni dono ningyoo_j-o ageta no
 you-top made child-dat which doll-acc gave

(Which doll_j did you give t_j to the child who made it_i?)

b.*Kimi-wa [NP e_i e_j okuttekitaj]hito_i]-ni nani_j-o okurikaesita no
 you-top sent over person-dat what-acc sent back

(What_j did you send back t_j to the person that had sent it_i to you?)

When Q-NP-o precedes NP-ni as in (58), e_j can become a semantic variable.²⁸

(58) a. Kimi-wa dono ningyoo_j-o [NP[S e_i e_j tukutta] kodomo_i]-ni ageta no
 you-top which

do|*****

*****ce for it.

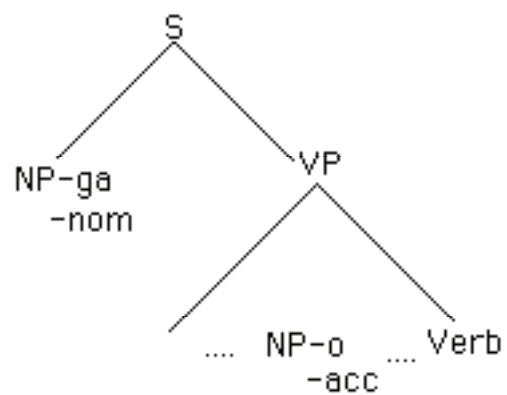
 *****ce for it.

*****ce for it.

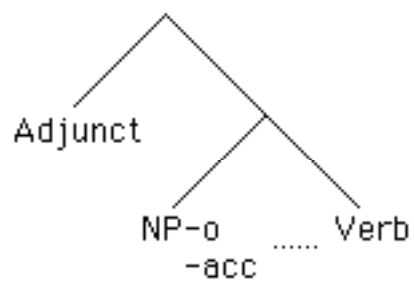
2.5 Syntactic Movement, Weak Crossover and Parasitic Gaps

To summarize the discussion so far, the WCO phenomenon in Japanese, given the account of it adopted here, suggests the structural relations among constituents as indicated in (59).

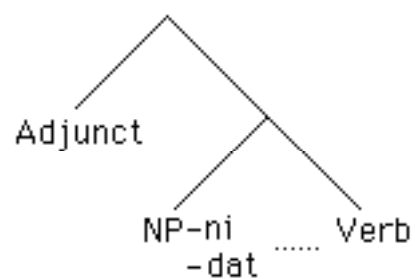
(59) a.



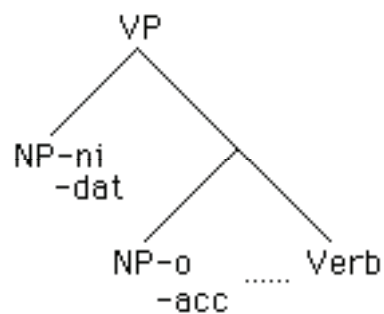
b.



c.

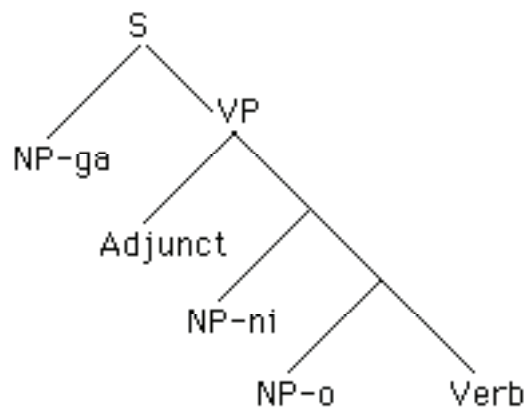


d.



Thus it seems that the structure of a Japanese sentence should be strictly binary as in (60), according to the conclusions reached so far.²⁹

(60)



Up to this point, I have ignored the possibility that some of the surface strings that have been discussed are derived by syntactic movement. In this section, I will reconsider some of the examples in the preceding two sections in the light of the movement analysis of Japanese "scrambling"; cf. Harada (1977), Kuroda (1980, 1983), Haig (1980), Whitman (1982) and especially Saito (1985).

2.5.1 D-Structure Positions of Argument NPs

In a series of works, Saito (1982, 1983a, 1984, 1985) argues that there is a syntactic movement in Japanese and specifically that syntactic adjunction operations yield "scrambled" sentences such as (61b), (61c), and (61d) from the D-structure whose word order (61a) reflects; cf. also Whitman (1982).

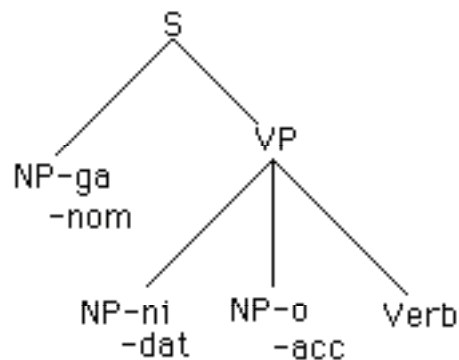
- (61) a. John-ga Mary-ni hon-o ageta
 -nom -dat book-acc gave
- b. [_S hon-o_i [_SJohn-ga Mary-ni t_j ageta]]
- c. [_SMary-ni_i [_SJohn-ga t_j hon-o ageta]]
- d. [_SJohn-ga [_{VP}hon-o_i [_{VP}Mary-ni t_j ageta]]]

(John gave Mary a book.)

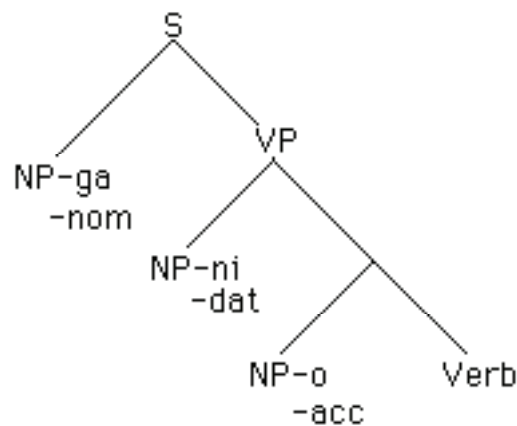
As indicated above, Saito argues that so called Scrambling in Japanese is a rule of adjunction. (61b) and (61c) illustrate S-adjunction and (61d) illustrates VP-adjunction.

What is crucially assumed and in fact argued for, in conjunction with the hypothesis that Scrambling is an instance of Move @, is the hypothesis that the positions of the argument NPs are fixed at the level of D-structure as in (62a) or (62b).³⁰

(62) a.



b.



A number of convincing arguments have been provided by Kuroda (1970, 1980, 1983), Kuno (1973), Haig (1980) and Saito (1983a, 1983b, 1985) for the hypothesis that the subject NP precedes the object NP at D-structure or at the level that corresponds to D-structure. However, since the relative D-structure positions of NP-ni and NP-o do not yet seem to be as firmly established as the other aspects of the hypothesis in question, I will present a brief argument that the D-structure positions of NP-ni and NP-o are in fact fixed as indicated in (62b). A fuller argument for this view will be presented in section 4.4 in chapter 4.

It is observed in Kuroda (1970) that sentences like (63a) differ from

sentences like (63b) in terms of their quantifier scope interpretation.³¹

(63) a. Daremo-ga dareka-o aisiteiru
Everyone-nom someone-acc loves

(Everyone loves someone.)

b. Dareka-o daremo -ga aisiteiru
someone-acc everyone-nom loves

(Someone, everyone loves.)

Kuroda's observation is that while in (63a) daremo 'everyone' unambiguously takes wide scope, in (63b) either daremo 'everyone' or dareka 'someone' can take wide scope with respect to the other. The examples in (64), which are variants of Kuno's (1973; 360-361) examples, also point to the same generalizations.³²

(64) a Sannin-no onna-ga hutari-no otoko-o semeta (koto)
three-gen women-nom two-gen men-acc criticized

(Three women criticized two men.)

b. Hutari-no otoko-ga sannin-no onna-ni semerareta (koto)
two-gen men-nom three-gen women-by were criticized

(Two men were criticized by three women.)

c. Hutari-no otoko-o sannin-no onna-ga semeta (koto)
two-gen men-acc three-gen women-nom criticized

In (64a) and (64b), the subject Q-NP takes wide scope with respect to the other Q-NP. However, it seems that either Q-NP can take wide scope with respect to the other in (64c).

Since we assume that the object NP appearing before the subject NP has

been preposed as discussed above in connection with (61), it seems that we can state Kuroda's generalizations as in (65).

- (65) a. When two quantified NPs are in their D-structure positions at S-structure, the quantified NP that c-commands the other takes wide scope with respect to the other.
- b. When a quantified NP is preposed over another quantified NP, the scope interpretation is ambiguous.

That the generalizations in (65) hold is also illustrated by the examples in (66).

- (66) a. *Dono hito mo [John ka Mary]-o syootaisita*
 every person(-nom)also or -acc invited

(Everyone invited John or Mary.)

- b. *[John ka Mary]-o dono hito mo syootaisita*

(John or Mary, everyone invited.)

(66a) means only (67a); but (66b) can mean either (67a) or (67b).

- (67) a. $\forall x, x = \text{a person}, \exists y, y \in \{\text{John, Mary}\}, x \text{ invited } y$

- b. $\exists y, y \in \{\text{John, Mary}\}, \forall x, x = \text{a person}, x \text{ invited } y$

(where E stands for "there exists a..." and A stands for "for all", and \in stands for "is a member of the set {...}").

In other words, (66a) is true when for every person, he invited John or Mary; but it is not true when the person who is invited by everyone is John or Mary. On the other hand, (66b) is true in either case.³³

Now let us consider the scope relation between the quantified NP in the direct object position and the one in the indirect object position and see if the

scope ambiguity test provides us with evidence regarding the D-structure positions of the direct object NP and the indirect object NP.

Consider the following:

(68) a. John-ga sannin-no onna-ni hutari-no otoko-o syookaisita (koto)
 -nom three women-dat two men-acc introduced

(John introduced two men to three women.)

b. John-ga hutari-no otoko-o sannin-no onna-ni syookaisita (koto)
 two men-acc three women-dat introduced

(John introduced two men to three women.)

The contrast exhibited in (68) is similar to the contrast observed in (63), (64) and (66). While either Q-NP-ni or Q-NP-o can take wide scope in (68b), Q-NP-ni unambiguously takes wide scope in (68a). The pair of examples in (69) exhibits a similar contrast.

(69) a. Bill-ga daremo-ni [John ka Mary]-o syookaisita (koto)
 -nom everyone-dat or -acc introduced

b. Bill-ga [John ka Mary]-o daremo-ni syookaisita (koto)
 -nom or -acc everyone-dat introduced

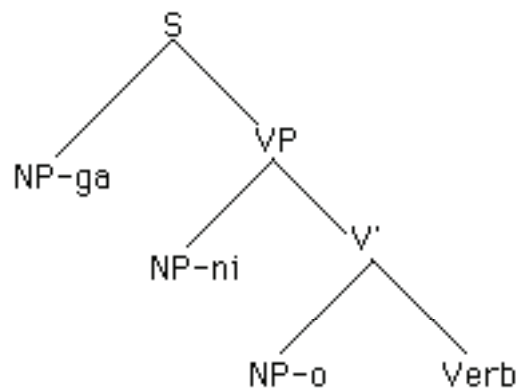
(70) a. A x, x=person, E y, $y \notin \{\text{John, Mary}\}$, Bill introduced y to x

b. E y, $y \notin \{\text{John, Mary}\}$, A x, x=person, Bill introduced y to x

It seems that while (69a) means only (70a), (69b) means either (70a) or (70b).

The contrast in (68) and (69) thus indicates, under the assumption that the generalizations in (65) indeed hold, that the D-structure positions of the object NPs are as in (62b), which is repeated here as (71).³⁴

(71)



Let us then assume that the argument NPs in Japanese appear at the level of D-structure as in (71) and the "scrambled" sentences such as (61b), (61c) and (61d) are derived by the application of Move @, S-adjunction or VP-adjunction. I will now consider some of the examples in the previous sections in the light of these assumptions.

2.5.2 Apparent Counterexamples

Consider the examples in (57) and (58), repeated below as (72) and (73).

(72) a. *Kimi-wa [_{NP}[_S_{e_i} _{e_j} tukutta]kodomo_i]-ni dono ningyoo_j-o ageta no
 you-top made child -dat which doll-acc gave

(Which doll_j did you give _{t_j} to the child who made it_i?)

b. *Kimi-wa [_{NP}[_S_{e_i} _{e_j} okutte_{kita}]hito_i]-ni nani_j-o okurikaesita no
 you -top send over person-dat what-acc sent back

(What_j did you send back _{t_j} to the person who had sent it_i to you?)

(73) a. Kimi-wa dono ningyoo_j-o [NP[s e_i e_j tukutta]kodomo_i]-ni ageta no
 you-top which doll-acc made child -dat gave

(Which doll_j did you give to the child who made it_j?)

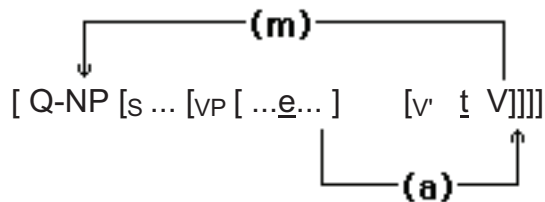
b. Kimi-wa nani_j-o [NP[s e_i e_j okutte]kita]hito_i]-ni okurikaesita no
 you-top what-acc sent over person-dat sent back

(What_j did you send back t_j to the person that had sent it_j to you?)

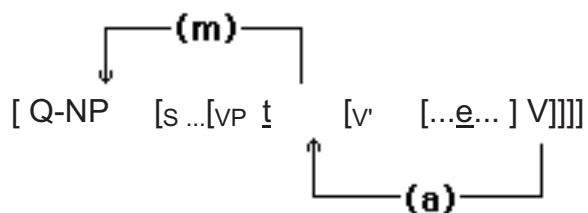
It is observed in 2.4 that in (73) e_j can be a semantic variable bound to the wh-phrase although it cannot in (72). The account of this difference offered there was that while e_j in (73) is c-commanded by the formal variable bound to the wh-phrase at LF, e_j in (72) is not.

Schematically, the examples in (72) and those in (73) were assumed to be represented at LF as (74) and (75), respectively.

(74)



(75)



The (a) linkings are established at S-structure. Recall that the rule of Linking is assumed to apply freely among A-positions at S-structure, being analogous to free indexing at S-structure in Chomsky (1981). The (m) linkings are the

result of LF movement of Q-NP. Recall also that Linking is assumed to be automatic under movement, analogous to coindexation that results from movement in Chomsky (1981).

Let us recall a few more crucial properties regarding the rule of Linking and "semantic variables". First, free Linking is not available at LF. Second, in order to be a semantic variable bound to a Q-NP, a pronoun or an anaphor must have the Q-NP as its antecedent.³⁵ The first property means that in (74) and (75) \underline{e} cannot be linked to Q-NP and therefore cannot take it as its direct antecedent. Thus the second property, which is of semantic variables, now means that \underline{e} , in order to be a semantic variable, must take \underline{t} as its direct antecedent so as to have Q-NP as its indirect antecedent.

In (75), this is achieved by the (a) linking, established at S-structure, which does not violate the WCO condition in (24), repeated here as (76).

(76) A variable cannot be the antecedent of a pronoun or an anaphor that it does not c-command.

In (74), however, the (a) linking violates (76) since \underline{t} does not c-command \underline{e} . Thus \underline{e} cannot take \underline{t} as its direct antecedent; hence it cannot take Q-NP as its indirect antecedent. Since \underline{e} cannot take Q-NP as its direct antecedent, either, as discussed above, \underline{e} cannot take Q-NP as its antecedent. Therefore \underline{e} cannot be a semantic variable bound to Q-NP in (74).

Discussions in 2.5.1, however, indicates that the examples in (73) are derived by the syntactic movement of the direct object NP, more specifically by S-adjunction or VP-adjunction of the direct object NP. According to this

view, the examples in (73) should be represented, schematically, as in (77).

(77) a. D-Str(ucture)

[s ... [VP [...e...]-ni [v' Q-NP-o V]]]

b. S-Str(ucture)

[s Q-NP-o [s ... [VP [... e ...]-ni [v' t V]]]

c. LF

[Q-NP [s t [s ... [VP [... e ...]-ni [v' t V]]]]

The (a) linking is due to free Linking among A-positions at S-structure. The (ms) linking is due to syntactic movement while the (ml) linking is due to LF movement.

Since \bar{t} in the object position does not c-command \bar{e} in (77c), the (a) linking in (77c) violates (76).³⁶ Furthermore since free Linking is allowed only at S-structure among A-positions, \bar{e} in (77b) and (77c) cannot be linked to Q-NP, nor can \bar{e} in (77c) be linked to the intermediate \bar{t} .³⁷ It thus seems that under the assumption that the NP-o NP-ni order is derived from the NP-ni NP-o order, we would wrongly predict that \bar{e} in (77), hence \bar{e}_j in (73), cannot be a semantic variable.

This problem would not disappear even if we assume that the NP-o NP-ni order rather than the NP-ni NP-o order is base-generated. If the NP-o NP-ni

order is base-generated and if the NP-ni NP-o order is derived by the movement of NP-ni, the problem posed by (76) would then be posed by the examples in (78).

(78) a. Kimi-wa dare_i-ni [NP[S e_i e_j okutte_ikita] ningyoo_j]-o kaesita no
 you-top who-dat sent over doll-acc returned

(*Who_i did you return the doll that he_i sent over to you to?)

b. John-ga dare-ni mo_i [NP[S e_i e_j okutte_ikita] ningyoo_j]-o
 -nom anyone-dat sent over doll-acc

kaesanakatta (koto)
 did not return

(*John returned the doll that he_i sent over to him to no one_i.)

Now consider the examples in (37), repeated here as (79).

(79) a. [NP[S e_i hitome e_j mita]hito_i]-ga [VP Bill_j-o sukininatta] (koto)
 one glance saw person-nom -acc fell in love

(The person that took a glance at him_j fell in love with Bill_j.)

b. *[NP[S e_i hitome e_j mita]hito_i]-ga [VP dare_j-o sukininatta] no
 one glance saw person-nom who-acc fell in love

(*Who_j did the person that took a glance at him_j fall in love with?)

In (79b) e_j cannot be a semantic variable bound to dare 'who' in accordance with the WCO condition in (76).

As noted above, there is fairly strong evidence that the NP-o NP-ga order is derived from the NP-ga NP-o order. Thus the fact that e_j can be a semantic variable bound to dare 'who' in (80) seems to constitute the same problem as

the one that the examples in (73) pose, under the assumption that the matrix NP-o is preposed to the sentence-initial position in examples such as those in (80).

- (80) [S Dare_i-o [S[NP[S e_i hitome e_j mita] hito_i]-ga
 who-acc one glance saw person-nom
 [VP t_j sukininata]]] no
 fell in love

(*Who_j did the person that took a glance at him_j fall in love with?)

Examples in (49) and (52), two of which are reproduced below, also seem to pose the same problem if the object NP is preposed across the adjunct.³⁸

- (81) a. (=49b)
 Kimi-wa nani_i-o [Mary-ga e_i yomu]-maeni suteta no
 -top what-acc -nom read-before threw away

(What_i did you throw away before Mary read it_i?)

- b. (=52a)
 John-ga dono hito-ni mo_i [Mary-ga t_i atta]-atode atta (koto)
 -nom every person-dat -nom met-after met

(John met every person_i after Mary had met him_i.)

The same can be said of examples where the object NP appears sentence-initially as in (82).

- (82). a. Nani_i-o kimi-wa [Mary-ga e_i yomu]-maeni suteta no

(What_i did you throw away before Mary read it_i?)

b. Dono hito-ni mo_i John-ga [Mary-ga e_i atta]-atode atta (koto)

(John met every person_i after Mary had met him_i.)

2.5.3 A Solution: Parasitic Gaps

The problem noted in 2.5.2 can be summarized by using the following examples as the representative cases.³⁹

(83) a Dare_j-ga [VP[NP[S e_j hitome e_j mita]hito_i]-o sukininatta] no
 who-nom one glance saw person-acc fell in love

(Who_j fell in love with the person that he_j took a glance at?)

b.(=(79b))

*[NP[S e_j hitome e_j mita]hito_i]-ga [VPdare_j-o sukininatta] no
 one glance saw person-nom who-acc fell in love

(*Who_j did the person that took a glance at him_j fall in love with?)

c.(=(80))

[S Dare_j-o [S[NP[S e_j hitome e_j mita]hito_i]-ga
 who-acc one glance saw person-nom

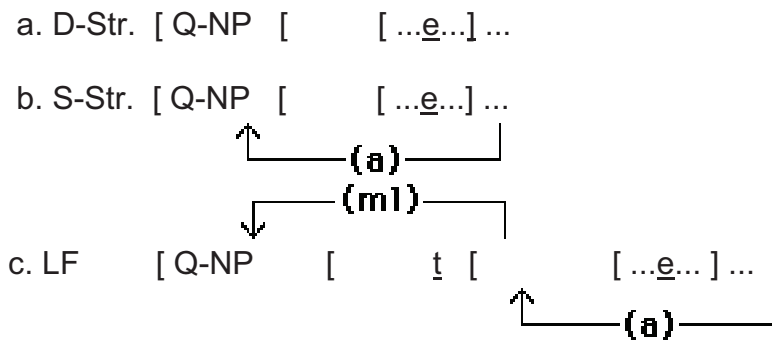
[VP t_j sukininatta]]] no
 fell in love

(*Who_j did the person that took a glance at him_j fall in love with?)

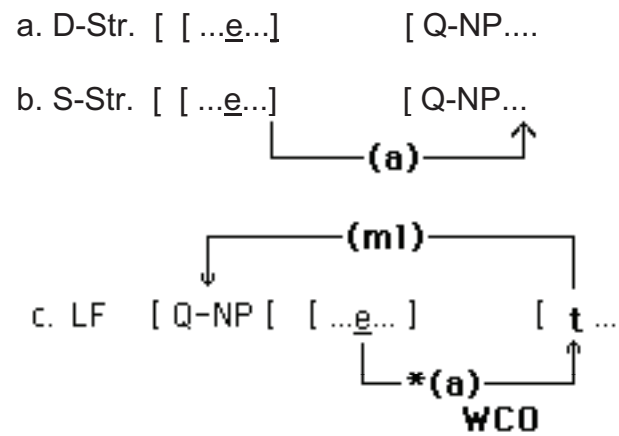
While e_i can be a semantic variable in (83a) and (83c), it cannot in (83b).

As indicated by the schematic D-structure, S-structure and LF representations below, however, e_j should be able to become a semantic variable only in (83a) and not in (83b) and (83c), according to the analysis of WCO that has been assumed up to this point.

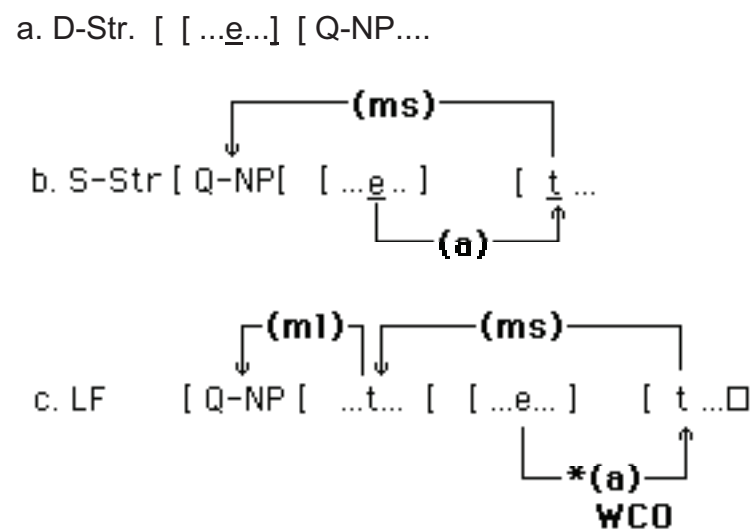
(84) for (83a)



(85) for (83b)



(86) for (83c)



The (a) linking in (85c) as well as that in (86c) violates the condition in (76). Under the assumption that free Linking, i.e., Linking that is not invoked by movement, is allowed only at S-structure and only among A-positions, we would thus wrongly predict that e cannot be a semantic variable not only in (85c) but also in (86c), i.e., that e_j cannot be a semantic variable not only in (83b) but also in (83c).

It is clear that what differentiates (83c) from (83b) is the application of syntactic movement in (83c), more precisely, the adjunction of the matrix object NP to an A'-position at S-structure in (83c). The crucial difference between (83b) and (83c) then reminds us of the contrast observed in examples like (87), which have been much discussed in the recent literature on parasitic gaps.⁴⁰

- (87) a. *John gave a picture of e_i to everyone_i.
 b. Who_i did John give a picture of e_j to t_j ?

It has been observed that the parasitic gap e_j in (87b) is "licensed" by the syntactic movement of who into an A'-position, COMP. Thus it seems plausible to assume that e_j in (83c) is an instance of "parasitic gap", "licensed" by the syntactic movement of dare-o 'who-acc' into an A'-position.⁴¹

In fact, the position of e_j in (83c) is not a possible extraction site, from which dare-o 'who-acc' could have been preposed, just as the position of e_i in (87b) is not a possible extraction site. Thus observe:⁴²

(88) a. Kyoo [NP[S kinoo e_i sono nyuusu-o kiita] hito_i]-ga
 today yesterday that news-acc heard person-nom

koko-ni kita (koto)
 here-to came

(The person who heard that news yesterday came here today.)

b. *[S Sono nyuusu-o_j [S kyoo [NP[S kinoo e_i t_j kiita] hito_i]-ga
 that news-acc today yesterday heard person-nom

koko-ni kita] (koto)
 here-to came

(*That news_j, the person who heard t_j yesterday came here today.)

(89) a. Kyoo [NP[S kinoo e_i nani-o kiita] hito_i]-ga koko-ni kita no
 today yesterday what-acc heard person-nom here-to came

(*What did the person who heard t_j yesterday came here today?)

b. *[S Nani-o_j [S kyoo [NP[S kinoo e_i t_j kiita] hito_i]-ga
 what-acc today yesterday heard person-nom

koko-ni kita]] (no)
 here-to came

(the same as (89a))

(90) a. John gave a picture of Mary to Bill.

b. ??Who_i did John give a picture of t_j to Bill?⁴³

In the other "problematic" examples as well, the relevant e, i.e., e that can be a semantic variable despite the contrary prediction made by the account of WCO adopted here, is in a position from which syntactic extraction is not possible. The following examples illustrate the point.⁴⁴

(91) a. (Cf. (73a).)

[S dono ningyo-o_j [S John-ga [VP[NP[S e_i e_j tukutta] hito_i]-ni
which doll-acc -nom made person-dat

[V' t_j ageta]]]] no
gave

(Which doll_j did John give t_j to the person who made it_j?)

b. John-ga [VP[NP[S e_i sono ningyoo-o tukutta] hito_i]-ni
-nom that doll-acc made person-dat

[V' sono hon-o ageta]] (koto)
that book-acc gave

(John gave that book to the person who made that doll.)

c. * [S sono ningyoo-o_j [S John-ga [VP[NP[S e_i t_j tukutta] hito_i]-ni
that doll-acc -nom made person-dat

[V' sono hon-o ageta]]]] (koto)
that book-acc gave

(*That doll_j, John gave that book to the person who made t_j.)

(92) a. (Cf. (82a).)

[Nani-o_j [kimi-wa [VP[Mary-ga e_i yomu]-maeni
what-acc you top -nom read -before

[V' t_j suteta]]]] no
threw away

(What_j did you throw away before Mary read e_i?)

b. [S John-ga [VP[Mary-ga sono hon-o yomu]-maeni
-nom -nom that book-acc read -before

[V' sono zisyo-o suteta]]] (koto)
that dictionary threw away

(John threw away that dictionary before Mary read that book.)

- c. * $[_S$ sono hon-o $_j$ [$_S$ John-ga [$_{VP}$ [Mary-ga t_j yomu]-maeni
 that book-acc -nom -nom read -before
 $[_{V'}$ sono zisyo-o suteta]]] (koto)
 that dictionary threw away

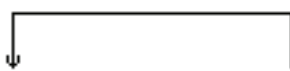
(*That book, John threw away that dictionary before Mary read t_j .)

Thus the facts that e_j in (83c), (91a) and (92a) can be a semantic variable only when the Q-NP has undergone an A'-adjunction operation in syntax and that e_j in those examples is in "islands" to syntactic movement suggest the plausibility of analyzing e_j in such examples as a parasitic gap.⁴⁵

If e_j in (83c), (91a) and (92a) is considered to be a parasitic gap, the fact that it can be a semantic variable comes as no surprise. For while the S-structure in (93) is a typical WCO configuration, the S-structure in (94) is a typical parasitic gap configuration.

(93) [[...overt pronominal;/overt anaphor $_i$...] [Q-NP $_i$...

(94) [Q-NP $_i$ [[... e_j ..] [t_j ...]



A parasitic gap is precisely the gap in the position of e in (94), which becomes a semantic variable bound to Q-NP. As we have seen above, e_j in (83c), (91a) and (92a) appears exactly where e in (94) appears. Thus that e_j in those examples can be a semantic variable is exactly what we expect.

How the properties of parasitic gaps are to be derived from general principles is still controversial; cf. Chomsky (1982) and Safir (1984), for example. It seems clear, however, that no matter how they are to be derived, examples such as (83c), (91a) and (92a) (and for that matter (73), (81) and

(82b) as well) do not affect the force of the argument presented above for the hypothesis that Japanese phrase structure is strictly binary, since the availability of the bound variable interpretation for the empty categories in these examples is quite consistent with this hypothesis, as the preceding discussion indicates.⁴⁶

Consider the examples in (95), which are the same as (73) except the additional brackets and the trace t_j .

(95) a. Kimi-wa [_{VP} dono ningyoo-o_j [_{NP}[_S e_j e_j tukutta]kodomo_i]-ni
 you-top which doll-acc made child -dat
 [_{V'} t_j ageta]]] no
 gave

(Which doll_j did you give to the child who made it_j?)

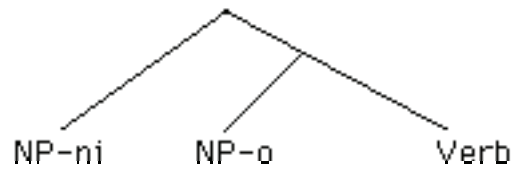
b. Kimi-wa [_{VP} nani-o_j [_{VP} [_{NP}[_S e_j e_j okutte_{kita}]hito_i]-ni
 you-top what-acc sent over person-dat
 [_{V'} t_j okurikaesita]]] no
 sent back

(What_j did you send back t_j to the person that had sent it_j to you?)

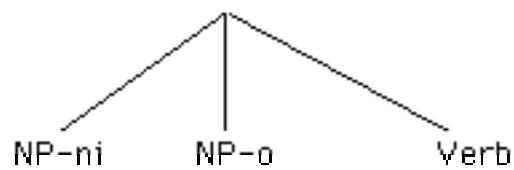
The empty category e_j in (95) is now taken to be a parasitic gap. If the "anti-c-command" requirement is indeed part of the property of the parasitic gap construction (cf. Taraldsen (1981), Engdahl (1983) and Chomsky (1982).) then in (95) t_j should not c-command e_j , due to the presence of the node V' .⁴⁷ This suggests again that the structural relation between NP-ni and NP-o at D-structure is as in (96a) rather than as in (96b), in accordance with the hypothesis that Japanese phrase structure is strictly binary.⁴⁸

(96) (=43))

a.



b.



2.6 Summary

To review the structure of the preceding argument for the hypothesis that the Japanese phrase structure is strictly binary, consider the following schematic structures illustrating a case of possible optional coreference and a case of WCO.

(97) a. [_{NP} John_i-no]-ni kare_i-o V
 -gen -dat he-acc

b. * [_{NP} ...e_i...]-ni dare_i-o V
 -dat who-acc

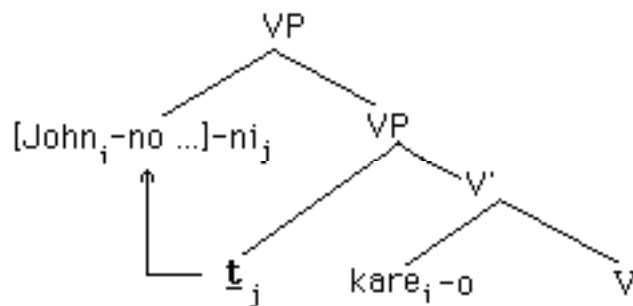
As noted in chapter 1, the possibility of optional coreference in (97a) is taken in Hoji (1982) to suggest that the branching inside the VP is as in (96a), cf. also Saito (1984). In accordance with the structure in (96a), kare 'he' does not c-command John; thus given a condition like (98), optional coreference is expected to obtain.

(98) (=3) in chapter 1)

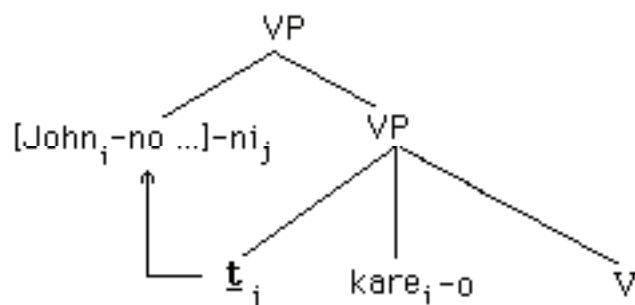
\underline{X} cannot be an antecedent of \underline{Y} if \underline{Y} c-commands X .

As is also noted in chapter 1, the possibility of optional coreference in (97a) does not necessarily mean binary branching inside VP since we are assuming that the VP is a possible adjunction site for "scrambling"; we do not, at the moment, have a reason to exclude either (99a) or (99b) as a possible S-structure representation as far as the adjunction operation illustrated there is concerned.

(99) a.



b.



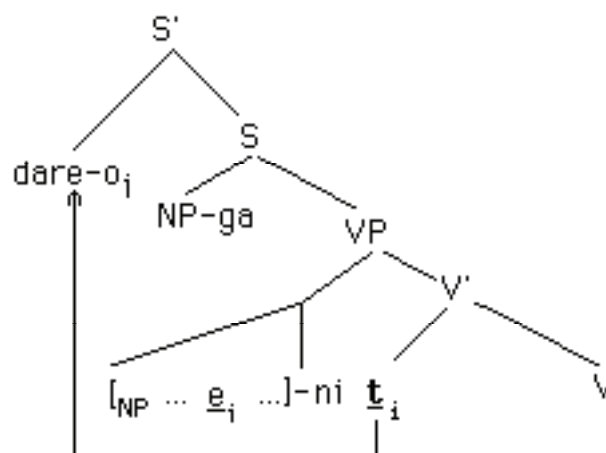
Notice that neither in (99a) nor in (99b) is John c-commanded by kare 'he'.

Thus even with non-binary branching like (99b), the possibility of optional coreference in (97) can be accounted for, given the assumption that the VP is

a possible adjunction site for "scrambling"; cf. chapter 1 for an argument for this assumption.

The argument for binary branching based on the WCO phenomenon, on the other hand, is not affected by the possibility of VP-adjunction. Recall that the unavailability of a bound variable interpretation for e_i in (97b) is accounted for by the assumption that the VP-internal structure is as in (96a). In accordance with (96a), the variable t_i , which is created by the LF wh-movement of dare 'who' does not c-command e_i at LF, as the schematic LF representation in (100) illustrates.

(100)

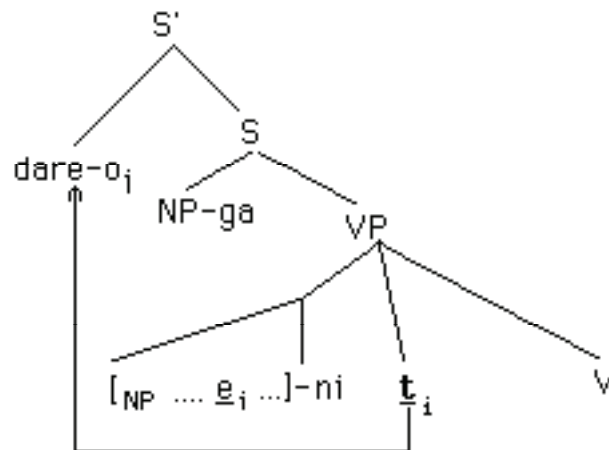


Thus e_i cannot take t_i as its direct antecedent. This means that e_i cannot take dare 'who' as its antecedent since e_i cannot be linked to dare 'who' at LF. Hence the unavailability of the intended bound variable interpretation for it in (97b).

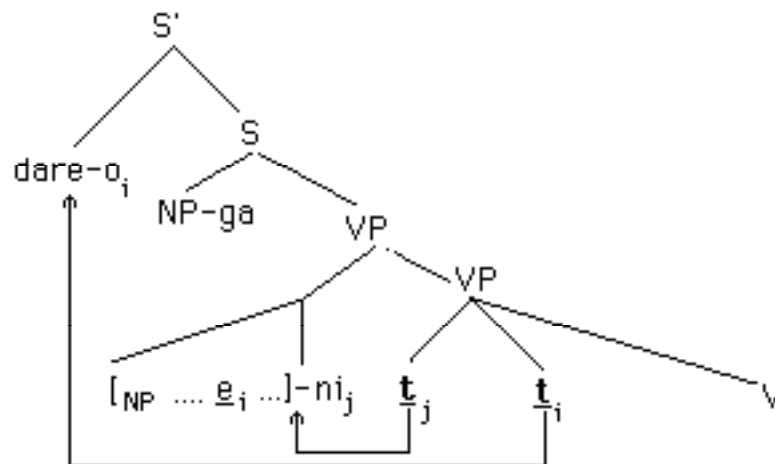
Suppose, on the other hand, the VP-internal branching is as in (96b). The schematic LF representation for (97b) would then be either (101a) or (101b),

depending upon whether the NP-ni has been adjoined to the VP node by "scrambling", i.e., a syntactic adjunction operation.

(101) a.



b.



In (101b), which is obtained by the syntactic VP-adjunction of the NP-ni as well as by the LF wh-movement of dare 'who', the variable t_j fails to c-command e_i . Thus as far as (101b) is concerned, the non-binary VP-internal structure also predicts the unavailability of the bound variable interpretation for e_i in (97b). On the other hand, if (97b) is represented as (101a) at LF, which is obtained

by not VP-adjoining the NP-ni in syntax, it would be predicted that e_i can be construed as a variable bound to dare 'who', since t_i c-commands e_i in (101a).

Notice that given an example of the form in (97b), there must be two possible S-structure representations, corresponding to the LF representations in (101a) and (101b), given the present assumption that the VP-adjunction of NP-ni is possible. This means then that as long as it has an LF representation in which t_i c-commands e_i, an example of the form (97b) should be able to allow a bound variable interpretation for e_i. In fact (101a) is such an LF representation. Thus we predict, incorrectly, that the bound variable interpretation for e_i is allowed in examples of the form (97b).

As we have seen, however, such is not the case. Thus the VP-internal non-binary branching cannot be made consistent with the relevant WCO data, even if we assume that NP-ni in examples like (97) can be VP-adjoined at S-structure. This contrasts with the situation with pronominal coreference, in which the VP-internal non-binary branching can be made consistent with the relevant data by means of the VP-adjunction of NP-ni.

The preceding discussion on the Japanese WCO phenomenon, therefore, presently constitutes the best evidence for the hypothesis that the Japanese phrase structure is strictly binary.

At this point, one might wonder whether the possibility of bound variable interpretation in Japanese is determined solely by the QP preceding the category to be construed as a variable bound to the QP. Such view is in fact descriptively consistent with the data that have been considered in this chapter. Chapter 3 will take up this issue directly.

Footnotes to Chapter Two

¹ As noted in chapter 1, the same conclusion is drawn in Whitman (1982) and Saito (1983a), based on pronominal coreference facts in Japanese. By a VP node, I mean a node that dominates the verb (and object NP(s)) while not dominating the subject NP. It is not crucial for the discussion here whether this node is a maximal projection of V; cf. chapter 1.

² This hypothesis, recently defended extensively in a series of works by Saito (1983a, 1983b, 1985) is, as far as the essential idea is concerned, first proposed explicitly by Harada (1977). Various works in the recent years such as Kuroda (1980), Haig (1980) and Whitman (1982) have also indicated that the word order in (i) is derived from (ii).

(i) A-ga B-o V
 -nom -acc

(ii) B-o A-ga V

It might be noted that Saito's (1985) hypothesis that "scrambling" in Japanese is an instance of Move @, as far as I can tell, is intended to cover "scrambled" sentences in which subcategorized phrases appear in "dislocated" positions. This hypothesis then does not necessarily include the claim that the "free" word order of adverbials is also effected by the application of Move @.

³ The weak crossover phenomenon has been studied extensively in the literature, cf. the references in footnote 14 in chapter 1. The term "weak" is used in contrast to "strong" crossover examples like the following, which have

been said to be "much worse" than the weak crossover examples.

(i)**He_i hates pictures of everyone_i.

(ii)*Who_i does he_i think that Mary hit t_j?

⁴ Recall that the definition of "c-command" adopted in this thesis is Reinhart's (1976) first-branching definition.

X **c-commands** Y if neither dominates the other and the first branching node that dominates X dominates Y.

⁵ When his c-commands t_j, we have cases of strong crossover; see footnote 3 for examples of strong crossover.

⁶ I assume that the rule of Quantifier Raising, cf. May (1977), and LF wh-movement, cf. Aoun, Hornstein and Sportiche (1981), Huang (1982) and Lasnik and Saito (1984), apply in Japanese as well. If one adopts Higginbotham's (1983;396) working hypothesis that "the shape of LF is the same for all languages (apart from the meanings of lexical items)", one must automatically assume that Japanese has such movement operations at LF. I will in fact adopt this hypothesis; however, this is not crucial for the main theme of this chapter, as long as we assume that Japanese has the relevant LF movement.

⁷ In (11) the rule of Quantifier Raising has moved the case markers o and ga along with daremo 'everyone'. Nothing crucial hinges on this at this point.

⁸ For the relevance of "c-command" in the account of WCO, see Reinhart (1983; 5.1), Higginbotham (1980b) and Safir (1984), for example. As far as I can tell, the relevance of "c-command" for WCO is widely agreed upon at the present time within the framework in which this thesis is written; thus I will simply refer the reader to the above mentioned works, as well as Koopman & Sportiche (1982/83) and references cited there. Cf. also Postal (1971), Wasow (1972), Reinhart (1976), Chomsky (1977) and Higginbotham (1980a) for earlier accounts of WCO.

As for the level at which the WCO condition, which will be given in (13), is to apply, I assume that it must apply at least at the level of LF, since the condition refers only to "variables" (and not to "Quantified NPs and wh-traces" as in Reinhart (1983; 122)), which are present, if they are, at least at the level of LF; cf. Koopman and Sportiche (1982/83).

⁹ Questions remain as to the nature of the emphatic use of zibun and as well about why the examples in (16) are low in acceptability. It might be added that examples like (i) seem to have the same acceptability status as Kuno's (1985) example in (15b).

(i) ?[_{NP}Hanako-ga John-o kiratteiru koto]-ga
 -nom -acc dislike fact-nom

Ziroo-o yuuutunisiteiru no?
 -acc has depressed Q

(Lit. Is it true that the fact that Hanako dislikes self_i has depressed John_i?)

When the matrix subject NP is taken to be "exhaustive" in the sense of Kuno (1973) and carries the sense of "not other events but Hanako's disliking John", the example in (i) seems readily acceptable. This is analogous to the situation we had with Kuno's (1985) example in (15b). Thus Kuno's generalization given in (A), if valid at some level of description for the Japanese language, seems not to be restricted to cases of McCawley's backward reflexivization.

¹⁰ However, see discussion in 3.2 in chapter 3, where it is pointed out that wh-phrases can be followed by wa in some cases, cf. also Miyagawa (1984) for discussion of cases in which a wh-phrase can be followed by wa.

¹¹ In fact, this proposal seems to accommodate the "fact" that the emotive sentences under discussion with "backward reflexivization" are less acceptable in embedded sentences, as noted in (16b). Thus while I continue to assume that a condition like (13) is applicable to the grammar of Japanese, I would also suspect that such discourse

fact*****

 *****le interpretation
 for the empty pronominal. Such arguments will be presented in the following sections.

¹² Kuno also discusses examples like the following. The judgments are his.

(i) (=Kuno's (18) in section 6, with additional bracketting for clarity))

a. ?* [NP Zibun_i-ga dare-ni-mo aisarete inai koto]-ga
self-nom anyone-by loved is-not that-nom

[NP Hanako-no okaasan]_i-o yuuutuni site iru
-gen mother-acc depressed making is

(That she_i is not loved by anyone has depressed Hanako's mother_i.)

b. ?*[NP Yooko-ga zibun_i-o kiratte iru koto]-ga
-nom self-o hating is that -nom

[NP hanako-no giri-no ootoo]_i-o zetuboo ni oiyatta
-gen in-law brother-acc despair to drove

(That Yoko disliked him_i drove Hanako's younger brother-in-law_i to despair.)

Kuno reports that:

Acceptability judgment on above sentences is unstable and slippery. To many speakers including myself, [these sentences] are mind-boggling sentences which are difficult to interpret.

He then argues that this is due to a conflict in the speaker's view points.

[The] sentence pattern under discussion requires a high degree of speaker identification with the experiencer. At the same time, the expressions that are used to describe the experiencers, i.e., Hanako no okaasan 'Hanako's mother' and Hanako no giri no ootoo 'Hanako's younger brother-in-law', show that the speaker is identifying himself more with Hanako than with the experiencers. Hence a conflict in the speaker's viewpoint, and

the marginality status of the sentences.

However, I do not find a significant difference between the sentences like (i) and the sentences that we obtain by replacing the matrix object NP's in these sentences with Hanako. I do not understand the source of the "dialectal difference" here. But I would assume at this point that the source of the difference here is related more with non-syntactic factors than with syntactic factors, as can be inferred from Kuno (1985).

¹³ See 4.1 of chapter 4 for more discussion on the quantifier-like properties of plural NP's such as John to Bill 'John and Bill'; cf. also Huang (1982, chapter 4). More examples that illustrate the variable binding by NP dake 'only NP' are provided in Appendix.

¹⁴ See Ueda (1984), Fukui (1984) and Tajima (1985) for recent proposals on zibun.

¹⁵ It is in fact assumed in Saito and Hoji (1983) that a condition like (13) is derivable from general principles in Universal Grammar.

¹⁶ The examples like (i) seem to support the view that the notion "antecedent-of" is to be incorporated as a primitive in linguistic theory, the idea that is implicit in the classical transformational analyses of "pronominalization", such as Lees and Klima (1963) and Langacker (1969).

(i) a. ?John_i-ga John_i-no hon-o suteta (koto)

-nom -gen book-acc threw away
 (??John_i threw away John_i book.)

b. *Kare_i-ga John_i-no hon-o suteta (koto)
 he-nom -gen book-acc threw away
 (*He_i threw away John_i's book.)

In accordance with the binding theory in Chomsky (1981), in which coindexation (but not "antecedent-of") is used in the statement of the relevant conditions, both (ia) and (ib) will be ruled out by Binding Condition (C), which prohibits a Name from being c-commanded by a category that it is coindexed with. Both in (ia) and in (ib), John in John no hon 'John's book' is c-commanded by a category that is coindexed with it, the subject John in the case of (ia) and kare 'he' in the case of (ib). However, (ia) and (ib) differ significantly in their acceptability. While (ib) is hopeless, (ia) is not as bad as (ib). This difference can be accounted for straightforwardly, if we assume a condition like (3) in chapter 1, repeated here as (ii).

(ii) X cannot be an antecedent of Y if Y c-commands X.

Under the assumption that kare 'he' is a category that is referentially dependent on another category, what is violated in (ib) is clearly the condition in (ii). Kare 'he' c-commands its antecedent John. In (ia) on the other hand, the condition in (ii) is not violated under the assumption that it does not make sense to talk about a Name being referentially dependent upon another Name. Leaving aside the question of how to account for the less-than-perfect status of (ia), (cf. Reinhart (1983, chapter 7)) it is clear that the contrast in (i) can be accounted for rather naturally by the employment of the notion "antecedent-of";

cf. Appendix A for another case that supports the incorporation of the notion "antecedent-of" in linguistic theory.

¹⁷ Roughly speaking, A-positions are positions where Name can appear at D-structure and A'-positions are positions that are not A-positions; cf. Chomsky (1981; 47). A'-positions include COMP and positions created by adjunction operations.

¹⁸ Although Linking is among positions, the use of "linking", "linked to" in the following discussion does not necessarily reflect this property of Linking. For example, in the discussion of (26) below, instead of saying, "the position of his is linked to the position of everyone", I sometimes say, "his is linked to everyone". This loose use of the term is simply for ease of exposition, and it does not affect the discussion, as far as I can tell.

¹⁹ The definition of "variable" thus seems equivalent to (i) but not to (ii) in terms of Chomsky (1981,1982).

(i) A category is a variable if it is an ec in an A-position that is locally A'-bound. (Cf. Chomsky (1981,185).)

(ii) A category is a variable if it is in an A-position that is locally A' bound. (Cf. Chomsky (1982; 34) and Koopman & Sportiche (1982/83).)

The definitions for "bound" and "locally bound" given in Chomsky (1981; 184-185) are:

-
- (i) @ is **X-bound** by β if and only if @ and β are coindexed, β c-commands @, and β is in an X-position
 - (ii) @ is **X-free** if and only if it is not X-bound
 - (iii) @ is **locally bound** by β if and only if @ is X-bound by β_x and if ∂ Y-binds @ then either ∂ Y-binds β or $\partial = \beta$
 - (iv) @ is **locally X-bound** by β if and only if @ is locally bound and X-bound by $\underline{\beta}$

The notion "X is bound to Y" is used in this chapter, referring to "X is semantically bound to Y", rather than "x is bound by Y" in the sense of the above definitions from Chomsky (1981).

²⁰ If this is a basically correct characterization of the WCO phenomenon, as I assume it to be the case, examples like (i) discussed in Saito and Hoji (1983) should fall outside the immediately relevant cases of WCO.

- (i) [_S John-_{o_i} [_S [_{NP} Mary-ga kare-_i-o semeta koto]-ga
-acc -nom he -acc criticized fact-nom

[_{VP} _{t_i} odorokaseta]]]
surprised

(John_i, the fact that Mary criticized him_i, surprised.)

Since there is no quantified NP in (i), there simply cannot be a semantic variable in this sentence regardless of the WCO condition in (13).

²¹ In (28) as well as in similar schematic structures that will be given below, Q-NPs include wh-phrases. I assume, following Higginbotham (1983), that the

shape of LF is invariant across languages. Given this assumption, linear order is irrelevant at LF. Thus, (28) does not reflect the linear order of the S node and COMP in Japanese at the other relevant levels of representation. (A wh-phrase presumably moves into COMP, which follows the S node as far as the surface word order is concerned.) As noted before, this assumption is not crucial for the purpose of discussion here.

²² It is suggested, although not stated explicitly in these terms, in Saito and Hoji (1983), however, that when an A'-position is occupied by a referential NP, Linking from an A-position to an A'-position must be allowed.

²³ For various analyses of zibun, see Kuroda (1965), Inoue (1976), McCawely (1976) and many subsequent works including the references in footnote 14.

²⁴ As indicated in (34b), it is, and will be, assumed hereafter, for ease of exposition, that the movement at LF moves the case marker together with the Q-NP. Although this assumption is not without consequences, (and in fact, seems to have undesirable consequences with respect to phenomena that relate to Case and the ECP) its consequences do not affect the discussion in this chapter; cf. Saito (1983b, 1985), Lasnik and Saito (1984).

²⁵ It is an interesting question why overt pronominals like kare and the empty pronominal differ in their ability to be construed as a semantic variable; cf. Montalbetti (1984), in which a universal constraint is proposed that prevents

an overt pronominal from being construed as a bound variable when an empty pronominal can occur in the place of the overt pronominal. One possibility, which is suggested in Kuroda (1965), is to assume that so-called overt pronouns like kare 'he' are not pronominals but referential expressions. Under this assumption, it comes as no surprise that overt pronominals like kare cannot be semantic variables. However, this possibility is not very promising, as things stand, since we have evidence that kare is subject to the condition on referential dependency, as given in (3) in chapter 1. (See chapter 1 for discussion.) This is what we expect if kare is indeed a pronominal.

²⁶ I assume that the putative asymmetry between the subject "zero pronoun" and the object "zero pronoun" noted in Kuroda (1965), which is cited in Huang (1984) and Hasegawa (1984), is not a grammatical contrast. Thus I take both (ia) and (ib) equally grammatical. (A critique on the position taken by Huang (1984) and Hasegawa (1984) is found in Kitagawa (1985) as well as in Whitman (1985).)

(i) a. John_i-ga [s'[s e_i Mary-o butta] to] omotta (koto)
 -nom -acc hit COMP thought

(John_i thought that he_i hit Mary.)

b. John_i-ga [s'[s Mary-ga e_i butta] to] omotta (koto)

(John_i thought that Mary hit him_i.)

See Appendix A for further discussion.

²⁷ The intended pronominal coreference seems to be slightly harder to obtain in (51b) than in (51a), which seems to be reflected in (52). However, I ignore this difference, taking it as due to extra-grammatical factors, which perhaps are related to some sense of parallelism with respect to grammatical functions. See the previous footnote.

²⁸ If e in (i) cannot become a semantic variable bound to Q-NP,

(i) [...e...]NP-O Q-NP-ni V

it will, within the context of the discussion so far, provide another piece of positive evidence for the binary branching hypothesis for Japanese. Such examples will be considered in chapter 3.

²⁹ For the purpose of exposition, it is assumed here that Adjuncts can be base-generated within VP.

³⁰ The structures in (62a) and (62b) are intended to show the D-structure positions of the argument NPs. The case markers are provided in (62) only for the purpose of illustration. How and at what level Case assignment and/or Case realization should take place does not affect the discussion here.

There are two other logically possible structures; one is a structure like (62a) with the NP-o NP-ni order and the other is a structure like (62b) with the NP-o NP-ni order. Arguments have not been explicitly made, as far as I know, for the hypothesis that the NP-ni NP-o is the D-structure order, except for a

possible argument for Case assignment, i.e., that the accusative Case is assigned by the Verb under the condition of strict adjacency; cf. Saito (1983b) for an argument based on Stowell (1981). There is however evidence that NP-ni is "invisible" to this adjacency condition and is ignored, weakening the argument for the NP-ni NP-o order at D-structure based on the phenomenon of Case marker drop.

³¹ Kuroda's examples are more involved. The examples in (63) suffice to make the same point; cf. 4.2 in chapter 4 for further discussion as well as for the examples given in Kuroda (1970).

³² Regarding quantifier scope interpretation, Kuno (1973) proposes generalizations that are slightly different from the ones noted in Kuroda (1970). Although the interpretation I give for a sentence such as (64c) is not exactly the same as the one that Kuno (1973) gives for it, it is compatible with Kuroda's generalizations noted above. Notwithstanding such difference, Kuroda (1970) and Kuno (1973) both observe that the preposing of the object Q-NP over the subject Q-NP affects scope interpretation. See 4.2 of chapter 4 for more detailed discussion.

³³ The judgments are subtle. However, I assume that the reported judgments here reflect the relevant grammatical principles. The same remark holds also of (68) and (69). There seems to be some difference between the S-adjunction of the object NP and the VP-adjunction of the object NP in terms of

their effects on quantifier scope interpretation. The latter seems to be slightly less observant than the former of the generalizations in (65). I have no interesting account of this difference at this point. As will be pointed out in the subsequent chapters, however, such difference between the S-adjunction of the object NP and the VP-adjunction of the direct object NP in terms of their effect on certain semantic interpretations seems to be observed over a range of phenomena.

³⁴ In (71) and wherever it seems appropriate hereafter, I use X' , referring to a node that is a projection of X and that is neither XP nor $X_0 (=X)$. This is solely for the purpose of exposition; and nothing hinges on this as far as the discussion here is concerned.

³⁵ The former also must be within the scope, i.e., within the c-command domain, of the latter at LF. This is basically Koopman and Sportiche's (1982/83, 150) Scope Condition, given in (i), cf. also Reinhart (1983) as well as May (1977).

(i) The Scope Condition

A pronoun may be coindexed with a variable bound by a (quasi-)quantifier (i.e. wh-phrases, quantifiers subject to QR), only if it is in the scope of the (quasi-)quantifier at LF.

³⁶ If (76) applies at S-structure as well as at LF, the (a) linking in (77b) also violates (76). I leave it open here whether (76) applies only at LF, while

⁴⁰ See Taraldson (1981), Engdahl (1983), Chomsky (1982) and subsequent works.

⁴¹ The possibility of analyzing sentences like (83c) as parasitic gap constructions was first pointed out to me by Mamoru Saito (personal communication).

⁴² Examples like (88) are extensively discussed in Saito (1985), where "Scrambling" in Japanese, taken to be a syntactic movement, is shown to be subject to Subjacency, providing support for an earlier proposal in Harada (1977)

⁴³ The example in (90b) is not as bad as (88b) or (89b), presumably due to the property of "picture nouns". (90b) is in fact assumed to be grammatical in Koopman and Sportiche (1982/83), where, incidentally, examples like (87b) is assumed to be ungrammatical contrary to Chomsky (1982). Parasitic gap examples that would better illustrate the point here are abundant in literature. I am abstracting away from the complications that (90b) might pose regarding the point at issue.

⁴⁴ The examples in (i) show that the position of t_j in (91a) and (92a), unlike the position of e_i in these examples, is a possible extraction site.

(i) a. [S sono hon-o_j [S John-ga [VP[NP[S e_i sono ningyoo-o
that book-acc -nom that doll-acc

tukutta] hito_i]-ni [V' t_j ageta]]]] (koto)
made person-dat gave

(That book_j, John gave t_j to the person that made that doll.)

b. [S sono zisyo-o_j [S John-ga [VP[Mary-ga
that dictionary-acc -nom -nom

sono hon-o yomu]-maeni [V' t_j suteta]]]] (koto)
that book-acc read -before threw away

(That dictionary_j, John threw away t_j before Mary read that book.)

⁴⁵ The contrast in (i) also indicates the parallelism between the Japanese examples like (83c), (91a) and (92a) and those that have been analyzed as parasitic gap constructions in English and other languages.

(i) a. [Nani-o_i [Kimi-wa [Mary-ga [S' Bill-ga e_i
what-acc you-top -nom -nom

yonda to] itta]-atode t_j katta no
read COMP said after bought

(What_i did you buy t_j after Mary said that Bill read e_i?)

b. ??[Nani-o_i [Kimi-wa [Mary-ga [S' Bill-ga e_i
what -acc you-top -nom -nom

yonda to] sasayaita]-atode t_j katta no
read COMP whispered-after bought

(*?What_i did you buy t_j after Mary whispered that Bill read e_i?)

Just as the English parasitic gap constructions are sensitive to the bridge/non-bridge verb difference, so are the Japanese examples in (i).

b.??Kimi-wa [_S' John-ga naze Amerika-e kaetta to] sakenda no
 -top -nom why America-to went COMP shouted

(?*Why_i did you shout [that John went back to America t_j]?)

Since the bridge/non-bridge verb distinction does not affect either pronominal coreference or anaphor binding, as shown in (v), the contrast in (i) can be regarded as evidence that parasitic gap constructions involve some kind of movement, as suggested in Contreras (1984).

(v) a. John_i-ga [_S' Mary-ga kare_i-no hon-o nakusita to] itta/sakenda
 -nom -nom he-gen book-acc lost COMP said/shouted

(John_i said/shouted that Mary lost his_i book.)

b. John_i-ga [_S' Mary-ga zibun_i-no hon-o suteta to]
 -nom -nom self-gen book-acc threw away COMP

omotta/sasayaita (koto)
 thought/whispered

(Lit. John_i thought/whispered that Mary threw away self_i's book.)

⁴⁶ One possibility that immediately comes to mind as a possible account of parasitic gaps in the Linking system is to allow free Linking at S-structure, without the provision of "among A-positions". Although it is not without problems, cf. Chomsky (1982), the properties of parasitic gaps seem to follow in such an account, given independent assumptions, without specific reference to parasitic gaps just as in the account of Chomsky (1982).

⁴⁷ It might be worth noting here that the assumption, contrary to the conclusion reached in the text, that there is no V' and \bar{e}_j is c-commanded by t_j in (95)

would still predict the availability of the bound variable interpretation for e_j in these examples. For under this assumption, e_j could become a semantic variable by taking t_j as its antecedent, i.e., no WCO violation. However, as has been discussed above and as will be reviewed directly, such an assumption would make wrong predictions regarding the example that exhibit WCO effects.

⁴⁸ But see Contreras (1984) for an argument against the "anti-c-command" requirement for parasitic gap constructions.

Chapter Three

Movement and Variable Binding in Japanese

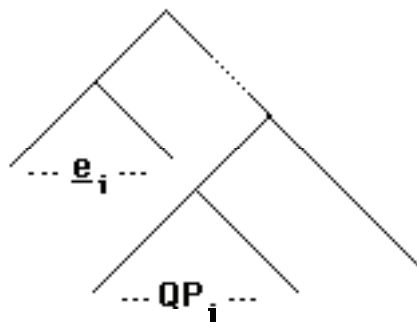
In this chapter, I will first discuss certain constructions that appear to be problematic cases of variable binding for the analysis presented in chapter 2. It will be argued that such constructions are analogous to "reconstruction" examples discussed in Engdahl (1980), van Riemsdijk and Williams (1981), Barss (1984) and Whitney (1984). Since such "reconstruction" examples in English typically involve syntactic movement, the relevant "reconstruction" examples in Japanese will be regarded as further evidence for syntactic movement in Japanese. Based on this result, I will proceed to consider whether Japanese "topicalization" constructions involve syntactic movement. It will be argued that the "semantic" distinction between the "topic" wa-phrase and the "contrastive" wa-phrase, cf. Kuno (1973, chapter 2), can be correlated with a syntactic distinction between them. A proposal will be made that the "topic" wa-phrase is base-generated sentence-initially while the "contrastive" wa-phrase is moved to the sentence-initial position by an S-adjunction operation, either in syntax or at LF. Some consequences of this proposal will then be discussed in the remainder of the chapter.

3.1 "Reconstruction" Effects in Japanese

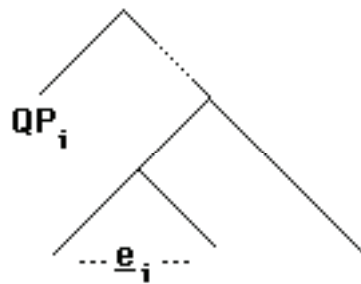
3.1.1 Further Evidence for Syntactic Movement in Japanese

In chapter 2, certain Japanese sentences that seem to exhibit weak crossover effects have been discussed. More specifically, it has been argued there that so-called Japanese "zero pronouns" fail to be construed as variables bound to quantified NP's, including wh-phrases, in configurations that are parallel to those in which the English overt pronominal fails to be so construed. It is further argued there that being an empty category, the Japanese "zero pronoun" can be a parasitic gap in the typical configurations in which parasitic gaps are found. Thus, schematically, the empty pronominal e can be construed as a variable bound to the QP when it appears in S-structure configurations like (1b) and (1c); but it cannot be so construed when it appears in an S-structure configuration like (1a).

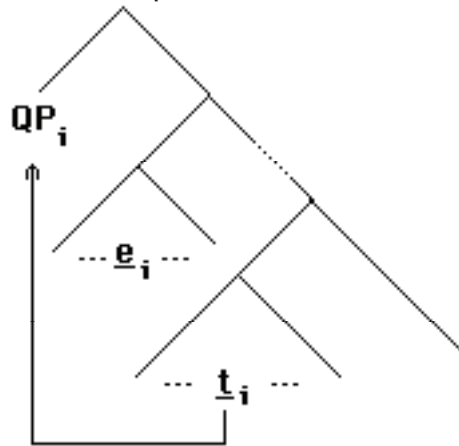
(1) a. Weak Crossover



b. "Normal Variable Binding"



c. Parasitic Gap Constructions



(1a) is the typical configuration for weak crossover. (1b) is the typical case in which the empty pronominal can be construed as a variable bound to the QP. Finally, (1c) is the typical parasitic gap construction with \underline{e} being the parasitic gap. The structures in (1a), (1b) and (1c) are exemplified by (2a), (2b) and (2c), respectively.¹

(2) a. [NP[S \underline{e} \underline{e}_i hitome mita] hito]-ga [VP John_i-o/*daremo_i-o
one glance saw person-nom -acc everyone-acc

sukini natta]
fell in love

(The person that took a glance at him_i fell in love with John_i/*everyone_i.)

- b. John_i-ga / Daremo_i-ga [VP[NP[S e_i e hitome mita] hito]-o
 -nom everyone-nom one glance saw person-acc

sukini natta] (koto)
 fell in love

(John_i/Everyone_i fell in love with the person that he_i took
 a glance at.)

- c. John-o_i / Daremo-o_i [S [NP[S e e_i hitome mita] hito]-ga
 -acc everyone-acc one glance saw person-nom

[VP t_i sukini natta]] (koto)
 fell in love

(Lit. John_i /Everyone_i, the person who took a glance at
 fell in love with.)

Now consider the following:

- (3) a. [S [NP[S e_i e hitome mita] hito]-o_k [S daremo_i-ga
 one glance saw person-acc everyone-nom

[VP t_k sukini natta]]] (koto)
 fell in love

(The person that he_i saw, everyone_i fell in love with.)

- b. [S [NP[S e e_i butta] hito]-o_k [S daremo_i-ga [VP t_k uttaeta]]] (koto)
 hit person-acc everyone-nom sued

(The person that hit him_i, everyone_i sued.)

The bound variable interpretation for e_i is possible in (3). The wh-questions that correspond to the sentences in (3) are given in (4).²

(4) a. [S [NP[S e_i e_j hitome mita] hito]-o_k
 one glance saw person-acc

[S dare_i-ga [VP t_k sukini natta]] no
 who-nom fell in love

(Lit. The person that he_i saw, who_i fell in love with?)

b. [S [NP[S e_i e_j butta] hito]-o_k [S dare_i-ga [VP t_k uttaeta]]] no
 hit person-acc who-nom sued

(Lit. The person that hit him_i, who_i sued?)

The examples in (4), for instance, contrast with those in (5).

(5) a. *[NP[S e_i e_j hitome mita] hito]-ga [VPdare_{i/j}-o sukini natta] no
 one glance saw person-nom who-acc fell in love

(With dare_j: *Who_j did the person that took a glance at him_j fall in love with?)

(With dare_i: *Who_i did the person that he_i took a glance at fall in love with?)

b. *[NP[S e_i e_j butta] hito]-ga [VP dare_{i/j}-o uttaeta] no
 hit person-nom who-acc sued

(With dare_j: *Who_j did the person that hit him_j sue?)

(With dare_i: *Who_i did the person that he_i hit sue?)

The examples in (5) have the weak crossover configuration in (1a). As in the case of (2a), the optional coreference between the empty category, either e_i or e_j , and a referential expression, John, in place of dare 'who' is possible.³

(6) a. [NP[S e_i e_j hitome mita]hito]-ga [VPJohn_{i/j}-o sukini natta] (koto)
 one glance saw person-nom -acc fell in love

(The person that took a glance at him_j fell in love with John_j.)
 (The person that he_i took a glance at fell in love with John_i.)

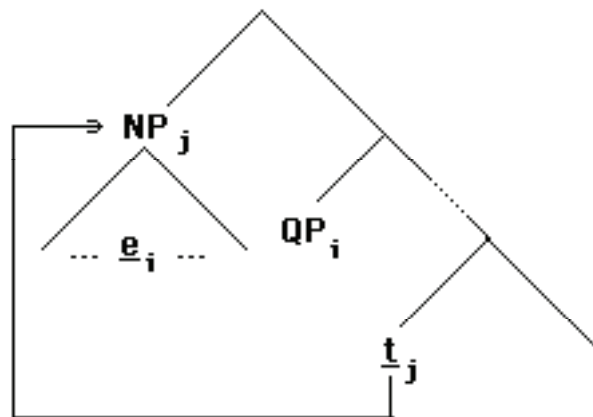
b. [NP[S e_i e_j butta] hito]-ga [VPJohn_{i/j}-o uttaeta] (koto)
 hit person-nom -acc sued

(The person that hit him_j sued John_j.)
 (The person that he_i hit sued John_i.)

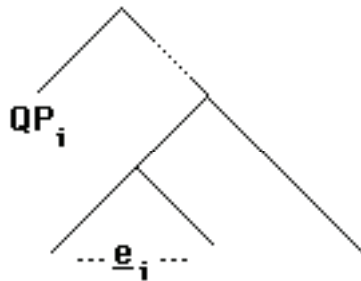
As in the case of (2c), the preposing of the wh-phrase to the sentence-initial position will make it possible for the empty category in (5), i.e., e_i , or e_j , to be construed as a variable bound to dare 'who' with the empty category being a parasitic gap, cf. the configuration in (1c).⁴

Recall that in the examples in (3) and (4), the relevant empty categories can be construed as bound variables. However, the availability of the bound variable interpretation in these examples cannot be accounted for either as instances of "normal variable binding" or the "parasitic gap construction." This is so because their schematic S-structure configuration, given in (7), is distinct from both (1b) and (1c), repeated below.

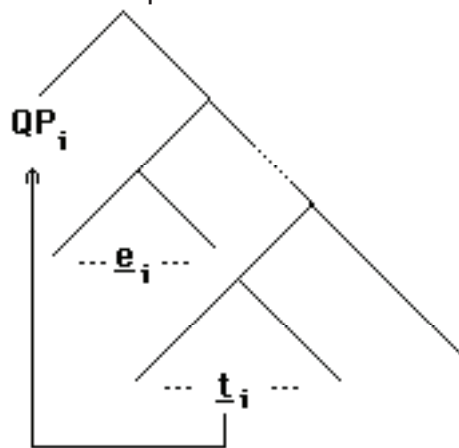
(7)



(1) b. "Normal Variable Binding"



c. Parasitic Gap Constructions



Thus the fact that e_i can be construed as a variable bound to QP_i in the examples in (3) and (4), which are of the S-structure configuration in (7), might be regarded as problematic for the analysis of variable binding in Japanese

presented in chapter 2.

In this section, and in fact throughout this study, I will not try to propose a general account of the bound variable interpretation for e_i in (7). What I will attempt to do instead is to relate the phenomenon in question to a more general phenomenon that seems to involve syntactic movement, which, as I will argue below, will have some interesting consequences.

The configuration in (7) is quite reminiscent of such examples as (8), discussed in Engdahl (1980), cf. also van Riemsdijk & Williams (1981), Barss (1984) and Whitney (1984).⁵ Thus consider the following:

(8) a. Which of his_i own books did every author_i recommend?

(Engdahl; 1980, 190)

(Answer: His last book.)

b. Which friend of his_i father did everyone_i attack?

(Answer: A linguist friend of his father (as opposed to a musician friend of his father))

As noted in Engdahl (1980), his_i in (8) can be construed as a variable bound to everyone_i.⁶ The example in (9) contrasts with that in (8b).⁷

(9) *Which friend of his_i father attacked everyone?

The example in (9) essentially has the S-structure configuration given in (1a) (the weak crossover configuration). On the other hand, the examples in (8), ignoring the linear order between the verb and the object NP, essentially have the S-structure configuration given in (7), which might be called the "reconstruction" configuration. It seems that to the extent that the contrast

between (8) and (9) can be attributed to whether the wh-phrase has been moved across the quantifier at S-structure, the contrast between (3) and (4) on the one hand and (5) on the other can also be attributed to the same difference. The crucial difference then is as follows: (5) and (9) have the structure in (10a), while (3), (4) and (8) have the structure in (10b) at the level of S-structure.

(10) a. Weak Crossover (order irrelevant)

*?[[A ... e_i/he_i ...] [... QP_i ...]]

b. "Reconstruction" (order irrelevant)

[[NP ... e_i/he_i ...]_j [QP_i [... t_j ...]]]

In (10a), A could be an adjunct, the subject NP or the indirect object NP, as discussed in chapter 2.

Thus, if we assume that (11a) is derived from (11b) as illustrated in (11c),

(11) a. NP-o NP-ga V

b. NP-ga NP-o V

c. [_S NP-o_i [_S NP-ga t_i V]]

the bound variable interpretation of the relevant empty categories in (3) and (4) is exactly what we expect, in the light of the availability of the bound variable interpretation for his in the English examples in (8). The relevant bound variable interpretation in (3) and (4), therefore, can be regarded as further evidence for the movement analysis of "scrambled" sentences of the

form (11a).

We have thus observed that if a given example has an S-structure representation like (12), e can be construed as a variable bound to the QP.

(12) [A [NP ... e ...]_j [A QP [... t_j ...]]]

In the relevant examples in the preceding discussion, namely (3) and (4), A in (12) is S and the QP is a subject NP, as in (13a).

(13) a. [S [NP ... e ...]-o_j [S QP-ga [... t_j ...]]]

b. [S [NP ... his ...]_j [S QP-ga [... t_j ...]]]

I have argued that the possibility of the bound variable interpretation for e in (13a) is as expected if (13a) is analyzed as an instance of "reconstruction" example. Notice that the "reconstruction" examples in English such as (8) are of the form (13b), which is identical to (13a) in terms of the relevant structural relations between the pronominal and the QP.

Let us now consider the cases in which A in (12) is VP. It has been argued in 2.4 of chapter 2, that (14a) is derived from (14b) by the VP-adjunction of the NP-o, as indicated in (14c).

(14) a. NP-ga NP-o NP-ni V

b. NP-ga NP-ni NP-o V

c. [S NP-ga [VP NP-o_i [VP NP-ni [V' t_i V]]]]

Suppose that in (14c) the NP-o contains an empty pronominal and the NP-ni is a QP, as in (15). The resulting structure then contains precisely the structure

in (12), with A being VP.

(15) [S NP-ga [VP [NP ... e ...]-oi [VP QP-ni [V' t_i V]]]]

We thus predict that the empty pronominal e in (15) can be construed as a variable bound to the QP-ni, contrasting, for example, with the structure given in (16), which has been analyzed as a typical case of weak crossover in Japanese.

(16) [S NP-ga [VP [NP ... e ...]-ni [V' QP-o V]]]

I will argue below that although the judgments tend to be more subtle than in the case of (3), (4) and (5), a significant difference is observed, confirming this prediction, between examples of the form (15) and those of the form (16) in terms of the possibility of the bound variable interpretation for e.

In 2.4 of chapter 2, I have presented examples like the following.

(17) a. *Kimi-wa [VP [NP[S e_i e_j okutte_ikita] hito_i]-ni [V' nani_j-o
 you-top sent over person-dat what -acc
 okurikaesita]] no
 sent back

(What_j did you send back t_j to the person that had sent it_j to you?)

b. Kimi-wa [VP nani_j-o [VP [NP[S e_i e_j okutte_ikita] hito_i]-ni
 you-top what-acc sent over person-dat
 [V' t_j okurikaesita]]] no
 sent back

(What_j did you send back t_j to the person that had sent it_j to you?)

It has been observed that the bound variable interpretation for e_j is possible in (17b) but not in (17a). Examples like (17a) have been contrasted not only with examples like (17b) but also with such examples like (18), in which e_j can be bound to dare 'who'.

(18) Kimi-wa [VP dare_j-ni [V' [NP[S e_j e_i okutte_{kita}] honi_i-o
 you-top who-dat sent over book-acc
 okurikaesita]] no
 sent back

(Lit. Who_j did you send t_j back the book that he_j had sent to you?)

In chapter 2, the (a) example and the (b) example in (17) have been analyzed as an instance of weak crossover and as an instance of the parasitic gap construction, respectively. The possibility of the bound variable interpretation for e_j in (18) is as expected since it is c-commanded by the wh-phrase dare 'who' at the level of S-structure, thereby satisfying the WCO condition at LF. (That is, the empty pronominal e will be c-commanded by the trace of dare 'who' at LF after the LF movement of dare has taken place.)

The pair of examples in (19) illustrates the same contrast as in (17).⁸

(19) a. *Kimi-wa [S' John_j-ga [VP [NP[S e_j (nagai aida) [VP e_i [V' e_k kasiteita]]]
 you-top -nom (for a long time) loaned
 hito_i]-ni [V' (ittai)nani_k-o utta]] ka] sitteimasu ka
 person-dat what(the hell)-acc sold Q know Q

(Lit. Do you know what_k (the hell) John_j sold to [the person that he_j had loaned it_k (for a long time)]?)

- b. Kimi-wa [S'John_j-ga [VP (ittai)nani-o_k [VP [NP[S e_j (nagai aida)
 you-top -nom what(the hell)-acc (for a long time)
- [VP e_i [V' e_k kasiteita]]] hito_i]-ni [V' t_k utta]] ka] sitteimasu ka
 loaned person-dat sold Q know Q
- (the same as (19a))

Just as (17a) contrasts with (18) (as well as with (17b)), so (19a) contrasts with (20) (as well as with (19b)).

- (20) Kimi-wa [S'[S'John_j-ga [VP (ittai)dare_i-ni [V' [NP[S e_j (nagai aida)
 you-top -nom who(the-hell)-dat (for a long time)
- [VP e_i [V' e_k kasiteita]]] hon_k]-o utta]]] ka] sitteimasu ka
 loaned book-acc sold Q know Q

(Lit. Do you know to whom_i (the hell) John_j sold [the book that he_j had loaned to him_i (for a long time)]?)

The prediction now under consideration is that, due to the effects of "reconstruction", the intended bound variable interpretation for e_j in (18) and for e_i in (20) will still be available after the object NP is preposed to the VP-initial position. As the examples in (21) and (22) indicate, this appears to be a correct prediction.⁹

- (21) (Cf. (17a).)
 Kimi-wa [VP [NP[S e_j e_i okuttekita] hon_i]-o_k [VP dare_j-ni [V' t_k
 you-top sent over book-acc who-dat
- okurikaesita]]] no
 sent back

(Who_j did you send t_j back the book that he_j had sent to you?)

(22) (Cf. (19a).)

?Kimi-wa [s'[sJohn_j-ga [VP [NP[s e_j (nagai aida) [VP e_i [V' e_k kasiteita]]]]]
 you-top -nom (for a long time) loaned

hon_k]-o_i [VP (ittai)dare_i-ni [V' t_j utta]] ka] sitteimasu ka
 book-acc who(the-hell)-dat sold Q know Q

(Lit. Do you know to whom_i (the hell) John_j sold [the book that he_j had loaned to him_i (for a long time)]?)

The judgments are not entirely clear. In fact, I find variable binding in (21) and (22) slightly more difficult to obtain than in (17b), (18), (19b) and (20). But it appears that the bound variable interpretation for the relevant empty pronominal is more readily available in (21) and (22) than in (17a) and (19a), despite the fact that the wh-phrase is preceded by the relevant empty pronominal in all of these examples.

The examples in (23), in which a quantificational phrase A ka B 'A or B' is used, also exemplify the same contrast.

(23) a. John_j-ga [VP [Bill ka Sam]_i-ni [V' [NP[s e_j (nagai aida)
 -nom or -dat (for a long time)

[VP e_i [V' e_k kasiteita]]] zitensya_k]-o utta] (koto)
 loaned bicycle-acc sold

(Lit. John_j sold [Bill or Sam]_i the bicycle that he_j had loaned to him_i (for a long time).)

- b. *John_j-ga [VP [NP[S' e_j (nagai aida) [VP e_i [V' e_k kasiteita]]] hito_i]-ni
 -nom (for a long time) loaned person-dat

[V' [IBM ka Apple]_k-o utta] (koto)
 or -acc sold

(Lit. John_j sold [IBM or Apple]_k to the person that he_j had loaned it_k (for a long time).)

- c. John_j-ga [VP [IBM ka Apple]-o_k [VP [NP[S' e_j (nagai aida) [VP e_i [V' e_k
 -nom or -acc (for a long time)

kasiteita]]] hito_i]-ni [V' t_k utta]]] (koto)
 loaned person-dat sold

(Lit. John_j sold [IBM or Apple]_k to the person that he_j had loaned it_k (for a long time).)

- d. ?John_j-ga [VP [NP[S e_j (nagai aida) [VP e_i [V' e_k kasiteita]]]
 -nom (for a long time) loaned

zityensya_k-o_i [VP [Bill ka Sam]_i-ni [V' t_j utta]]] (koto)
 bicycle-acc or -dat sold

(Lit. John_j sold [Bill or Sam]_i the bicycle that he_j had loaned to him_i (for a long time).)

Although (23d) is not as acceptable as its "pre-scrambled" version in (23a), with the intended bound variable interpretation for e_i, it is much better than (23b).

We have observed that the bound variable interpretation for e_j is possible in (24a) but not in (24b).

(24) a. NP-ga [NP ... e_j ...]-o QP_j-ni V

b. *NP-ga [NP ... e_j ...]-ni QP_j-o V

This is precisely what we expect since (24a) and (24b) are assumed to have (25a) and (25b) as their respective S-structure representations.

- (25) a. [S NP-ga [VP [NP ... e_j ...]-o_i [VP QP_j-ni [V' t_i V]]]]
 b. *[S NP-ga [VP [NP ... e_j ...]-ni [V' QP_j-o V]]]

The possibility of the bound variable interpretation for e_j in (25a) is predicted since (25a) is of the "reconstruction" pattern in (12), repeated here as (26).

- (26) [A [NP ... e ...]_j [A QP [... t_j ...]]]

To the extent that the variable binding in (24a) is accounted for by assuming its S-structure to be derived by the VP-adjunction of the object NP, as in (25a), the possibility of variable binding in (24a) constitutes further evidence for the hypothesis that the NP-o NP-ni order is derived from the NP-ni NP-o order by an adjunction operation, cf. Saito (1985).

The possibility of variable binding in examples of the form (26), such as (3), (4), (21), (22) and (23d) is also significant since it provides us with strong evidence that the relevant condition for variable binding cannot simply be stated in terms of the surface linear order of the QP and the empty pronominal. At the end of chapter 2, I have pointed out that the data that have been considered up to then are, descriptively, consistent with the linear analysis of variable binding, namely that variable binding is possible if the QP precedes the "zero pronoun" at the level of S-structure. However, given Higginbotham's (1983) working hypothesis, which is adopted in this study, that the form of LF is invariant across languages, and given the assumption that

variable binding is an LF phenomenon, the linear analysis of variable binding is conceptually unacceptable. (Conditions that apply at LF cannot refer to "precedence" since the properties of LF are assumed to be invariant across languages and since languages obviously can differ in the linear order of constituents.) The possibility of variable binding in (26), as viewed in these terms, can then be thought of as providing empirical grounds for rejecting the analysis of variable binding that is solely based on surface linear order of the QP and the empty pronominal.

It might be noted here that the "reconstruction" phenomenon in Japanese is also observed in the case of anaphor binding as illustrated by the following examples; cf. Kuno (1973), Muraki (1974) as well as Saito (1985, chapter 2, footnote 27) for discussion on examples like (28).

(27) a. John_i-ga [NP sono zibun_i nituite-no hon]-o suteta (koto)
 -nom that self about book-acc threw away

(John_i threw away that book about himself.)

b. John_i-ga [NP[S Mary-ga zibun_i -ni kureta] hon] -o suteta (koto)
 -nom -nom self-dat gave book-acc threw away

(John_i threw away the book that Mary gave him_i.)

(28) a. [S[NP sono zibun_i nituite-no hon]-o]_j [S John_i-ga [VP t_j suteta]] (koto)
 that self about book-acc threw away

(That book about himself_i, John_i threw away.)

b. [S [NP[S Mary-ga zibun_i-ni kureta] hon]-o]_j
 -nom self-dat gave book-acc

[S John_i-ga [VP t_j suteta]]] (koto)
 -nom threw away

(The book that Mary gave him_i, John_i threw away.)

The examples in (27) are typical cases of anaphor binding. The examples in (28), which are obtained by preposing the matrix object to the sentence-initial position, also allow the anaphor binding, just as in the case of the English translation for (28a).¹⁰ The anaphor binding in (28) can be accounted for straightforwardly as instances of "reconstruction", if we assume that the examples in (28) are derived from those in (27), as is in fact indicated in (28).^{11, 12} Thus examples like (28) can also be viewed as further evidence for the movement analysis of "scrambled" sentences in Japanese.

In this subsection, I have argued that the availability of bound variable interpretation for e_j in (29) provides us with further evidence for the movement analysis of "scrambled" sentences in Japanese.

(29) Cf. (3) and (4).

[S [... e_j ...]-o]_j [S QP_i-ga [VP t_j V]]]
 -acc -nom

We have also seen that the same type of evidence can be drawn from the anaphor binding in (30).

(30) Cf. (28).

$$[s [\dots \underline{zibun}_i \dots]-o_j [s QP_i-ga [VP t_j V]]]$$

-acc -nom

3.1.2 Topic Constructions in Japanese

In 3.1.1, I have argued that the possibility of the binding relations in (29) and (30) constitutes evidence for the movement of the matrix object NP across the subject NP. If the possibility of binding in configurations in (29) and (30) is indeed a diagnosis of movement, we should be able to check whether Japanese topic constructions such as (31) involve the movement of NP-wa across the subject NP.

(31) Hon-wa John-ga katta
 book-top -nom bought

(As for books, John bought them.)

Consider the structures in (32).

(32) a. [...e...]-wa QP-ga V
 -top -nom

b. [...zibun...]-wa NP-ga V
 -top -nom

If the NP-wa that assumes the object function has been preposed across NP-ga, we expect that e in (32a) can be construed as a variable bound to QP and that zibun in (32b) can take the subject NP as its antecedent, on a par with the variable/anaphor binding in (29) and (30). If the NP-wa has not been moved

across the subject NP, on the other hand, we expect that such binding relations cannot hold in (32), since (32a) then exemplifies the WCO pattern in (10a) (and (32b) fails to meet the c-command requirement for anaphor binding).

The relevant examples for variable binding are given in (33). Compare (33a) and (33b) with (34a) and (34b), respectively.

(33) a. * $[_{NP}[_{S} \underline{e}_i \text{ sono mise-de hitome } \underline{e} \text{ mita}] \text{ hito}]_j\text{-wa}$
 that store-at one glance saw person-top

daremo_i-ga sukini natta
 everyone-nom fell in love

(*As for [the person that he_i saw in that store]_j, everyone_i fell in love with him_j.)

b. * $[_{NP}[_{S} \underline{e} \underline{e}_i \text{ butta}] \text{ hito}]_j \text{-wa dare}_i\text{-ga uttaeta no}$
 hit person-top who-nom sued

(*As for [the person that hit him_i]_j, who sued him_j?)

(34) a. (Cf. (3a).)

$[_{S} [_{NP}[_{S} \underline{e}_i \text{ sono mise-de hitome } \underline{e} \text{ mita}] \text{ hito}]\text{-o}_k$
 that store-at one glance saw person-acc

$[_{S} \text{ daremo}_i\text{-ga } [_{VP} \underline{t}_k \text{ sukini natta}]]$ (koto)
 everyone-nom fell in love

(The person that he_i saw in that store, everyone_i fell in love with.)

b. (=4b)

$[_{S} [_{NP}[_{S} \underline{e} \underline{e}_i \text{ butta}] \text{ hito}]\text{-o}_k \text{ } [_{S} \text{ dare}_i\text{-ga } [_{VP} \underline{t}_k \text{ uttaeta}]]]$ no
 hit person-acc who-nom sued

(Lit. The person that hit him_i, who_i sued?.)

In (33) with the normal "topic" interpretation, unlike in (34), e_i cannot be construed as a variable bound to the QP. This suggests that the schematic S-structure representation for (33) is (35a) rather than (35b).

(35) a. [[... e_i ...]_j-wa [_S QP-ga [_{VP} e_j V]]]

b. [_S [... e_i ...]-wa_j [_S QP-ga [_{VP} t_j V]]]

c. John_j-wa [_S Mary-ga [_{VP} e_j butta]]
 -top -nom hit

(As for John_j, Mary hit him_j.)

d. [_S John-o_j [_S Mary-ga [_{VP} t_j butta]]]
 -acc -nom hit

(John_j, Mary hit t_j .)

The empty category e_i in (35a) is an empty pronominal that is "bound to" the topic phrase, as in (35c), whereas the empty category t_j in (35b) is a trace "left behind" by the movement of NP-wa, analogous to (35d); cf. Perlmutter (1972), Kuno (1973, chapter 21) and Saito (1985, chapter 4).

As illustrated in (36), the anaphor binding test also indicates that the topic phrase has not been moved across the subject NP. (The examples in (36) are to be compared with those in (28).)

(36) a. *_{[NP} Sono zibun nituite-no hon]_j-wa John_i-ga suteta
 that self about book-top -nom threw away

(As for [that book about himself]_j, John_i threw it away.)

- b. *[NP[S Mary-ga zibun_i-ni kureta] hon]_j-wa John_i-ga suteta
 -nom self-dat gave book-top -nom threw away

(As for [the book that Mary gave him_i]_j, John_i threw it_j away.)

The fact that zibun cannot be bound to John in (36), cf. (28), thus establishes that the schematic S-structure representation for (36) is (37a) rather than (37b).

(37) a. [[... zibun...]]_j-wa [S NP-ga [VP e_j V]]¹³

b. [S [... zibun...]]-wa_j [S NP-ga [VP t_j V]]

At this point, one might wonder whether it is possible at all in (38) that @ be referentially dependent on β.

(38) [... @ ...]-wa [S ... β ...]

If it is the case that @ cannot be referentially dependent on β in a configuration like (38) in general, the impossibility of the relevant binding relation in (33) and (36), one might argue, would not necessarily mean that NP-wa has not been moved across the subject NP in such topic constructions. Examples like (39), however, immediately show that it is possible for @ to be referentially dependent on β in (38).

(39) a. (Cf. (33b).)

[NP[S e kare_i-o butta] hito]_j-wa John_i-ga uttaeta
 he-acc hit person-top -nom sued

(As for [the person that hit him_i]_j, John_i sued him_j.)

b. (Cf. (36b).)

[NP[S Mary-ga kare_i-ni kureta] hon]_j-wa John_i-ga suteta
 -nom he-dat gave book-top -nom threw away

(As for [the book that Mary gave him]_j, John threw it_j away.)

c. (Cf. (33a).)

[NP[S e_i sono mise-de hitome e mita] hito]_j-wa
 that store-at one glance saw person-top

John_i-ga sukini natta
 -nom fell in love

(As for [the person that he_i saw in that store]_j, John_i fell in love with him_j.)

The structures in (40) are intended to summarize the data that we have considered so far. In (40), NP stands for a referential NP, as opposed to a quantificational phrase, which is represented by QP.

(40) a. Cf. (3), (7) and (28).

[S [... e_i/zibun_j ...]-o_k [S QP_i-ga/NP_j-ga [VP t_k V]]]

b. Cf. (33) and (36).

*[[... e_i/zibun_j ...]_k-wa [S QP_i-ga/NP_j-ga [VP e_k V]]]

c. Cf. (39).

[[... e_i/kare_i ...]_k-wa [S NP_i-ga [VP e_k V]]]

Although we have only considered the e-QP and the zibun-NP combinations in the preceding pages, the e-NP combination as well as the zibun-QP combination also allow the intended binding in (40a). In other words, in the configurations of (40a), the optional coreference between e and NP is possible and zibun can be construed as a variable bound to QP. By contrast, no

combination of e/zibun and QP/NP in (40b) yields legitimate binding under consideration.¹⁴ (40c) illustrates that optional coreference is possible between NP and the pronominal in the wa-phrase.

Contrasts similar to the ones observed in (40) are found in English as well, as discussed in Barss (1984), for example. Thus consider the following.¹⁵

- (41) a. Publication of each other_i's papers, John and Bill_i are planning on.
- b. Stories about each other_i, John and Bill_i wrote up during the trip to San Francisco.
- a'. *?As for publication of each other_i's papers, John and Bill_i are planning on it.
- b'. *?As for stories about each other_i, John and Bill_i wrote them up during the trip to San Francisco.
- a".As for publication of their_i papers, John and Bill_i are planning on it.
- b".As for stories about them_i, John and Bill_i wrote them up during the trip to SF.
- (42) a. His_i own paper, everyone_i typed.
- b. Stories about his_i father, everyone_i wrote up during the trip to SF.
- a'. *As for his_i own paper, everyone_i typed it.
- b'. *As for stories about his_i father, everyone_i wrote them up during the trip to SF.

The contrast in (41) and (42) suggests that the Japanese "topicalization" is analogous to the English as for construction in not involving movement, while "scrambling" in Japanese is analogous to topicalization in English in involving movement, the conclusion Saito (1985) draws.

The impossibility of variable binding and anaphor binding in the topic constructions in (33) and (36), I thus take as further evidence for the hypothesis that such topic constructions do not involve the movement of NP-wa across the subject NP, supporting Kuno's (1973) analysis of the topic construction in Japanese.

3.1.3 Conclusion

In this section, I have argued that the possibility of the bound variable interpretation for e_i in (43) supports the movement analysis of the Japanese "scrambled" sentences.¹⁶

(43) [... e_i ...]-o QP_i-ga V
 -acc -nom

It has also been noted that the possibility of anaphor binding in (44) points to the same conclusion.

(44) [... zibun_i ...]-o NP_i-ga V
 -acc -nom

We have then observed that unlike (43) and (44), the topic construction in (45) does not allow such binding relations.

(45) [... e_i /zibun_i ...]-wa QP_i/NP_i-ga V
 -top -nom

This was taken to support the non-movement analysis of the Japanese topic construction, proposed in Kuno (1973, chapter 21).

3.2 Topic and Contrastive WA-Phrases

In 3.1, I have argued from the lack of anaphor/variable binding in certain constructions that (46) is not derived from (47a) nor from (47b) by the preposing of the wa-phrase but that the wa-phrase in (46) is base-generated sentence-initially, supporting the proposal made by Kuno (1973).

(46) John-wa Mary-ga butta
 -top -nom hit

(As for John, Mary hit him.)

(47) a. Mary-ga John-wa butta
 -nom -top hit

b. Mary-ga John-o butta
 -nom -acc hit

It seems at first glance that this result is incompatible with Saito's (1985) conclusion that the sentence-initial NP-wa can either be base-generated there or be preposed to that position by an adjunction operation. According to Saito (1985), (46) can be represented either as in (48a) or as in (48b).

(48) a. John_i-wa [_S Mary-ga e_i butta]
 -top -nom hit

b. [_S John-wa_i [_S Mary-ga t_i butta]]
 -top -nom hit

In this section, I will argue that the result in 3.1 is not only compatible with but also supports Saito's conclusion, given an appropriate interpretation of his proposal.

3.2.1 PP Topics and Saito's Proposal

Saito's proposal that topic NP's can either be base-generated at the sentence-initial position or be moved there by syntactic movement is based on certain properties of PP topic constructions. He observes that while NP "topicalization" does not exhibit subjacency effects, PP "topicalization" does. Thus consider the following examples, cf. Saito (1985, chapter 4).

(49) a. John-ga Pekin-o yoku sitteiru
 -nom Peking-acc well know

(John knows Peking well.)

b. Pekin-wa John-ga yoku sitteiru
 -top -nom well knows

(As for Peking, John knows it well.)

(50) a. John-ga Pekin-ni nandomo itta
 -nom -to many times went

(John went to Peking many times.)

b. Pekin-ni-wa John-ga nandomo itta
 -to-top -nom many times went

(49b) is an example of an NP topic while (50b) is an example of a PP topic.

The (b) examples in (51) and (52) illustrate that PP "topicalization" as well as

NP "topicalization" are possible "out of" an embedded S' as long as it is not "out of" an island, for example, a relative clause.

(51) a. John-ga [S' Bill-ga Pekin-o yoku sitteiru to] omotteiru
 -nom -nom -acc well knows COMP is thinking

(John thinks that Bill knows Peking well.)

b. Pekin-wa_i John-ga [S' Bill-ga e_i yoku sitteiru to] omotteiru
 -top -nom -nom well knows COMP is thinking

(As for Peking, John thinks that Bill knows it well.)

(52) a. John-ga [S' Bill-ga Pekin-ni nandomo itta to] omotteiru
 -nom -nom -to many times went COMP is thinking

(John thinks that Bill has been to Peking many times.)

b. Pekin-ni-wa_i John-ga [S' Bill-ga e_i nandomo itta to]
 -to-top -nom -nom many times went COMP

omotteiru
 is thinking

The example in (53) as well as (51b) and (52b) indicate that the sentence-initial wa-phrase can be associated with a gap that is embedded more deeply than one S'.

(53) (based on Saito's (71b) in chapter 4)

Hirosima-kara-wa_i [S minna-ga [S' hito-ga e_i oozei
Hiroshima-from-top all-nom person-nom many

kuru daroo to] yosoosite ita]
come will COMP anticipating was

(Everyone was anticipating that many people would come from Hiroshima.)

The crucial difference between the NP-topic and the PP-topic that Saito observes is illustrated by the contrast between (54b) and (55b).

(54) a. John-ga [NP[S e_i Pekin-o yoku sitteiru] hito_i]-o sagasiteiru
-nom -acc well knows person-acc is looking for

(John is looking for a person who knows (about) Peking well.)

b. Pekin_j-wa John-ga [NP[S e_i e_j yoku sitteiru] hito_i]-o
-top -nom well knows person-acc

sagasiteiru
is looking for

(As for Peking, John is looking for a person who knows (about) it well.)

(55) a. John-ga [NP[S e_i Pekin-ni nandomo itta] hito_i]-o
-nom -to many times went person-acc

sagasiteiru
is looking for

(John is looking for a person who has been to Peking many times.)

b.*Pekin-ni-wa_j John-ga [NP[S e_i e_j nandomo itta] hito_i]-o
-to-top -nom many times went person-acc

sagasiteiru

is looking for

The ungrammaticality of (55b), Saito argues, is analogous to that of (56), in which subjacency is violated by the movement of Pekin-o 'Peking-acc'.

(56) *?[_S Pekin-o_j [_S John-ga [_{NP}[_S e_i t_j yoku sitteiru] hito_i]-o
 -acc -nom well knows person-acc
 sagasideiru]]
 is looking for

(*Peking, John is looking for a person who knows well.)

The reason why (54b) is grammatical while (55b) is ungrammatical is that NP-(wa) but not PP-(wa) can stand in the "aboutness relation" with the following S, thereby being "licensed". Thus, according to Saito, (54b) is grammatical because it is possible for NP-wa to be base-generated sentence-initially although the movement of the wa-phrase out of the relative clause would have violated subjacency. On the other hand, (54b) is ungrammatical because PP-wa, not being able to be base-generated sentence-initially so as to have the "aboutness relation" with the following S, must have been moved from inside the complex NP violating Subjacency. Based on this observation, among others, Saito concludes that PP-wa in examples like (51b), (52b) and (53) must have been also preposed to the sentence-initial position. He further concludes that as far as NP-wa in (49b) and (51b) are concerned, they can either be base-generated, holding an "aboutness relation" with the following S, or be preposed to the sentence-initial position from the "preverbal" position.

3.2.2 PP-wa as Contrastive

We have seen evidence from Saito (1985) that the sentence initial PP-wa has been moved to that position. In this subsection, I will point out that PP-wa tends to be "contrastive", regardless of where it occurs in a sentence and try to relate the "contrastive" reading of the wa-phrase with syntactic preposing.

3.2.2.1 Contrastive and Topic WA-Phrases

Kuno (1973; chapter 2) discusses "thematic" and "contrastive" wa. What we have been calling "topic" wa corresponds to Kuno's "thematic" wa. The semantic difference between the "topic" wa-phrase and the "contrastive" wa-phrase is essentially that the former means "as for..." while the latter means "not others but ..." or "at least ...", cf. Kuroda (1965), Kuno (1973) and Saito (1985). Roughly, they correspond to (57a) and (57b).

(57) a. As for Mary, John likes her.

b. John likes MARY (as opposed to ...)/at least Mary.

It is certainly an issue whether these two usages of wa are to be treated as distinct from each other. At least from the semantic viewpoint, the "topic" and the "contrastive" usages of wa seem to be two ends of one spectrum, cf. Kuroda (1965, 1972), Kuno (1973), Onoe (1981), Kitagawa (1982) and Miyagawa (1984). As I will argue below, however, a cluster of syntactic and semantic properties, though some are intricate, seem to differentiate the two,

suggesting that the semantic difference between the two usages of wa noted above in fact reflects some syntactic differences between them.

3.2.2.2 PP-wa and NP-wa

Consider the following examples.

(58) a. NY-ga omosiroi
-nom interesting

(NY(and only NY) is interesting.)

b. NY-wa omosiroi
-top interesting

(As for NY, it is interesting.)

(59) a. NY-kara-ga omosiroi
-from-nom interesting

(From NY(and only from NY) is interesting.)

b.?? NY-kara-wa omosiroi
-from-top interesting.

As discussed in Kuno (1973; chapter 2), NY-ga 'NY-nom' in (58a) has the "exhaustive listing", i.e., the "A and only A" reading, due to the "stative" nature of the predicate. On the other hand, NY-wa 'NY-top' in (58b), with normal intonation, has the reading of "as for ...," i.e., the "topic" reading. In (59a), NY-kara-ga 'NY-from-top' also seems to have the exhaustive listing interpretation. What is interesting is that (59b), with normal intonation, sounds quite marginal, contrasting with fully acceptable (58b). If we place heavy stress on wa, the

sentence becomes acceptable, with NY-kara-wa receiving the "contrastive" interpretation. It might be noted here that heavy stress on wa also makes NY-wa in (58b) "contrastive." But crucially, (58b) yields the "topic" interpretation with normal intonation, whereas (59b) cannot seem to do so. The observation in (58) and (59) thus suggests that PP-wa tends to be "contrastive."

The contrast in (60) and (61), drawn to my attention by Mamoru Saito (personal communication), also points to the same conclusion.

(60) a. John-ga Bill-wa butta
 -nom -top hit

(John hit Bill (as opposed to other people).)

b. Bill-wa John-ga butta
 -top -nom hit

(As for Bill, John hit him.)

(61) a. John-ga Pekin-ni-wa itta
 -nom -to-top went

(John went to Peking (as opposed to other places .)

b. Pekin-ni-wa John-ga itta

Saito observes that with normal intonation, Bill-wa in (60a) and that in (60b) seem to receive interpretations quite distinct from each other. As indicated in the translations, Bill-wa in (60a) has the "contrastive" reading while Bill-wa in (60b) has the "topic" reading. In (61), on the other hand, such a contrast in the interpretation of the wa-phrase seems to become neutralized. It seems that both in (61a) and in (61b), the wa-phrase is taken to be "contrastive." Thus the contrast observed in (60) and (61) further suggests that PP-wa but

not NP-wa tends to be "contrastive."

That PP-wa is generally taken to be "contrastive" is also indicated by the examples like the following:¹⁷

(62) a. Mary-ga Bill-o sasotta
-nom -acc invited

(Mary invited Bill.)

b. Bill-wa May-ga sasotta
-top -nom invited

(As for Bill, Mary invited him.)

c. John-ga [NP[S **Bill-wa**/*-wa Mary-ga sasotta] baa]-e itta
-nom -nom invited bar-to went

(John went to the bar where Mary invited **Bill**.)

(*John went to the bar where as for Bill, Mary invited him.)

(63) a. Mary-ga Bill-ni koe-o-kaketa
-nom -to approached

(Mary approached Bill.)

b. Bill-ni-wa Mary-ga koe-o-kaketa

(Bill, Mary approached.)

c. John-ga [NP[S Bill-ni-wa Mary-ga koe-o-kaketa] baa]-e itta
-nom -to-top -nom approached bar-to went

(John went to the bar where Mary approached **Bill**.)

As is well known, the "topic" wa-phrase cannot occur in a relative clause.

Thus the NP-wa in (62c) must be "contrastive." Thus only with heavy stress on wa, which forces the NP-wa to be "contrastive", does (62c) become

acceptable. In contrast to (62c), (63c) is acceptable with normal intonation. As indicated by the translation, (63c), even without heavy stress on wa, yields the 'contrastive' reading on the wa-phrase, suggesting again that PP-wa tends to be "contrastive."

Finally, as pointed out to me by Tadashi Sakamoto (personal communication), it seems much easier for a wh-phrase to occur in the PP-wa phrase than for it to occur in the NP-wa phrase. Thus consider the following.¹⁸

(64) a. *Dare-wa tegami-o kakimasita ka/kaite kita no
 who-top letter-acc wrote Q / wrote to

(Who(as opposed to ...) wrote a letter (to you)?)

b. ?Dare-kara-wa tegami-ga kimasita ka
 who-from-nom letter-nom came Q

(From whom(as opposed to from...) did a letter come?)

As noted in Kuno (1973) for example, wh-phrases generally cannot be followed by wa, just as "as for whom" and "speaking of whom" are unacceptable in English. As indicated in (64), there is a significant contrast between NP-wh-wa and PP-wh-wa. While the former sounds extremely awkward, even with heavy stress on wa or on dare 'who', the latter sounds much less awkward. Heavy stress on the wa-phrase clearly improves the acceptability of the latter. Assuming that the possibility of a wh-phrase occurring inside a wa-phrase is contingent on or at least related to the "contrastive" reading on wa, as suggested in Miyagawa (1984), the contrast in (64) can be regarded as further evidence that the "contrastive" reading is more readily available with the PP-wa than it is with the NP wa.¹⁹

We have thus observed that PP-wa tends to be "contrastive." Recall that it is the violation of subjacency by the PP-wa that has led Saito to hypothesize two possible derivations for the sentence-initial NP-wa. Saito concludes that (65) can be obtained either by the base-generation of the NP-wa or by the syntactic movement of NP-wa.

(65) (=46) John-wa Mary-ga butta
 -top -nom hit

(As for John, Mary hit him.)

Thus, according to Saito, (65) has either (66a) or (66b) as its S-structure representation.

(66) a. John_i-wa [_S Mary-ga e_i butta]

 b. [_S John-wa_i [_S Mary-ga t_i butta]

Since the PP-wa, which shows signs of movement, cf. the subjacency violation in (55b), tends to be "contrastive," we might expect that among the two derivations that Saito assumes for (65), given in (66), (66b) but not (66a) has the "contrastive" reading on the wa-phrase. If this is the case, we expect that the relevant bound variable interpretation for e discussed in section I becomes possible under the "contrastive" reading on wa perhaps with heavy stress on wa.

3.2.3 Contrastive NP-wa and "Reconstruction"

The predictions made at the end of the preceding subsection indeed seem to be borne out. The examples in (33), repeated here as (67), allow a bound variable interpretation for e_i , if we place heavy stress on wa.

- (67) a. [NP[S e_i e hitome mita] hito]_j-*wa/-**wa** daremoj-ga
 one glance saw person everyone-nom

sukininatta
 fell in love

(*As for [the person that he_i saw]_j, everyone_i fell in love with him_j.)
 ([The person that he_i saw]_j, everyone_i fell in love with.)

- b. [NP[S e e_i butta] hito]_j-*wa/-**wa** dare_i-ga uttaeta no
 hit person who-nom sued

(*As for [the person who hit him_i]_j, who_i sued him_j?)
 (Lit. [The person who hit him_i]_j, who_i sued?)

Similarly the anaphor binding in (36), repeated here as (68), also becomes possible with heavy stress on wa

- (68) a. [NP Sono zibun_i nituite-no hon]_j-*wa/-**wa** John_i-ga suteta
 that self about book -nom threw away

(*As for [that book about himself_i]_j, John_i threw it_j away.)
 ([That book about himself_i]_j, John_i threw away.)

- b. [_{NP}[_SMary-ga zibun_i-ni kureta]hon]_j-*wa/-**wa** John_i-ga suteta
 -nom self-dat gave book -nom threw away

(*As for [the book that Mary gave to self_i]_j, John_i threw it_j away.)
 ([The book that Mary gave to self_i]_j, John threw t_jaway.)

It appears therefore that two derivations for NP-wa that Saito suggests are in fact correlated to the "topic" and "contrastive" wa. That is, the NP-wa that is base-generated sentence-initially is the "topic" wa whereas the NP-wa that has been preposed to the sentence-initial position is the "contrastive" wa. Let us thus assume the following:

(69) a. The "topic" wa-phrase is base-generated under S" (S-double-bar).²⁰

b. The "contrastive" wa-phrase is base-generated under S and is subject to Move @.

For the moment, the descriptive statements in (69) simply enable us to account for the relevant data regarding variable/anaphor binding and "reconstruction" discussed so far in this chapter.

3.3. Some Consequences

In discussing the properties of "topicalization" and "scrambling" in Japanese, Saito (1985) states the following descriptive generalizations:

(70) (= Saito's (65), p. 325))

- a. Topicalization, but not scrambling, allows resumptive pronouns.
- b. Scrambling, but not topicalization, is subject to subadjacency.

The examples in (71) illustrate (70a).

(71) a. John_i-wa [_SMary-ga [_SBill-ga (kare_i-o) butta to] omotteita]
 -top -nom -nom he-acc hit COMP was thinking

(As for John_i, Mary thought that Bill hit him_i.)

b. John_i-o [_SMary-ga [_SBill-ga (*kare_i-o) butta to] omotteita]
 -acc -nom -nom he-acc hit COMP was thinking

(John, Mary thought that bill hit .)

The examples in (72) illustrate (70b), cf. Saito (1985).

(72) a. Sono boosi_i-wa [_S John-ga [_{NP} [_S e_j e_i kabutteita] hito_j]-o]
 that hat-top -nom was wearing person-acc

yoku sitteiru]
 well know

(As for [that hat]_i, John knows well the person who was wearing it_i.)

b. *Sono boosi_i-o [_S John-ga [_{NP} [_S e_j e_i kabutteita] hito_j]-o]
 that hat-acc -nom was wearing person-acc

yoku sitteiru]
 well know

(*[That hat]_i, John knows well the person who was wearing t_i.)

According to the conclusion in 3.2, the "topic" and the "contrastive" wa constructions are, schematically, as in (73).

(73) a. "Topic"

[Sⁿ NP_i-wa [Sⁱ [S NP-ga [VP e_i V]]]]

b. "Contrastive"

[S NP-wa_i [S NP-ga [VP t_i V]]]

Clearly, (73b) is analogous to (74), which is the typical S-structure representation of a sentence with a "scrambled" NP.

(74) [S NP-o_i [S NP-ga [VP t_i V]]]

We would therefore expect that the contrastive wa construction shares some properties with the "scrambled" sentences of the form (74). It would thus be expected of "contrastive topicalization" (i) that it does not allow resumptive pronouns and (ii) that it is subject to Subjacency.

Recall that the variable/anaphor binding is possible in (67) and (68), repeated here as (75) and (76), only with heavy stress on wa, forcing the "contrastive" reading on the wa-phrase.

- (75) a. [NP[S e_i e hitome mita] hito]_j-*wa/-**wa** daremo_j-ga
 one glance saw person everyone-nom

sukininatta
 fell in love

(*As for [the person that he_i saw]_j, everyone_i fell in love with him_j.)
 ([The person that he_j saw]_j, everyone_i fell in love with t_j.)

- b. [NP[S e e_i butta] hito]_j-*wa/-**wa** dare_i-ga uttaeta no
 hit person who-nom sued

(*As for [the person who hit him_i]_j, who_j sued him_j?)
 (Lit. [The person who hit him_i]_j, who_i sued t_j?)

- (76) a. [NP Sono zibun_i nituite-no hon]_j-*wa/-**wa** John_i-ga suteta
 that self about book -nom threw away

(*As for [that book about himself_i]_j, John_i threw it_j away.)
 ([That book about himself_i]_j, John_i threw t_j away.)

- b. [NP[S Mary-ga zibun_i-ni kureta]hon]_j-*wa/-**wa** John_i-ga
 -nom self-dat gave book -nom

suteta
 threw away

(*As for [the book that Mary gave to self_i]_j, John_i threw it_j away.)
 ([The book that Mary gave to self_i]_j, John threw t_j away.)

The possibility of variable/anaphor binding in (75) and (76) is reminiscent of the possibility of variable/anaphor binding in (77) and (78), discussed in 3.1.

(77) a. [S[NP[S e_i e hitome mita] hito]-o_j
 one glance saw person-acc

[Sdaremo_i-ga [VP t_j sukininata]]
 everyone-nom fell in love

([The person that he_i saw]_j, everyone_i fell in love with t_j .)

b. [S[NP[S e e_i butta] hito]-o_j [Sdare_i-ga [VP t_j uttaeta]] no
 hit person-acc who-nom sued

(Lit. [The person who hit him_i]_j, who_i sued t_j ?)

(78) a. [S[NP Sono zibun_i ni-tuite-no hon]-o_j [SJohn_i-ga [VP t_j suteta]]]
 that self about book-acc -nom threw away

([That book about himself_i]_j, John_i threw t_j away.)

b. [S[NP[S Mary-ga zibun_i-ni kureta]hon]-o_j
 -nom self-dat gave book-acc

[S John_i-ga [VP t_j suteta]]
 -nom threw away

([The book that Mary gave to self_i]_j, John_i threw t_j away.)

There is much evidence, cf. Kuroda (1980), Haig (1980), Whitman (1982) and Saito (1982, 1985), that in (77) and (78), the sentence-initial NP has been preposed across the subject NP. In 3.1, I have argued that it is this syntactic movement of the object NP across the subject that is "responsible" for the "reconstruction" effects, i.e., the possible variable/anaphor binding in examples like (77) and (78). Since the variable/anaphor binding in examples like (75) and (76) is also possible, it seems reasonable to assume that the possibility of the relevant binding there is also due to the syntactic movement of the wa-phrase, conforming to (67b). We then predict that when such

syntactic movement is disallowed by subjacency, the relevant variable/anaphor binding is not possible. Furthermore, since such syntactic movement regarded as an adjunction operation does not allow resumptive pronouns, as shown in Saito (1985), cf. also Ross (1967), we predict that the presence of a resumptive pronoun will make the relevant variable/anaphor binding impossible in examples like (75) and (76). In the following subsections, we will first see how these predictions are borne out. Then I will point out a few more consequences of the descriptive generalizations given in (69), repeated here as (79).

- (79) a. The "topic" wa-phrase is base-generated under S" (S-double-bar).
 b. The "contrastive" wa-phrase is generated under S and is subject to Move @.

3.3.1 Subjacency and Contrastive WA-Phrases

In this subsection, I will present some data that the "contrastive" wa-phrase behaves more like the "scrambled" phrase than like the "topic" wa-phrase with respect to subjacency.

As we have seen earlier, one of the differences between "topicalization" and "scrambling", noted by Saito, is that the latter but not the former observes subjacency. Thus we have contrast in (80).

(80) ((=60))

- a. Sono boosi_i-wa [s John-ga [NP[s e_j e_i kabutteita] hito_i]-o
 that hat-top -nom was wearing person-acc

yoku sitteiru]
 well know

(As for that hat_i, John knows well the person who was wearing it_i.)

- b. *Sono boosi_i-o [s John-ga [NP[s e_j t_i kabutteita] hito_j]-o
 that hat-acc -nom was wearing person-acc

yoku sitteiru]
 well know

(*That hat, John knows well the person who was wearing.)

If the "contrastive" wa-phrase behaves like the "scrambled" phrase, we expect that heavy stress on sono boosi-wa "that hat-top" makes (80a) ungrammatical. The prediction seems to be only half-way borne out.

(81) ??(Kono boosi jya-nakute) **sono boosi-wa_i** [sJohn-ga
 this hat not **that hat** -nom

[NP[s e_j t_i kabutteita] hito_j]-o yoku sitteiru
 was wearing person-acc well know

(Lit. *That hat (as opposed to this hat), John knows well the person who was wearing.)

(81) sounds less acceptable than (80a) but not as bad as (80b). If (81) has a structure as indicated, in which the wa-phrase has been moved out of the relative clause, it ought to be as bad as (80b), due to the violation of subjacency. The reason why (81) is not as bad as (80b) might well be related

to the fact that (82) is marginal but not completely ungrammatical; cf. Kuroda (1984) for recent discussions on structures like (82), in which he calls the NP-ga that stands in a "aboutness" relation with the following S a "major subject", cf. also Kitagawa (1982).

(82) ?? sono boosi-ga [S John-ga [NP[S e_j e_i kabutte ita] hito]_j-o
 that hat-nom -nom was wearing person-acc

yoku sitteiru
 well know

(It is that hat (and only that hat) that John knows well the person who was wearing it.)

Assuming that (82) is marginally acceptable, with the structure indicated, the wa-phrase in (81) could be a wa-phrase in-situ, being in the position of sono boosi-ga 'that hat-nom' in (82), rather than a wa-phrase that has been moved out of the relative clause. Thus, schematically, (81) could have a structure like (83a) rather than a structure like (83b).²¹

(83) a. [S NP_i-wa [S NP-ga [VP [NP[S e_j e_i V] N'_j] V]]]

b. [S NP-wa_i [S NP-ga [VP [NP[S e_j t_i V] N'_j] V]]]

Suppose this is a correct account of the marginal but not completely ungrammatical status of (81). We then expect that the acceptability of sentences of the structure (84a) correlates with that of sentences of the structure (84b).

(84) a. NP_i-wa [S ... [NP[S ... e_i ...]] ...V]

b. NP_i-ga [S ... [NP[S ... e_i ...]] ...V]

The examples in the following seem to show that such is in fact the case, cf. Kuno (1973, chapter 21).

(85) a. [NP [S John-ga e_j kiteiru] huku_j]-ga yogoreteiru
is wearing clothes -nom are dirty

(The clothes that John is wearing are dirty.)

b. John_i-ga [S [NP [S e_i e_j kiteiru] huku_j]-ga yogoreteiru
is wearing clothes -nom are dirty

(It is John (and only John) that the clothes that he is wearing are dirty.)

c. (Bill jya nakute) **John_i-wa** [S [NP [S e_i e_j kiteiru] huku_j]-ga
-top is wearing clothes -nom

yogoreteiru
are dirty

(Lit. (Not Bill) but John, the clothes that he is wearing are dirty.)

(86) a. [NP[S e_i kono sakana-o tabeta] hito_i]-ga byooki ni natta
this fish-acc ate person-nom became sick

(People who ate this fish became sick.)

b. ? kono sakanaj-ga [NP[S e_i e_j tabeta] hito_i]-ga byooki ni natta
this fish-nom ate person-nom became sick

(It is this fish (and only that fish) that people who ate it became sick.)

- c. ? (Ano tako jya nakute) **kono sakana_j-wa**
 (not that octopus) this fish

[NP[S e_i e_j tabeta] hito-ga byooki ni natta
 ate person-nom became sick

(Lit. (Not that octopus) but this fish, people who ate it became sick.)

- (87) a. John-ga [NP[S e_i Mary-o butta] hito_i]-o sagasite iru
 -nom -acc hit person-acc is looking for

(John is looking for a person who hit Mary.)

- b. *? Mary_j-ga [SJohn-ga [NP[S e_i e_j butta] hito_i]-o sagasite iru
 -nom -nom hit person-acc is looking for

(It is Mary (and only Mary) that John is looking for a person who hit her.)

- c. *? (Susan jya nakute) **Mary_j-wa_j**
 (not Susan but)

[S John-ga [NP[S e_i e_j butta] hito]-o sagasite iru
 -nom hit person-acc is looking for

(Lit. (Not Susan but) Mary, John is looking for a person who hit her.)

It seems therefore that as the possibility of the base-generation of the sentence-initial NP-ga, Kuroda's (1984) "major subject", becomes smaller, the acceptability of the relevant examples with the "contrastive" wa-phrase decreases, approaching ultimately the extremely low acceptability of the "scrambled" counterpart of the relevant sentences. The examples in (88a) and (88b) are the 'scrambled' counterparts of (86c) and (87c), respectively.

(88) a. * $[_S$ Kono sakana-o $_j$ $[_S$ $[_{NP}$ $[_S$ \underline{e}_i t_j tabeta] hito $_i$]-ga byooki ni natta
 this fish-acc ate person-nom became sick

(*This fish $_j$, people who ate t_j became sick.)

b. * $[_S$ Mary-o $_j$ $[_S$ John-ga $[_{NP}$ $[_S$ \underline{e}_i \underline{e}_j butta] hito $_i$]-o sagasite iru
 -acc -nom hit person-acc is looking for

(*Mary $_j$, John is looking for a person who hit t_j .)

In this subsection, I have argued that the structure with "contrastive" wa as in (89a), in which the sentence-initial wa-phrase is associated with an empty category inside the relative clause, shows the effects of subjacency violation, unless the sentence of the form (89b) is independently allowed, in which case the sentence-initial NP-ga and the empty pronominal \underline{e}_i can corefer.

(89) a. $[_S$ **NP-wa** $_i$ $[_S$... $[_{NP}$ $[_S$... \underline{e}_i ...]] ...V]

b. $[_S$ NP $_i$ -ga $[_S$... $[_{NP}$ $[_S$... \underline{e}_i ...]] ...V]

If (89b) is allowed, the corresponding "contrastive" wa construction, I have proposed, has the sentence-initial NP-wa in situ, essentially as represented in (89a). If (89b) is not allowed, for reasons independent of our present discussion, on the other hand, the sentence-initial NP-wa must have been moved out of the relative clause and it violates subjacency, accounting for the near impossibility of the association of the "contrastive" NP-wa and the gap in the relative clause in such cases.

The discussion in this subsection thus suggests that given a sentence of the form in (90), where ec could be a trace or an empty pronominal that is

associated with the NP-wa;

(90) NP-wa [S ... [NP[S' ... ec ...] N'] ...V]

(92) is not a possible representation for it, while (90a) and (90b) are.

(91) a. [S^o NP_i-wa [S' [S ... [NP[S' ... e_i ...] N'] ...V]]]

b. [S NP_i-wa [S ... [NP[S' ... e_i ...] N'] ...V]]]

(92) *[S NP-wa_i [S ... [NP[S' ... t_i ...] N'] ...V]]]

(91a) is a case of the "topic" wa construction and (91b) is a case of the "contrastive" wa-phrase in situ, which is in the position of Kuroda's (1984) major subject. (92) is a case of the preposed "contrastive" wa-phrase, which results in a subjacency violation.

3.3.2 Subjacency and "Reconstruction" Effects

As noted at the end of the preceding subsection, the sentence-initial NP-wa can be associated with a gap inside a relative clause only when the NP-wa has not been moved out of the relative clause.

Recall the conclusion in section 3.2, namely, that in a structure like (93), the variable/anaphor binding is possible only when the ec is the trace of the sentence-initial wa-phrase.

(93) [...e_i/zibun_i ...]-wa_j [S QP_i-ga/NP_i-ga [VP ec_j ...V]]

These two results, combined together, predict that the variable/anaphor binding in (94) is impossible, regardless of the interpretation assigned to the wa-phrase.

(94) [...e_i/zibun_i ...]-wa_j [S QP_i-ga/NP_i-ga [VP [NP[S' ...e_{cj} ...] N'] ...V]]

This is so for the following reason. First of all, in order for the variable/anaphor binding to be possible, the sentence-initial NP-wa_j must have been moved from the positions of e_{cj}, receiving a "contrastive" reading. On the other hand, such movement violates subjacency. Therefore the variable/anaphor binding must be impossible in (94) with the "contrastive" reading on the wa-phrase.

Suppose that the sentence-initial wa-phrase is base-generated. In such a case, while subjacency is not violated, the relevant "reconstruction" effects are not to be invoked since the NP-wa_j is not preposed from the position of e_{cj}.

We would also predict that contrary to (94), (95) allows the variable/anaphor binding of e_i/zibun_i since the preposing of the NP-wa from the position of e_{cj} to the sentence-initial position does not violate subjacency, given that e_c is not inside a relative clause.

(95) [S [...e_i/zibun_i ...]-wa_j [S QP_i-ga [VP [S' ...e_{cj} ...] ...V]]]

In the following, I will present relevant data showing that the predictions noted above are indeed borne out.

First, consider the following:

(96) a. John_i-ga [S' sono otoko-ga [VP [NP[S e_j Ginza-de e_j katta] yubiwai]-o
 -nom that man-nom -at bought ring-acc

nusunda to]] omotteiru (koto)
 stole COMP is thinking

(John_i thinks that that man stole the ring that he_i bought at Ginza.)

b. John_i-ga [NP[S e_j [VP [NP[S e_j [VP Ginza-de e_j katta]] yubiwai]-o
 -nom -at bought ring-acc

nusunda]] otoko_j]-o sagasiteiru (koto)
 stole man-acc is looking for

(John_i is looking for the man that stole the ring that he_i bought at
 Ginza.)

Both in (96a) and in (96b), the optional coreference between John_i and e_i is possible. By preposing the object of nusunda "stole", we obtain (97a) and (97b).

(97) a. [S [NP[S e_i Ginza-de e_j katta] yubiwai]-ok [S John_i-ga

[VP [S' sono otoko-ga [VP t_k nusunda] to] omotteiru]] (koto)

([The ring that he_i bought at Ginza]_k, John_i thinks that that man
 stole t_k.)

b. *[S [NP[S e_i [VP Ginza-de e_j katta]] yubiwai]-ok

[S John_i-ga [VP [NP[S e_j [VP t_k nusunda]]otoko_j]-o sagasiteiru]] (koto)

(*[The ring that he_i bought at Ginza]_k, John_i is looking for the man that
 stole t_k.)

The ungrammaticality of (97b) as compared to (97a) is exactly as expected in the light of the preceding discussion regarding the subjacency violation by the

"scrambled" phrase.

When the accusative marker attached to the sentence-initial phrase in (97) is replaced by wa, we obtain the following.

(98) a. [NP[S e_i [VP Ginza-de e_j katta]] yubiwa_j]_k-wa/-**wa**_k [S John_i-ga

[VP[S' sono otoko-ga [VP e_k/t_k nusunda] to] omotteiru]] (koto)

(As for the ring that he_j bought at Ginza, John_i thinks that that man stole it.)

(The ring that he_j bought at Ginza, John_i thinks that that man stole.)

b. [NP[S e_i [VP Ginza-de e_j katta]] yubiwa_j]_k-wa/-***wa**_k

[S John_i-ga [VP [NP[S e_j [VP e_k/t_k nusunda]] otoko_j]-o sagasiteiru]] (koto)

(As for the ring that he_j bought at Ginza, John_i is looking for the man that stole it.)

(*The ring that he_j bought at Ginza, John_i is looking for the man that stole.)

As the translations indicate, in (98a) the NP-wa can either be "topic" or "contrastive". On the other hand, it seems that the NP-wa in (98b) must be construed as "topic", which is suggested for example by the fact that heavy stress on wa makes (98b) marginal although it does not affect the acceptability of (98a)

In the case of examples like (98b), the sentence-initial NP-wa could, disregarding the effect of subadjacency for a moment, receive the "contrastive" interpretation either by being preposed to the sentence-initial position as in (99a) or by being base-generated in the "major subject" position of Kuroda

In (101) e_i is replaced by zibun. In (98b), with the wa-phrase being a "topic", it is possible to have optional coreference between e_i , an empty pronominal and John_i. With zibun replacing e_i in (101), however, we need to have anaphor binding rather than optional coreference. According to the preceding discussion, such anaphor binding is possible only when the container of zibun has been moved to the sentence-initial position from a position that is c-commanded by John. This means that in order for the relevant anaphor binding to be possible, the wa-phrase must be "contrastive". In fact, the example in (102), which is obtained by replacing e_i by zibun_i in (98a), seems to allow the anaphor binding only with heavy stress on wa, forcing the "contrastive" interpretation on the wa-phrase.

(102) [NP[S zibun_i-ga Ginza-de e_i katta] yubiwa_j]-**wa**_k/*-wa
 self-nom -at bought ring

[S John_i-ga [VP [S'[S sono otoko-ga [VP t_k nusunda]]to] omotteiru]]
 -nom that man-nom stole COMP is thinking

([The ring that self_i bought at Ginza]_k, John_i thinks that that man stole t_k .)
 (*As for [the ring that self_i bought at Ginza]_k, John_i thinks that that man stole it_k.)

In (101), on the other hand, even with heavy stress on wa, the anaphor binding is not possible. We account for this impossibility of anaphor binding based on the impossibility of the movement of the "contrastive" wa-phrase out of the relative clause.

The contrast between (101) with heavy stress on wa and (102) is thus quite analogous to the contrast between (103a) and (103b).

(103) a. * $[S [NP[S \text{zibun}_i\text{-ga} \text{Ginza-de} \text{e}_j \text{katta}] \text{yubiwa}_j\text{-o}_k]$
 self-nom -at bought ring -acc

$[S \text{John}_i\text{-ga} [VP [NP[S \text{e}_j \text{e}_k/\text{t}_k \text{nusunda}] \text{otoko}_i\text{-o} \text{sagasideiru}]]]$
 -nom stole man -acc is looking for

(* $[\text{The ring that self}_i \text{ bought at Ginza}]_k$, John_i is looking for the man who stole it_k/t_k .)

b. $[NP[S \text{zibun}_i\text{-ga} \text{Ginza-de} \text{e}_j \text{katta}] \text{yubiwa}_j\text{-o}_k]$
 self-nom -at bought ring -acc

$[S \text{John}_i\text{-ga} [VP [S' [S \text{sono otoko-ga} \text{t}_k \text{nusunda}] \text{to}] \text{omotteiru-}]]]$
 -nom that man-nom stole COMP is-thinking

($[\text{The ring that self}_i \text{ bought at Ginza}]_k$, John_i thinks that that man stole t_k .)

The example in (103a) is out because of a Subjacency violation, just as in (101) with heavy stress on wa, while (103b) is in because the movement of the NP-o_k does not violate subjacency, just as the movement of NP-wa_k does not violate subjacency in (102). The example in (104) illustrates that the anaphor binding is possible in more involved constructions, as long as the movement of the NP-o does not violate subjacency.²²

(104) $[S [NP[S \text{zibun}_i/\text{l-ga} \text{Ginza-de} \text{e}_j \text{katta}] \text{yubiwa}_j\text{-o}_k]$
 self-nom -at bought ring -acc

$[S \text{John}_i\text{-ga} [S' [S \text{Mary}_i\text{-ga} [S' [S \text{sono otoko-ga} \text{t}_k \text{nusunda}] \text{to}]$
 -nom -nom that man-nom stole COMP

$\text{itta}] \text{to}] \text{omotte ita}]]]$
 said COMP was thinking

($[\text{The ring that self}_{i/l} \text{ bought at Ginza}]_k$, John_i thought that Mary_i said that that man stole t_k .)

Corresponding to (104), we have (105).

(105) [S [NP[S zibun_{i/l}-ga Ginza-de e_j katta] yubiwa_j]-wa_k
 self-nom -at bought ring

[S John_i-ga [S'[S Mary_l-ga [S [S sono otoko-ga t_k nusunda] to]
 -nom -nom that man-nom stole COMP

itta] to] omotte ita]]
 said COMP was thinking

([The ring that self_{i/l} bought at Ginza]_k, John_i thought that Mary_l said that that man stole t_k.)

In (105) as well, the NP-wa must be "contrastive"; otherwise anaphor binding does not seem to be possible. When zibun is replaced by e as in (106), on the other hand, optional coreference is possible, even without heavy stress on wa, between e and John or between e and Mary.

(106) [S [NP[S' e_{i/l}/(-ga) Ginza-de e_j katta] yubiwa_j]-wa_k/-wa

[S John_i-ga [S'[S Mary_l-ga [S'[S sono otoko-ga t_k nusunda] to]

itta] to] omotte ita]]

([The ring that he_i/she_l bought at Ginza]_k, John_i thought that Mary_l said that that man stole t_k.)

(As for [the ring that he_i/she_l bought at Ginza]_k, John_i thought that Mary_l said that that man stole it_k.)

We have thus observed that anaphor binding in a structure like (107a) is not possible when the movement of the NP-wa_k violates subjacency, such as illustrated in (107b).

(108b), is it possible for e_i to be construed as bound to the QP_i .

Next, consider the following:

(109) a. [S [NP[S e_i [VP Ginza-de e_j katta]] yubiwa $_j$]-wa $_k$
 -at bought ring

[S daremo $_i$ -ga [VP [S' [S sono otoko-ga [VP t_k nusunda]] to]
 everyone-nom that man-nom stole COMP
 omotteiru]]]
 is thinking

([The ring that he $_i$ bought at Ginza] $_k$, everyone $_i$ thinks that that man stole t_k)

a'. [S [NP[S e_i [VP Ginza-de e_j katta]] yubiwa $_j$]-wa $_k$
 -at bought ring

[S dare $_i$ -ga [VP [S' [S sono otoko-ga [VP t_k nusunda]] to]
 who-nom that man-nom stole COMP
 omotteiru]]] no
 is thinking

([The ring that he $_i$ bought at Ginza] $_k$, who $_i$ thinks that that man stole?.)

b. *[NP[S e_i [VP Ginza-de e_j katta]] yubiwa $_j$] $_k$ -wa/-wa $_k$
 -at bought ring

[S daremo $_i$ -ga [VP [NP[S e_i [VP e_k/t_k nusunda]] otoko $_i$]-o
 everyone-nom stole man-acc
 sagasite iru]] (koto)
 is looking for

(*As for [the ring that he $_i$ bought at Ginza] $_k$, everyone $_i$ is looking for it $_k$.)
 (*[The ring that he $_i$ bought at Ginza] $_k$, everyone $_i$ is looking for the man that stole t_k .)

(110) a. [S [NP[S zibun_i-ga [VP Ginza-de e_j katta]] yubiwaj]-wa_k
 self-nom -at bought ring

[S daremo_i-ga [VP [S'[S sono otoko-ga [VP t_k nusunda]] to]
 everyone-nom that man-nom stole COMP

omotteiru]]]
 is thinking

([The ring that self_i bought at Ginza]_k, everyone_i thinks that that man
 stole t_k)

a'. [S [NP[S zibun_i-ga [VP Ginza-de e_j katta]] yubiwaj]-wa_k
 self-nom -at bought ring

[S dare_i-ga [VP [S'[S sono otoko-ga [VP t_k nusunda]] to]
 who-nom that man-nom stole COMP

omotteiru]]] no
 is thinking

([The ring that self_i bought at Ginza]_k, who_i thinks that that man stole?.)

b. *[NP[S zibun_i-ga [VP Ginza-de e_j katta]] yubiwaj]_k-wa/-wa_k
 self-nom -at bought ring

[S daremo_i-ga [VP [NP[S e_i] [VP e_k/t_k nusunda]] otoko_i]-o
 everyone-nom stole man-acc

sagasite iru]] (koto)
 is looking for

(*As for [the ring that self_i bought at Ginza]_k, everyone_i is looking for
 it_k.)

(*[The ring that self_i bought at Ginza]_k, everyone_i is looking for the man
 that stole t_k.)

b'. *_{[NP[S zibun_i-ga [VP Ginza-de e_j katta]] yubiwa_j]_k-wa/-wa_k}

self-nom -at bought ring

[S dare_i-ga [VP [N [S e_i [VP e_k/t_k nusunda]] otoko]_i-o

who-nom stole man-acc

sagasi_ite iru]] no

is looking for

(*As for [the ring that self_i bought at Ginza]_k, who_i is looking for [the man that stole it]_k?)

(*[The ring that self_i bought at Ginza]_k, who_i is looking for [the man that stole t_k]?)

In (110a), only with heavy stress on wa, does it seem possible to obtain anaphor binding. In (110b), on the other hand, anaphor binding is not possible with or without heavy stress on wa for the reasons that have already been noted above

In this subsection, I have presented further evidence that in a structure like (111), in which variable/anaphor binding is possible;

(111) [...e_i/zibun_i...]NP-wa_k [S QP_i-ga/NP_i-ga [VP ...e_c... V]]

the sentence-initial NP-wa has been moved from the position of ec. The crucial evidence has to do with subadjacency violation.

We have also seen that variable/anaphor binding is not possible either in (112) or in (113).

(112) *[S [...e_i/zibun_i...]NP-o_k [S QP_i-ga/NP_i-ga [VP [NP[S...t_k...V] N'] V]]]

(113) *[S [...e_i/zibun_i...]NP-wa_k [S QP_i-ga/NP_i-ga [VP [NP[S...t_k...V] N'] V]]]

I have argued that since we have independent evidence that NP-o in (114) has been moved from the position of ec, cf. Saito (1985);

(114) [_S NP-o_i [_S NP-ga [_{VP} ...ec_i V]]]

the result in (113) indicates that the NP-wa_k in (111) as well as (113) has in fact been moved from the position of ec, analogous to the "scrambled" phrase in (112). Thus we attribute the possibility of variable/anaphor binding in (111) to the "reconstruction" effects invoked by the syntactic movement of NP-wa and the impossibility of it in (113) to the subjacency violation by such syntactic movement.

I have also argued that the "topic" wa-phrase, unlike the "contrastive" wa-phrase, is base-generated at the sentence-initial position, not invoking the "reconstruction" effects. The relevant data regarding the variable/anaphor binding in this subsection provides support for this syntactic differentiation between the "topic" and the "contrastive" wa-phrases.

To the extent that the relevant data can be accounted for by assuming the "contrastive" wa-phrase to be a subcase of "scrambled" phrases, the discussion in this subsection constitutes further support for Saito's (1985) proposal that "scrambling" in Japanese is an instance of Move @, specifically, an S-structure adjunction operation.

I have thus argued that the result in 3.1, namely that the "topic" wa-phrase is base-generated sentence-initially, is in fact compatible with Saito's (1985) proposal for Japanese "topicalization", that Mary-wa 'Mary-top' in (115) can either be base-generated or preposed to the sentence-initial position as

indicated in (116).

(115) Mary-wa John-ga butta
 -top -nom hit

(116) a. Mary_i-wa [_S John-ga e_i butta]
 -top -nom hit

 b. Mary-wa_i [_S John-ga t_i butta]
 -top -nom hit

I have argued that the NP-wa in (116a) is "topic", the kind of wa-phrase discussed in section 1 of this chapter, while the NP-wa in (116b) is "contrastive". It has been proposed above that (116a) and (116b) have the structures as in (117a) and (117b), respectively.

(117) a. [_S' Mary_i-wa [_S' [_S John-ga e_i butta]]]

 b. [_S Mary-wa_i [_S John-ga t_i butta]]]

Before closing this subsection, I will report on another prediction made by the present analysis, in which the "reconstruction"-induced variable/anaphor binding is possible with "contrastive" wa but not with "topic" wa. As pointed out to me by Alessandra Giorgi (personal communication), the present analysis predicts that in a structure like (118), zibun can take either NP_i or NP_j as its antecedent if NP-wa is taken to be "contrastive", while it can take only NP_j as its antecedent if NP-wa is taken to be "topic".

- (118) a. [_{NP} NP_i-no ...zibun...]-wa [_S NP_j-ga [_{VP} ... ec ... V]]
 -gen self
- b. [_{NP}[_S NP_i-ga...zibun...V] N']-wa [_S NP_j-ga [_{VP} ... ec ... V]]

The following examples seem to confirm the predictions.

- (119) a. [_{NP} Mary_i-no zibun_{i/*j} ni tuite-no hon]_k-wa
 -gen self about book
- [_S John_j-ga [_{VP} e_k yonda]]
 -nom read
- (As for [Mary_i's book about self_{i/*j}]_k, John_j read it_k.)
- b. [_S [_{NP} Mary_i-no zibun_{i/j} ni tuite-no hon]-**wa**]_k
 -gen self about book
- [_S John_j-ga [_{VP} t_k yonda]]
 -nom read
- ([Mary_i's book about self_{i/j}]_k, John_j read t_k.)

As indicated above, only with heavy stress, i.e., with the "contrastive" reading on wa, can zibun take John as its antecedent. Since it is the syntactic movement of the wa-phrase that is responsible for the ambiguity of the zibun interpretation in (119), according to the present analysis, we expect that replacing wa by o in (119) still retains the ambiguity in the zibun interpretation. The example in (120) shows that such is indeed the case.

(120) [S[NP Mary_i-no zibun_{i/j} ni tuite-no hon]-o_k
 -gen self about book-acc

[S John_j-ga [VP t_k yonda]]
 -nom read

([Mary_i's book about self_{i/j}]_k, John read t_k.)

The examples in (121) illustrate the same point.

(121) a. [S' [NP[S Mary_i-ga [VP zibun_{i/*j}-no ie-de e_j yaita]] pai_i] wa
 -nom self-gen house-at baked pie

[S' [S John_j-ga [VP e_k tabeta]]]
 -nom ate

(As for [the pie that Mary_i baked at self_{i/*j}'s house]_k, John_j ate it_k.)

b. [S [NP[S Mary_i-ga [VP zibun_{i/j}-no ie-de e_j yaita]] pai_i]-wa_k
 -nom self-gen house-at baked pie

[S John_j-ga [VP t_k tabeta]]
 -nom ate

([The pie that Mary_i baked at self_{i/j}'s house]_k, John_j ate t_k.)

c. [S [NP[S Mary_i-ga [VP zibun_{i/j}-no ie-de e_j yaita]] pai_i]-o_k
 -nom self-gen house-at baked pie

[S John_j-ga [VP t_k tabeta]]
 -nom ate

([The pie that Mary_i baked at self_{i/j}'s house]_k, John_j ate t_k.)

3.3.3 Resumptive Pronouns and Contrastive WA-Phrases

In 3.3.2, we have seen how the possibility of variable/ anaphor binding in the "contrastive" wa-constructions gets affected by subjacency. The fact that

the variable/anaphor binding is impossible in those constructions, in which the wa-phrase that contains e/zibun is associated with the gap inside a relative clause, I have argued, can be attributed to a central property of those wa-phrases. Namely, those wa-phrases are moved out of the relative clause just as in the case of the "scrambled" object NP. That the variable/anaphor binding is not possible in those constructions follows, given Saito's generalization that "scrambling" but not "topicalization" is subject to subjacency as well as our hypothesis that the "contrastive" wa-phrases, but not the "topic" wa-phrases, in the relevant constructions above, have been preposed to the sentence-initial position by an adjunction operation. That is, the variable/anaphor binding there requires syntactic movement of the wa-phrase; but on the other hand, subjacency disallows such syntactic movement.

Another difference between "topicalization" and "scrambling" that Saito notes is that "topicalization, but not scrambling, allows resumptive pronouns." (Recall that Saito's "topicalization" is our "topic" wa-construction and our "contrastive" wa-construction under consideration is a subcase of Saito's "scrambling."). The examples in (71), which are repeated here as (122), illustrate the point.

(122) a. John_i-wa [_SMary-ga [_SBill-ga (kare_i-o) butta to] omotteita
 -top -nom -nom he-acc hit COMP was thinking

(As for John_i, Mary thought that Bill hit him_i.)

b. John-o_i [_SMary-ga [_SBill-ga (*kare_i-o) butta to] omotteita
 -acc -nom -nom he-acc hit COMP was thinking

(John_i, Mary thought that bill hit t_i.)

Since we are assuming the "contrastive" wa-phrase to be analogous to the "scrambled" phrase, it is predicted that if we place heavy stress on wa or on John-wa in (122a), forcing the "contrastive" reading on the wa-phrase, it becomes difficult or impossible to have a resumptive pronoun in the sentence, just as in the case of (122b) with kare 'he'. The prediction seems correct, as indicated in (123).

(123) **John-wa**_i [_SMary-ga [_SBill-ga (*?kare_i-o) butta to]
 -nom -nom he-acc hit COMP

 omotteita
 was thinking

Even with simpler examples like (124), we find a significant contrast.²³

(124) a. John_i-wa [_S Mary-ga (?kare_i-o) butta]
 -nom he-acc hit

(As for John, Mary hit him.)

b. **John-wa**_i [_S Mary-ga (*kare_i-o) butta]
 -nom he-acc hit

3.3.4 Resumptive Pronouns and "Reconstruction" Effects

Recall the generalization in Saito (1985) that an adjunction operation does not allow resumptive pronouns. (This generalization, slightly reinterpreted, is already noted in Ross (1967), as Joseph Emonds (personal communication) has pointed out to me.) Given this generalization, the contrast observed in 3.3.3 constitutes further evidence for the view that the "contrastive" wa-phrase

in the relevant examples has been preposed to the sentence-initial position from the preverbal position. Given the impossibility of resumptive pronouns with an adjunction operation, we (correctly) predict that the presence of a resumptive pronoun renders impossible variable /anaphor binding in the "reconstruction" examples. Recall that it is assumed here that the "reconstruction"-induced variable/anaphor binding is made possible by the preposing of the phrase that contains e/zibun across the possible antecedent of e/zibun. Given that such preposing is an adjunction operation, a resumptive pronoun cannot appear in the "extraction site.". This means that the presence of a resumptive pronoun makes the relevant sentence ungrammatical, thereby making the relevant variable/anaphor binding impossible.

Thus while variable binding is possible in (125a), it is not in (125b). (In fact, (125b) is ungrammatical.)

(125) a. [S [NP[S e_i e_j butta] otoko_i]-**wa**_k [S daremo_j-ga [VP t_k uttaeta]]]

hit man everyone-nom sued

(The man who hit him_j, everyone_j sued.)

b. *[S [NP[S e_i e_j butta] otoko_i]-**wa**_k [S daremo_j-ga [VP kare_k-o

hit man everyone-nom he-acc

uttaeta]]]

sued

(As for [the man who hit him_j]_k, everyone_j sued him_k.)

Recall that the resumptive pronoun kare can appear in the matrix object position in (125b) if the wa-phrase is "topic" and if variable (or anaphor)

(128) a. [S[NP[SMary_i-ga [VPzibun_{i/j}-no kaisya-ni turetekita]]gakusei]_k-wa
 -nom self-gen company-to brought student

[SJohn_j-ga [VP(atode) t_k syokuzi-ni-sasotta]]
 -nom later invited-for-a meal

(The student that Mary_i brought to self_{i/j}'s company, John_j (later) invited for a meal.)

b. *[S[NP[SMary_i-ga [VPzibun_{i/j}-no kaisya-ni turetekita]]gakusei]_k-wa
 -nom self-gen company-to brought student

[SJohn_j-ga [VP (atode) kare_k-o syokuzi-ni-sasotta]]
 -nom later he-acc invited-for-a meal

(*[The student that Mary_i brought to self_{i/j}'s company]_k, John_j (later) invited him_k for a meal.)

In (128a), zibun can take either Mary or John as its antecedent. As noted earlier, John's being able to serve as an antecedent of zibun in (128a) is a diagnostic for the syntactic movement of the wa-phrase in this example. With kare 'he' replacing e_k in (128b), however, zibun is no longer ambiguous. It is not even acceptable.

When the wa-phrase in (128b) is taken to be "topic" (without heavy stress on wa) the sentence becomes acceptable with one interpretation of zibun, as indicated in (129).

(129) [S[NP[SMary_i-ga [VP zibun_{(?)i/*j}-no kaisya-ni turetekita]]gakusei]_k-wa
 -nom self-gen company-to brought student

[SJohn_j-ga [VP (atode) kare_k-o syokuzi-ni-sasotta]]
 -nom later he-acc invited-for-a meal

([The student that Mary_i brought to self_{(?)i/*j}'s company]_k, John_j (later) invited him_k for a meal.)

This is analogous to the situation depicted by (126b) and (127).

The contrasts observed above thus constitute further evidence that the "reconstruction" effects (under present discussion) are invoked by syntactic movement and that the "contrastive" wa-phrase in the relevant examples above are preposed to the sentence-initial position by a syntactic adjunction operation.

3.3.5 Restrictions on the Distribution of the Topic WA-phrase

In the preceding discussion, I have argued that the "topic" wa-phrase and the "contrastive" wa-phrase differ from each other syntactically. In (79), repeated here as (130), I have summarized the relevant syntactic difference between the "topic" wa and the "contrastive" wa.

- (130) a. The "topic" wa-phrase is base-generated under S" (S-double-bar).
 b. The "contrastive" wa-phrase is generated under S and is subject to Move @.

The variable/anaphor binding facts have provided some evidence for the syntactic distinction between the two types of wa-phrases.

In addition to allowing us to account for the relevant data about the variable/anaphor binding, the proposed syntactic distinction between the two types of wa-phrases provides a rather natural account for the well-known contrast between the "topic" wa-phrase and the "contrastive" wa-phrase, cf. Kuno (1973, chapter 2), which I briefly mentioned in section 3.2.2.2. It is well

known that the "topic" wa-phrase cannot occur in embedded S's, in particular, in relative clauses.²⁴ Thus we have a contrast illustrated in (131).

(131) a. Mary-wa/-**wa** kusuri-o nonda
pill-acc took

(As for Mary, she took the pill.)
(**Mary** took the pill.)

b. John-ga [_S Mary-wa/-**wa** kusuri-o nonda to] itta (koto)
-nom pill-o took COMP said

(John said that as for Mary, she took the pill.)
(John said that **Mary** took the pill.)

c. John-ga [_{NP} [_S Mary-*wa/-**wa** e_i nonda] kusuri_i] -o nonda (koto)
-nom took pill-acc took

(*John took the pill that as for Mary, she took.)
(John took the pill that **Mary** took.)

While either the "topic" wa-phrase or the "contrastive" wa-phrase can occur in the matrix sentence or in the S'complement to iw 'say', only the "contrastive" wa-phrase is allowed in the relative clause. Given the syntactic distinction between the "topic" wa-phrase and the "contrastive" wa-phrase in (130), this contrast follows quite naturally if we assume that S" occurs only in the matrix sentence and that S' complements to certain bridge verbs, for some reason, behave like matrix sentences, cf. Banfield (1973), Emonds (1976) and Fiengo and Lasnik (1976).²⁵

3.3.6 Contrastive wa-Phrases in situ subject to QR

The property of the "contrastive" wa-phrase described in (130b), namely that the "contrastive" wa-phrase is subject to Move @, has been quite consistent with the phenomena that have been considered in this chapter, which include variable/anaphor binding through "reconstruction", subjacency violations, and the impossibility of resumptive pronouns. All these phenomena involve syntactic movement.

As illustrated in (132), wa-phrases can occur freely in positions other than the sentence-initial position.

- (132) a. John-ga Mary-wa butta.
 -nom hit
- b. John-ga Mary-ni hon-wa ageta (koto)
 -nom -dat book gave

Assuming that the subject NP's cannot be scrambled, (132a), for example, cannot have a structure like (133a); but rather it must have a structure like (133b).²⁶

- (133) a. [_S John-ga_i [_S Mary-wa_j [_S t_i [_{VP} t_j butta]]]]]
- b. [_S John-ga [_{VP} Mary-wa butta]]

Since it is not under S", Mary-wa must be "contrastive". The interpretation of these examples, in fact, clearly has the "contrastive" reading on wa, cf.

3.2.2.2.²⁷ Given a structure like (133b), and given Saito's (1985) hypothesis that Japanese subject NP's cannot be moved in syntax, (130b), taken literally, suggests that Mary-wa in (132a) is subject to Move @, presumably at the level

(135) a. Dare_i-ga[VP[NP[S e_i [VP hitome e_j mita]]hito_j]-o sukini-natta] no?
 who-nom one glance saw person-acc fell in love

(Who_i fell in love with the person that he_i took a glance at.)

b. *[NP[S e_j [VP hitome e_i mita]]hito_j]-ga [VP dare_i-o sukini-natta] no
 one glance saw person-nom who-acc fell in love

(Who_i did the person who took a glance at him_i
 fell in love with?)

(135a) is a typical case of variable binding and (135b) is a typical case of weak crossover. Given the analysis of weak crossover adopted in this study, the fact that the "contrastive" wa-phrase exhibits weak crossover effects as in (134b) means that it undergoes movement at LF, i.e., the rule of quantifier raising in May (1977). Clearly, this is what we expect given the characterization of the "contrastive" wa-phrase in (130b).

Just as the syntactic preposing of dare 'who' in (135b) makes the variable binding possible, as shown in (136a), which has been analyzed as an instance of parasitic gap constructions, so does the syntactic preposing of John-wa in (134b), as illustrated in (136b).

(136) a. [S Dare-o_i[S[NP[S e_j [VP hitome e_i mita]] hito_j]-ga
 who-acc one glance saw person-nom

[VP t_i sukini-natta]]] no
 fell in love

(Who_i did the person who took a glance at him_i
 fell in love with?)

b. [S John-**wa**_i [S[NP[S' e_j [VP hitome e_i mita hito_j]]]-ga
 one glance saw person-nom

[VP t_i sukini-natta]]
 fell in love

(**John** (as opposed to ...) _i, the person who took a glance at him_i fell in love with.)

Finally, we find the "reconstruction" effects in (137b), just as we do in (137a).

(137) a. [S[NP[S e_j [VP hitome e_i mita]] hito_j]-o_k [S dare_i-ga
 one glance saw person-acc who-nom

[VP t_k sukini-natta]]] no?
 fell in love

([The person who took a glance at him_i]_k, who_i fell in love with?)

b. [S[NP[S e_j [VP hitome e_i mita hito_j]]]-o_k [S John-**wa**_i
 one glance saw person-acc who-nom

[VP t_k sukini-natta]]
 fell in love

([The person who took a glance at him_i]_k, **John** (as opposed to ...) _i fell in love with t_k?)

The "contrastive" wa-phrase also behaves like a quantified phrase with respect to other phenomena that will be discussed in the next chapter.

3.4 Conclusion

In this chapter, I first discussed certain constructions that appeared to be problematic cases of variable binding for the analysis presented in chapter 2. The relevant examples has a schematic structure like (138).

(138) [NP... \underline{e}_i ...]-o QP_i-ga V

I have argued that such constructions are analogous to "reconstruction" examples discussed in Engdahl (1980), van Riemsdijk and Williams (1981) and Whitney (1984). Taken to be instances of "reconstruction", the relevant variable binding constitutes further evidence that sentences like (139a) is derived from (139b) by means of syntactic preposing.

(139) a. John-o Mary-ga butta
-acc -nom hit

(John, Mary hit.)

b. Mary-ga John-o butta
-nom -acc hit

(Mary hit John.)

Thus the structure for (138), where the \underline{e}_i can be construed to be a variable bound to the QP, must be like (140)

(140) [S[NP... \underline{e}_i ...]-o_k [SQP_i-ga [VP \underline{t}_k V]]]

We have also seen that anaphor binding in a structure like (141) is possible; cf. the discussion on (27) and (28) and references cited there.

(141) [_S[_{NP}...zibun_i...]-o_k [_SQP_i-ga [_{VP} t_k V]]]

This is in fact what we expect, under the hypothesis that the variable binding in (140) is due to the syntactic movement of NP-o, since the English analogues of (140) and (141) are equally acceptable, cf. (41) and (42).

Under the assumption that the possibility of variable/anaphor binding is considered to be diagnostic of syntactic movement, I proceeded to consider whether the "topicalization" analogues of (140) and (141), given in (142), allow the variable/anaphor binding.

(142) a. [_S [_{NP}...e_i...]-wa [_S QP_i-ga [_{VP} e V]]]

b. [_S [_{NP}...zibun_i...]-wa [_S QP_i-ga [_{VP} e V]]]

The initial observation was that such variable/anaphor binding was not allowed, suggesting that the "topicalization" examples have a structure like (143a) rather than the one in (143b), the same conclusion that Kuno (1973) draws.

(143) a. NP_i-wa [_S NP-ga [_{VP}... pro_i ...V]]

b. [_S NP-wa_i [_S NP-ga [_{VP} ...t_i ...V]]]

In section 2, I have considered Saito's (1985) proposal that the Japanese "topicalization" examples have two derivations given in (143), which, at first glance, is incompatible with the conclusion in section 1.

First I pointed out that the crucial data that have led Saito to his conclusion, specifically that NP "topicalization" can have not only (143a) but also (143b) as its S-structure representation, involve PP "topicalization" rather than NP "topicalization". It is then observed that PP "topicalization" is typically "contrastive", which can be considered as evidence that the wa-phrase that shows signs of syntactic movement is "contrastive". It has thus been predicted that the relevant variable/anaphor binding becomes possible in the examples discussed in 3.1, which are basically of the structure in (144) below, if we force the "contrastive" reading on the wa-phrase, by placing heavy stress on it.

(144).a. [S [NP...e_i...]-wa [S QP_i-ga V]]

b. [S [NP...zibun_i...]-wa [S QP_i-ga V]]

I have argued, although some of the judgments are not as clear as one wishes them to be, that this prediction is in fact borne out.

I then proposed to capture the syntactic difference between the "topic" wa-phrase and the "contrastive" wa-phrase by assuming the following.

(145) (Cf. (130).)

a. The "topic" wa-phrase is base-generated under S" as in

[S' NP_i-wa [S' [S NP-ga [VP ... pro_i ...V]]]].

- b. The "contrastive" wa-phrase is generated under S,
for example, as in

[_SNP-ga [_{VP} ...NP-wa.. V]]

and is subject to Move @.

In section 3, I have considered some consequences of this analysis. Since the possibility of variable/anaphor binding in the examples with the sentence initial NP-wa, is taken to be due to the preposing of the wa-phrase, analogous to the "reconstruction" examples with the preposed NP-o, we expect that such variable/anaphor binding would become impossible when the syntactic movement is disallowed, i.e., when the sentence initial NP-o cannot be associated with the relevant gap in the sentence, for independent reasons. As noted in Saito (1985), subjacency and resumptive pronouns provide such cases.

It was then demonstrated that when the preposing of the NP-wa violates subjacency, the variable/anaphor binding in fact fails to obtain. It was also observed that when the position of the relevant gap is filled with a resumptive pronoun, the variable/anaphor binding is not possible either. These observations are taken to support not only the analysis of the "contrastive" wa-phrase, presented here, but also the analysis of "scrambled" sentences in Japanese proposed by Harada (1977) and further defended in Saito (1985). In the last section, it has been argued that the "contrastive" wa-phrase that has not undergone syntactic movement undergoes movement at LF, based on the observations that the "contrastive" wa-phrase exhibits the familiar cluster of properties of quantifiers, such as weak crossover effects, parasitic gaps and

"reconstruction" effects.

Footnotes to Chapter Three

¹ Many other relevant examples are given in chapter 2. I am assuming, for the reasons (as well as with the qualifications) noted in chapter 2 that there is a VP node in Japanese. See Saito and Hoji (1983) for arguments for a VP node in Japanese based on the phenomenon of weak crossover in Japanese. See Saito (1985; chapter 2) and references cited there including Hale (1980), Farmer (1980), Whitman (1982), Saito (1983a, 1983b) and Hoji (1982) for general discussion on configurationality in Japanese.

² The index "j" on the object \underline{e} in (4a) and the subject \underline{e} in (4b) will become relevant later; cf. footnote 3.

³ The degree of acceptability of the examples in (6) seems to change slightly depending on whether the index on John is \underline{i} or \underline{j} . Such gradation in acceptability, which is perhaps due to some extra-grammatical factors (as well as some sense of parallelism in grammatical functions), is ignored here. In fact, once we suppress what seem to be extra-grammatical factors, the index on dare 'who' in (4) can be "j" and \underline{e}_j in those examples can be construed as a variable bound to \underline{dare}_j . The translations of the relevant examples would then be:

(i) a. Lit. The person that saw him_j , who_j fell in love with?

b. Lit. The person that he_j hit, who_j sued?

As noted in footnote 27 in chapter 2, when the optional coreference

between e and John is somewhat difficult to obtain in (ii) due to what I take to be extra-grammatical factors,

(ii) ...e...John... (order irrelevant)

it is also somewhat difficult for e to be construed as a variable bound to the QP in the same configuration.

(iii) ...e...QP... (order irrelevant)

⁴ The relevant examples, which can be obtained simply by preposing the matrix object NP dare-o 'who-acc' in (5) to the sentence-initial position, are supplied below.

(i) [S dare-o_{i/j} [S [NP[S e_i e_j hitome mita] hito]-ga
 who-acc one glance saw person-nom
 [VP t_{i/j} sukini natta]]] no
 fell in love

(With dare_j: *Who_j did the person that took a glance at him_j fall in love with?)

(With dare_i: *Who_i did the person that he_i took a glance at fall in love with?)

(ii) [S dare-o_{i/j} [S [NP[S e_i e_j butta] hito]-ga [VP t_{i/j} uttaeta]]] no
 who-acc hit person-nom sued

(With dare_j: *Who_j did the person that hit him_j sue?)

(With dare_i: *Who_i did the person that he_i hit sue?)

⁵ What I have in mind here as cases of "reconstruction" are examples like (8)

rather than examples like (i), cf. Higginbotham (1980a) and van Riemsdijk and Williams (1981).

(i) Whose book did you read?

As I noted above, I am not concerned here with the exact analysis of the "reconstruction" phenomenon, for which several analyses have been proposed in the literature. For example, van Riemsdijk and Williams (1981) argue for the elimination of the operation that lowers the wh-phrase at LF, arguing for the level of NP-structure, cf. also Whitney (1984). I am using the term "reconstruction" simply as a cover term for the phenomenon in question.

⁶ In this chapter, I am not concerned with the problem relating to the scope interaction between the quantifier and the wh-phrase. As far as the Japanese "reconstruction" examples that will be discussed in this chapter are concerned, the problem does not arise since the preposed phrase does not contain a wh-phrase. See Engdahl (1980; chapter 4 and 5) and van Riemsdijk and Williams (1981) for the relevant discussion. In chapter 4, I will discuss the interaction between "reconstruction" and the scope of quantifiers/wh-phrases in Japanese.

⁷ Some speakers allow the bound variable interpretation for his_i in examples such as (i), which have "experiencer verbs".

(i) a. ?Which of his_i own books disappointed every author_i?

b. ?Which friend of his_i father always annoys everyone_i?

Although the phenomenon illustrated by the examples in (i), which seems quite complex, is no doubt to be related to our discussion on the contrast between (8b) and (9), I must leave aside the issues regarding these examples.

⁸ Ittai, which somehow corresponds to the hell in what the hell is added to the wh-phrase in (19), in order to make the contrast clearer. See 4.6 of chapter 4 as well as Appendix A, where the relevance of ittai in the analysis of Japanese wh-questions, which is first noted in Pesetsky (1984), is discussed more fully.

⁹ Notice that distinct indices, i and k, are used in (21) for the head of the relative, i.e., hon 'book', and the complex NP itself. The reason for the use of distinct indices in (21) as well as other similar examples throughout this study is to indicate the different types of "dependency" ("linking" in the terms of the discussion in chapter 2) that are involved in such examples. One is that of movement and the other is that between the empty pronominal and the relative head. I will not discuss the issues pertaining to the "reindexing" with regard to a Complex NP and its relative head.

¹⁰ The anaphor himself cannot be used in place of him in the translation of (27b) and (28b). This is due to an independent difference between English and Japanese; namely, that the locality requirement on anaphor binding is stricter in English than in Japanese. See Ueda (1984), Fukui (1984) as well as

Yang (1983) for some recent discussion on the difference between the two languages. See also Tajima (1985) for much relevant discussion.

¹¹ Recall that "reconstruction" is used in this study as the cover term for the phenomenon in which a syntactically moved category behaves as if it had not been so moved.

¹² The relevant assumption that I am making here is that in the unmarked cases, zibun must be bound by a c-commanding NP.

¹³ As in (35a), e_j in the object position is assumed to be an empty pronominal that is associated with the topic NP.

¹⁴ The combination that is missing in (40) is (i) below, i.e., the kare-QP combination.

(i) *[[... kare_i ...]_k-wa [s QP_i-ga [VP e_k V]]]

As indicated, kare 'he' cannot be construed as a variable bound to the QP. As noted in Nakai (1976) and Nakayama (1982), however, kare cannot be construed as a bound variable, independent of the structural considerations here.

¹⁵ Since reflexives sometimes seem to carry the "emphatic" sense, cf. Cantrall (1974), and exhibit some peculiarities, the reciprocal each other is used in (41).

the non-deletability of the accusative marker o as in (ii) as well as in (iii), cf. Saito (1983b).

(ii) Nani*(-o) dare-ga katta no
 what(-acc) who-nom bought

(Lit. *What did who buy.)

(iii) a. **Sake** *?(-o) John-ga nonda
 (-acc) -nom drank
 (Sake, John drank.)

b. Kimi-wa [NP[S sake*(-o) John-ga kizetusuru-made nonda] baa]-o
 you-top -acc -nom until-fainting drank bar-acc

sitteimasu ka
 know Q

(Lit. Do you know the bar where sake, John drank until he fainted?)

The above observation regarding the deletability of wa, which is due to Joseph Emonds' suggestion, thus indicates the similarity between the "scrambled" object NP and the sentence-initial "contrastive" wa-phrase that has an object function.

¹⁹ It seems that when the NP-wa assumes an object function, it becomes easier for a wh-word to occur inside the wa-phrase. Thus:

(i) a. *Dare-**wa** John-o sememasita ka
 who -acc criticized Q

(Who(as opposed to ...) criticized John?)

b. ??Dare-**wa** John-ga sememasita ka
 -nom criticized Q

(Who(as opposed to ...) did John criticize?)

Although the exact nature of this contrast is not clear, it certainly seems related to what will be discussed in the subsequent pages regarding the correlation between the "contrastive" reading on wa and syntactic movement.

²⁰ Here I am not differentiating the node S" from the node E(xpression) of Banfield (1973), cf. Emonds (1976) and Chomsky (1977). Thus (57a) can be understood as stating that the "topic" wa-phrase is base-generated under E of Banfield (1973).

²¹ I have not yet excluded the possibility of (81)'s having a structure like (i):

(i) [S NP-wa_j [S t_j [S NP-ga [VP [NP[S e_i e_j V] N'_i] V]]]]

In (i), the wa-phrase, which is generated in Kuroda's (1984) major subject position, is S-adjoined.

Saito (1985) argues for the "unscramblability" of subject NPs based on the condition that variables must have Case. See 4.3 of chapter 4 for Saito's argument and 5.3 of chapter 5 for other relevant discussion.

²² Although the relevant anaphor binding in (104) might be somewhat difficult to obtain for some speakers, when the most deeply embedded S' is preposed as in (i),

²⁵ Thus it is often possible for the "topic" wa-phrase to occur in the embedded S' if the S' is a complement to iw 'say' and' omow 'think'.

(i) John-wa [_SMary-wa nihon-e itta to] itteiru
 -top -top Japan-to went COMP is saying

(As for John, he is saying that as for Mary she went to Japan.)

(ii) John-wa [_SMary-wa kaetta to] omotte ita
 -top -top went back COMP was thinking

(As for John, he thought that as for Mary, she went back to Japan.)

It has been known that the koto 'the fact that' complement shows properties in-between the relative clause and the S' complement, cf. Fukui (1985), for example. The generalization seems to hold also of the possibility of having the "topic" wa-phrase inside it. Thus (iiia) seems better than (iiib) with normal intonation.

(iii) a. ?John-wa [_{NP}[_SMary-wa biiru-o nonda] koto]-o sitteita
 -top -top beer-acc drank fact-acc knew

(??As for John, he knew the fact that as for Mary, she drank beer.)

b. *John-wa [_{NP}[_SMary-wa e_i katta] biiru_i]-o nonda
 -top -top bought beer-acc drank

(*As for John, he drank the beer that as for Mary, she bought.)

As noted earlier, (iiib) becomes acceptable with heavy stress on wa in Mary-wa, which forces Mary-wa to be "contrastive."

(iv) John-wa [NP[SMary-wa e_i katta] biiru_i]-o nonda
-top -top bought beer-acc drank

(As for John, he drank the beer that **Mary** bought.)

²⁶ See 4.3 of chapter 4 for Saito's (1985) argument for this hypothesis. I will present an independent reason for assuming that the subject NP is not subject to "Scrambling" in section 5.3 in chapter 5.

²⁷ Excluding the possibility of parenthetical reading, it seems that the examples in (132) become acceptable only with heavy stress on wa.

Chapter Four

Quantifiers in Japanese

In chapter 2 and chapter 3, we have seen some properties of Japanese quantificational phrases, including wh-phrases. As suggested in the preceding discussion, Japanese quantificational phrases (QP's) by and large behave on a par with the QP's in English.¹

The purpose of this chapter is to examine further properties of Japanese QP's. I will first introduce a few more quantifier-like phrases in Japanese and consider their properties as quantifiers in the light of the preceding discussion. I will then discuss quantifier scope interpretation in Japanese. Following the lead of Kuroda (1969, 1970) and Kuno (1973) in terms of descriptive generalizations, and the lead of Huang (1982) in terms of the condition that is to capture these generalizations, I propose to account for the ambiguity/unambiguity contrast in quantifier scope interpretation in Japanese by a condition on LF representations, coupled with an independent assumption that Move @ leaves a trace optionally; cf. Lasnik and Saito (1984).

4.1 Quantifiers in Japanese

Japanese QP's can semantically bind zero pronouns and zibun in certain structural configurations; the required structural relation is basically that of S-structure c-command although there are cases where this is not a necessary condition as well as cases where this is not a sufficient condition for variable binding.² When the QP does not appear in these "required configurations" with respect to the zero pronoun or zibun, the variable interpretation for the latter becomes quite marginal and often impossible to obtain.³ Such failure of obtaining variable binding interpretation is what has been called weak crossover.⁴

As we have observed in chapter 2, the Japanese QP's can bind two ec's, one of which is a parasitic gap, in certain configurations that are essentially parallel to the English parasitic gap constructions. Furthermore, as discussed in chapter 3, we have also found cases where variable binding is possible due to the syntactic movement of the phrase containing the category that is to be construed as a variable bound to the QP. In this section, I will review these properties of QP's in Japanese, while introducing quantificational phrases that have either been little discussed or not been discussed at all in the preceding chapters. The last subsection will be an introductory discussion of scope interpretation of QP's, which will be the main topic of the next section.

4.1.1 Variable Binding

I will point out in this subsection that the phrases in (1) are to be considered as QP's. The "quantifier-like" properties of (1a), (1b), (1f) and (1g) are discussed in Kuroda (1965, 1969, 1970). Constructions like (1c) are discussed in Ohno (1983) and Nishigauchi (forthcoming).

- (1) a. John mo "John also"
 b. John mo Bill mo "both John and Bill"
 c. [NP[_S dare-ga syootai sita] hito-mo
 who-nom invited person-also
 d. John ya Bill "John and Bill and so on"
 e. John to Bill "John and Bill"
 f. John ka Bill "John or Bill"
 g. John sae "even John"

The phrases in (1) are exemplified by the examples in (2).

- (2) a. John mo kita
 also came
 (John also came.)
 (Someone other than John came.)
 b. John mo Bill mo kita
 (Both John and Bill came.)

c. Dare-ga syootai sita hito-mo kita
 who-nom invited person-also came

(For every x, x=person, the person who x invited came.)⁵

d. John ya Bill-ga kita

(John and Bill and so on came.)

e. John to Bill-ga kita

(John and Bill came.)

f. John ka Bill-ga kita (rasii)

((It seems that) John or Bill came.)

g. John sae(-ga) kita

(Even John came.)

Before starting the main discussion I will briefly explain some relevant properties of some of the phrases listed in (1). As indicated in the translation, (2a) is not ambiguous although the literal English translation in (3) is, which is noted by Kuroda (1965, 1969, 1970).

(3) John also came.

(3) can mean either "John as well as other person(s) came." or "John came as well as doing something else." (2a) can have only the former interpretation. As discussed in Kuroda (1965), cf. also Kuroda (1970), to express the latter interpretation for the English sentence in (3), we must say (4).

(4) John-ga ki-mo-sita
 -nom come-also-did

(John came as well as doing something else.)

There seems to be an interesting difference between (2a) and (2b) with respect to the semantic function of mo. As implied above, the basic meaning of mo is "also". Thus (2a) implies that someone other than John came. The example in (2b), on the other hand, does not seem to necessarily mean that someone other than John and Bill came. The example in (2b) can be uttered quite naturally when only John and Bill came while the example in (2a) cannot be uttered felicitously when only John came. It seems therefore that in (2b) the presence of John-mo "satisfies" the requirement that an individual other than Bill came, and the presence of Bill-mo, in turn, "satisfies" the requirement that an individual other than John came.⁶

The difference between (2b) and (2e) is also interesting to the extent that it is somewhat difficult to identify what the differences are and yet there are clearly some differences between the two. It seems that we can reasonably assume that the difference between them is analogous to the difference between (5a) and (5b), as is in fact indicated in the translations above, cf. Kuroda (1965, chapter 3).

(5) a. Both John and Bill came.

b. John and Bill came.

In English, both John and Bill but not John and Bill seems to behave like a quantifier, though marginally. Thus we have a contrast in (6).⁷

- (6) a. ?Both John and Bill_i will perhaps admire his_i son.
 b. *John and Bill_i will perhaps admire his_i son.

As will be shown below, both NP mo NP mo and NP to NP behave like quantifiers in Japanese, although the former seems to have more of the quantificational force than the latter, being reminiscent of the contrast observed in (6).

The difference between (2b) and (2e) on the one hand and (2d) on the other is as indicated by the translations. Only (2d) has the sense of "...and so on."

Just as daremo 'everyone' and dare 'who' can bind zibun and an empty pronominal, as we have seen in the preceding chapters, so can all of the quantifiers in (1), yielding bound variable interpretation for zibun and the empty pronominal. Thus observe:

- (7) a. John-mo_i zibun_i no kuruma-o katta
 -also self 's car-acc bought

(Lit. [John also]_i bought self_i's car.)

- b. John-mo_i [_{NP}[S e_i [_{VP} Ginza-de e_j katta]] yubiwa_j]-o suteta
 -also -at bought ring-o threw away

(Lit. [John also]_i threw away the ring that he_i bought at Ginza.)

- (8) a. John-mo Bill-mo_i zibun_i no kuruma-o katta
 (Lit. [Both John and Bill]_i bought self_i car.)
- b. John-mo Bill-mo_i [NP[S e_i [VP Ginza-de e_j katta]] yubiwa_j]-o suteta
 ([Both John and Bill]_i threw away the ring that he_i bought at Ginza.)
- (9) a. [NP[S Dare-ga e_j syootai sita] hito_j]-mo_i zibun_i no kuruma-o katta
 who-nom invited person-also self's car-acc bought
 (For all x, x=person, [the person that x invited]_i bought self_i's car.)
- b. [NP[S Dare-ga e_j syootai sita] hito_j]-mo_i
 [NP[S e_i [VP Ginza-de e_j katta]] yubiwa_j]-o suteta
 (For all x, x=person, [the person that x invited]_i threw away the ring that he_i bought at Ginza.)
- (10) a. John ya Bill_i-ga zibun_i no kuruma-o katta
 (Lit. [John and Bill and so on]_i bought self_i's car.)
- b. John ya Bill_i-ga [NP[S e_i [VP Ginza-de e_j katta]] yubiwa_j]-o suteta
 (Lit. [John and Bill and so on]_i threw away the ring that he_i bought at Ginza.)
- (11) a. John to Bill_i-ga zibun_i no kuruma-o katta
 (Lit. [John and Bill]_i bought self_i's car.)
- b. John to Bill_i-ga [NP[S e_i [VP Ginza-de e_j katta]] yubiwa_j]-o suteta
 (Lit. [John and Bill]_i threw away the ring that he_i bought at Ginza.)
- (12) a. John ka Bill_i-ga zibun_i no kuruma-o katta (rasii)
 (Lit. (It seems) [John or Bill]_i bought self_i's car.)

b. John ka Bill_i-ga [NP[S e_i [VP Ginza-de e_j katta]]yubiwa_j]-o suteta (rasii)

(Lit. (It seem) [John or Bill]_i threw away the ring that he_i bought at Ginza.)

(13) a. John sae_i(-ga) zibun_i no kuruma-o katta

([Even John]_i bought self_i's car.)

b. John sae_i(-ga) [NP[S e_i [VP Ginza-de e_j katta]] yubiwa_j]-o suteta

([Even John]_i threw away the ring that he_i bought at Ginza.)

It is quite easy to construct examples that show that these quantificational phrases can bind an empty pronominal while being in a non-subject positions as well, cf. chapter 2 for such examples, which I will not provide here.⁸

Recall that daremo 'everyone' and dare 'who' cannot bind, semantically, the overt pronominal kare 'he'.⁹ Thus we find the contrast as in (14).

(14) a. Dare_i-ga [NP[S e_i [VP Ginza-de e_j katta]] yubiwa_j]-o suteta no

(Who_i threw away the ring that he_i bought at Ginza?)

b. *Dare_i-ga [NP[S kare_i-ga [VP Ginza-de e_j katta]] yubiwa_j]-o suteta no

We find similar contrast with the quantificational phrases listed above. Thus in (15) kare 'he' cannot be construed as a variable bound to John-mo 'John also' while the empty pronominal e_i can, as shown in (7b).

(15) *John-mo_i [NP[S kare_i-ga [VP Ginza-de e_j katta]] yubiwa_j]-o suteta
 -also he-nom -at bought ring-o threw away

(Lit. [John also]_i threw away the ring that he_i bought at Ginza.)

The optional coreference between John and kare, on the other hand, is possible as indicated in (16).

(16) John_i-mo [NP[S kare_i-ga [VP Ginza-de e_j katta]] yubiwa_j]-o suteta
 -also he-nom -at bought ring-o threw away

(Lit. [John_i also] threw away the ring that he_i bought at Ginza.)

The difference between the intended but not possible interpretation of kare in (15) and the interpretation of kare in (16) is analogous to the difference we find in (17a) and (17b), discussed in chapter 2, cf. Partee (1975).

(17) a. [Only John]_i loves his_i mother.

b. [Only John_i] loves his_i mother.

(17a) but not (17b) implies (18).

(18) [No one but John]_i loves his_i(own) mother.

On the other hand, (17b) but not (17a) implies (19).

(19) John_i's mother is loved by no one else but John_i.

The other quantificational phrases listed above exhibit essentially the same contrast with respect to the possibility of bound variable interpretation for an empty pronominal and for the overt pronominal kare. Thus the following examples all contrast with the (b) examples in (7) through (13), in which the position of the overt pronominal kare is occupied by an empty pronominal.

(20) *John-mo Bill-mo_i [NP[S kare_i-ga [VP Ginza-de e_j katta]] yubiwa_j]-o suteta

([Both John and Bill]_i threw away the ring that he_i bought at Ginza.)

(21) *?[NP[S Dare-ga e_j syootai sita] hito_j]-mo_i

[NP[S kare_i-ga [VP Ginza-de e_k katta]] yubiwa_k]-o suteta

(For all x, x=person, [the person that x invited]_i threw away the ring that he_i bought at Ginza.)

(22) *John ya Bill_i-ga [NP[S kare_i-ga [VP Ginza-de e_j katta]]yubiwa_j]-o suteta

(Lit. [John and Bill and so on]_i threw away the ring that he_i bought at Ginza.)

(23) *John to Bill_i-ga [NP[S kare_i-ga [VP Ginza-de e_j katta]]yubiwa_j]-o suteta

(Lit. [John and Bill]_i threw away the ring that he_i bought at Ginza.)

(24) *John ka Bill_i-ga [NP[S kare_i-ga [VP Ginza-de e_j katta]]yubiwa_j]-o suteta

(Lit. [John or Bill]_i threw away the ring that he_i bought at Ginza.)

(25) *John-sae_i(-ga) [NP[S kare_i-ga [VP Ginza-de e_j katta]] yubiwa_j]-o

suteta¹⁰

([Even John]_i threw away the ring that he_i bought at Ginza.)

4.1.2 Weak Crossover

In this subsection, I will present some example sentences that illustrate that the phrases listed in (1) behave on a par with those discussed in chapter 2 with respect to weak crossover with empty pronominals.¹¹ First, consider the

following:

- (26) a. [NP[S' e_i e_j kakumatte ita] otoko_j]-ga [VP John_i-o uragitta] (koto)
 was protecting man-nom -acc betrayed

(The man that he_i was protecting betrayed John_i.)

- b. [NP[S' e_i mukasi e_j osieta] gakusei_j]-ga
 before taught student-nom

[VP imademo Yamada sensei_i-o oboete iru/sitatteiru] (koto)
 even now Prof. Yamada-acc remember/adore

(The students that he_i taught years ago still remember/adore Prof. Yamada_i.)

- c. [NP[S' e_i John-kara e_j azukatteita/kariteita] gakusei_j]-ga
 -from was asked to keep/borrowed student-nom

[VP sono hon_j-o nakusita] (koto)
 that book-acc lost

(The student who was asked to keep it_j/borrowed it_j lost that book_j.)

- d. [NP[S' e_i e_j kowasita/yogosita] kodomo_i]-ga [VP sono mado_j-o
 broke/made dirty child-nom that window-acc

naosite iru/kireini site iru] (koto)

(The child who broke it_j/made it_j dirty is fixing/is cleaning that window_j.)

- e. [NP[S' e_i mukasi e_j osieta] sensei_i]-ga [VP imademo sono gakusei_j-o
 before taught teacher-nom even now that student-acc

oboete iru/kirate iru (koto)
 remember/hates

(The teacher who taught him_j years ago still remembers/hates that student_j.)

c. *?[NP[S e_i John-kara e_j azukatteita/kariteita] gakusei]-ga
 -from was asked to keep/borrowed student-nom

[VP ano yubiwa-sae $_j$ (-o) nakusita] (koto)
 that ring-even(-acc) lost

(*The student who was asked to keep it_i /borrowed it_j lost
 [even that ring] $_j$.)

d. ??[NP[S e_i e_j kowasita/yogosita] kodomo]-ga [VP dono kyoositu no
 broke/made dirty child-nom which classroom's

mado-mo $_j$ naosite iru/kireini site iru] (koto)
 window-also is fixing/is cleaning

(*The child who broke it_j /made it_j dirty is fixing/is cleaning the
 window of any classroom $_j$.)
 (For all x , x =classroom, the child who broke it_i /made it_i dirty is
 fixing/cleaning [the window of x] $_i$)

e. *[NP[S e_i mukasi e_j osieta] sensei]-ga
 before taught teacher-nom

[VP imademo John mo Bill-mo $_j$ oboete iru/kirate iru] (koto)
 even now also also remember/hates

(*The teacher who taught him $_j$ years ago still remembers/hates [John
 as well as Bill] $_j$.)

The examples in (28) are to be compared with those in (29) below, in which
 the QP c-commands the e_i/e_j . Unlike the examples in (28), those in (29) allow
 the relevant bound variable interpretation for the e_i/e_j .

(29) a. John to Bill $_j$ -ga [VP [NP[S e_i e_j kakumatte ita] otoko]-o uragitta](koto)
 and -nom was protecting man-acc betrayed

(John and Bill $_j$ betrayed the man that he $_i$ was protecting.)

- b. Yamada sensei ya Suzuki sensei-ga [VP imademo
Prof. Yamada and Prof. Suzuki-nom even now
[NP[S e_i mukasi e_j osieta] gakusei]-o oboete iru/kiratteiru] (koto)
before taught student-acc remember/hate
([Prof. Yamada and Prof. Suzuki and so on]_i still remember/hate the
students that he_i taught years ago.)
- c. Bill-saei [VP [NP[S e_i John-kara e_j azukatteita/kariteita]
-even -from was asked to keep/borrowed
yubiwaji]-o nakusita] (koto)
ring-acc lost
([Even Bill]_i lost the ring that he_i borrowed/was asked to keep.)
- d. Dono kurasu no kodomo-mo_i [VP [NP[S e_i e_j kowasita/yogosita]
which class 's child-also broke/made dirty
mado]-o naosite iru/kireini site iru] (koto)
window-acc is fixing/is cleaning.)
(For All x, x=class, [the kid(s) in x]_i is fixing/is cleaning the window that
he_i broke/made dirty.)
- e. John mo Bill-mo_i [VP imademo [NP[S e_i mukasi e_j osieta] gakusei]-o
even now before taught student-acc
oboete iru/kiratte iru] (koto)
remember/hate
([Both John and Bill]_i still remember/hate the student
that he_i taught years ago.)

We have thus observed that the phrases listed in (1) behave like QP's with respect to WCO effects as well as "normal variable binding."

- b. [S Yamada sensei ya Suzuki sensei-o] [S [NP[S e_i mukasi e_j osieta] before taught

gakusei]-ga [VP imademo t_j oboete iru/sitatteiru]]] (koto)
 student-nom even now remember/adore

([Prof. Yamada, Prof. Suzuki and so on]_i, the students that he_i taught years ago still remember/adore t_j.)

- c. [S Ano yubiwa-sae] [S [NP[S e_i John-kara e_j that ring-even -from

azukatteita/kariteita] gakusei]-ga [VP t_j nakusita]]] (koto)
 was asked to keep/borrowed student-nom lost

(Lit. [Even that ring]_i, the student who was asked to keep e_i/borrowed e_j lost t_j.)

- d. [S Dono kyoositu no mado-mo] [S [NP[S e_i e_j kowasita/yogosita] which classroom's window-also broke/made dirty

kodomo]-ga [VP t_j naosite iru/kireini site iru]]] (koto)
 child-nom is fixing/is cleaning

(For all x, x=classroom, [the window of x]_i, the child who broke e_i/ made e_j dirty is fixing t_j/is cleaning t_j.)

- e. [S John mo Bill-mo] [S [NP[S e_i mukasi e_j osieta] sensei]-ga -also before taught teacher-nom

[VP imademo t_j oboete iru/kiratte iru]]] (koto)
 still now remember/hate

(Lit. [John as well as Bill]_i, the teacher who taught e_i years ago still remembers/hates t_j.)

The contrast between the examples in (29) and (32) on the one hand, where the bound variable interpretation is allowed, and those in (28), where the bound variable interpretation is disallowed, on the other, is clear.

I repeat the importance of paying attention to the bound variable interpretation of the relevant empty categories rather than to the optional coreference between the empty pronominal and its referential antecedent. Take the (a) examples of (28), (29) and (32), for example.

(28) a. * $[NP[S \ e_i \ e_j \text{ kakumatte ita}] \text{ otoko}_j]$ -ga $[VP \text{ John to Bill}_i$ -o uragitta]
 was protecting man-nom and -acc betrayed

(*The man that he_i was protecting betrayed John and Bill_i.)

(29) a. John to Bill_i-ga $[VP [NP[S \ e_i \ e_j \text{ kakumatte ita}] \text{ otoko}_j]$ -o uragitta]
 and -nom was protecting man-acc betrayed

(John and Bill_i betrayed the man that he_i was protecting.)

(32) a. $[S \text{ John to Bill}$ -o_i $[S [NP[S \ e_i \ e_j \text{ kakumatte ita}] \text{ otoko}_j]$ -ga
 and -acc was protecting man-nom

$[VP \ t_i \text{ uragitta}]$] (koto)
 betrayed

(Lit. [John and Bill]_i, the man that e_i was protecting betrayed t_i.)

(28a) is in fact grammatical with the interpretation in which John to Bill and e_i corefer. Under this reading e_i is plural rather than singular. The translation for the sentence would then be (33).

(33) The man/men that they_i were protecting betrayed John and Bill_i.)

The sentence, now grammatical under this reading, does not, however, carry the sense of John and Bill each have the property of being betrayed by the man/men that he was protecting. This distributive sense is not available in (28a), whereas it is in (29a) and (32a). In fact, the contrast becomes even

sharper if we force the distributive reading of these sentences by adding sorezore 'each'. Thus consider:

(34) * $[\text{NP}[\text{s } e_i e_j \text{ kakumatte ita}] \text{ otoko}_j]\text{-ga}$
was protecting man-nom

$[\text{VP} \text{John to Bill}_i\text{-o } \text{sorezore } \text{uragitta}] \text{ (koto)}$
and -acc each betrayed

(*The man/men that he_i was protecting betrayed John and Bill_i each.)

(35) John to Bill_i-ga sorezore
each

$[\text{VP } [\text{NP}[\text{s } e_i e_j \text{ kakumatte ita}] \text{ otoko}_j]\text{-o } \text{uragitta}] \text{ (koto)}$
was protecting man-acc betrayed

(John and Bill_i each betrayed the/a man that he_i was protecting.)

(36) $[\text{s } \text{John to Bill}\text{-o}_i \text{ sorezore } [\text{s } [\text{NP}[\text{s } e_i e_j \text{ kakumatte ita}] \text{ otoko}_j]\text{-ga}]$
each was protecting man-nom

$[\text{VP } t_j \text{ uragitta}]] \text{ (koto)}$
betrayed

(Lit. [John and Bill each]_i, the man that e_i was protecting betrayed t_j.)

It seems that the examples in (35) and (36) allow, and in fact must have, the reading of betrayal taking place separately. The example in (34) simply does not have that reading.¹³

- c. [S [NP[S e_i [VP Ginza-de e_j katta]] yubiwa $_j$]-o $_k$
 [S [NP[S dare-ga e_j syootai sita] hito $_j$]-mo $_i$ [VP t_k suteta]]]
 (For all x, x=person, [the ring that he $_i$ bought at Ginza] $_k$, [the person that x invited] $_j$ threw away .)
- d. [S [NP[S e_i [VP Ginza-de e_j katta]] yubiwa $_j$]-o $_k$
 [SJohn ya Bill $_i$ -ga [VP t_k suteta]]]
 (Lit. [The ring that he $_i$ bought at Ginza] $_k$, [John and Bill and so on] $_j$ threw away .)
- e. [S [NP[S e_i [VP Ginza-de e_j katta]] yubiwa $_j$]-o $_k$
 [SJohn to Bill $_i$ -ga [VP t_k suteta]]]
 (Lit. [The ring that he $_i$ bought at Ginza] $_k$, [John and Bill] $_j$ threw away .)
- f. [S [NP[S e_i [VP Ginza-de e_j katta]] yubiwa $_j$]-o $_k$
 [SJohn ka Bill $_i$ -ga [VP t_k suteta]]] (rasii)
 (Lit. (It seem) [The ring that he $_i$ bought at Ginza] $_k$, [John or Bill] $_j$ threw away .)
- g. [S [NP[S e_i [VP Ginza-de e_j katta]] yubiwa $_j$]-o $_k$
 [SJohn sae $_i$ (-ga) [VP t_k suteta]]]
 ([The ring that he $_i$ bought at Ginza] $_k$, [even John] $_j$ threw away .)

4.1.5 Scope Interaction

The phrases listed in (1) also participate in scope interaction. For example (39a) and (39b) have very distinct interpretations with respect to the scope order of John ya Bill 'John and Bill and so on' and dareka 'someone'.

(39) a. [SJohn ya Bill-ga [VPdareka-o syootaisita]]
 someone-acc invited

(John and Bill and so on invited someone.)

b. [SDareka-ga [VPJohn ya Bill-o syootaisita]]
 someone-nom invited

(Someone invited John and Bill and so on.)

(39a) means that for a group of people including John and Bill, there is someone who each of the members of the group invited. (39b), on the other hand, means that there is someone who invited a group of people including John and Bill.

Since dareka 'someone' can mean a specific person, (39a) could be interpreted as expressing the scope relation that (39b) expresses, in terms of two quantificational phrases there. However, such possibility of scope ambiguity does not mean the scope interpretation is free in general since (39b) simply cannot express the scope order that (39a) can express, namely, the interpretation in which John ya Bill 'John and Bill and so on' takes wide scope with respect to dareka 'someone'.

When we use a phrase like John ka Bill 'John or Bill', which as a whole cannot refer to a specific individual, the contrast intended by the examples in (39) becomes even sharper. Thus consider.

(40) a. [SJohn ka Bill-ga [VP sake mo biiru-mo nonda]]
 or -nom also beer-mo drank

(John or Bill drank both sake and beer.)

- b. [_SJohn mo Bill-mo [_{VP}sake ka biiru-o nonda]]
 also -also or beer-acc drank

(Both John and Bill drank sake or beer.)

While (40a) means something like (41a), the interpretation of (40b) is something like (41b). The scope order is not interchangeable.

(41) a. It is John or Bill that drank both sake and beer.

b. It is both John and Bill that drank sake or beer.

Similar examples given in (42) have the cleft paraphrases in (43). (43a) corresponds to (42a); and (43b) to (42b).

- (42) a. [_SJohn ka Bill-ga [_{VP}sake to biiru-o nonda]]
 or -nom and -acc drank

(John or Bill drank sake and beer.)

- b. [_SJohn to Bill-ga [_{VP}sake ka biiru-o nonda]]
 and -nom or -acc drank

(John and Bill drank sake or beer.)

- (43) a. [_S e_i [_{VP}sake to biiru-o nonda]]no]wa [_{NP}John ka Bill]_i da

(It is John or Bill that drank sake and beer.)

- b. [_SJohn to Bill-ga [_{VP} e_i nonda]]no]wa [_{NP}sake ka biiru]_i da

(It is sake or beer that John and Bill drank.)

A few more examples are provided below for further illustration of the scope interaction exhibited by the phrases listed in (1).

- (44) a. [NP[S_{Dare-ga} [VP e_i osieta]]gakusei_i]-mo [VPnanika-o mottekita]]
 who-nom taught student-also something-acc brought

(For all x, x=person, [NPthe student that x taught] brought something.)

- b. [SDareka-ga [VP [NP[S_{dare-ga} [VP e_i kaita]] repooto_i]-mo mottekita]
 someone-nom who-nom wrote report-also brought

(There is someone y such that for all x, x=person, y brought
 [the report that x wrote])

The contrast observed in (44) with respect to the scope interpretation is thus essentially the same as that in (45).

- (45) a. Daremo-ga dareka-o semeta
 everyone-nom someone-acc criticized

- b. Dareka-ga daremo-o semeta
 someone-nom everyone-acc criticized

In (45a) the universal quantifier takes wide scope while in (45b) the existential quantifier takes wide scope. We also find a similar contrast in (46).

- (46) a. [S [NPJohn to Bill]-ga sorezore [VPdareka-o syootaisita]]
 and -nom each someone-acc invited

(John and Bill each invited someone.)

- b. [SDareka-ga [VP [NPJohn to Bill]-o sorezore syootaisita]]
 someone-nom and -acc each invited

(Someone invited John and Bill each(each of John and Bill).)

In this section I have introduced several phrases that behave like QP's. As we have seen, they all exhibit the cluster of properties that "regular" QP's exhibit. In section 2, I will consider quantifier scope interpretation in Japanese

more in detail.

4.2. Quantifier Scope in Japanese

In Kuroda (1970), it is observed that the surface order of quantifiers affects their scope order. Consider his examples in (47).¹⁴

(47) (=Kuroda's (54), p.136)

(Kono ie-no) dareka-ga (kono heya-no) subete-no hon-o yonda
 this house-gen someone-nom this room-gen all-gen book-acc read

(Someone (in this house) read all the books (in this room).)

(48) (Kuroda's (59), p.137)

(Kono ie-no) subete-no hon-o (kono heya-no) dareka-ga yonda
 this house-gen all-gen book-acc this room-gen someone-nom read

Kuroda observes that while (47) means that there is someone (in this house) who read all the books (in this room), (48) "seems to allow two readings, one synonymous with that assigned to [(47)] and the other with the inverted semantic order of quantifiers, i.e., meaning that for each book (in this room) there is someone (in the house) who has read it." His generalizations are given in (49).¹⁵

(49) If a predicate corresponds to a sentence frame with the "preferred" word order, the semantic order of quantifiers is given by their linear order; if a predicate corresponds to a sentence frame with "inverted" word order, the semantic order of quantifiers is ambiguous.

(Kuroda;1970, 138)

With the assumption that (50a) is the "preferred" word order, (49) states that while the subject QP takes wide scope in (51a), the scope order is ambiguous in (51b).

(50) NP-ga NP-o V
 -nom -acc

(51) a. QP-ga QP-o V
 b. QP-o QP-ga V

Kuno (1973) also discusses the quantifier scope interpretation in Japanese and provides the following rules for quantifier interpretation.

(52) Kuno's Rules for Quantifier Interpretation (for Japanese)

- a. Rule 1. If a simple sentence contains two quantifiers Q1 and Q2 in that order in the basic word order representation, assign to Q1 "the same Q1" interpretation, and to Q2 the "different Q2 for each member of Q1" interpretation.
- b. Rule 2. If Q1-Q2 reverses [obtains H.H.] its word order because of the preposing of Q1, assign "the same Q2, the same Q1" interpretation.
- c. Rule 3. If Q1-Q2 reverses [obtains H.H.] its word order because of the postposing of Q2, retain interpretation that obtained before word order changes.

Kuno (1973, 384)

The rules that are of direct relevance to our discussion here are Rule 1 and Rule 2. Rule 1 states basically the same generalization noted in Kuroda

(1970). The examples that Kuno gives are those in (53).¹⁶

(53) (Kuno's (21), p. 360)

- a. Yonin-no syoonen-ga sannin-no syoozyo-o syotaisita
four-gen boy-nom three-gen girls-acc invited

(Four boys invited three girls.)

- b. Sannin-no syoozyo-ga yonin-no syoonen-ni syotaisareta
three-gen girl-nom four-gen boy-by were invited

(Three girls were invited by four boys.)

Excluding the possibility of the interpretation that a group of four boys have invited a group of three girls, (53a) and (53b) have interpretations given in (54a) and (54b), respectively.

(54) (Cf. Kuno's (22), p. 360.)

- a. Each of the same four boys has invited three (possibly) different girls. (4 boys, and minimum 3, maximum 12 girls involved)
- b. Each of the three girls has been invited by four (possibly) different boys. (minimum 4, maximum 12 boys, and 3 girls involved.)

Thus in (53a) yonin-no syoonen 'four boys' takes wide scope while in (53b), sannin-no syoozyo 'three girls' takes wide scope, which is quite consistent with the observation made by Kuroda (1970).¹⁷

Now let us consider Rule 2. According to Kuno, examples like (55) are not ambiguous.

(55) (Kuno's (23), p.361)

Sannin-no syoozyo-o yonin-no syoonen-ga syootaisita koto ga aru
 three-gen girl-acc four-gen boy-gen invited have an experience

(Lit. Three girls, four boys have the experience of inviting.)

He reports that (55) only allows the interpretation given in (56).

(56) (Kuno's (22a))

Each of the same four boys has invited each of the same
 three girls. (4 boys and 3 girls involved)

The interpretation in (56) is basically that of the "group" reading on each NP with a cardinal.

However, I find (55) ambiguous with respect to its scope interpretation; i.e., I find in (55) the kind of ambiguity that Kuroda (1970) discusses of the example in (48).¹⁸ Furthermore, when certain quantifiers, such as A ka B "A or B", that do not allow "the same" reading or "specific" reading, are used in a sentence, Rule 2 in (52) cannot handle the scope interpretation of such a sentence. Note that his rules, taken literally, refer to "the same" and "different" QP's. It seems that the example in (57) allows scope ambiguity, as compared to the unambiguous example in (58).

(57) Sake ka biiru-o John mo Bill mo nonda (rasii)
 or beer-acc also also drank (it seems)

((It seems) sake or beer, both John and Bill so on drank.)

(58) (=40b))

John mo Bill mo sake ka biiru-o nonda (rasii)
 also also or beer-acc drank (it seems)

((It seems) both John and Bill drank sake or beer.)

While (58) means only (59b), (57) seems to mean either (59a) or (59b).

(59) a. $E x, x \in \{\text{sake, beer}\}, A y, y \in \{\text{John, Bill}\}, y \text{ drank } x$

b. $A y, y \in \{\text{John, Bill}\}, E x, x \in \{\text{sake, beer}\}, y \text{ drank } x$

(where E stands for "there exists a..." and A stands for "for all",
 and \in stands for "is a member of the set {...}.")

For this reason, I accept Kuroda's(1970) descriptive generalization on the scope interpretation of Japanese quantifiers, given in (49).¹⁹ According to this generalization, (60a) is unambiguous while (60b) is ambiguous in quantifier scope interpretation.

(60) a. QP-ga QP-o V

b. QP-o QP-ga V

The examples in (39) through (46) also seem to become ambiguous when the object QP is preposed to the sentence initial position. Some of the sentences that are obtained from examples in (39) through (46) by preposing the object QP are provided below with two interpretations each.

(61) (Cf. (39a).)

[S Dareka-o_i [S [NP John ya Bill]-ga [VP t_i syootaisita]]]
 someone-acc and -nom invited

(E x, x=person, John and Bill and so on invited x)
 (For each of John and Bill and so on_j, E x, x=person, he_j invited x)

(62) (Cf. (42a).)

[S [NP Sake to biiru]-o_i [S [NP John ka Bill]-ga [VP t_i nonda]]] (rasii)
 and beer-acc or -nom drank (it seems)

(A x, x ϕ {sake, beer}, E y, y ϕ {John, Bill}, y drank x)
 (E y, y ϕ {John, Bill}, A x, x ϕ {sake, beer}, y drank x)

(63) (Cf. (44a).)²⁰

[S Nanika-o_i [S [NP [sdare-ga [VP e_i osieta]] gakusei]-mo
 something-acc who-nom taught student-also

[VP t_i mottekita]]]
 brought

(E x, x=thing, A y, y=person, the student that y taught brought x)

(64) (Cf. (46a).)

[S Dareka-o_i [S John to Bill-ga sorezore [VP t_i syootaisita]]]
 someone-acc and -nom each invited

(E x, e=person, John and Bill each invited x)
 (For each of John and Bill_j, E x, x=person, he_j invited x)

4.3. Representing Quantifier Scope

In 4.2, we have seen that while (65a) is unambiguous, (65b) is ambiguous.

(65) a. QP-ga QP-o V

b. QP-o QP-ga V

In this section, I will try to provide an account of this contrast.

Before proceeding, we must consider how a quantifier scope is to be represented, in general. Here I will assume, without discussion, that the scope of a quantifier is its c-command domain at LF, as in May (1977) and Huang (1982), with the first branching definition of "c-command".²¹ With this assumption, May (1977) accounts for the ambiguity of the familiar example in (66) by assigning two representations to it at the level of LF, as shown in (67).

(66) [s someone [VP loves everyone]]

(67) a. [s someone_i [s everyone_j [s t_i [VP loves t_j]]]]

b. [s everyone_j [s someone_i [s t_i [VP loves t_j]]]]

The unambiguous (65a), according to this analysis of quantifier scope, then suggests that while (68a) is a possible representation for (65a), (68b) is not.²²

(68) a. [s QP_i-ga [s QP_j-o [s t_i [VP t_j V]]]]

b. *[s QP_i-o [s QP_j-ga [s t_j [VP t_i V]]]]

In discussing Chinese quantificational sentences, which, like our examples of the form (65a), allow only unambiguous scope interpretations, Huang (1982) proposes a condition like the following.

(69) Suppose A and B are both QP's or Q-NP's (quantified NP's) or Q-expressions, then if A c-commands B at SS(S-structure), A also c-commands B at LF.

Huang (1982; 220)

(69) is essentially a restatement of Reinhart's (1976) Scope Principle in (70).²³

(70) A logical structure in which a quantifier binding a variable \underline{x} has wide scope over a quantifier binding a (distinct) variable \underline{y} is a possible interpretation for a given structure S just in case in the surface structure of S the quantified expression corresponding to \underline{y} is in the (c-command) domain of the quantified expression corresponding to \underline{x} .

Reinhart (1976; 191)

In addition to examples of the form (65a), sentences like (71), which are basically Japanese analogues of some of Huang's (1982) Chinese examples, are also unambiguous.

(71) a. Daremo-ga ituka sinu
everyone-nom some day die

(Everyone will die some day.)

b. Ituka daremo-ga sinu
some day everyone-nom die

(Some day, everyone will die.)

(71a) expresses truth about human mortality whereas (71b) expresses something like "One day, it will happen that everyone will die." It seems that all of the examples in (72) and (73) are also unambiguous.

(72) a. John-ga nityoobi ka doyoobi-ni
 -nom Sunday or Saturday-on

ekimae ya kooen-de gitaa-o hiiteiru (koto)
 in-front-of-station and park-at guitar-acc plays

(On Sunday or Saturday, John plays the guitar in front of the station, at the park and so on.)

b. John-ga ekimae ya kooen-de
 -nom in-front-of station and park-at

nityoobi ka doyoobi-ni gitaa-o hiiteiru (koto)
 Sunday or Saturday-on guitar-acc plays

(In front of the station, at the park and so on, John plays the guitar on Sunday or Saturday.)

(73) a. John-ga nityoobi ya doyoobi-ni
 -nom Sunday and Saturday

ekimae ka kooen-de gitaa-o hiiteiru (koto)
 in-front-of-station or park-at guitar-acc plays

(On Sunday and on Saturday and so on, John plays the guitar in front of the station or at the park.)

b. John-ga ekimae ka kooen-de
 -nom in-front-of station or park-at

nityoobi ya doyoobi-ni gitaa-o hiiteiru (koto)
 Sunday and Saturday-on guitar-acc plays

(In front of the station or at the park, John plays the guitar on Sunday and on Saturday and so on.)

(72a) and (72b) have the cleft paraphrases in (74a) and (74b); (73a) and (73b) have their cleft paraphrases in (75a) and (75b).

(74) a. [_SJohn-ga ekimae ya kooen-de gitaa-o hiiteiru] no wa
 -nom station-front or park-at guitar-acc plays

nityoobi ka doyoobi(-ni) da
 Sunday or Saturday(-on) Copula

(It is on Sunday or on Saturday that John plays the guitar in front of the station and at the park and so on.)

b. [_SJohn-ga nityoobi ka doyoobi-ni gitaa-o hiiteiru]no wa
 -nom Sunday or Saturday-on guitar-acc plays

ekimae ya kooen(-de) da
 station-front and park(-at) Copula

(It is in front of the station and at the park and so on that John plays the guitar on Sunday or on Saturday.)

(75) a. [_SJohn-ga ekimae ka kooen-de gitaa-o hiiteiru] no wa

nityoobi ya doyoobi(-ni) da

(It is on Sunday, on Saturday and so on that John plays the guitar in front of the station or at the park.)

b. [_SJohn-ga nityoobi ya doyoobi(-ni) gitaa-o hiiteiru] no wa

ekimae ka kooen(-de) da

(It is in front of the station or at the park that John plays the guitar on Sunday, on Saturday and so on.)

Crucially, the scope order of the quantifiers in (72) and (73) as well as that in (71) does not seem to be reversible.

What the above observations amount to is that with adverbials that are quantificational, i.e., with scope-bearing adverbials, the surface order, more precisely, the S-structure c-command relation among them, determines their relative scope order.²⁴ Unlike the cases of the subject and the object QP's,

the reversing the order of the QP's does not result in scope ambiguity.

Taking the unambiguous (65a) and the unambiguous (71), (72) and (73) as core cases at the moment, let us suppose that something like Huang's condition in (69) also applies to Japanese. We can for example formulate Huang's condition as in (76).

(76) at LF $*QP_i QP_j t_j t_i$ where each member c-commands²⁵ the member to its right

Roughly speaking, the condition in (76) states, as (69) does, that the c-command relation among the two QP's cannot be reversed through the application of movement, with the relevant movement being Quantifier Raising at this point.²⁶ With (76), we can account for the unambiguous scope interpretation in examples of the form (65a) and those in (71), (72) and (73).

Although we now have an account for scope unambiguity of (65a), (71), (72) and (73), the ambiguity of examples of the form (65b) is yet to be accounted for, especially in the light of the condition in (76). The contrast we have here is that while the reversing of the order of QP's in (65a), repeated here as (77a), results in scope ambiguity, such reversing of the QP order does not result in scope ambiguity in (78) or in (79).

(77) a. QP-ga QP-o V unambiguous

b. QP-o QP-ga V ambiguous

(78) a. QP-ga Q-Adv(erbial) V unambiguous

b. Q-Adv QP-ga V unambiguous

- (79) a. Q-Adv_i Q-Adv_j V unambiguous
 b. Q-Adv_j Q-Adv_i V unambiguous

Let us first consider (77a). The logically possible LF representations for (77a) are (80a) and (80b). (By "logically possible", I mean "logically possible within the context of the present discussion." It is assumed here that quantifiers obligatorily undergo the rule of Quantifier Raising. This qualification applies whenever "logically possible" is used hereafter.)

- (80) a. [_S QP_{i-ga} [_S QP_{j-o} [_S t_i [_{VP} t_j]]]]
 b. [_S QP_{j-o} [_S QP_{i-ga} [_S t_i [_{VP} t_j]]]]

Since (80b) violates the condition in (76), (80a), in which QP_{i-ga} c-commands QP_{j-o}, is the only possible LF representation for (77a), consistent with the unambiguous scope interpretation of (77a). Skipping (77b), let us consider the structures in (78) and (79). Although we do not yet know the S-structure positions of the relevant phrases in these structures, let us assume that there is no movement involved in their derivation. The logically possible LF representations for these structures would then be as in (81) and (82), for (78), and as in (83) and (84), for (79).

(81) for (78a)

- a. [_S QP_{i-ga} [_S Q-Adv_j [_S t_i [_{VP} t_j ...]]]]²⁷
 b. [_S Q-Adv_j [_S QP_{i-ga} [_S t_i [_{VP} t_j ...]]]]]

(82) for (78b)

a. [S Q-Adv_i [S QP_j-ga [S t_i [S t_j [VP ...]]]]]²⁸

b. [S QP_j-ga [S Q-Adv_i [S t_i [S t_j [VP ...]]]]]

(83) for (79a)

a. [S Q-Adv_i [S Q-Adv_j [S t_i [S t_j]]]]]

b. [S Q-Adv_j [S Q-Adv_i [S t_i [S t_j]]]]]

(84) for (79b)

a. [S Q-Adv_j [S Q-Adv_i [S t_j [S t_i]]]]]

b. [S Q-Adv_i [S Q-Adv_j [S t_j [S t_i]]]]]

In (81) through (84), the (b) examples are ruled out by the condition in (76).

The examples of the structures in (78) and (79) therefore have only the interpretation that corresponds to the (a) example in (81) through (84), again consistent with our judgments on the relevant examples.

Finally let us consider the structure in (77b). Its S-structure representation, as the discussion in the preceding chapters as well as arguments in the works cited there justify, is like (85).

(85) [S QP-_{oi} [S QP-ga [VP t_i V]]]

Its logically possible LF representations should then be as in (86).

(86) a. [S QP-_{oi} [S QP_j-ga [S t_i [S t_j [VP t_i V]]]]]

b. [S QP_j-ga [S QP-_{oi} [S t_i [S t_j [VP t_i V]]]]]

Among the two logically possible LF representations, only (86a) is predicted to be allowed at this point since (86b) violates the condition in (76). Recall that examples that correspond to (86b) are ambiguous in their scope interpretation. Thus we expect it to be possible for $\underline{QP_j-ga}$ to c-command $\underline{QP-o_i}$ at the level of LF, as indicated in (86b), without violating the condition in (76).

One possibility, suggested to me by Joseph Emonds (personal communication), is to assume that the intermediate trace in (86b) does not count for the condition in (69). This suggestion is in fact reasonable since the subcategorizational properties of the verb (or the Projection Principle of Chomsky (1981)) do not require the intermediate trace to be present there. Other principles like the Empty Category Principle or the prohibition on vacuous quantification will not force the intermediate trace to be there, either. Thus it seems reasonable to assume that the intermediate trace in (86b) is optionally present, along the way Lasnik and Saito (1984) assume the optionality of the trace-leaving by Move @; cf. Pesetsky (1982).

Given this assumption on the optionality of the intermediate trace, we can account for the possibility of the interpretation that corresponds to (86b). Although (86b) itself is still disallowed due to the condition in (76), (77b) can now have an LF representation like (87), in which $\underline{QP_j-ga}$ c-commands $\underline{QP-o_i}$ without violating the condition in (76).

(87) [s QP_j-ga [s QP_{-o_i} [s __ [s t_j [VP t_i V]]]]²⁹

Thus examples that correspond to the structure in (77b), repeated here as (88), are now predicted to allow the interpretation in which the subject QP

takes wide scope with respect to the object QP, thereby accounting for the scope ambiguity of such examples.

(88) QP-o QP-ga V

One might wonder at this point what prevents us from assigning two S-structure representations to each of the examples that have structures in (78) and (79). (78) and (79) are repeated here as (89) and (90).

(89) a. QP-ga Q-Adv(erbial) V unambiguous

b. Q-Adv QP-ga V unambiguous

(90) a. Q-Adv_i Q-Adv_j V unambiguous

b. Q-Adv_j Q-Adv_i V unambiguous

If the first QP has been preposed to that position in (89) and (90), as illustrated in (91), we should expect the structures in (89) and (90) to exhibit scope ambiguity just as in the case of (77b).

(91) [QP_i [QP [t_i ...]]]

There are two considerations that suggest that (91) is not what we expect to be an S-structure representation for (89) and (90).

First, in the case of (89a), what would be proposed is the subject NP. We have independent reason to assume that subject NP's do not undergo syntactic movement. Here, I will briefly review a few arguments, advanced in Saito (1985), for this hypothesis.

Saito (1984) observes the contrast illustrated in (92).³⁰

(92) a. Dare-ga nani(-o) tabeta no
 who-nom what(-acc) ate

(Who ate what?)

b. Dare*(-ga) nani-o tabeta no

The contrast is that while the accusative marker is optional, the nominative marker is obligatory. Based on this observation, Saito argues that the accusative marker o is a phonetic realization of abstract Case assigned by the verb and that the nominative marker ga is not a phonetic realization of abstract Case but rather a case that is assigned structurally, very much like the English genitive Case. Thus, it is concluded that while the object NP is in the Case-marked position, the subject NP is not. Since the subject position is not in a Case-marked position, it cannot undergo "Scrambling", which is taken to be a syntactic adjunction operation, leaving a variable left behind, due to the condition that says (93), cf. Chomsky (1981).³¹

(93) Variables must have Case.

Saito argues that by adopting this analysis, not only can we account for the contrast illustrated in (92) but we can account for the contrast observed by Kuroda (1980) and Haig (1980). Kuroda and Haig, independently, observe that the "floated" cardinal can be associated with the object NP across the subject but not with the subject across the object NP. The following examples illustrate the contrast.

(94) a. Sake-o gakusei-ga sanbon nonda
 sake-acc student-nom three bottles drank

(Students drank three bottles of sake.)

b. *Gakusei-ga sake-o sannin nonda
 student-nom sake-acc three(persons) drank

(Three students drank sake.)

Assuming that the possibility of the association of the cardinal with the object NP in (94a) is due to the syntactic preposing of the object NP, i.e., that the association between them is mediated by the trace of the object NP, as in (95), the impossibility of such association between the cardinal and the subject NP in (94b) indicates that (94b) does not, in fact cannot, have the structure like (96). This in turn suggests that the preposing of the subject as in (96) is not possible.³²

(95) [_S sake-o_i [_S gakusei-ga [_{VP} t_j sanbon nonda]]]

(96) *[[_S gakusei-ga_i [_S sake-o_j [_S t_j sannin [_{VP} t_j nonda]]]]]

If (96) were allowed, we would incorrectly predict the sentence in (94b) to be grammatical. Thus the ungrammaticality of (94b) constitutes evidence that the subject cannot be preposed by syntactic movement.

If the subject NP cannot be preposed syntactically, then (89a) cannot have a structure like (91). Therefore the ambiguity of quantifier scope interpretation is correctly predicted to be disallowed.

Now that we have excluded the possibility of (89a)'s having a structure like (91), what remains to be excluded is the possibility of (89b) and (90)'s having a structure like (91). Notice that an adverbial would be preposed in these structures, as indicated in (97b), if the structures were to allow scope ambiguity. This contrasts with the structure that allows scope ambiguity since in that structure the object NP is preposed, as in (97a).

(97) a. [_SQP-o_i [_S QP-ga [_{VP} t_i]]]

b. [_SQ-Adv_i [_SQP-ga [_{VP} t_i]]]

As we have already seen, there is strong evidence that the sentence-initial object NP in examples that correspond to (97) is in fact moved to that position. As long as it is syntactically preposed to that position, it is reasonable to assume that its trace is present in its extraction site as indicated in (97a). Otherwise the Projection Principle would be violated, i.e., the subcategorizational requirement on the verb would not be satisfied. (As noted above, an intermediate trace is not subject to this consideration.)

With respect to the sentence initial Q-Adv in (97b), it is not clear that it has been preposed to that position. Suppose it in fact has been preposed by

syntactic adjunction, just as in the case of the sentence-initial NP- \bar{Q} in (97a). Such movement may not require leaving a trace behind since no principles seem to require the trace, with the Q-Adv not being subcategorized by the verb.³³ Thus even under the assumption that the sentence-initial Q-Adv is preposed at S-structure, the movement does not necessarily involve trace.

Recall, however, that we must exclude the possibility of a structure like (97b), in which the Q-Adv and t_i are related by means of syntactic movement. Therefore, with the assumption that adverbials are also subject to Move @, a null hypothesis for the maximal generality of Move @, it seems necessary at this point to stipulate that syntactic movement of adverbials does not leave a trace.³⁴ One possibility for deriving this stipulation is to assume that arguments and non-arguments are represented in drastically distinct fashions in that they do not even appear on the same tree up to a certain point of derivation, basically the idea of three-dimensional representations as in Williams (1978) and Goodall (1984), cf. also a recent proposal by Safir (1985) on related problems. Under this speculative assumption, we might be able to say that the properties of Move @ simply do not obtain in one type of representation.

Although the way we prohibit the structure in (97b) is not quite clear, while we have strong evidence for assuming the structure in (97a), the evidence for assuming (97b) seems slim.³⁵ In the ensuing discussion, therefore, I will assume that while (97a) is allowed, (97b) is not.³⁶

In this section, we have considered how we can derive the contrast that we have observed with respect to quantifier scope interpretation in certain Japanese sentences. I have adopted and proposed a specific formulation of

Huang's (1982) condition on quantifier scope interpretation and have argued that the relevant scope ambiguity/unambiguity contrast can be accounted for by this condition together with the assumption that Move @ leaves a trace optionally. In the next section, I will consider quantifier scope interaction among the two object NP's.

4.4. VP-Internal Phrase Structure

With the analysis of quantifier scope in Japanese presented in the preceding section, let us consider sentences in which both the direct object and the indirect object NP's are quantificational. As noted briefly in chapter 2, the examples in (98) seem to be unambiguous with respect to their quantifier scope interpretation.³⁷

(98) a. John-ga daremo-ni [_{NP}Bill ka Mary]-o syookaisita (koto)
 -nom everyone-dat or -acc introduced

(John introduced Bill or Mary to everyone.)

b. John-ga sannin-no onna-ni hutari-no otoko-o syookaisita (koto)
 -nom three women-dat two men-acc introduced

(John introduced two men to three women.)

It seems that daremo 'everyone' takes wide scope in (98a) and that sannin no onna 'three women' takes wide scope in (98b).

On the other hand, if the order of the indirect and the direct object NP's are reversed, as in (99), the scope interpretation becomes ambiguous.

(99) a. John-ga [NP Bill ka Mary]-o daremo-ni syookaisita (koto)
 -nom or -acc everyone-dat introduced

(John introduced Bill or Mary to everyone.)

b. John-ga hutari-no otoko-o sannin-no onna-ni syookaisita (koto)
 -nom two men-acc three women-dat introduced

(John introduced two men to three women.)

It seems that while (98a) means only (100a), (99a) means either (100a) or (100b).

(100) a. A x, x=person, E y, $y \notin \{\text{Bill, Mary}\}$, John introduced y to x

b. E y, $y \notin \{\text{Bill, Mary}\}$, A x, x=person, John introduced y to x

A similar contrast is observed between (98b) and (99b).

Given our assumption in this study, i.e., that "c-command" rather than "precedence" is crucial for quantifier scope interpretation, the unambiguity of (98a) and (98b) indicates that the indirect object NP and the direct object NP appear as in (101a) rather than as in (101b).

(101) a. [_{VP} NP-ni NP-o]

b. [_{VP} NP-ni [_{V'} NP-o]]

While the two NP's c-command each other in (101a), the indirect object NP-ni asymmetrically c-commands the direct object NP-o in (101b).

If the VP-internal structure is as in (101a), either NP-ni or NP-o can c-command the other at the level of LF since the condition in (76) will not be violated in either case. It would thus be predicted, under the assumption that

the VP-internal structure is as in (101a), that the examples in (98) are ambiguous. But this is an incorrect prediction. On the other hand, if the VP-internal structure is as in (101b), NP-ni must c-command NP-o at the level of LF. If NP-o c-commands NP-ni at the level of LF, the S-structure c-command relation between the two QP's would be reversed at the level of LF, hence violating the condition in (76). Thus the unambiguity of the examples in (98) is correctly predicted. The scope unambiguity of examples like (98) thus constitutes evidence that the VP-internal structure in Japanese is binary.

Scope ambiguity in examples like (99), on the other hand, can be viewed as evidence that the NP-o NP-ni order is derived from the NP-ni NP-o order by the preposing of the NP-o. Recall that in the preceding discussion scope ambiguity in examples of the form (102a), as opposed to those of the form (102b), has been attributed to the syntactic movement of the object QP, as indicated in (102c).

- (102) a. QP-o QP-ga V (ambiguous)
 b. QP-ga QP-o V (unambiguous)
 c. [_S QP-o_i [_S QP-ga [_{VP} t_i V]]]

The scope ambiguity observed in (99), as opposed to (98), is analogous to the situation in (102). Thus we can attribute the scope ambiguity in (99) to the syntactic preposing of QP-o, as indicated in (103c).³⁸

b. John-ga [VP[NP bara ka wain]-o_i
-nom rose or wine-acc

[VP [NP Susan ya Mary]-ni [V' t_i okutta]] (koto)
and -dat sent

(John sent roses or wine to Susan and Mary and so on.)

(105) a. John-ga [VP [NP Susan ka Mary]-ni [V' [NP bara ya wain]-o okutta]]
-nom or -dat rose and wine-acc sent

(John sent Susan or Mary roses and wine and so on.)

b. John-ga [VP [NP bara ya wain]-o_i
-nom rose and wine-acc

[VP [NP Susan ka Mary]-ni [V' t_i okutta]] (koto)
or -dat sent

(John sent roses and wine and so on to Susan or Mary.)

(106) a. John-ga [VP [NP Susan to Mary]-ni [V' nanika-o ageta]] (koto)
-nom and -dat something-acc gave

(John gave Susan and Mary something.)

b. John-ga [VP nanika-o_i [VP [NP Susan to Mary]-ni [V' t_i ageta]]] (koto)
-nom something-acc and -dat gave

(John gave something to Susan and Mary.)

(107) a. John-ga [VP dareka-ni [V' [NP bara to wain]-o okutta]] (koto)
-nom someone-dat rose and wine-acc sent

(John sent someone roses and wine.)

b. John-ga [VP [NP bara to wain]-o_i [VP dareka-ni [V' t_i okutta]]] (koto)
-nom rose and wine-acc someone-dat sent

(John sent roses and wine to someone.)

It seems that while the (a) example in (104) through (107) are unambiguous with respect to the scope order of the quantifiers, the (b) examples are ambiguous.³⁹

4.5 Scope of WH-Phrases and Quantifiers

In section 4.3, we have considered quantifier scope interpretations in Japanese. I have suggested there that a condition like (108) applies in Japanese, but see footnote 25.

(108) at LF $*QP_i QP_j t_j t_i$ where each member c- commands the member to its right

The data that we have considered in section 4.4 provides us with confirmation, from the scope interpretation inside the VP, for the generalizations that the condition in (108) (together with the independent assumption that Move @ leaves a trace optionally) is intended to capture. The generalizations, the essentials of which are noted in Kuroda (1969, 1970), cf. also Kuno (1973), are summarized once again in (109).

- (109) a. QP-ga QP-o V (unambiguous)
 b. QP-ni QP-o V (unambiguous)
 c. QP-o QP-ga V (ambiguous)
 d. QP-o QP-ni V (ambiguous)

When the QP's appear in their D-structure order as in (109a) and (109b), the scope order is unambiguous. The preposing of the direct object QP results in scope ambiguity as in (109c) and (109d). In this section, I will consider the scope interaction between a wh-phrase and a quantifier in the light of the above generalizations.

It will first be observed that sentences with a wh-phrase and a quantifier behave differently, in an interesting way, from those with two quantifiers. I will then argue that the relevant difference follows automatically from the proposed analysis of the quantifier interpretations in Japanese, given the assumption that May's (1977) rule of Quantifier Raising adjoins a QP to an S node but not to an S' node.

First consider the following.⁴⁰

(110) a. [S Dare-ga [VP [NPsake ka biiru]-o nomimasita]] ka
 who-nom sake or beer-acc drank Q

(Who drank sake or beer?)

b. *[S [NPJohn ka Bill]-ga [VP nani-o nomimasita]] ka
 or -nom what-acc drank Q

(What did John or Bill drink?)

As indicated, (110b) is not acceptable. (110a) is acceptable but with only one scope order, namely the one in which the wh-phrase takes wide scope over the quantifier sake ka biiru 'sake or beer'.⁴¹

The contrast follows from our analysis of quantifier interpretations in Japanese, given the assumption that the rule of Quantifier Raising adjoins a QP to an S node but not to an S' node. First, under the assumption that the

rule of Quantifier Raising adjoins a QP to an S node but not to an S' node, it follows that the QP can never c-command the wh-phrase at LF. This means that (110a) and (110b) must be represented, schematically, as in (111a) and (111b), respectively.

(111) a. [_{S'} WH_i [_S QP_j [_S t_i [_{VP} t_j V]]]]

b. *[[_{S'} WH_i [_S QP_j [_S t_i [_{VP} t_j V]]]]]

Recall that wh-phrases have been treated on a par with a quantifier in this study. Therefore we expect that wh-phrases are also subject to the condition in (108). Under this assumption, the structure in (111b) is disallowed in accordance with the condition in (108), thereby accounting for the ungrammaticality of (110b).

The fact that (110a) is unambiguous is due to the impossibility of (112).

(112) *[[_{S'} QP_j [_{S'} WH_i [_S t_i [_{VP} t_j V]]]]]

In (112), not only is (108) violated but the QP is adjoined to the S' node, which is assumed to be impossible.

Recall from the discussion of quantifier scope ambiguity, that the preposing of the object QP to the sentence-initial position has resulted in scope ambiguity, cf. (109c) and (109d). Consider (109c), for example, which is repeated as (113).

(113) QP-o QP-ga V (ambiguous)

The ambiguity of (113) has been attributed to the possibility of two LF representations for it, as in (114).

- (114) a. [S QP-o_i [S QP-ga_j [S t_i [S t_j [VP t_i V]]]]]
 b. [S QP-ga_j [S QP-o_i [S __ [S t_j [VP t_i V]]]]]

In (114b) the intermediate trace of the QP-o_i is not present. As the result, the LF representation in (114b) as well as that in (114a) are possible, (i.e., they do not violate (108),) accounting for the scope ambiguity in (113).

Returning to the scope interaction between a wh-phrase and a QP, the account of quantifier scope ambiguity, as summarized above, indicates that the preposing of the object wh-phrase or of the object quantifier would affect the possibility of certain LF representations. Consider the schematic S-structure representations for (110a) and (110b), given in (115a) and (115b), respectively.

- (115) a. [S WH-ga [VP QP-o V]]
 b. [S QP-ga [VP WH-o V]]

Since the rule of Quantifier Raising is assumed to adjoin a QP to an S node but not to an S' node and since wh-phrases are assumed to be moved into COMP (or S'-adjoined), the LF representations for (115a) and (115b) are as in (111a) and (111b), repeated here as (116a) and (116b).

- (116) a. [S' WH_i [S QP_j [S t_i [VP t_j V]]]]

b. $*[S' WH_i [S QP_j [S t_j [VP t_j V]]]]$

This accounts for the ungrammaticality of examples of the form (115b) (cf. (110b)) and the unambiguity of examples of the form (115a) (cf. (110a)).

Suppose that the object NP in (115) is preposed in syntax as in (117).

(117) a. $[S QP-o_i [S WH-ga [VP t_j V]]]$

b. $[S WH-o_i [S QP-ga [VP t_j V]]]$

Maintaining the assumption that the rule of Quantifier Raising adjoins a QP to an S node but not to an S' node (and assuming that the QP that has been adjoined to an A'-position still has to undergo the rule of Quantifier Raising, cf. chapter 5, section 5.3) the S-structure representations in (117) will have the following LF representations.

(118) a. (the LF representation for (117a))

$[S' WH-ga_j [S QP-o_i [S _ [S t_j [VP t_j V]]]$

b. (the LF representation for (117b))

$[S' WH-o_j [S QP-ga_i [S t_i [S t_j [VP t_j V]]]$

In (118a) the intermediate trace t_j is not present while in (118b) the intermediate trace t_j is present. If t_j were present in (118a), the condition in (108) would be violated. Likewise, if t_j were absent in (118b), the condition in (108) would be violated. Thus due to the independent assumption that Move @ leaves a trace optionally, examples of the form (117a) as well as those of the form (117b) are predicted to be grammatical with one scope order, namely

the one in which the wh-phrase takes wide scope.

The relevant data indicate that this is a correct prediction. Thus consider the examples in (120), to be compared with the examples in (110), repeated here as (119).

(119) a. [S Dare-ga [VP [NPSake ka biiru]-o nomimasita]] ka
 who-nom sake or beer-acc drank Q

(Who drank sake or beer?)

b. *[S [NPJohn ka Bill]-ga [VP nani-o nomimasita]] ka
 or -nom what-acc drank Q

(What did John or Bill drink?)

(120) a. [S [NPSake ka biiru]-o_i [S dare-ga [VP t_i nomimasita]] ka
 sake or beer-acc who-nom drank Q

(Who drank sake or beer?)

b. [SNani-o_i [S[NPJohn ka Bill]-ga [VP t_i nomimasita]]] ka
 what-acc or -nom drank Q

(What did John or Bill drink?)

Crucially, the preposing of the object wh-phrase makes (119b) grammatical, as indicated in (120b). Example (120a) is significant since it shows that a quantifier's merely preceding a wh-phrase on the surface does not necessarily result in ungrammaticality. Thus the predictions that the proposed analysis has made regarding the sentences with a wh-phrase and a quantifier indeed seem to be confirmed by the relevant data.

Data with other quantifiers and wh-phrases also confirm the predictions made above, although some care must be taken in certain cases. For

example, consider the examples in (121).

(121) a. [sDare-ga [vPnani-ka-o nomimasita]] ka
 who-nom something-acc drank Q

(Who drank something?)

b. [sNani-ka-o_i [s dare-ga [vP t_i nomimasita]]] ka
 something-acc who-nom drank Q

(Lit. Something, who drank?)

c. ??[sDareka-ga [vP nani-ka-o nomimasita]] ka
 someone-nom what-acc drank Q

(What did someone drink?)

d. [sNani-ka-o_i [s dareka-ga [vP t_i nomimasita]]] ka
 what-acc someone-nom drank Q

(What did someone drink?)

Although the examples in (121) exhibit contrasts similar to the ones observed in (119) and (120), since dareka 'someone' can be taken as a specific person, the example in (121c) sounds more acceptable than (119b). In (119b) the QP, John ka Bill 'John or Bill', cannot, as a whole NP, be taken to refer to a specific individual.

Similarly, due to the possibility of a "group" reading on daremo 'everyone', the contrast in (122) is not as sharp as that in (119) and (120).

(122) a. [s Dare-ga [vP daremo-ka syootaisimasita]] ka
 who-nom everyone-acc invited Q

(Who invited everyone?)

b. [_S Daremo-o_i [_S dare-ga [_{VP} t_i syootaisimasita]]] ka
 everyone-acc who-nom invited Q

(Lit. Everyone, who invited?)

c. ??[_S Daremo-ga [_{VP} nani-o kaimasita]] ka
 everyone-nom what-acc bought Q

(What did everyone buy?)

d. [_S Nani-o_i [_S daremo-ga [_{VP} t_i kaimasita]]] ka
 what-acc everyone-nom bought

(What did everyone buy?)

If we force the "non-group" reading on daremo 'everyone', the contrast becomes sharper. In (123), sorezore 'each, individually' is added to daremo, forcing the "non-group" reading on the quantifier.⁴²

(123) a. * [_S Daremo-ga sorezore [_{VP} nani-o kaimasita]] ka
 everyone-nom each what-acc bought Q

(What did everyone each buy?)

b. [_S Nani-o_i [_S daremo-ga sorezore [_{VP} t_i kaimasita]]] ka
 what-acc everyone-nom each bought

(What did everyone each buy?)

In (123b), daremo 'everyone' does not have wide scope over nani 'what'. The sentence is grammatical as a question asking for the identity of the thing(s) that everyone under consideration bought separately. Thus the "presupposition" is that the purchase was not a group-purchase but everyone under consideration bought the same thing. The examples in (124) illustrate

the same point as (123).

(124) a. *[_S John ya Mary-ga sorezore [_{VP} nani-o kaimasita]] ka
 and -nom each what-acc bought Q

(What did [John and Mary and so on] each buy?)

b. [_S Nani-oi [_S John ya Mary-ga sorezore [_{VP} t_i kaimasita]]] ka
 what-acc and -nom each bought

(What did [John and Mary and so on] each buy?)

In this section, I have argued that the condition in (108), which basically requires that the S-structure c-command relation of QP's be preserved at the level of LF, also applies to wh-phrases. Since wh-phrases are assumed to be subcases of quantifiers, this is what we expect. The condition in (108), together with the assumption that Quantifier Raising adjoins a QP to the S node but not to the S' node, I have argued, accounts for the grammaticality/ungrammaticality contrast in Japanese sentences that contain both a quantifier and a wh-phrase.⁴³

4.6. Scope Interpretation and Variable Binding

In the preceding section, I have argued that examples of the S-structure representation in (125) are not allowed in Japanese because (i) a quantifier, being adjoined to an S node rather than to an S' node, can not c-command a wh-phrase, (as long as they are clausemates) and (ii) the QP must c-commands the WH at the level of LF since the former c-commands the latter

at S-structure in (125).

(125) [_SQP-ga [_{VP}WH-o V]]

In chapter 3, we have seen that in examples like (126), the empty pronominal can be construed as a bound variable, analogous to the English examples in (127), in which his can be construed as a variable bound to everyone.

(126) a. [_S [_{NP}[_S e_i e hitome mita] hito]-o_k [_S daremo_i-ga
one glance saw person-acc everyone-nom

[_{VP} t_k sukini natta]]] (koto)
fell in love

(The person that he_i saw, everyone_i fell in love with.)

b. [_S [_{NP}[_S e e_i butta] hito]-o_k [_S dare_i-ga [_{VP} t_k uttaeta]]] no
hit person-acc who-nom sued

(Lit. The person that hit him_i, who_i sued?.)

(127) a. Which of his_i own books did every author_i recommend?
(Engdahl; 1980, 190)

(Answer: His last book.)

b. Which friend of his_i father did everyone_i attack?

(Answer: A linguist friend of his father (as opposed to a musician friend of his father))

Suppose, as in Jaeggli (1984), for example, that a category must be in the domain of a quantifier in order to be construed to be a variable bound to it. Let us assume for the purpose of discussion that the relevant level is LF and being in the domain of is literally being in the c-command domain of.⁴⁴ Under this

assumption, the availability of bound variable interpretation for the empty pronominal e_i in (126) means that e_i is in the c-command domain of daremo 'everyone' and dare 'who' at LF in these examples. Schematically, then, the examples in (126) must be represented as in (128) at LF after the application of the rule of Quantifier Raising/LF WH-movement.⁴⁵

(128) [_{S/S'} QP_i/WH_i [_S [_{NP} ... e_i ...]-_O [.....]]]

(As noted earlier, the linear order is assumed to be irrelevant at LF. However, if the contrary is to be assumed, WH_i would be to the right of the S node that immediately dominates QP_i.)

Now, suppose, as illustrated in (129), that a wh-phrase is contained in the preposed matrix object containing e_i and the matrix subject NP is a QP.

(129) S-structure

[_S [_{NP} WH ... e_i ...]-_{O_j} [_S QP_i-ga [_{VP} t_j V]]]

Given our assumption above, e_i must be in the c-command domain of the QP at LF in order to be construed as a variable bound to the QP. Thus for the relevant bound variable interpretation to obtain in (129), the QP must c-command the wh-phrase at LF as in (130).

(130) at LF

a. [_X QP-ga_i[_Y [_{NP} WH ... e_i ...]-_{O_j} [.....]]]

Since we are assuming that quantifiers get adjoined to an S node, X must be S. Therefore, Y must also be S if the bound variable interpretation for e_i to

obtain; for if Y were to be S', (130) would simply be impossible. However, there is evidence that the NP that contains the wh-phrase in (130), when the wh-phrase is in the NP initial position, is itself a wh-phrase and gets moved to COMP, or S'-adjoined; see. Choe (1984), Nishigauchi (1984), Pesetsky (1984) and Hasegawa (1985), as well as Appendix C.

As noted in Appendix B, Pesetsky (1984) attributes the lack of subjacency effects in examples like (131) to the non-movement of the wh-phrase at LF, the option available because of the readily "D-linkable" properties of Japanese wh-phrases such as nani 'what' and dare 'who', cf. Appendix B.

(131) Mary-wa [NP[S John-ni nani-o ageta] hito]-ni atta no
 -top -dat what-acc gave person-dat met

(Lit. Mary met the person who gave John what?)

The strong argument for this view comes from examples like (132) in which the Japanese analogue of "the hell" ittai is added to the wh-phrase.

(132) (Pesetsky's (43a))
 *Mary-wa [NP[S John-ni ittai nani-o ageta] hito]-ni atta no
 -top -dat the hell what-acc gave person-dat met

(Lit. Mary met the person who gave John what the hell?)

Pesetsky argues that the ungrammaticality of (132) can be accounted for if we assume that nani 'what', being forced to be non-D-linked by the presence of ittai, must be moved out of the relative clause in order to take scope over the matrix clause, thus violating subjacency, which he assumes to hold of LF movement as well as of syntactic movement, contrary to Huang (1982) and

Lasnik and Saito (1984). Adopting Pesetsky's analysis of the contrast between (131) and (132), consider the following.

(133) Kimi-wa [S'[S John-ga [VP ittai [NP [S dare-ga kaita] hon]-o
 you-top -nom who-nom wrote book-acc
 yonda]] ka] sitteimasu ka
 read COMP know Q

(Lit. Do you know [the book that who wrote] the hell John read?)

Given Pesetsky's analysis, cf. also Appendix B, ittai ought to be outside the complex NP dare-ga kaita hon 'the book that who wrote', as indicated in (133). If it were inside the relative clause as in (134), the forced LF movement of ittai dare 'who the hell' would violate subjacency.

(134) [NP[S ittai dare-ga kaita]hon]

Since ittai is assumed to force the non-D-linked reading on a wh-phrase and force the wh-phrase to undergo LF WH movement, it is expected that the complex NP dare-ga kaita hon 'the book that who wrote' gets moved to the embedded COMP, or to the S' that immediately dominates it in (133).

That the whole NP containing the wh-phrase undergoes LF movement is suggested also by examples like (135), noted in Hasegawa (1985).

(135) [NP[S e_i nani_j-o kaita] hito_i]-ga [VP e_j syuppansita] no
 what-acc wrote person-nom published

(Lit. The person that wrote what_j published it_i?)

It is suggested in Hasegawa (1985), drawing from Nishigauchi's (1984, forthcoming) LF pied-piping analysis of certain wh-questions in Japanese as well as his analysis of examples similar to (135), cf. footnote 46, that the possibility of indicated reading in (135) is analogous to the reading in the celebrated example in (136), cf. Heim (1982) and Haik (1984) for recent discussion on these "donkey sentences."

(136) Everyone who owns a donkey_i beats it_i.

Hasegawa's argument, which is based on Nishigauchi (forthcoming), is essentially that if the "variable" reading of it_i in (136) is allowed due to the LF movement of the matrix QP that contains a donkey, the "variable" reading of e_j can also be attributed to the LF movement of the matrix NP that contains nani 'what'.⁴⁶

There are some complications involved in the examples like (135). For example, we must make sure to differentiate the structure in (135) from the parasitic gap structure in (137).

(137) [S nani-o_j [S [NP[S e_i e_j kaita] hito_i]-ga [VP t_j syuppansita]]] no
 what-acc wrote person-nom published

(What_j did the person that wrote e_j published t_j?)

One might suspect, for example, that we interpret (135) by its analogy to (137) and that the "variable" interpretation for e_j in (135) is not really possible. I will, however, assume for now that the "variable" reading for e_j in (135) is not by analogy but rather by some syntactic process(es) involved, as assumed in

supports the ittai analysis proposed in Pesetsky (1984) but constitutes evidence for Hasegawa's (1985) hypothesis that the "variable" reading of e_j in (135) is due to the LF movement of the complex NP that contains the wh-phrase; cf. footnote 46. Thus I will assume that the complex NP in (130), which contains a wh-phrase (at the NP-initial position), undergoes LF movement.⁴⁸

If NP_j in (130), as a whole, behaves like a wh-phrase and gets moved to COMP, or gets S'-adjoined, the QP can never be in the position that c-commands e_j . This is so since e_j is contained in the wh-phrase, which, now under S', will be c-commanding the QP. Recall our assumption that quantifiers can never be in the position that c-commands a wh-phrase at LF since the rule of Quantifier Raising is assumed to adjoin a QP to the S node but not to the S' node, cf. chapter 5, section 5.2.

Now consider the examples in (140).

(140) a. John ka Bill_i-ga [_{NP}[_S e_j NY-de katta] ningyoo]-o nakusita (koto)
 or -nom -in bought doll-acc lost

([John or Bill]_i lost the doll that he_i bought in NY.)

b. [_{NP} e_j NY-de katta] ningyoo]-o_j [_S John ka Bill_i-ga
 -in bought doll-acc or -nom

[_{VP} t_j nakusita]] (koto)
 lost

(The doll that he_i bought in NY, [John or Bill]_i lost.)

- b. *?[S Yamada sensei ya Suzuki sensei-o_i
Prof. Yamada and Prof. Suzuki-acc

[S [NP[S e_i doko-de mukasi e_j osieta] gakusei]_j-ga
where-at before taught student-nom

[VPimademo t_i oboeteiru]] no
even now remember

(Lit. [Prof. Yamada, Prof. Suzuki and so on]_i, [the students
that he_i taught where years ago] still remember?)

Take (144b), for example. According to our analysis, it has a schematic structure like (145) at LF, ignoring the irrelevant aspects of the structure.

(145) [S' [NP e_i doko-de] [S [NP Y sensei ya S sensei]_i-ga [S ...

Clearly, e_i is not c-commanded by the QP, Y sensei ya S sensei 'Prof. Y and Prof. S and so on'.

As in (142), if the complex wh-phrase does not contain e_i and the possibility of variable binding is not at stake, the sentences become acceptable, as shown in (146).

(146) a. [S John ka Bill]_i-o [S [NP[S e_j doko-de sake-o
or -acc where-at sake-acc

nondeita] hito]_j-ga [VP t_i sukini natta]] no
was drinking person-nom fell in love

(Lit. [John or Bill], [the person who was drinking sake where]
fell in love with?)

b. [SYamada sensei ya Suzuki sensei-o_i [S [NP[S doko-de
Prof. Yamada and Prof Suzuki-acc where-at

John-ga mukasi e_j osieta] gakusei]-ga
-nom before taught student-nom

[VPimademo t_i oboeteiru]] no
even now remember

(Lit. [Prof. Yamada and Prof Suzuki and so on],[the student that John
taught where years ago] still remember?)

The examples in (147), on the other hand, indicate that e_i, which is to be construed as a variable bound to the QP, can occur in the complex NP-o, as long as the complex NP-o does not contain a wh-phrase.

(147) a. [SJohn ka Bill-o_i [S [NP[S e_j Ginza-de hitome
or -acc -at one glance

e_j mita] hito]-ga [VP t_i sukini natta]] no
saw person-nom fell in love

(Is it true that [John or Bill]_i, the person who took a
glance at e_j fell in love t_i?)

b. [SYamada sensei ya Suzuki sensei-o_i
Prof. Yamada and Prof. Suzuki-acc

[S [NP[S e_j Osaka-de mukasi t_i osieta] gakusei]-ga
-in before taught student-nom

[VPimademo t_i oboeteiru]] no
even now remember

(Is it true that [Prof. Yamada, Prof. Suzuki and so on]_i,
[the student that he_j taught in Osaka years ago
still remember?)

These are the examples that are analyzed as Japanese parasitic gap constructions in chapter 2.⁵¹

To review the preceding discussion, consider the schematic S-structure representations in (148).

(148) a. [S[NP (*WH) ...e_j...]-o_j [S QP_i-ga [VP t_j]]]

b. [S QP-o_i [S [NP (*WH) ...e_j...]-ga [VP t_j]]]

(149) a. [S[NP WH ..(*e_i..)]-o_j [S QP_i-ga [VP t_j]]]

b. [S QP-o_i [S [NP WH ..(*e_i)...]-ga [VP t_j]]]

(148a) shows that the "reconstruction"-invoked variable binding is not possible if a wh-phrase appears inside the preposed NP that contains e_j. (148b), on the other hand, shows that the variable binding that is to be allowed in the parasitic gap constructions is also not allowed if a wh-phrase appears in the NP that contains e_i. The structures in (149) summarize that the wh-questions of the form in (148) are acceptable as long as the wh-phrase does not contain an empty pronominal that is to be construed as a variable bound to the QP. These results thus provide support for the generalization that QP's cannot be in the position that c-commands wh-phrases in Japanese.

Recall that examples of the structure in (150) are not acceptable.

(150) QP-ga WH-o V

As we trivially predict, in (150) the wh-phrase cannot contain a category that is to be construed as a variable bound to the QP. Thus the examples in (151)

are not acceptable.

(151) a. *John ka Bill_i-ga [NP[S e_i doko-de e_j katta] ningyoo_j]-o
 or -nom where-at bought doll-acc

nakusita no
 lost

(Lit. [The doll that he_i bought where] did [John or Bill]_i buy?)

b. *?John ya Bill_i-ga (sorezore) [NP[S e_i doko-de
 and -nom each where-at

[VP e_j butta] otoko]-o uttaeta no
 hit man-acc sued

(Lit. [the man that he_i hit where] did [John, Bill and so on]_i
 (each/individually) sue?)

The interpretation of (151b) that we are interested in is the one in which it is assumed that John and Bill and so on each sued (perhaps different) men that each of them hit separately. As noted earlier, if John ya Bill 'John and Bill and so on' is taken to refer to a group of people and e_j is taken to be a plural empty pronominal, the sentence in (151b) is acceptable with optional coreference obtaining between John ya Bill 'John and Bill and so on' and e_j.

As in the previous cases schematized in (148), if the wh-phrase in (151) is replaced by a referential phrase, the intended bound variable interpretation becomes possible. This is illustrated in (152) below. In (152) doko 'where' is replaced by Ginza.

(152) a. [_{NP}John ka Bill]_i-ga [_{NP}[_S e_i Ginza-de e_j katta] ningyoo_j]-o
 or -nom -at bought doll-acc

nakusita no
 lost

(Is it true that [John or Bill]_i lost the ring that he_j bought at Ginza?)

b. [_{NP}John ya Bill]_i-ga (sorezore) [_{NP}[_S e_i Ginza-de
 and -nom each -at

[_{VP} e_j butta] otoko_j]-o uttaeta no
 hit man-acc sued

(Is it true that [John, Bill and so on]_i sued the man
 that he_j hit in Ginza?)

Unlike in (149), however, the elimination of e_i from the NP that contains the wh-phrase in (151) does not save the sentences, as shown in (153).

(153) a. *John ka Bill-ga [_{NP}[_S dare-ga Ginza-de katta] ningyoo]-o
 or -nom who-nom -at bought doll-acc

nakusita no
 lost

(Lit. [The doll that who bought at Ginza] did [John or Bill] lose?)

b. *John ya Bill-ga (sorezore) [_{NP}[_S Ginza-de dare-o
 and -nom each -at who-acc

butta] otoko]-o uttaeta no
 hit man-acc sued

(Lit. [The man that who hit at Ginza] did John and Bill and
 so on sue?)

Again this is what we expect since the structure in (150) is excluded due to the condition that requires, essentially, that the S-structure c-command relation

among the QP's, with wh-phrases included, be preserved at LF and the assumption that Quantifier Raising adjoins a QP to the S node but not to the S' node, at least in Japanese.

In this section, we have observed that bound variable interpretation for empty pronominals in Japanese that is made possible "through reconstruction" is no longer possible if the preposed NP that contains the relevant empty pronominal has a wh-phrase (at the NP-initial position). I have argued that this is due to the condition in (108), repeated below as (154), and the property of Quantifier Raising that it adjoins a QP to the S node but not to the S' node.

(154) at LF $*QP_i QP_j t_j t_i$ where each member c- commands the member to its right

Recall that the condition in (154), adopted essentially from Huang (1982), is proposed in order to account for scope unambiguity of Japanese quantificational sentences. The discussion in this section on the rather complicated set of data, involving the interaction among variable binding, wh-phrases and the "reconstruction" effects, thus renders support for the analysis of quantifier scope interpretation in Japanese suggested in this chapter.

Footnotes to Chapter Four

In (ii), on the other hand, who c-commands his at S-structure, but the intended variable binding is not possible here. Japanese does not have cases corresponding to (ii) since in Japanese, what occurs in the position of his in examples that more or less correspond to (ii) is an empty category. The Japanese analogues of (ii) therefore become acceptable as parasitic gap constructions. It is, however, not clear that there are empty genitive NP's in Japanese. (But it is assumed in Kuno (1983, chapter 11), for example, that there are empty genitives in Japanese.) Thus the considerations here apply in the sense that the Japanese parasitic gap constructions I have in mind have the category that corresponds to him in (ii) in argument positions like subject and object. I have provided in chapter 2 actual examples that are taken to be parasitic gap constructions.

³ Since the anaphor zibun has a stricter requirement for the distribution of its antecedent than the zero pronoun, apart from variable binding, cf. chapter 2, most of the discussion in this chapter deals with bound variable interpretations for zero pronouns.

⁴ In this sense, the so-called strong crossover cases, exemplified by (i) and (ii), violates two separate requirements regarding syntactic dependency, cf. Chomsky (1981, 1982) and Koopman and Sportiche (1982/83).

(i) a. *He_i loves everyone_i.

b. *Who_i does he_i think that Mary hates t_i?

(ii) a. *[S e_i [VP daremo_i-o semeta]]
 everyone-acc criticized

(*He_i criticized everyone_i.)

b. *[S e_i [VP [S' [S Mary-ga [VPdare_i-o kiratte iru]]to] omotta no
 -nom who-acc hates COMP thought

(*Who_i does he_i think that Mary hates?)

In (ii), for example, the QP fails to c-command e_i , thus not satisfying the requirement for variable binding. Furthermore since e_i c-commands its "intended antecedent", QP, it violates an independent principle on referential dependency that has the effect of (iii).

(iii) @ cannot be referentially dependent on β
 if @ c-commands β .

(iii) excludes examples like (iv), independent of variable binding.

(iv) a. *[S e_i [VP John_i-o semeta]]
 -acc criticized

(*He_i criticized John_i.)

b. *[S e_i [VP [S' [S Mary-ga [VPJohn_i-o semeta] to] omotte ita
 -nom -acc criticized COMP thought

(*He_i thought that Mary criticized John_i.)

⁵ To my knowledge, it is Ohno (1983) that first discusses, explicitly, examples like (1c) and (2c). As Ohno points out, examples like (2c) essentially has the semantic interpretation as indicated. Although the exact semantic

interpretation of such examples is not entirely clear; cf. footnote 6, I will continue to use a "translation" as given in (2c) for similar examples.

⁶ I find it plausible that the semantic function of mo discussed here is relevant in the semantic interpretation of the "universal quantifier" used in (2c). Notice that if the mo-phrase in (2a) and phrases like A mo B mo, cf. (2b), are subject to the rule of Quantifier Raising at LF, as the ensuing discussion indicates, and if the quantificational property of these phrases is due to the presence of mo, we expect that the "universal quantifier" in (2c) is also subject to the rule of Quantifier Raising.

As a brief introduction to the relevant issue, consider the examples in (i).

(i) a. John **mo** kita
 came

(John, in addition to others, came.)

b. John **mo** Bill **mo** kita

(Both John and Bill came.)

c. John **mo** Bill **mo** Sam **mo** kita

(All of John and Bill and Sam came.)

d. John no hon **mo** ureta
 's book was sold

(John's book (in addition to something else, including someone else's book) was sold.)

e. John no hon **mo** Bill no hon **mo** ureta

(Both of John's book and Bill's book were sold.)

f. John no hon **mo** Bill no hon **mo** Sam no hon **mo** ureta

(All of John's book and Bill's book and Sam's book were sold.)

g. [_{NP} dare no hon]-**mo** ureta
 who 's book sold

(For every x, x=person, x's book was sold)

As expected from the discussion in the text regarding (ib), example (ie), unlike (ia), does not necessarily mean that something other than the set of books, i.e., John's book, Bill's book and Sam's book, was sold. Similarly, example (if) does not mean that for every person under consideration, something other than the book that he wrote sold. Thus it appears that while the use of **mo** in (if) is essentially the same as in (ib), (ic) and (ie), the semantic function of **mo** in (ia) differs from that of **mo** in (ib), (ic), (ie) and (if). In Hoji (in preparation), I discuss all the phrases with mo in (i) in terms of a central semantic property of mo, following Kuroda's (1965, chapter 3) insight on this topic, and argue that **mo** in (if) is in fact the same as **mo** in (ia); cf. Nishigauchi (forthcoming) for much relevant discussion.

⁷ As in the other QP's, both John and Bill, when not c-commanding a pronoun, cannot bind it as a variable. Thus:

(i) *His_i son will perhaps admire both John and Bill_i.

⁸ As is also noted in chapter 2, due to the restrictions on the distribution of the antecedent of zibun, QP's in non-subject positions cannot bind zibun. Although I will not provide the relevant examples here, we can also easily construct examples of weak crossover with zibun, by using these quantificational phrases, analogous to the examples given in Saito and Hoji (1983). See chapter 2 for some such examples.

⁹ As noted in chapter 2, it is the property of overt pronominals like kare that they cannot be construed as variables bound to quantifiers.

¹⁰ As indicated in (i) below, optional coreference between John and kare is possible.

(i) John_i-sae(-ga) [_{NP}[_S kare_i-ga [_{VP} Ginza-de e_j katta]] yubiwa_j]-o suteta
 (Even John_i threw away the ring that he_i bought at Ginza.)

This is analogous to the possible optional coreference in (16) between kare 'he' and John.

¹¹ As stated in footnote 8, I will not provide here examples of weak crossover in which zibun fails to be construed as variable bound to the quantifiers under consideration.

¹² As will be mentioned in 5.1, it is possible to analyze the sentence-initial NP in (32c) and (32d) as being base-generated under S", in which case, the

variable binding in these examples are cases of "normal variable binding."

¹³ Sorezore 'each, individually' is a nice tool by which we can force the "distributive" (or perhaps "non-group" rather than "distributive") reading on certain quantificational phrases. In chapter 2, section 2.1, sorezore is also used for this purpose in examples that are to illustrate the effect of weak crossover in sentences with zibun.

¹⁴ The main topic of Kuroda (1970) is not these quantificational phrases but rather phrases that have sae 'even', mo 'also' and dake 'only' which I will come back to in section 2 in chapter 5.

¹⁵ As noted in footnote 14, Kuroda's(1969, 1970) main concern was not the scope interpretation of these quantifiers. He provides this observation as well as the observation that when wa replaces o in (48), the ambiguity disappears and the scope order corresponds to the linear order of the quantifiers, "just to get a glimpse at complexities involved." I will return to the cases that Kuroda is primarily concerned with in section 5.2.

¹⁶ The verb has been changed from the original examples for a reason that is completely independent of linguistic considerations.

¹⁷ Each of the English translations seems to allow scope ambiguity, much in the same way as the familiar example in (i).

(i) Everyone loves someone.

Although the judgments on these English quantificational sentences assumed in Kuno (1973, chapter 28) are different from what is assumed here, it does not concern us in the present discussion.

¹⁸ If we add itidoni "together, simultaneously", for instance, ambiguity seems to become easier to obtain.

¹⁹ However, Kuno's (1973, chapter 28) main claim, i.e., that Japanese existential sentences such as (i) have the basic word order of (iia) rather than (iib), is still consistent with the interpretation of the type of quantifier scope ambiguity assumed here, although our interpretations of the data and his differ from each other in the respect just noted.

(i) Teiburu no ue-ni koppu ga aru
table-gen top-on cup-nom exist

(There are cups on the table.)

(ii) a. A-ni B-ga aru
-at -nom exist

b. B-ga A-ni aru

²⁰ Scope ambiguity in sentences like (63) is discussed in Hasegawa (1985), where such scope ambiguity is taken as evidence for the LF pied-piping for the complex NP with mo in examples like (63), cf. Choe (1984) and Nishigauchi

(1984).

²¹ As in the case of the scope of wh-phrases, cf. Pesetsky (1984), the quantifier scope can be expressed either by means of the c-command domain of the moved (i.e., Quantifier Raised) phrase or by means of the c-command domain of a node, S or S', that is coindexed with the (unmoved) QP very much in the way as Baker's (1970) Q-indexing, cf. also van Riemsdijk and Williams (1981), Whitney (1984) and Williams (1985). The reason for choosing the former over the latter is largely expository at this point.

²² It is not clear whether case markers like ga and o, together with the NP to which they are attached to, get moved by the application of Quantifier Raising. The choice made in (68) is arbitrary.

²³ Huang (1982) and Reinhart (1976) have different views regarding the relevant level for quantifier scope representation. While Huang, along with May (1977), assumes the relevant level to be that of LF, Reinhart assumes it to be the level of S-structure, surface structure in the terms of her discussion. The difference, however, does not concern us here in the present discussion, as far as we consider data from Japanese. When we consider ambiguous quantificational sentences in English, however, the "LF c-command" approach is to be favored over the "S-structure c-command" approach, as argued by May (1977) and Huang (1982).

²⁴ As noted in chapter 1, the choice between "c-command" and "precedence" is a tricky one in Japanese, especially, given the conception of Japanese phrase structure adopted here, i.e., that Japanese phrase structure is strictly binary. On a binary branching tree, whenever A c-commands B, A precedes B, except in the case of relative clause constructions. See chapter 1 for relevant discussion.

²⁵ As pointed out to me by Nobuko Hasegawa (personal communication), this condition as formulated in (76) has an annoying property that it excludes constructions that are in accordance with the Nested Dependency Condition, first proposed in Bordelois (1974), and defended further in Hendrick (1979), while allowing the constructions that are disallowed by this condition. A version of the Nested Dependency Condition is given in (i), cf. Pesetsky (1984).

(i) Nested Dependency Condition

When two dependencies overlap one must contain the other.

When applied to any pair of dependencies, (i) disallows (ii) while allowing the structure in (76).

(ii) $QP_i QP_j \bar{t}_i \bar{t}_j$

Several possibilities come to mind. One possibility is that the formulation of the condition in (76) is not appropriate. Another possibility is that the Nested

Dependency Condition does not apply to a pair of dependencies if both of them are created by the movement at LF. In fact, given the analysis of the scope ambiguity in (iii) as proposed in May (1977), the condition in (i) should not apply to (iv), which is a possible LF representation for (iii) in May (1977).

(iii) Someone loves everyone.

(iv) [_S someone_i [_S everyone_j [_S t_i [_{VP} loves t_j]]]]

Notice that both dependencies in (iv) are created at LF.

In either case, it might well be the case that quantifier scope is to be better represented by co-indexation of Baker type, cf. footnote 21, as essentially proposed for QR by van Riemsdijk and Williams (1981) and further defended in Whitney (1984). If that is the case, the condition in (76) must be reformulated accordingly, perhaps avoiding the problem regarding the conflict with the Nested Dependency Condition. Also, if the quantifier scope interpretation does not involve movement at LF, the type of dependency that obtains between the quantifier and the "variable" that it binds semantically will reasonably fall outside the set of dependencies that are subject to the Nested Dependency Condition.

On the other hand, examples like (v) indicate, under the analysis assumed here, that the condition in (i) does not even apply to (at least some) pairs of dependencies that are created in syntax.

(v) [S John-ni_i [S hon-o_j [S Mary-ga [VP t_i [V' t_j ageta]]]]]
 -dat book-acc -nom gave

(Lit. To John, a book, Mary gave.)

(Examples like (v) are problematic also for the condition in (76) as it is formulated there.) I will not, however, pursue the discussion here.

²⁶ It will shortly become clear that the condition in (76) formulated as such makes it possible for us to account for the relevant scope ambiguity in the way that (69) apparently cannot.

²⁷ It is not crucial that the Q-Adv originates inside the VP as in (81), as long as QP_i-ga c-commands Q-Adv at D-structure and not vice versa. The following argument will not be affected even if the S-structure representation of (78a), for instance, is as in (ia).

(i) a. [S QP-ga [VP' QP-Adv [VP]]]

²⁸ Remarks similar to footnote 27 seem in order. The exact X'-schema that gives us S-structures like (i), which I am assuming for (82), is not clear.

(i) [S Q-adv [S QP-ga [VP ...]]]

Again the crucial structural consideration is that the former quantifier asymmetrically c-commands the latter, not the exact bar-level under which the adverbial appears.

²⁹It does not affect our discussion whether the S node that is adjacent to the position where the intermediate trace would have otherwise occurred is present as in (87) or gets "pruned".

³⁰ The arguments are simplified here, while, I believe, retaining their essentials. See Saito (1985, chapter 3) for more detailed discussion.

³¹ But see Borer (1981) for discussion of examples that appear to violate this condition.

³² There are further considerations that suggest that the representations like (96) are to be disallowed. I will discuss them in 5.2. in chapter 5.

³³ In fact that when a locative (quantificational) PP that is "subcategorized" appears before the subject QP, for example, scope ambiguity seems to obtain, contrasting with the cases in which non-subcategorized quantificational PPs appear before the subject QP, cf. footnote 34.

³⁴ Intuitively, this stipulation makes sense since the function of a trace is after all to mark a position where we expect to find something due to the properties of the lexical items involved and other independent principles.

³⁵ Our problem is that we do not have compelling arguments for excluding (97b) from general enough principles.

³⁶ It might be worth noting here that the traces of Q-Adv's in the LF representations in (82), (83) and (84), which are created by the application of Quantifier Raising, differ crucially from the trace of the "syntactic movement of the Q-Adv" in that while the latter at least need not be present (nothing forces its existence as argued above), the former must be present because of the condition that prohibits vacuous quantification.

³⁷ Judgments regarding the VP-internal quantifier scope are in general less clear than those regarding the quantifier scope interpretation regarding the subject and the object QP's. Since essentially the same type of contrast obtains in the case of the VP-internal QP's as in the case of the subject and object QP's, however, I will treat these two cases as a uniform phenomenon, hoping that future research will make it possible for us to understand the reasons for the difference in the degree of "sharpness" in judgments. Since the degree difference under consideration seems not to be restricted just to the case of quantifier scope interpretation, i.e., since we also find the relevant contrasts weaker with the VP-internal arguments than with the subject and object NP's with respect to such phenomena as "reconstruction" and parasitic gaps, the difference, I suspect, follows from something quite general.

³⁸ Along with Saito (1985), I am assuming that VP is one of the possible adjunction sites for "Scrambling". Saito's conception of adjunction sites for "Scrambling" is in fact more general than this. He assumes that "Scrambling",

taken to be syntactic adjunction operation, can adjoin anything anywhere, leaving the task of limiting the possible adjunction sites to other independent principles and conditions.

³⁹ As noted in footnote 37, the contrast in (104) through (107) is weaker than the contrast we find in the cases where the subject and the object NP's are involved.

⁴⁰ Essentially the same contrast as in (110) has been independently observed by Taisuke Nishigauchi according to Nobuko Hasegawa and Mamoru Saito (both personal communication).

⁴¹ As will be discussed in the following section, it is possible to take nani 'what' as "D-linked" in the sense of Pesetsky (1984). For this reason as well as another reason that will be discussed in the following section, the intended contrast in (110) comes out more clearly if ittai, which somehow corresponds to English the hell in what the hell, cf. Pesetsky (1984) as well as Appendix B, is attached to the wh-phrase and if the wh-questions are embedded. I find the contrast in the following examples clearer than that in (110).

(i) a. Kimi-wa [_S ittai dare-ga [_{VP} [_{NPS}sake ka biiru]-o nonda]] ka
 you-top the hell who -nom sake or beer-acc drank Q

sitteimasu ka
 know Q

(Do you know who drank sake or beer?)

-
- b. *Kimi-wa [S [NP John ka Bill]-ga [VP ittai nani-o nonda]] ka
 you-top or -nom the hell what-acc drank Q
- sitteimasu ka
 know Q

(Do you know what the hell John or Bill drink?)

In the ensuing discussion, I will, for simplicity, continue to use matrix wh-questions without ittai.

⁴² Another way to force the "non-group" reading on daremo 'everyone' is to have an anaphor or an empty pronominal and to force the bound variable interpretation for it. The test will be conducted in section 6, together with other relevant tests.

⁴³ There is a potential problem with the assumption that Quantifier Raising does not adjoin a QP to the S' node, given the hypothesis that the scope of a QP is determined by its c-command domain at LF with the definition of "c-command" adopted here, namely the one of "first-branching-node". The problem has to do with the scope ambiguity of examples like (i), discussed in May (forthcoming).

(i) What did everyone buy?

I will return to this issue in chapter 5, section 5.2.

⁴⁴ In terms of an analysis of weak crossover based on coindexation, this

condition will be like (i), as given in Koopman and Sportiche (1982/83, 150).

(i) The Scope Condition

A pronoun may be coindexed with a variable bound by a (quasi-)quantifier (i.e., wh-phrase, quantifier subject to QR), only if it is in the scope of the (quasi-) quantifier at LF.

Koopman and Sportiche adopt a definition of "c-command" that is different from the one that is adopted here. However, with their definition of "scope of a quantifier", cf. their footnote 24, the difference between the two definitions of "c-command" becomes irrelevant.

⁴⁵ Several accounts have been proposed in the literature for the phenomenon that has been referred to in this study as the "reconstruction" phenomenon, in which the variable (as well as anaphor) binding is possible in a schematic (surface) structure like (i).

(i) [[NP ...pronoun_i/anaphor_i ...]_j [S QP_i/NP_i [VP ...t_j ...]]]

One possibility is to lower (reconstruct) at LF (a portion of) the syntactically preposed NP_j into the position of t_j so that the pronoun (or the anaphor) would be in the c-command domain of its antecedent, cf. Chomsky (1981) and Higginbotham (1983) for proposals along this line for sentences like whose book does John read. Another possibility is to apply the relevant conditions on or the rules of binding at the level before the NP_j gets preposed, cf. van Riemsdijk and Williams (1981) and Whitney (1984). Yet another possibility is

to somewhat generalize the notion "bind" so that the QP_i (or the NP_i) in (i) in fact "binds" t_i by c-commanding the trace of the container of the pronoun (or the anaphor), cf. Barss (1984). It is beyond the scope of this study to consider these possibilities in detail and to draw implications from the relevant Japanese data on the general account of the "reconstruction" effects. Thus the following discussion must be understood as highly expository and noncommittal regarding the exact analysis of the relevant phenomenon.

⁴⁶ Nishigauchi (forthcoming) contains extensive discussion on sentences that are similar to (135). An example of Nishigauchi's Japanese "donkey sentences" is provided in (i), cf. footnote 5 and 6 for discussion relevant to the interpretation of examples like (i).

(i) $[NP[S \underline{e}_i \text{ nani}_j\text{-o kaita}]] \text{ hito}_i\text{-mo} \quad [VP \underline{e}_j \text{ syuppansita}] \text{ (koto)}$
 what-acc wrote person-(-nom)-also published

(A x, x=thing, [the (any) person that wrote x] published x)

As far as I know, it is Taisuke Nishigauchi who first brought the term "donkey sentence" into the discussion of Japanese examples such as (i) and (135). It might, however, be noted that Nishigauchi treats examples like (135) differently from examples like (i). He assumes that the "variable" reading of \underline{e}_j is available in (i) but not in (135). Thus for Nishigauchi while (i) is a Japanese "donkey sentence", (135) is not. As is clear from the discussion in the text, I find the "variable" reading for \underline{e}_j to be possible in (135), on a par with (i), hence consider both (135) and (i) to be Japanese "donkey sentences", along with

Hasegawa.

⁴⁷ It is also possible that ittai here is used as modifying the entire sentence, cf. Appendix B. But since differentiating this possibility from the possibility in which ittai is used somewhat like the English the hell in what the hell requires more careful controlling of the structures, no further discussion is provided here on this issue.

⁴⁸ There seems to be an interesting difference between the parasitic gap construction and Hasegawa's (1985) Japanese "donkey sentences" such as (135). I will return to this in Appendix C.

⁴⁹ May's (1977, 22) Condition on Proper Binding in (i) is in fact a subcase of Koopman and Sportiche's (1982/83) Scope Condition, given in footnote 44.

(i) Condition on Proper Binding

Every variable in an argument position
of a predicate must be properly bound.

The definition of properly bind in May (1977) is given in (ii).

(ii) A variable is properly bound by a binding
phrase X iff it is c-commanded by X

⁵⁰ Ittai preceding the matrix subject NP seems to make the contrast between (144) and (146) sharper. Embedding such wh-questions, as in the case of

indirect questions, also makes the contrast sharper. Further discussion will be provided in Appendix B.

⁵¹ With koto 'the fact that' replacing no, we obtain "regular" non-interrogative parasitic gap examples.

Chapter Five

Related Issues

In this chapter, I will consider three topics that are related to the discussions in the preceding chapters. In section 1, I will consider the scope phenomena of phrases with sae 'even', dake 'only' and mo 'only' discussed in Kuroda (1969, 1970). In section 2, I will compare the general theory of quantifier scope interpretation adopted in chapter 4, which is basically that of May (1977), with the proposal in May (forthcoming), especially in regard to the difference between English and Japanese on the possibility of scope ambiguity. In the last section, I will return to the original question raised at the outset of chapter 1, namely, whether the pronominal coreference facts constitute positive evidence for the VP-internal binary branching as well as for the existence of the VP node in Japanese.

5.1 On Kuroda's Generalizations

In this section, I will consider the scope phenomena of phrases with sae 'even', dake 'only' and mo 'also' discussed in Kuroda (1969, 1970). I will argue that his generalizations, with slight reinterpretation of some of the data, as suggested in Kuno (1973), follow from the analysis of quantifier scope

interpretation in Japanese adopted in the preceding chapter. Kuroda (1969, 1970) discusses the relative scope order among phrases with sae 'even', dake 'only' and mo 'also', and observes the following.

- (1) a. The scope order of the phrases with sae 'even', dake 'only' and mo 'also' corresponds to the surface order of these phrases.
- b. However, when the sentence-initial phrases with sae 'even', dake 'only' and mo 'also' contain the accusative marker o, the sentence "slips away, mysteriously, from any clear semantic interpretation."

Let us first consider (1a). Kuroda (1969) observes that (2a) and (2b) exhibit distinct scope orders among sae and dake.

- (2) a. (Kuroda's (1969) (26))
 John-sae S.S.(Syntactic Structure)-dake-o yonda
 -even -only-acc read
- b. (Kuroda's (1969) (30))
 S.S.-dake-wa John-sae-ga yonda
 -only-top -even-nom read

The contrast that Kuroda observes is:

The meaning of [(2a)] is that all the persons in question read only S.S. and S.S. is even the only book that John read in spite of the expectation that John would read more because of his intense intellectual curiosity or perhaps that John would rather read some other books because of his antimentalistic propensity, etc., etc. The meaning of [(2b)] is that among all the books in question S.S. is the only one that even John read, who was expected to read the least for some reason or other. Thus both [(2a)] and [(2b)] imply that S.S. is the only book that John read; [(2a)], but not [(2b)], implies furthermore that all the persons in question read only S.S..

Kuroda (1969, p. 120 and footnote 13)

Kuroda also observes the contrast in a pair like (3).

(3) a. (Kuroda's (31))

John-mo S.S.-dake-o yonda
-also -only-acc read

b. (Kuroda's (1971) (32))

S.S.-dake-wa John-mo yonda
-only-top -also read

The contrast in (3) is:

[(3a)] means everyone including John read only S.S.; [(3b)] means S.S. is the only book that everyone including John read. ...Both [(3a)] and [(3b)] imply that S.S. was read by all the persons in question including John, and further that it was the only book read by John; [(3a)], but not [(3b)], implies further that all the persons including John read only S.S..

Kuroda (1969, p. 121 and footnote 15)

It is thus concluded in Kuroda (1969, 1970) that the surface order determines the scope order of the phrases with sae 'even', dake 'only' and mo 'also'.

In (2) and (3), the topic marker wa is attached to the sentence-initial phrases. Now consider the examples in (4), in which the sentence-initial phrases appear without wa.

- (4) a. (Kuroda's (62))
 John-sae-ga S.S.-dake-o yonda
 -even-nom -only-acc read
- b. (Kuroda's (65))
 John-dake-ga S.S.-o-sae yonda
 -only-nom -acc-even read

Kuroda observes that in examples like (4) as well, the surface order seems to determine the scope order of the phrases with sae 'even', dake 'only' and mo 'also'. What is of particular interest to us is Kuroda's further observation that the example in (5), which is obtained by reversing the order of the subject NP and the object NP in (4a), does not seem to yield the same interpretation as the example in (2b), reproduced as (6).

- (5) (Kuroda's (63))
 S.S.-dake-o John-sae-ga yonda
 -only-acc -even-nom read
- (6) (=2b)
 S.S.-dake-wa John-sae-ga yonda
 -only-top -even-nom read

According to Kuroda (1970, p. 139), the example in (5), unlike the one in (6), "slips away, somewhat mysteriously, from any clear semantic interpretation."

Kuroda also notes that a sentence like (7), unlike (4b), also exhibits "the

same kind of fuzziness of meaning " as (5).

(7) (Kuroda's (67))

S.S.-o-sae John-dake-ga yonda
 -acc-even -only-nom read

In discussing Kuroda's (1970) observations on the interpretation of Japanese "quantifier-like particles", such as sae, mo and dake, Kuno (1973, p.378-379) states that he finds an example like (8b), as opposed to (8a), ambiguous in its scope order rather than finding it as "slipping away from any clear interpretation."

(8) a. (Kuno's (v), p. 379)

John-dake-ga S.S.-o-mo yonda
 -only-nom -acc-also read

(Only John read S.S. also.)

b. (Kuno's (vi), p. 379)

S.S.-o-mo John-dake-ga yonda
 -acc-also -only-nom read

(S.S. also, only John read it.)

Kuno states:

Both [(8a)] and [(8b)] are meaningful. Sentence [(8a)] is unambiguous, and it means that it was only John who read S.S. as well as many other books. However, to me [(8b)] is ambiguous. Its first interpretation is that there are many books that only John read, and S.S. also is among those that only he read. Its second interpretation, which is marginal, is identical to that of [(8a)].

Kuno (1973, p. 379)

I agree with Kuno in finding the example in (8b) ambiguous. In fact, the examples in (5) and (7) also seem to me to be ambiguous although the judgments are subtle.¹

I will thus assume, in the ensuing discussion, that examples like (5) and (7), which, according to Kuroda (1970), "slip away from any clear semantic interpretation" as well as examples like (8b), which Kuno (1973) finds ambiguous, are all equally ambiguous, leaving for future research the task of identifying the source of the complexities involved in the interpretations of these sentences.² The ambiguity of such examples then contrasts with the unambiguity of examples like (4) and (8a). The ambiguous examples and the unambiguous examples are listed in (9) and in (10), respectively, for ease of reference.

(9) (ambiguous)

a. (=5)

S.S.-dake-o John-sae-ga yonda
 -only-acc -even-nom read

(Lit. Only S.S., even John read.)

b. S.S.-sae-o John-dake-ga yonda
 -even-acc -only-nom read

(Lit. Even S.S., only John read.)

c. (=7b))
 S.S.-o-mo John-dake-ga yonda
 -acc-also -only-nom read

(S.S. also, only John read it.)

(10) (unambiguous)

a. (=4a))
 John-sae-ga S.S.-dake-o yonda
 -even-nom -only-acc read

(Even John read only S.S.)

b. (=4b))
 John-dake-ga S.S.-o-sae yonda
 -only-nom -acc-even read

(Only John read even S.S.)

c. (=8a))
 John-dake-ga S.S.-o-mo yonda
 -only-nom -acc-also read

(Only John read S.S. also.)

The ambiguity/unambiguity contrast in (9) and (10) is reminiscent of the contrast regarding quantifier scope interpretation that we have observed in chapter 4, which is schematized in (11).

(11) a. QP-ga QP-o V (unambiguous)

b. QP-o_i QP-ga t_i V (ambiguous)

Thus under the assumption that phrases with sae 'even', dake 'only' and mo 'also' are quantifiers, as assumed in the preceding chapters; and hence subject to the condition in (154) in chapter 4, repeated here as (12), the contrast in (9) and (10) follows automatically in the analysis of quantifier scope interpretation in Japanese adopted in chapter 4.

(12) (= (154) in chapter 4)

at LF *QP_i QP_j t_j t_i where each member c- commands
the member to its right

Now let us consider again the examples in (2b) and (3b).

(2) b. (Kuroda's (1969) (30))

S.S.-dake-wa John-sae-ga yonda
-only-top -even-nom read

(3) b. (Kuroda's (1969) (32))

S.S.-dake-wa John-mo yonda
-only-top -also read

As noted by Kuroda, these sentences are unambiguous with the dake-phrase taking wide scope with respect to the sae-phrase and the mo-phrase. Given our analysis of quantifier scope interpretation, the unambiguous scope order in these examples suggests that the sentence-initial S.S.-dake-wa has not been preposed to that position but is rather base-generated in that position. This is not an unreasonable conclusion to draw since we have reason to assume that the wa-phrase is allowed to be base-generated under S", as I have argued in chapter 3.

Now consider the following examples.

- (13) a. (Kuroda's (68))
 S.S.-sae John-dake-ga yonda
 -even -only-nom read
- b. S.S.-mo John-dake-ga yonda
 -also -only-nom read

As Kuroda points out, (13a) is not ambiguous in its scope order. Similarly (13b) does not seem to be ambiguous, cf. the ambiguous (8b) from Kuno (1973). Since the examples in (9) and (10) show that the change in word order affects semantic interpretation, Kuroda (1971) regards the unambiguous interpretation of (13a) as suggesting that (13a) is "not derived generatively from" (14).³

- (14) John-dake-ga S.S.-sae yonda
 -only-nom -even read

Given Kuroda's conclusion that (13a) is not derived from (14) by the syntactic preposing of S.S.-sae and given that the example in (9b) is indeed ambiguous in its scope order, we can assume that unambiguous (13a) is represented as (15b) at S-structure, while ambiguous (9b) is represented as (15a) at S-structure, where t_j is a trace of S.S.-sae-o and e_j is an empty pronominal that is associated with S.S.-sae.⁴

- (15) a. [_S S.S.-sae-o_i [_S John-dake-ga [_{VP} t_j yonda]]]
- b. [_S" S.S.-sae_i [_S' [_S John-dake-ga [_{VP} e_j yonda]]]]]

In accordance with our analysis of quantifier scope interpretation, the LF representations for (15a) and (15b) are as in (16) and (17), respectively.

(16) a. [_S S.S.-sae-o_i [_S John-dake-ga_j [_S t_i [_S t_j [_{VP} t_i yonda]]]]]]

b. [_S John-dake-ga_j [_S S.S.-sae-o_i [_S _ [_S t_j [_{VP} t_i yonda]]]]]]

(17) [_{S'} S.S.-sae_i [_{S'} [_S John-dake-ga_j [_S t_j [_{VP} e_i yonda]]]]]]

While (15a), which is the S-structure representation for (9b), has two LF representations, (15b), which is the S-structure representation for (13a), has only one LF representation. Recall that we are assuming that the rule of Quantifier Raising does not adjoin a QP higher than an S node. Thus we can straightforwardly account for the contrast between the unambiguous example in (13a) and the ambiguous example in (9b) by assigning these examples the two distinct S-structure representations given in (15).

The contrast between (8b) and (13b) can be accounted for in essentially the same way. We can assume that while (8b) is represented as (18a), (13b) is represented as (18b) at the level of S-structure.

(18) a. [_S S.S.-o-mo_i [_S John-dake-ga [_{VP} t_i yonda]]]]

b. [_{S'} S.S.-mo_i [_{S'} [_S John-dake-ga [_{VP} e_i yonda]]]]]]

(18a) will then have two LF representations whereas (18b) will have only one, just as in the case of the preceding discussion on (15), (16) and (17).

So far in this section, I have suggested, drawing heavily from Kuroda (1969, 1970) and to a lesser degree from Kuno (1973), that examples like (19) and those in (20) have distinct S-structure representations, as illustrated in

(21) and (22).

(19) a. LGB-sae John-ga yonda
 -even -nom read

(Even LGB, John read it.)

b. LGB-mo John-ga yonda
 -also -nom read

(LGB also, John read it.)

c. LGB-dake-wa John-ga yonda
 -only-top -nom read

(Only LGB, John read it.)

(20) a. LGB-sae-o John-ga yonda (koto)
 -even-acc -nom read

(Even LGB, John read.)

b. LGB-o-mo John-ga yonda (koto)
 -acc-also -nom read

(LGB also, John read.)

c. LGB-dake-o John-ga yonda (koto)
 -only-acc -nom read

(Only LGB, John read.)

(21) a. [sⁿ LGB-sae_i [sⁱ[sJohn-ga e_i yonda]]]

b. [sⁿ LGB-mo_i [sⁱ[sJohn-ga e_i yonda]]]

c. [sⁿ LGB-dake_i-wa [sⁱ[sJohn-ga e_i yonda]]]

(22) a. [s LGB-sae-o_i [sJohn-ga t_i yonda]]]

b. [_S LGB-o-mo_i [_SJohn-ga t_i yonda]]]

c. [_S LGB-dake-wa_i [_SJohn-ga t_i yonda]]]

What has motivated the syntactic differentiation between (19) and (20) is the scope interpretation of the phrases with sae, mo and dake, namely that the phrases with sae, mo and dake in (20) but not the ones in (19) behave like a "scrambled" object NP. The fact that they contain the accusative marker o provides intuitive support for the view that they have been preposed to the sentence-initial position from the preverbal position.

It is interesting to note here that the phrases with sae and mo as in (19) are considered by Kuroda (1969) to have wa at a deeper level of representation. In fact, as pointed out in Kuroda (1969), the particle wa cannot co-occur with sae or mo on the surface as shown in (23); cf. footnote 1.

(23) a. John-sae-(*wa) kita
-even-(top) came

b. John-(*wa)-sae kita
-(top)-even came

c. John-mo-(*wa) kita
-also-(top) came

d. John-(*wa)-mo kita
-(top)-also came

Given the assumption that wa is deleted in (19), the difference between (19) and (20) becomes even more clearly analogous to the difference between (24) and (25).

(24) [_{S'} LGB_i-wa [_S [_S John-ga e_i yonda]]]

(25) [_S LGB-o_i [_S John-ga t_i yonda]]]

Recall that the "derivational difference" between the wa-phrase in (24) and the object NP in (25) have been related in chapter 3 with the different properties they exhibit in regard to such phenomena as subjacency violation, the possibility of resumptive pronouns, cf. Saito (1985), and the "reconstruction-induced" variable binding. The examples in the following are given to refresh the memory of the reader.

(26) (from Saito (1985))

a. Pekinj-wa John-ga [_{NP} [_S e_i e_j yoku sitteiru] hito_i]-o
 -top -nom well knows person-acc

sagasideiru
 is looking for

(As for Peking, John is looking for a person who knows (about) it well.)

b.*?[_S Pekin-o_j [_S John-ga [_{NP} [_S e_i t_j yoku sitteiru] hito_i]-o
 -acc -nom well knows person-acc

sagasideiru]]
 is looking for

(*Peking, John is looking for a person who knows well.)

(27) a. John_i-wa [_S Mary-ga [_S Bill-ga (kare_j-o) butta to] omotteita
 -top -nom -nom he-acc hit COMP was thinking

(As for John_i, Mary thought that Bill hit him_j.)

b. John_i-o [S Mary-ga [S Bill-ga (*kare_i-o) butta to] omotteita
 -acc -nom -nom he-acc hit COMP was thinking

(John, Mary thought that bill hit .)

(28) a.?*[S"[NP[S e_i [VP Ginza-de e_j katta]] yubiwa_j]_k-wa
 -at bought ring -top

[S[S dare_i-ga [VP e_k suteta]]] no
 who-nom threw away

(Lit. As for [the ring that he_i bought at Ginza]_k, who_i threw
 it_k away?)

b.[S[NP[S e_i [VP Ginza-de e_j katta]] yubiwa_j]-o_k
 -at bought ring-acc

[S dare_i-ga [VP t_k suteta]]] no
 who-nom threw away

(Lit. [The ring that he_i bought at Ginza]_k, who_i threw away?)

Given the syntactic distinction drawn between (19) and (20), as illustrated in (21) and (22), we expect the relevant phrases with sae, mo and dake to exhibit contrasts similar to the one observed in (26), (27) and (28). The predictions in fact seem to be borne out although the relevant judgments are not entirely clear.

First consider the following.

(29) John_i-sae [NP [S e_j (kare_i-o) osieta] sensei_j]-ga noiroozeni natta
 -even he-acc taught teacher-acc neurotic became

(Even John_i, the teacher who taught (him_i) became neurotic.)

(30) John_i-mo [NP[S e_j (kare_i-o) osieta] sensei_j]-ga noiroozeni natta
 -also he-acc taught teacher-acc neurotic became

(John_i also, the teacher who taught (him_i) became neurotic.)

(31) John_i-dake-wa[NP[S e_j (kare_i-o) osieta]sensei_j]-ga noiroozeni natta
 -also-top he-acc taught teacher-acc neurotic became

(Only John_i, the teacher who taught (him_i) became neurotic.)

(32) *John-sae-o_i [NP[S e_j (kare_i-o) osieta]sensei_j]-ga noiroozeni natta
 -even-acc he-acc taught teacher-nom neurotic became

(the same as (29))

(33) *John-o-mo_i [NP[S e_j (kare_i-o) osieta] sensei_j]-ga noiroozeni natta
 -acc-also he-acc taught teacher-nom neurotic became

(the same as (30))

(34) *John-dake-o_i [NP[S e_j (kare_i-o) osieta]sensei_j]-ga noiroozeni natta
 -only-acc he-acc taught teacher-nom neurotic became

(the same as (31))

Notice that in (29), (30) and (31), the resumptive pronoun is possible whereas in (32), (33) and (34) it is not. This is analogous to the contrast observed between (35) and (36).

(35) John_i-wa [NP[S e_j kare_i-o osieta] sensei_j]-ga noiroozeni natta
 -top he-acc taught teacher-nom neurotic became

(As for John_i, the teacher who taught him_i became neurotic.)

(36) *John-o_i [NP[S e_j kare_i-o osieta] sensei_j]-ga noiroozeni natta
 -top he-acc taught teacher-nom neurotic became

(*John_i, the teacher who taught became neurotic.)

Furthermore, even without a resumptive pronoun, the examples in (32), (33) and (34) are as unacceptable as (38) due to a subjacency violation, while those in (29), (30) and (31) are as acceptable as (37).⁵

(37) John_i-wa [NP[S e_j e_j osieta] sensei_j]-ga noiroozeni natta
 -top taught teacher-nom neurotic became

(the same as (35))

(38) *John-o_i [NP[S e_j t_i osieta] sensei_j]-ga noiroozeni natta
 -acc taught teacher-nom neurotic became

(the same as (36))

Parallelism is thus suggested by the examples in (29) through (34) between the sentence-initial NP-sae/-mo/dake-wa in (29), (30) and (31) and the "topic" wa-phrase and that between the sentence-initial NP-sae-o/-o/mo/dake-o and the "scrambled" object NP. Thus the data in (29) through (34) constitute evidence that while the sentence-initial NP-sae, NP-mo and NP-dake-wa can be base-generated under S", the sentence-initial NP-sae-o, NP-o/mo and NP-dake-o cannot be base-generated in that position and must have been preposed to that position by syntactic movement.

The possibility of bound variable interpretation "through reconstruction" also suggests that the sentence-initial NP-sae-o/-o/mo/dake-o but not the sentence-initial NP-sae/-mo/dake-wa have been preposed to their surface position. Thus observe the following.

examples like (43) might be taken to be problematic to the analysis adopted here.

It is possible to dismiss the examples in (43) by assuming that the phrases with sae 'even', dake 'only' and mo 'also' in (43) are in a Case marked position, being adjacent to the verb, and need not have the overt case marker o, as argued in Saito (1983b). According to this view, the phrases with sae 'even', dake 'only' and mo 'also' in (43) in fact have abstract Case and are to be treated on a par with the phrases with o. However, the fact that these phrases can occur even in the subject position, as illustrated in (44), makes this assumption dubious.

(44) a. Bill-ga [NP[S John-sae sake-o nonda] baa]-ni itta (koto)
 -nom -even sake-acc drank bar-to went

(Bill went to the bar where even John drank sake.)

b. Bill-ga [NP[S John-mo sake-o nonda] baa]-ni itta (koto)
 -nom -also sake-acc drank bar-to went

(Bill went to the bar where John too drank sake.)

c. (?)Bill-ga [NP[S John-dake sake-o nonda] baa]-ni itta (koto)
 -nom -only sake-acc drank bar-to went

(Bill went to the bar where only John drank sake.)

As observed in Saito (1983b), the "nominative case marker drop" is not as free as the "accusative case marker drop", as shown in (45), cf. section 4.3 in chapter 4.

(45) a. [NP[S e_i biiru(-o) nonda] hito_i]
 beer(-acc) drank person

(the person who drank beer)

b. [NP[S John*?(-ga) e_i nonda] biiru_i]
 (-nom) drank beer

(the beer that John drank)

In the light of the marginality of the "nominative case marker drop" in (45b), the fact that the phrases with sae 'even', dake 'only' and mo 'also' in (44) are apparently in the subject position suggests that these phrases can be generated without the case marker under S.

One possibility then is that the phrases with sae 'even', dake 'only' and mo 'also', without the accusative (and the nominative) case maker(s), are analogous to the wa-phrase, again ignoring the details of case marker deletion under the presence of wa as discussed in Kuroda (1965, 1969, 1970). Recall that it has been argued that there are two syntactically distinct types of wa-phrases; one is the "topic" wa-phrase and the other is the "contrastive" wa-phrase. The former is generated under S" while the latter is generated under S and is subject to Move @.

As the discussion in the preceding sections suggests, the phrases with sae 'even', dake 'only' and mo 'also' that occur "in-situ" under S in fact seem to behave like quantifiers in exhibiting the effects of weak crossover and other properties that are related to the LF movement. Thus it seems reasonable to treat the phrases with sae 'even', dake 'only' and mo 'also' in (43) and (44) on a par with the "contrastive" wa-phrase, which has been argued to undergo LF movement.

If the phrases with sae 'even', dake 'only' and mo 'also' in (43) and (44) are indeed like the "contrastive" wa-phrase, we would predict the following.

(46) Those phrases under consideration behave differently from the phrases with sae 'even', dake 'only' and mo 'also' generated under S".

(47) When those phrases under consideration get S-adjoined in syntax from the position of the object NP, it would induce such effects as scope ambiguity and variable binding "through reconstruction."

The judgments on some of the relevant data are not clear. Therefore I will simply provide some relevant data in the following, together with what seems to me to be the acceptability status of those examples.

First, regarding (46), consider the following.

(48) a. [S"John_i-sae [S' [S sono yakuza-ga
-even that gangster-nom

[VP [NP [S e_j [VP e_i/kare_i-o kakumatteita]] otoko]-o osotta]]]]
he-acc was hiding man-acc attacked

(Even John_i, that gangster attacked the man who was hiding him_i.)

b. *[NP[SJohn_i-sae [S sono yakuza-ga
-even that gangster-nom

[VP [NP[S e_j [VP t_i/kare_i-o kakumatteita]] otoko]-o osotta]]] hi]
he-acc was hiding man-acc attacked day

(the day that even John_i, that gangster attacked the man who was hiding him_i.)

c. *?[NP[S John_i-sae [S e_k
-even

[VP [NP[S e_j [VP t_i/kare_i-o kakumatteita]] otoko]-o osotta]]]
he-acc was hiding man-acc attacked

yakuza]
gangster

(*the gangster_k that [even John]_i, t_k attacked the man who was hiding him_i.)

Thus it seems that John-sae in the embedded clause behaves differently from that in the matrix clause. More specifically, John-sae in the embedded clauses as in (48b) and (48c) behaves like a "scrambled" object NP, in not allowing resumptive pronouns as well as in invoking a subjacency violation. John-sae in the embedded clause in (48b) and (48c) has been preposed to the sentence-initial position from the embedded object position while John-sae in (48a) is base-generated under S", as indicated above. It must be noted that the examples in (48c) becomes acceptable if it is read without a pause between John-sae 'even John' and kakumatteita 'was hiding' (thus without kare-o) forcing John-sae to be in the position adjacent to the verb, namely in the embedded object position.

Next, regarding (47), consider the following. In (49b), but not in (49a), sae has heavy stress on it.

as in (51).

(51) a. [_S S.S.-sae_i [_S' [_S John-dake-ga [_{VP} e_i yonda]]]]

b. [_S S.S.-sae_i [_S John-dake-ga [_{VP} t_i yonda]]]

But again the judgments are too subtle to draw any conclusions from these observations at this point.

Finally, consider the examples in (52), which are from Kuroda (1970).

(52) a. (Kuroda's (79))

John-wa nityoobi-ni-dake 20D-102-goositu-de-sae S.S.-o yonda
 -top Sunday-on-only -room-in-even -acc read

(Only on Sunday John read S.S. even in room 20D-102.)

b. John-wa 20D-102-goo situ-de-sae nityoobi-ni-dake S.S.-o yonda
 -top -room-in-even Sunday-on-only -acc read

(Even in room 20D-102 John read S.S. only on Sunday.)

As Kuroda notes, "[52a] and [52b] are not synonymous, and the semantic order of sae and dake is identical to their linear (word) orders, both in [52a] and [52b]."

Recall that while in (53a) below John-sae takes wide scope with respect to S.S.-dake, the interpretation of (53b) is not the same as that of (53a).

(53) a. (Kuroda's (71))

John-sae-ga S.S.-dake-o yonda
 -even-nom -only-acc read

- b. (Kuroda's (72))
 S.S.-dake-o John-sae-ga yonda
 -only-acc -even-nom read

Comparing the scope order in (52), which seems to correspond strictly to the surface word order, with the scope order in (53b), which is effected by the reversing of the order of the subject and the object NP's; Kuroda points out that "word order between the subject and object has a different status from word order between the time and place adverbials" (Kuroda;1970, p.141). Recall that it is observed in chapter 4 that the reversing of the order of quantificational adverbials, unlike the reversing of the QP's in argument positions, does not result in scope ambiguity. Kuroda's observation in (52) is thus in accord with the result in chapter 4.

In this section, I have argued that the range of data that Kuroda (1969, 1970) discusses follow quite naturally from the assumption that certain instances of the sae/dake/mo phrases are base-generated under S", and are analogous to the "topic" wa-phrase and certain others preposed to the sentence-initial position by a syntactic adjunction operation, analogous to the "scrambled" NP or to the sentence-initial "contrastive" wa-phrase. To the extent that it is able to cover the additional data from Kuroda (1969, 1970), the analysis of quantifier scope interpretation in Japanese adopted in chapter 4 receives further support.

5.2 On Certain Differences between English and Japanese

In this section, I will consider certain differences between English and Japanese. It is first pointed out that the analysis adopted in the preceding sections, which is based on May (1977), for the quantifier scope interpretation in Japanese, needs a stipulation that in English but not in Japanese Quantifier Raising can adjoin a QP to an S' node. The stipulation is needed when we consider the scope interaction between a quantifier and a wh-phrase in English discussed in May (forthcoming). I will then briefly introduce the analysis in May (forthcoming), which does not need such a stipulation in its account of the relevant quantifier/wh-phrase scope interaction in English. I will then proceed to argue that the analysis in May (forthcoming), as things stand, make incorrect predictions regarding the scope interpretations as well as the grammaticality of Japanese sentences that involve both a quantifier and a wh-phrase, cf. footnote 8.

In the preceding sections, I have discussed quantifier scope interpretation in Japanese. As I noted there, examples of the pattern in (54a) below are unambiguous, with the subject QP taking wide scope; while examples of the pattern in (54b) are ungrammatical, those of the pattern in (54c) are grammatical with WH taking wide scope. We have further observed that examples of the patterns of (54d) and (54e) are grammatical also with one scope interpretation, as indicated below.

- (54) a. QP-ga QP-o V (QP-ga takes wide scope.)
 b. *QP-ga WH-o V (ungrammatical)
 c. WH-o_i QP-ga t_j V (WH-o takes wide scope.)
 d. WH-ga QP-o V (WH-ga takes wide scope.)
 e. QP-o_i WH-ga t_j V (WH-ga takes wide scope.)

The examples in (55) are the representatives of the relevant data.

- (55) a. [_S Dareka-ga [_{VP} daremo-o semeta]]
 someone-nom everyone-acc criticized
 (Someone criticized everyone.)
- b. * [_S John ka Bill-ga [_{VP} nani-o kaimasita]] ka
 or -nom what-acc bought Q
 (What did John or Mary buy?)
- c. [_S Nani-o_i [_S John ka Bill-ga [_{VP} t_j kaimasita]]] ka
 what-acc or -nom bought Q
 (the same as (55b))
- d. [_S Dare-ga [_{VP} sake ka biiru-o kaimasita]] ka
 -nom or -acc bought Q
 (Who bought sake or beer?)
- e. [_S Sake ka biiru-o_i [_S dare-ga [_{VP} t_j kaimasita]]] ka
 or -acc -nom bought Q
 (the same as (55d))

I have argued that the array of data in (55) can be accounted for by the condition in (56), which is a reformulation of a condition proposed in Huang

(1982), together with an independent assumption that Move @ leaves a trace optionally.

(56) (= (12))

at LF $*QP_i QP_j \bar{t}_j \bar{t}_i$ where each member c- commands
the member to its right

As the reader has perhaps noticed, the array of data from Japanese in (55) make an interesting contrast with the data in English as reported in May (1977), May (forthcoming) and others. For example, the familiar example in (57) has been reported to be ambiguous.

(57) Someone criticized everyone. (ambiguous)

It has also been observed, in May (forthcoming), that there is a contrast between (58a) and (58b) regarding the scope order of the universal quantifier and the wh-phrase.

(58) a. Who bought everything? (unambiguous)

b. What did everyone buy? (ambiguous)

It is reported that while (58a) is unambiguous with who taking wide scope, (58b) is ambiguous.

Let us now consider what the data in (57) and (58) suggest in connection with the analysis of quantifier scope interpretation adopted in chapter 4. First, the ambiguity of sentences like (57) in English suggests that, unlike Japanese, English does not have a condition like (56).⁶ Second, the fact that the

quantifier can take wide scope with respect to the wh-phrase in (58b) suggests that a QP can be adjoined to an S' node in English. Thus the English data in (57) and (58) require the following.

(59) a. The condition in (56) does not apply in English.

b. Quantifier Raising can S'-adjoin a QP in English.

Intuitively, while (59a) does not sound implausible, (59b) sounds quite odd.⁷ Notice that as long as we assume, as in May (1977), that the scope of a quantifier is its c-command domain at LF, with the first branching definition of "c-command," we must assume (59b) to hold since in (58b) the QP can take wide scope with respect to the wh-phrase. In May (forthcoming), the apparently odd stipulation in (59b) is avoided essentially by adopting what is called the Scope Principle and the "maximal projection" definition of "c-command" proposed in Aoun and Sportiche (1981).⁸

While continuing to assume that the scope of a QP is its c-command domain at LF, May (forthcoming, p.53) proposes the Scope Principle, which has the effect of assigning ambiguous scope interpretation to two QP's, with wh-phrases included, if they mutually c-command each other with "c-command" defined as in (60). May's (forthcoming) Scope Principle is given in (A).⁹

(A) Scope Principle

Σ -sequences are arbitrarily interpreted

A Σ -sequence is defined as "any class of operators ∂ , such that for any O_i , $O_j \notin \partial$, O_i governs O_j ." The definition of "government", given in (B) is basically the same as mutual c-command with the definition of "c-command" in (60).

(B) @ governs β =df @ c-commands β and β c-commands @ and there are no maximal projection boundaries between @ and β .
May (forthcoming, p. 52)

(60) (from Aoun and Sportiche (1981))

@ c-commands β =df every maximal projection dominating @ dominates β , and @ does not dominate β

Recall that in May (1977), the ambiguity of an example like (57) is accounted for by means of two LF representations assigned to it as in (61).

(61) a. [_S someone_i [_S everyone_j [_S t_i [_{VP} criticized t_j]]]]
b. [_S everyone_j [_S someone_i [_S t_i [_{VP} criticized t_j]]]]

May (forthcoming), however, rules out (61a) by the Empty Category Principle (ECP), on a par with (62a), cf. Chomsky (1981), Jaeggli (1980), Aoun, Hornstein and Sportiche (1981), Lasnik and Saito (1984) and Pesetsky (1984).

(62) a. *What did who buy?
b. Who bought what?

Just as the trace of who is not close enough to its antecedent in the LF representation of (62a), given in (63a), so the trace of someone in (61a) is not close enough to its antecedent.¹⁰

(63) a. * $[S' \text{ who}_i \text{ what}_j [S \text{ t}_i [VP \text{ buy } t_j]]]$

b. $[S' \text{ what}_j \text{ who}_i [S \text{ t}_i [VP \text{ buy } t_j]]]$

The example in (57) is still assigned an LF representation like (61a), repeated here as (64).

(64) (=61b)

$[S \text{ everyone}_j [S \text{ someone}_i [S \text{ t}_i [VP \text{ criticized } t_j]]]]$

The Scope Principle allows ambiguous scope interpretation in (64) since everyone and someone c-command each other with the definition of "c-command" in (60).¹¹ (Crucially, the S node is assumed not to be a maximal projection in May (forthcoming).)

Now returning to the sentence in (58), the unambiguity of (58a) and the ambiguity of (58b) are accounted for in May (forthcoming) as follows. First, the S-structure representations for these sentences are as in (65).

(65) a. $[S' \text{ who}_i [S \text{ t}_i [VP \text{ bought everything}]]]$

b. $[S' \text{ what}_i [S \text{ everyone } [VP \text{ bought } t_i]]]$

Assuming that the adjunction sites for Quantifier Raising include the S node and the VP node but not the S' node, the logically possible LF representations for (65a) and (65b) are as in (66) and (67) respectively.¹²

(66) a. $[S' \text{ who}_i [S \text{ everything}_j [S \text{ t}_i [VP \text{ bought } t_j]]]$

b. $[S' \text{ who}_i [S \text{ t}_i [VP \text{ everything}_j [VP \text{ bought } t_j]]]$

(67) [_S what_i [_S everyone_j [_S t_j [_{VP} bought t_i]]]]]

Notice that both in (66a) and (67), what and everyone c-command each other, with the definition of "c-command" in (60). However, (66a) is ruled out on a par with (61a) and (63a) by the ECP since the trace in the subject position is not "close enough" to its antecedent. Therefore only in (67) do the QP and the wh-phrase c-command each other, allowing scope ambiguity. Notice that in (66b), the who asymmetrically c-commands everything since the latter is adjoined to the VP node, resulting in an unambiguous scope interpretation for the example in (58a), whose S-structure representation is (65a).

Thus in May (forthcoming), unlike in the analysis adopted in the preceding sections, which is an extension of May (1977), it is not necessary to stipulate that in English but not in Japanese Quantifier Raising can adjoin a QP to the S' node. Let us now consider how the Japanese data considered in this chapter can be accommodated in an analysis based on May (forthcoming).

First, consider the example in (55a), repeated here as (68a), and the example in (68b).

(68) a. [_S Dareka-ga [_{VP} daremo-o semeta]]
 someone-nom everyone-acc criticized

(Someone criticized everyone.) (unambiguous)

b. [_S Daremo-o_i [_S dareka-ga [_{VP} t_i semeta]]]
 someone-nom everyone-acc criticized

(Everyone, someone criticized.) (ambiguous)

The contrast in (68) is accounted for in the preceding chapter by the condition in (12), repeated here as (69), coupled with an independent assumption that

Move @ leaves a trace optionally.

(69) (= (12))

at LF $*QP_i QP_j t_j t_i$ where each member c- commands
the member to its right

Within the analysis of May (forthcoming), the condition (69) can be replaced by a condition like (70).

(70) Quantifier Raising adjoins a QP to the closest adjunction site.¹³

Given the condition in (70), (68) will have only one LF representation, given in (71).

(71) [S dareka-ga_i [S t_i [VP daremo-o_j [VP t_j semeta]]]]

Thus the scope unambiguity is correctly predicted. The example in (68b), on the other hand, will still have the two possible LF representations as in (72).¹⁴

(72) a. [S daremo-o_i [S dareka-ga_j [S t_j [VP t_i semeta]]]]

b. [S dareka-ga_j [S daremo-o_i [S t_i [S t_j [VP t_i semeta]]]]]

Thus, as far as the data in (68) are concerned, an analysis based on May (forthcoming) can account for them straightforwardly. Recall that in May (forthcoming), unlike the analysis adopted here, it is not necessary to stipulate that in English but not in Japanese Quantifier Raising can adjoin a QP to an S' node. Thus if the analysis based on May (forthcoming) can also account for the Japanese data that involve both a quantifier and a wh-phrase, it will

constitute evidence that as far as the relevant Japanese data in this chapter are concerned, the general theory of quantifier scope interpretation proposed in May (forthcoming) is to be preferred over the general theory of quantifier scope interpretation adopted in this chapter, which is that of May (1977).

In the following, I will point out that, as things stand, the analysis based on May (forthcoming), as described above, makes incorrect predictions regarding such Japanese data. Consider again the array of data in (54b) through (54e), repeated here as (73a) through (73d).

- (73) a. *QP-ga WH-o V (ungrammatical)
 b. WH-o_i QP-ga t_i V (WH-o takes wide scope.)
 c. WH-ga QP-o V (WH-ga takes wide scope.)
 d. QP-o_i WH-ga t_i V (WH-ga takes wide scope.)

In accordance with the analysis in May (forthcoming) as well as the condition in (70), which is the reformulation of (69) in the terms of May (forthcoming), the LF representations for the structures in (73) will be as in (74).

- (74) a. (for (73a))
 [S'WH-o_i[S QP-ga_j [S t_j [VP t_i V]]]]
 b. (for (73b))
 [S'WH-o_i[S QP-ga_j [S t_j [S t_j [VP t_i V]]]]]
 c. (for (73c))
 [S'WH-ga_i [S t_i [VP QP-o_j [VP t_j V]]]]
 d. (for (73d))
 [S'WH-ga_i [S QP-o_j [S t_j [S t_j [VP t_j V]]]]]

(Recall that in May (forthcoming) Quantifier Raising does not adjoin a QP to the S'-node.)

The unambiguous scope order in (73c) can be accounted for in May (forthcoming) in the same way as the unambiguous scope order in (68a). The QP must be adjoined to the VP node, hence the wh-phrase asymmetrically c-commands the QP at LF as in (74c), resulting in the scope unambiguity. Given the assumption in May (forthcoming), however, (73a), (73b) and (73d) will all be predicted to be ambiguous. For in all of these structures, the QP is already outside the VP at S-structure, either being a subject or being S-adjoined in syntax. Thus the QP will be adjoined to the S-node as in (74a), (74b) and (74d), hence the QP and the wh-phrase c-command each other at LF, resulting in ambiguity in scope order.¹⁵ As we have seen in the preceding sections, the examples of the pattern in (73a) is ungrammatical and the examples of the patterns in (73b) and (73d) are unambiguous in their scope interpretations. Thus the analysis based on May (forthcoming), as described above, is unable to account for the Japanese data that are of the patterns in (73a), (73b) and (73d). Recall that the analysis adopted in this thesis, which is based on May (1977), can account for the grammaticality/ungrammaticality as well as the scope ambiguity/unambiguity of examples of the forms in (73). Thus the relevant Japanese data involving both a quantifier and a wh-phrase suggest that the general theory of quantifier scope interpretation proposed in May (1977) is to be preferred over the one proposed in May (forthcoming), but see footnote 8.

I am not in a position to provide a satisfactory analysis of quantifier scope interpretation that accounts for both the Japanese data involving a quantifier

and a wh-phrase as well as the English data in (62). How to accommodate these two sets of data will certainly be one of the many issues for future research.

5.3 On String Vacuous Application of "Scrambling"

The scope unambiguity of (75a) as well as the scope ambiguity of (75b) have been accounted for by the condition in (56), repeated here coupled with an independent assumption that Move @ leaves a trace optionally.

(56) (= (12))

at LF *QP_i QP_j t_j t_i where each member c- commands
the member to its right

(75) a. QP-ga QP-o V

b. QP-o QP-ga V

The scope unambiguity of (75a) is attributed to the impossibility of (76b) as its LF representation, which is due to (56).

(76) a. [S QP-ga_i [S QP-o_j [S t_j [VP t_j V]]]]

b. *[S QP-o_j [S QP-ga_i [S t_j [VP t_j V]]]]

On the other hand, the ambiguity of (75b) is accounted for by assuming that there are two possible LF representations for it, as indicated in (77).

(77) a. [S QP-o_j [S QP-ga_i [S t_j [S t_i [VP t_j V]]]]]

b. [S QP-ga_i [S QP-o_j [S __ [S t_j [VP t_j V]]]]]

In (77b), the intermediate trace of QP-ga is not present, which is possible since it is assumed that Move @ leaves a trace optionally and the intermediate trace is not required by the Projection Principle or any other principles or conditions. Thus in our account of quantifier scope interpretation in Japanese, it is the syntactic movement of the object QP that is responsible for the scope ambiguity in examples of the form (75b). Therefore if (75a) has an S-structure representation like (78a), in which both QP's have been S-adjoined in syntax, we would predict, wrongly, that (75a) is ambiguous.

(78) a. [S QP-ga_i [S QP-o_j [S t_i [VP t_j V]]]]]

b. [S QP-ga_i [S QP-o_j [S t_i [S t_j [S t_i [VP t_j V]]]]]]]

c. [S QP-o_j [S QP-ga_i [S __ [S t_j [S t_i [VP t_j V]]]]]]]

This is so since the S-structure representation in (78a) can have either (78b) or (78c) as its LF representations.¹⁶ With (78b), QP-ga takes wide scope and with (78c) QP-o takes wide scope.¹⁷

The same problem can be raised regarding the scope order of the direct object QP and the indirect object QP. Essentially the same problem will also arise with our analysis of QP/WH interpretations since the grammaticality/ungrammaticality of the relevant examples involving a QP and a wh-phrase have been accounted for in very much the way the ambiguity/unambiguity of (75) have been accounted for.

In this subsection, I will point out that S-structure representations like (78)

and (79) are disallowed independently of quantifier scope interpretation.

(79) [S NP-ga [VP QP-ni [VP QP-oj [VP t_i [V' t_j V]]]]]

First of all, Saito (1985) presents an argument for the hypothesis that the subject NP is not subject to "scrambling" based on Case marking phenomena. His argument is briefly reviewed in section 4.3 in chapter 4. Thus given the assumption that the subject NP is not subject to syntactic adjunction operation, S-structure representations such as (78) can be excluded. As noted in chapter 1, the possibility of the syntactic preposing of the object NP's, on the other hand, cannot immediately be excluded since they can appear on the surface before the subject NP as in the schematic structures in (80).

- (80) a. A-o B-ga V
 -acc -nom
- b. A-ni B-o C-ga V
 -dat -acc -nom
- c. A-ni B-ga C-o V
 -dat -nom -acc

Therefore S-structure representations like (79) cannot be excluded at this point.

Now consider the examples in (81).

(81) John-no haha-o semeta
 -gen mother-acc criticized

(ec criticized John's mother.)

With the subject NP being non-lexical, the S-structure representation for (81) could be as in (82a) or as in (82b).

- (82) a. [_S ec(-ga) [_{VP} John-no haha-o semeta]]
 b. [_S John-no haha-o_i[_S ec(-ga) [_{VP} t_i semeta]]]

In (82a) the empty subject and the lexical object NP are in their D-structure positions while in (82b) the object NP has been preposed to the sentence-initial position across the empty subject NP. The S-structure representations in (82) correspond to those in (83), in which the subject NP is an overt pronominal.

- (83) a.*[_S kare_i-ga [_{VP} John_i-no haha-o semeta]]
 b. [_S John_j-no haha-o_i[_S kare_j-ga [_{VP} t_i semeta]]]

As indicated above, while the optional coreference between kare and John is not allowed in (83a), it is allowed in (83b), cf. chapter 1. Thus if the S-structure representation for (81) could indeed be either (82a) or (82b), we expect the optional coreference between the empty subject and John to be possible. This is so since the empty pronominal in (82b) does not c-command John, although the ec in (82a) does c-command John. Recall that we are assuming a condition like (84) on referential dependency.¹⁸

(84) (= (3) in chapter 1))

X cannot be an antecedent of Y if Y c-commands X.

However, the example in (81) does not seem to allow of the interpretation that John's mother was criticized by him. That is, the empty subject NP and John must be disjoint in reference. This shows, then, that (81) cannot have the S-structure representation like (82b).

Similarly, the fact that the optional coreference between the empty indirect object and John is not possible in (85) indicates that (85) cannot have (86b) as its S-structure representation but that it must have (86a) as its S-structure representation.

(85) Bill-ga John-no atarasii sensei-o syookaisita (koto)
 -nom -gen new teacher-acc introduced

(Bill introduced John's new teacher to him.)

(86) a. [_S Bill-ga [_{VP} e(-ni) [_{V'} John-no atarasii sensei-o syookaisita]]]

b. [_S Bill-ga [_{VP} John-no atarasii sensei-o_i [_{VP} e(-ni) [_{V'} t_i
 syookaisita]]]]]

The fact that the optional coreference between the empty indirect object and John in (85) is not possible is thus accounted for on a par with the impossibility of the intended optional coreference in (87), which is assumed to have an S-structure representation like (88).

(87) *Bill-ga kare_i-ni John_i-no atarasii sensei-o syookaisita (koto)
 -nom he-dat -gen new teacher-acc introduced

(Bill introduced John_i's new teacher to him_i.)

(88) [_S Bill-ga [_{VP} kare_i-ni [_{V'} John_i-no atarasii sensei-o syookaisita]]]

Just as kare c-commands John in (88), so e c-commands John in (85).

The impossibility of the intended optional coreference in examples like (81) and (85) leads to a conclusion that given a surface string of the forms in (89), the lexical argument NP cannot be represented at S-structure as having been preposed across an empty pronominal, essentially, the prohibition against the string vacuous application of Move @, cf. George (1980).

(89) Lexical NP-o Verb

The nature of the relevant condition is not clear. However, its effect is clear. It somehow prevents S-structure representations like (82b) and (86b), so as not to incorrectly allow the optional coreference in examples like (81) and (85).

Let us then assume for the purpose of discussion that there is a condition like (90) in Japanese.¹⁹

(90) A syntactic adjunction operation cannot apply if it does not change the order of the overt lexical string.

Not only does the condition in (90) exclude S-structure representations like (82b) and (86b) but it excludes the possibility of the unambiguous scope interpretation of examples of the form (75), repeated here as (91), and (92).

(91) QP-ga QP-o V
-nom -acc

(92) NP-ga QP-ni QP-o V
-nom -dat -acc

As discussed earlier, the scope ambiguity would be predicted if we were to allow the S-structure representations like (78a) and (79), which are repeated here as (93) and (94), respectively.

(93) [_S QP-ga_i [_S QP-o_j [_S t_i [_{VP} t_j V]]]]

(94) [_S NP-ga [_{VP} QP-ni_i [_{VP} QP-o_j [_{VP} t_i [_{V'} t_j V]]]]]

The condition in (90) excludes the S-structure representations in (93) and (94), thereby excluding the possibility of the unambiguous scope interpretations for examples of the form (91) and (92).

Notice, that the condition in (90) does not disallow (96) as an S-structure representation for (95) since the application of "scrambling", as indicated in (96), has indeed changed the order of the lexical string.

(95) QP-ni QP-o Lexical NP-ga Verb

(96) [_S QP-ni_i [_S QP-o_j [_S NP-ga [_{VP} t_i [_{V'} t_j V]]]]]

This means that examples of the form (95), unlike examples of the form (92), exhibit scope ambiguity despite the fact that both in (95) and in (92), the surface order of the QP-ni and QP-o is the same. The relevant judgments are again subtle. But the prediction seems to be borne out. Thus while (97a) is unambiguous in its scope interpretation, with John ka Bill 'John or Bill' taking wide scope, (97b) seems to allow scope ambiguity.

The crucial data included an example like (99).

(99) Bill-ga John_i-no atarasii sensei-ni
 -nom -gen new teacher-dat

kare_i-o syookaisita (koto)
 he-acc introduced

(Bill introduced John_i's new teacher to him_i.)

Since the intended optional coreference in (99) is possible, it was argued in Hoji (1982) that, given a condition like (84), the direct object kare-o 'he-acc' does not c-command the indirect object John no atarasii sensei-ni 'John's new teacher-dat', cf. also Saito (1983b). This was then taken to be evidence for the binary branching inside the VP.

The problem with this argument, noted in chapter 1, is brought about by the possibility of an S-structure representation in which the indirect object has been VP-adjoined as illustrated by the schematic structure in (100).

(100) [S Bill-ga [VP [NP John_i-no ...]-ni_j [VP t_j kare_i-o V]]]

If such an adjunction is possible, the asymmetrical c-command relation at S-structure between the indirect object and the direct object can be obtained even without assuming the binary branching inside the VP.

The discussion in this section, however, shows that S-structure representations like (100) are not to be allowed. If the string vacuous VP-adjunction of the indirect object is not allowed, the S-structure representation for (99) must be like (101).

(101) [S Bill-ga [VP [NP John_i-no atarasii sensei]-ni kare_i-o
 -nom -gen new teacher-dat he-acc
 syookaisita]]
 introduced

In order for kare in (101) not to c-command John, the VP-internal structure must be binary, as indicated in (102).

(102) [S Bill-ga [VP [NP John_i-no atarasii sensei]-ni [_{V'} kare_i-o
 -nom -gen new teacher-dat he-acc
 syookaisita]]]
 introduced

Therefore the argument of chapter 1 for the binary branching in Japanese based on the pronominal coreference facts, with the overt pronominal, noted in chapter 1 regains its force, thanks to the condition in (90), which is motivated by pronominal coreference data with the empty pronominal as well as by the quantifier scope unambiguity.²⁰

Footnotes to Chapter Five

¹ The example in (7) in fact sounds quite marginal and difficult to interpret as, Kuroda notes. However, I find example (i), in which sae precedes o, markedly better than (7), with an ambiguous scope interpretation.

(i) S.S.-sae-o John-dake-ga yonda
 -even-acc -only-nom read

(Lit. Even S.S., only John read.)

Thus I will use (i) in place of (7) in the following discussion.

There are complications with respect to the deletion of and surface order of the relevant particles. For example, Kuroda (1969) assumes that John sae 'even John' in (ii) is derived from (iiia) or (iiib), cf. also Kuroda (1965).

(ii) John-sae S.S.-dake-o yonda
 -even -only-acc read

(Even John read only S.S.)

(iii) a. John-ga-wa-sae
 -nom-top-even

b. John-sae-ga-wa
 -even-nom-top

Kuroda assumes that in (ii) ga is deleted in the presence of wa and wa is deleted in the presence of sae. To discuss such issues as the particle deletion that Kuroda discusses and the surface order of these particles would take us afield; therefore, instead of discussing these issues, I will simply assume, as far as the order of sae and o in (7) and (i) are concerned, that either order is

basically allowed, leaving as an open question why there is such a difference in acceptability between (7) and (i).

² Thus I am assuming that the distinction between "the first interpretation" and "the second and marginal interpretation" that Kuno (1973) draws regarding the example in (8b) is also to be attributed to factors other than the principles that are of our immediate concern here. Although such an assumption might end up leading us to a less accurate description of the grammar of Japanese, it certainly strikes me as a worthwhile research strategy to take at this point.

³ For us the relevant semantic change is the ambiguity of scope order. For Kuroda(1969), however, it is the "slipping away from any clear interpretation."

⁴ A more accurate representation for (15b) might be (i), in which e_i is associated with ("linked to" in the terms of the discussion in chapter 2) S.S..

(i) [S' S.S.-i-sae [S' [S John-dake-ga [VP e_i yonda]]]]

Whether (13a) is represented as (15b) or as (i) has non-trivial consequences with respect to the predictions we make regarding the "bound" reading for e_i . I will, however, keep to the representation as in (15b), without further discussion.

⁵ According to the analysis of the "topic" and the "contrastive" wa-phrases in chapter 3, we predict that (i) and (ii), in which the wa-phrase is taken to be

"contrastive", are as bad as (36) and (38), respectively.

(i) ?John-**wa**_i [_{NP}[_S e_j kare_i-o osieta] sensei_j]-ga noirooze ni natta

(ii) ?John-**wa**_i [_{NP}[_S e_j t_i osieta] sensei_j]-ga noirooze ni natta

However, as indicated above, (i) and (ii) are much better than (36) and (38).

The better-than-expected acceptability of examples like (i) and (ii) are attributed in chapter 3 to the possibility of the sentences like (iii) and (iv), cf. Kitagawa (1983), Hasegawa (1984) and Kuroda (1984).

(iii) John_i-ga [_{NP}[_S e_j kare_i-o osieta] sensei_j]-ga noirooze ni natta

(iv) John_i-ga [_{NP}[_S e_j e_i osieta] sensei_j]-ga noirooze ni natta

⁶ Huang (1982) tries to account for the difference between English and Chinese, which is quite similar to the difference between English and Japanese that we are now considering, by the strict observance of the X'-schema in Chinese. Essentially, he argues that both in Chinese and in English, the condition on the preservation of the S-structure c-command relation at LF is operative. He then attributes the ambiguity of English examples like (57) to the possibility of string vacuous extraposition of the object NP. Thus according to Huang (1982), (57) has the following two S-structure representations.

(i) a. [_S someone [_{VP} criticized everyone]]

b. [_S [_S someone [_{VP} criticized t_i]] everyone_i]

While in (ia) someone c-commands everyone, in (ib) everyone c-commands someone. Hence the scope ambiguity. In Chinese such extraposition is not allowed because of the strict constraint on the X'-schema in Chinese, which essentially requires that complements appear to the left of the head except under V'.

⁷ As Barbara Partee (personal communication) has pointed out to me, the strict preservation of the S-structure c-command relation at LF in Japanese and its absence in English seems natural in the light of the fact that the surface word order is much freer in Japanese than in English. In English, the relative positions of operators at LF are determined based on the syntactic movement of the "operators" as well as LF movement of the "operators". In Japanese, on the other hand, the relative positions of operators at LF must be determined solely on the basis of the LF movement of these "operators". Since the information about the LF representation is to be obtained from the S-structure representations after all, it is natural for a language that has a more restrictive conditions on the S-structure representations to have less restrictive conditions on the LF representations and vice versa. It is, however, not clear at this point how to incorporate this intuition in our analysis; but see the previous footnote for Huang's (1982) attempt to derive a difference between English and Chinese, which is similar to the difference English and Japanese under consideration.

⁸ In the following, only the relevant portion of May's (forthcoming) analysis will

be introduced. For this reason, the comparison between May (1977) and May (forthcoming) that will be given is sketchy and does not do justice especially to the elaborate theory developed in May (forthcoming). The following comparison, therefore, must be understood as a comparison between **an** analysis based on May (1977) and **an** analysis that is roughly along the line of May (forthcoming).

⁹ I quote May (forthcoming, pp. 53-54) for what the Scope Principle is intended to do.

By "operator" here is meant phrases in A-bar positions at LF. The intent of the Scope Principle is that when the requisite structural condition characteristic of Σ -sequences holds, it is arbitrary whether there is an interpretive dependency among the member quantifiers of that sequence or not, where such interpretations are specified by quantifications, in the sense of Higginbotham and May (1981a). If there is, then the principle allows of $n!$ interpretations, distinct as to relative scope relations, for a sequence with n -many members. If there is not, then the quantifiers of a sequence are interpreted independently of one another, a circumstance giving rise to the sort of "branching quantifiers" discussed in Hintikka (1974), Barwise (1979).

¹⁰ Giving the exact formulation of the ECP is not necessary for the purpose of the present discussion. It suffices to assume that the principle rules out the trace of the subject NP that is not "close enough" to its antecedent, with the "close enough" meaning either adjacent to the antecedent or to its trace, cf. Chomsky (1981), Kayne (1981) and Lasnik and Saito (1984) as well as the references there.

¹¹ Since May (forthcoming) assumes that the rule of Quantifier Raising can adjoin a QP to the VP node, (57) also has (i) as an LF representation.

(i) [S someone_i [S t_i [VP everyone_j [VP criticized t_j]]]]

In (i), someone asymmetrically c-commands everyone; therefore it yields an interpretation in which someone takes wide scope with respect to everyone.

In the case of the example in (57), the LF representation in (i) might seem unnecessary since the scope order it represents is already provided by the LF representation in (64). As we will see directly, however, the VP-adjunction by QR becomes crucial in the analysis of May (forthcoming) when sentences with a wh-phrase and a quantifier are considered.

¹² Notice that (i) is not a possible LF representation for (67) due to the condition on Proper Binding.

(i) [S' what_i [S t_j [VP everyone_j [VP bought t_i]]]

¹³ As noted in footnote 7 (due to Barbara Partee (personal communication)), the "locality" requirement on the LF movement, in the sense of the preservation of the S-structure c-command relation at LF, seems to be naturally related, in languages like Japanese, with the relatively free surface word order in such languages.

¹⁴ In this analysis then, it is not necessary to make use of the optional

presence of the intermediate trace in the account of the ambiguity of examples like (68b). There are two more issues here that require some comments. One has to do with the question raised by Jae Choe (personal communication), namely, whether it is necessary to S-adjoin daremo-o 'everyone-acc' at LF, which has already been adjoined to the S node in syntax. Suppose a quantificational phrase like daremo acquires its operatorhood by being in an A'-position, cf. May (forthcoming) and Saito (1985). Then since daremo in (68b) is already in an A'-position at S-structure as the result of the application of "scrambling", now taken to be an S-structure adjunction operation as in Saito (1985), it is not immediately clear why it must undergo the rule of Quantifier Raising at LF. As has been clear from the preceding discussion, it has been assumed that a QP that has been S-adjoined at S-structure still has to undergo the rule of Quantifier Raising at LF. The issue here is also related to another question: namely, what prevents the iterative application of Quantifier Raising at LF, especially in the light of the hypothesis that Japanese "scrambling", taken to be an adjunction operation analogous to the rule of Quantifier Raising, can apply iteratively as argued in Saito (1985)?

The second issue has to do with whether the subject position in Japanese is a properly governed position. Kuroda (1983) argues that the subject position is not a governed position based on the phenomenon of PRO_{arb} , i.e., the arbitrary interpretation on an empty category, in Japanese. Whether or not the subject position is properly governed, t_j in (72b) can be considered to be properly governed at least if we assume, not very unnaturally, that the case markers such as ga do not get moved at LF and that such case markers

properly govern the empty category that they are attached to at S-structure.

Under this assumption, (72b) ought to be like (i).

(i) [S dareka_j [S daremo_i [S [NP t_i-O]_k [S t_j-ga [VP t_k semeta]]]]]]

In fact, the wh-extraction facts clearly suggest that the subject NP behaves on a par with the object NP, but not like naze 'why'. See Lasnik and Saito (1984).

¹⁵ As noted in the previous footnote, ruling out some of these representations by the ECP does not seem plausible.

¹⁶ Recall that we are assuming that QP's that are already adjoined to an A'-position still have to undergo the rule of Quantifier Raising.

¹⁷ Since we are assuming that Move @ leaves a trace optionally and hence the intermediate trace is optional unless required by independent principles or conditions, the following LF representations would also be possible for the S-structure representation in (78a).

(i) a. [S QP-ga_i [S QP-o_j [s _ [s _ [s t_j [VP t_j V]]]]]]]

b. [S QP-ga_i [S QP-o_j [s t_j [s _ [s t_j [VP t_j V]]]]]]]

In both cases, Q-ga would take wide scope with respect to QP-o. As noted before, it does not affect the discussion here whether the **S** nodes in (i) ought to be "pruned".

¹⁸ One might wonder if the impossibility of the optional coreference in (81) in question is related to the special property of empty pronominals. In fact, it has been noted in Kuno (1985), for example, that in examples like (i), unlike in examples like (ii), the coreference between John and the empty pronominal e is difficult to obtain.

- (i) John-no haha-ga e(-o) semeta
 -gen mother criticized
- (ii) John-no haha-ga kare-o semeta
 -gen mother he-acc criticized
- (John's mother criticized him.)

There is reason to believe that the status of the optional coreference in (i) is to be treated differently from the status of the optional coreference in (iii); cf. Appendix A.

- (iii) *Kare_i-ga John_i-no haha-o semeta
 he-nom -gen mother-acc criticized
- (*He_i criticized John_i's mother.)

The reason has to do with the fact that the addition of sae, for example, to John no haha makes the optional coreference between the empty

pronominal and John markedly more acceptable in (i) while no significant improvement is observed in the case of (iii). Thus:

(iv) John_i-no haha-sae-ga e_i(-o) semeta
 -gen mother-even-nom criticized

(Even John_i's mother criticized him_i.)

(v) *Kare_i-ga John_i-no haha(-o)-sae semeta
 he-nom -gen mother(-acc)-even criticized

(*He_i criticized even John_i's mother.)

Under the assumption that the possibility of the pronominal coreference is governed by some structural notions such as "c-command", it is reasonable to take the almost readily available optional coreference in (iv) as indicating that the object NP does not c-command the subject NP in (iv).

¹⁹ The relevant condition might in fact fall outside the formal grammar and belong to a domain of parsing. I cannot pursue the possibility here.

²⁰ As noted earlier, the same argument for the prohibition against the string vacuous syntactic adjunction can be developed based on the grammaticality/ungrammaticality of sentences that involve both a quantifier and a wh-phrase.

Appendix A

Empty Pronominals and the Notion "Antecedent-of"

In the preceding discussion, it has been assumed that empty pronominals in Japanese can appear not only in the subject position but also in the object position (and in fact in any position in which an overt pronominal can occur). This assumption leads us to the conclusion that the putative asymmetry between the subject "zero pronoun" and the object "zero pronoun" noted in Kuroda (1965), which is cited in Huang (1984) and Hasegawa (1984), is not a grammatical contrast. Thus both (1a) and (1b) are expected to be equally grammatical. (A critique of the position taken by Huang (1984) and Hasegawa (1984) is also found in Kitagawa (1985) as well as in Whitman (1985).)

(1) a. John_i-ga [s'_S e_i Mary-o butta] to] omotta (koto)
 -nom -acc hit COMP thought

(John_i thought that he_i hit Mary.)

b. John_i-ga [s'_S Mary-ga e_i butta] to] omotta (koto)

(John_i thought that Mary hit him_i.)

In Huang (1984) as well as in Hasegawa (1984), it is assumed that the pronominal coreference between e_i and John_i is allowed in (1a) but not in (1b).

Hasegawa (1984), for example, attributes this putative contrast in (1) to the different properties of the empty categories in the subject position and in the object position. She argues that the empty category in the subject position but not the one in the object position can be PRO, i.e., an empty category that is both [+anaphor] and [+pronominal]. Adopting Chomsky's (1982) typology of empty categories, she claims that e_i in (1b) can neither be an anaphor, i.e., [+anaphor, -pronominal] nor be a pronominal, i.e., [-anaphor, +pronominal]. The argument is basically that e_i in (1b) cannot be an anaphor since its antecedent appears in a theta position and that it cannot be pro either since Japanese does not have a "rich enough" agreement system; cf. Chomsky (1981,1982). Under the assumption that an empty category must be one of the four types in (2), she thus concludes that e_i in (1b) is a variable, i.e., [-anaphor, -pronominal]; cf. Huang (1984).

- (2) a. [+anaphor, +pronominal] (PRO)
 b. [+anaphor, -pronominal] (anaphor)
 c. [-anaphor, +pronominal] (pro)
 d. [-anaphor, -pronominal] (variable)

Since a variable is treated on a par with a Name and is subject to Binding Condition (C) of Chomsky (1981), as assumed in Hasegawa (1984), it cannot be c-commanded by a category that it is coindexed with .

(3) Binding Condition (C)

A Name is free.

Thus Hasegawa (1984) accounts for the putative unavailability of the pronominal coreference in (1b) by Binding Condition (C).

The pair of examples in (1) is often compared with a pair of examples like the following.

(4) a. John_i-ga [S[S kare_i-ga Mary-o butta] to] omotta (koto)
 -nom he-nom -acc hit COMP thought

(John_i thought that he_i hit Mary.)

b. John_i-ga [S[S Mary-ga kare_i-o butta] to] omotta (koto)

(John_i thought that Mary hit him_i.)

Both in (4a) and in (4b), the coreference between John and the overt pronominal kare 'he' is possible. Binding Condition (B), which requires that the pronominal not be c-commanded by its antecedent, roughly, in the minimal S that dominates it, is not violated in (4a) nor in (4b). The overt pronominal kare does not c-command John in (4), thereby not violating Binding Condition (C), either.

If John is c-commanded by the pronominal, as in (5), the intended coreference is as difficult to obtain as in the English translations

(5) a. *Kare_i-ga [S[S John_i-ga Mary-o butta] to] omotta (koto)
 he-nom -nom -acc hit COMP thought

(*He_i thought that John_i hit Mary.)

b. *Kare_i-ga [S[S Mary-ga John_i-o butta] to] omotta (koto)

(*He_i thought that Mary hit John_i.)

These are the typical instances of Binding Condition (C) violation. When kare is replaced by an empty category, as in (6), the marginality of the intended coreference remains the same. (The nominative case marker for the matrix empty subject is provided only for ease of reference. A Case marker never gets pronounced without a phonetically realized NP to which it is attached.)

(6) a. *e_i(-ga) [S[S John_i-ga Mary-o butta] to] omotta (koto)
 (-nom) -nom -acc hit COMP thought

(*He_i thought that John_i hit Mary.)

b. *e_i(-ga) [S[S Mary-ga John_i-o butta]to]omotta (koto)

(*He_i thought that Mary hit John_i.)

If (1b) is to be excluded due to the violation of Binding Condition (C), as in Hasegawa (1984), (1b) is expected to be as hopeless as the examples in (6) (and in (5)). However, (1b) is much better than (6), with the intended pronominal coreference. This indicates, contrary to Hasegawa (1984) and Huang (1984), that the object empty category in Japanese need not be a variable and can be a pronominal.¹

In the preceding discussion, it has also been tacitly assumed that the same syntactic conditions hold of empty pronominals and the overt pronominal kare

'he'. Under this assumption, the apparent contrast in (7), noted, for example, in Whitman (1982) and Kuno (1983, 1985), are to be considered non-syntactic.

(7) a. John_i-no hahaoya-ga kare_i-o semeta (koto)
 -gen mother-nom he-acc criticized

b. John_i-no hahaoya-ga e_i(-o) semeta (koto)
 -gen mother-nom (-acc) criticized

(John_i's mother criticized him_i.)

It has been assumed in Kuno (1985), for example, that the intended coreference is not allowed in (7b) while it is allowed in (7a). The constraint "for the use of zero-form pronouns" proposed in Kuno (1985, 2-10) is (8).

(8) (Kuno's (1985) (23) at 2-10)

A zero-form pronoun cannot be coindexed with an NP (of any kind) that it "k-commands".²

The reason for assuming that the alleged contrast in (8) is not due to grammatical factors is similar to the reason for assuming that the putative asymmetry between the subject and the object empty categories is due to extra-grammatical factors.

The condition in (8) is intended to cover the examples in (6) as well as the example in (7b). The condition in (8) is therefore to take over some of the task of Binding Condition (C). Since the violation of Binding Condition (C) cannot easily be saved by pragmatic control or slight control of the relevant structure, we expect that the same holds of the violation of the condition in (8).

However, the example in (6b) becomes significantly better with the addition of

such particles as sae 'even'. Thus consider:

- (9) John_i-no hahaoya-sae(-ga) e_i(-o) semeta
 -gen mother-even(-nom) -acc criticized

(Even John_i's mother criticized him_i.)

Even speakers who do not readily accept (6b) with its intended pronominal coreference find (9) markedly better. What is significant is that the addition of sae does not improve the examples that violate Binding Condition (C), as illustrated in (10).

- (10) a. *Kare_i-ga [_S[_S John_i-sae(-ga) Mary-o butta] to] omotta (koto)
 he-nom -even(-nom) -acc hit COMP thought

(*He_i thought that even John_i hit Mary.)

- b. *Kare_i-ga [_S[_S Mary-ga John_i-sae(-o) butta] to] omotta (koto)

(*He_i thought that Mary hit even John_i.)

- c. *e_i(-ga) [_S[_S John_i-sae(-ga) Mary-o butta] to] omotta (koto)
 (-nom) -even(-nom) -acc hit COMP thought

(*He_i thought that even John_i hit Mary.)

- d. *e_i(-ga) [_S[_S Mary-ga John_i-sae(-o) butta] to] omotta (koto)

(*He_i thought that Mary hit even John_i.)

It seems unlikely that the addition of sae alters the structural relation between the pronominal and its intended antecedent. Thus under the assumption that pronominal coreference is governed by some structural condition, we must assume that the possibility of pronominal coreference in (6b) and (9), as far as

the relevant syntactic condition is concerned, must be the same. This means that we must assume either that (6b) reflects the core properties of pronominal coreference and something else is going on in (9) or that (9) reflects the core properties of pronominal coreference and something else is going on in (6b).

The tacit assumption in the preceding discussion is that (9) reflects the core properties of pronominal coreference. The reason for making this assumption is that (6b) is better than the typical Binding Condition (C) violations.³ (In fact, some speakers, including myself, allow the intended coreference in (6b). |)

Given that Japanese has empty pronominals but English does not, we have a straightforward account of a contrast illustrated by the following examples:

(11) a. Only John thought that he won.

b. His mother loves only John.

c. [Only John]_i, Bill gave a picture of e to t_i.

d. [Only John]_i, Bill gave a picture of him to t_i.

(12) a. [John dake]-ga [s' e katta to] omotta (koto)
 only -nom won COMP thought

(Only John thought that e won.)

b. Mary-ga [Bill-ga e au]-maeni [John dake]-o yonda (koto)
 -nom -nom meet-before only -acc called

(Mary called only John before Bill met e.)

c. [s [John dake]-o_i [s Mary-ga [Bill-ga e au]-maeni t_i yonda]](koto)
 only -acc -nom -nom meet-before called

([Only John]_i, Mary called t_i before Bill met e.)

As noted in Partee (1975), for example, (11a) is three ways ambiguous; he can (A) be construed as a variable bound to only John, (B) be coreferential with John or (C) refer to some individual other than "John" in the context of discourse.

The WCO example in (11b) disallows the (A) reading but allows the (B) and (C) readings as expected. The Japanese examples in (12a) and (12b) yield ambiguities parallel to (11a) and (11b), respectively. The English parasitic gap example in (11c) allows only the (A) reading since English does not allow empty pronominals. On the other hand, since Japanese has empty pronominals, the Japanese example in (12c) allows all of the three readings. The readings that are possible in (12c) but not in (11c) are allowed in (11d). Example (11d), however, does not allow a bound variable interpretation for him since overt pronominals in English cannot become a "parasitic gap" (=a formal variable, cf. chapter 2), cf. Chao and Sells (1983).

The array of data discussed above can be accounted for naturally if we adopt the notion "antecedent-of". Take (12a), which is repeated here as (13), for instance.

(13) [John dake]-ga [s' e katta to] omotta (koto)
 only -nom won COMP thought

(Only John thought that e won.)

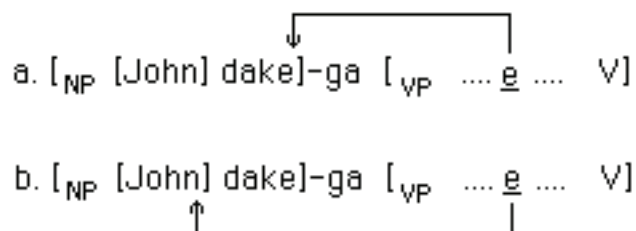
When the bound variable interpretation for e obtains, e takes John dake as its antecedent, i.e., e is linked to $[_{NP}\text{John dake}]$. On the other hand, when the pronominal coreference between e and John obtains, e takes John as its antecedent. Thus depending upon whether e takes $[_{NP}\text{John dake}]$ or John as its antecedent, we obtain the bound variable interpretation for e or the pronominal coreference between e and John.

It seems that an example like (14) also exhibits a similar kind of ambiguity with respect to the interpretation of his; cf. Koopman and Sportiche (1981, section 5).

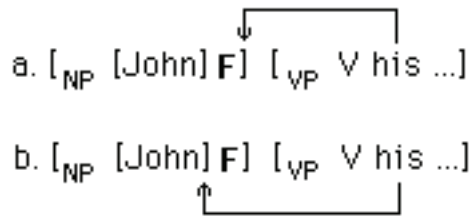
(14) **John**_i loves his_i mother

The overt pronominal his can take as its antecedent either the focused NP **John** as a whole, which will be S-adjoined by the rule of Quantifier Raising, or John, which is in a sense included in the focused NP **John**. In other words, just as e in (13) can take either John dake 'only John' or John as its antecedent, as illustrated in (15), so his in (14) can take the focused NP or John as its antecedent, as illustrated in (16).

(15)



(16)



Let us assume that the focused NP has an abstract marker of some kind; cf. Jackendoff (1972, chapter 6) and Koopman and Sportiche (1981, section 5). This abstract marker is represented in (16) as **F**. Notice that the focused NP in (16) is analogous to John-dake in (15). The linking in the (a) examples corresponds to the bound variable interpretation while the linking in the (b) examples corresponds to the pronominal coreference.

Examples like (17) discussed in Chomsky (1976) allow the pronominal coreference but not the bound variable interpretation for his.

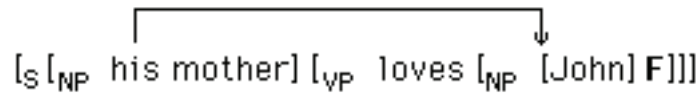
(17) His_i mother loves **John**_i.

This follows in the account of weak crossover adopted here since the variable left by the application of Quantifier Raising does not c-command his; cf. Koopman and Sportiche (1981). (In Chomsky's (1976) account, the lack of a bound variable interpretation for his is accounted for by the condition that requires that a variable V must occur to the left of a pronoun P in order for P to be construed as a variable bound to the quantificational phrase that binds V. See Higginbotham (1980b) as well as Reinhart (1983, chapter 5) for criticisms of Chomsky's (1976) account of WCO.) If his corefers with John, i.e., if his takes John as its antecedent as in (18), the condition on weak crossover is not

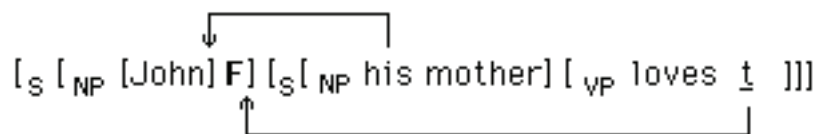
violated since his is not taking the variable as its antecedent.

(18)

a. S-structure



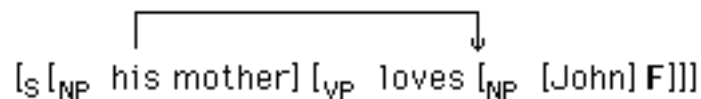
b. LF



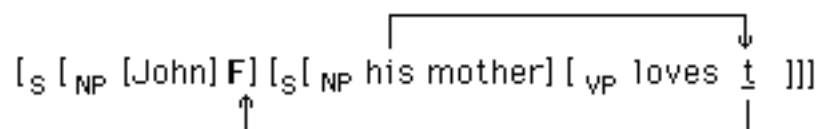
This contrasts with the situation in (19) in which his takes the entire focused NP as its antecedent.

(19)

a. S-structure



b. LF



The linking from his to t in (19b) violates the WCO condition discussed in chapter 2. Therefore we expect the bound variable interpretation for his to be unavailable.

Thus sentences with the focused NP such as (14) and (17) as well as sentences with the only NP and NP-dake such as those in (11) and (12) seem to suggest the relevance of the notion "antecedent-of" in distinguishing a

bound variable interpretation and optional coreference for a pronominal. To the extent that the proposed account of the Japanese examples in (12) and (13) is crucially based on the assumption that the object empty categories can be pronominals, the relevant interpretations of the examples in (12) and (13), especially those in (12b) and (12c), constitute evidence, contrary to what is assumed by Huang (1984) and Hasegawa (1984), that the object empty categories can be pronominals.

Footnotes to Appendix A

¹ | As pointed out to me by Mamoru Saito (personal communication), one can attribute the difference between (1b) and (6) to the fact that in (6) but not in (1b) does the pronominal c-command the Name. This means that even under the assumption that the object empty category is a variable we expect some difference between (1b) and (6).

² The definition of "k-command" is as given in Lasnik (1976).

(i) @ **k-commands** β if the minimal cyclic node dominating @ also dominates β .

It suffices to assume that S and NP are the cyclic nodes.

³ | A question still remains as to why there are such apparent differences between the overt pronominal and the empty pronominal regarding the possibility of pronominal coreference as noted, for example, in Ohso (1976), Nakai (1976), Hasegawa (1984) and Kuno (1983, 1985). While the presence and the absence of certain features like gender and number suggest themselves as an obvious clue to the question, I must leave it as an open question since a number of complex and controversial issues must also be discussed in this connection; cf. Evans (1980) and Reinhart (1983, chapter 7) for example.

Appendix B

Pesetsky's "D-linked" WH-Phrases

Pesetsky (1984) argues that the lack of Superiority effects in (1b), as opposed to (1a), is due to the difference between which-phrases and wh-phrases like what and who.

(1) a. ??what_j did you persuade who(m) to read e_j?

b. which book_j did you persuade which man to read e_j?

The difference, Pesetsky argues, is that "roughly, which-phrases are discourse-linked(D-linked), while who or what are normally not D-linked." "When a speaker asks a question like which book did you read, the range of felicitous answers is limited by a set of books both speaker and hearer have in mind. If the hearer is ignorant of the context assumed by the speaker, a which-question sounds odd (except in "quiz show" contexts)." He argues that D-linked wh-phrases are able to receive a Baker-style (i.e., a version of COMP indexing) interpretation, without movement, thereby becoming able to escape the Nested Dependency Condition, cf. footnote 25 in chapter 4, which is assumed to be responsible for Superiority effects.

Pesetsky further argues that apparent violation of the subadjacency condition in Japanese wh-questions, cf. Lasnik and Saito (1984), can be attributed to the

property of Japanese wh-phrases, namely that even nani 'what' and dare 'who', can be D-linked, more easily than English what and who. He reports that making the wh-phrase "aggressively non-D-linked" by adding ittai, which seems to have the same function as English the hell, the examples like (2a) become unacceptable, as shown in (2b).

(2) a. Mary-wa [NP[S John-ni nani-o ageta] hito]-ni atta no
 -top -dat what-acc gave person-dat met

(Lit. Mary met the person who gave John what?)

b. *Mary-wa [NP[S John-ni ittai nani-o ageta] hito]-ni atta no
 -top -dat the hell what-acc gave person-dat met

(Lit. Mary met the person who gave John what the hell?)

In the context of the preceding discussion, Pesetsky's argument predicts that while examples like (3) below can be rendered acceptable with the D-linked interpretation on nani 'what', with ittai it cannot.

(3) (= (119b) in chapter 4)

*[S [NP John ka Bill]-ga [VP nani-o nomimasita]] ka
 or -nom what-acc drank Q

(What did John or Bill drink?)

It seems that such is in fact the case. While it seems possible to force the D-linked interpretation on nani 'what' in (3) and construe the sentence on a par with (4);

(4) ??[S [NP John ka Bill]-ga [VP dono biiru-o nomimasita]] ka
 or -nom which beer-acc drank Q

(Which beer did John or Bill drink?)

(5b) cannot seem to be saved in such a way.

(5) a. Ittai dare-ga sake ka biiru-o nomimasita ka
 the hell who-nom sake or beer-acc drank Q

(Who the hell drank sake or beer?)

b. *John ka Bill-ga ittai nani-o nomimasita ka
 or -nom the hell what-acc drank Q

(What the hell did John or Bill drink?)

c. Ittai nani-o John ka Bill-ga nomimasita ka
 the hell what-acc or -nom drank Q

(What the hell did John or Bill drink?)

d. Sake ka biiru-o ittai dare-ga nomimasita ka
 sake or beer-acc the hell who-nom drank Q

(Who the hell drank sake or beer?)

The syntax and semantics of ittai is not very well understood at this point. For example, we must carefully exclude from our immediate discussion the usage of ittai, in which it is used basically in the matrix clause, expressing a strong sense of surprise or something. (There is yet another usage of ittai, meaning something like "in general", which David Pesetsky (personal communication) reports that Junko Ito has pointed out to him. This usage of ittai must also be excluded from our discussion here.) The contrast intended in (5) becomes therefore clearer when the wh-question is embedded as in indirect questions.

Notwithstanding such complications due to different usages of ittai, Pesetsky's generalization seems to be a correct one. For example, not only does ittai make the LF extraction of a wh-phrase out of a relative clause impossible, as Pesetsky points out, it also makes the LF extraction of a wh-phrase out of a "regular" NP impossible. Thus the contrast illustrated in (6) is clear.

(6) a. Mary-wa [_{NP} John-no nan-no ryoori]-o tabeta no
 -top -gen what-gen cooking-acc ate

(Lit. Mary ate John's cooking of what?)

b. ?*Mary-wa [_{NP} John-no ittai nan-no ryoori]-o tabeta no
 -top -gen what the hell-gen cooking-acc ate

(Lit. Mary ate John's cooking of what the hell?)

The ungrammatical example in (6b) contrasts with the example in (7), in which ittai seems to be used as modifying the entire sentence, supplying a strong sense of surprise or something.

(7) Mary-wa ittai [_{NP} John-no nan-no ryoori]-o tabeta no
 -top the hell -gen what-gen cooking-acc ate

Furthermore, the presence and the absence of ittai make significant difference in regard to the possibility of LF wh-extraction out of the S' complement to non-bridge verbs. Thus (8a) is much more awkward than (8b).

- (8) a. ??Kimi-wa [_{S'} Mary-ga ittai nani-o tabeta to]
 you-top -nom what-acc ate COMP

sakenda/sasayaita no
 shouted/whispered

(??What the hell did you shout/whisper that Mary ate?)

- b. Kimi-wa [_{S'} Mary-ga ittai nani-o tabeta to] omotta/itta no
 you-top -nom what-acc ate COMP thought/said

(What the hell did you think/say that Mary ate?)

A wh-phrase with ittai thus seems to behave on a par with naze 'why', which, being unable (or almost unable) to be construed as D-linked, must get moved to COMP or get S'-adjoined. As observed in Fukui (1985), the LF extraction of naze into COMP is significantly more restricted out of the S' complement to a non-bridge verb than out of the S' complement to a bridge verb. The contrast is illustrated in (9).¹

- (9) a. ?? Kimi-wa [_{S'} Mary-ga naze zisatusita to]
 you-top -nom why committed suicide COMP

sakenda/sasayaita no
 shouted/whispered

(??Why_i did you shout/whisper that Mary committed suicide _{t_i}?)

- b. Kimi-wa [_{S'} Mary-ga naze zisatusita to] omotta/itta no
 you-top -nom why committed suicide COMP thought/said

(Why_i did you think/say that Mary committed suicide _{t_i}?)

Clearly, much more must be understood about the syntax and semantics of ittai before we can draw more definitive conclusions for our analysis of

Japanese wh-questions based on the behavior of this phrase. Nevertheless, given the above qualifications on different usages of ittai, the contrasts noted above support Pesetsky's proposal that a wh-phrase with ittai must undergo an LF movement while a wh-phrase without it need not.

Footnotes to Appendix B

¹ See also Saito (1984) for discussion on the bridge and non-bridge verb difference in Japanese regarding the possibility of complementizer deletion.

Appendix C

A Restriction on Japanese "Donkey Sentences"¹

As the examples in the following suggest, while the wh-phrase in Japanese "donkey sentences" is preferred to be in the NP-initial position, as indicated in (1), such restriction does not seem to hold of the empty category that is to be construed as a variable bound to the wh-phrase in parasitic gap constructions like (2). Here, the relevant sense of "NP-initial" is that a wh-phrase is NP-initial if no lexical categories precede it in the NP.

(1) a. *?[_{NP}[_S e_i kyonen nani_j-o kaita]_{hito_i}]-ga [_{VP} e_j syuppansita] no
last year what-acc wrote person-nom published

(Lit. [The person that wrote what_j last year] published it_i?)

b. [_{NP}[_S e_i nani_j-o kyonen kaita]_{hito_i}]-ga [_{VP} e_j syuppansita] no
what-acc last year wrote person-nom published

(Lit. [The person that wrote what_j last year] published it_i?)

(2) [_S nani_j-o_j [_S [_{NP}[_S e_i kyonen e_j kaita]_{hito_i}]-ga [_{VP} t_j syuppansita]]] no
what-acc last year wrote person-nom published

(What_j did [the person that wrote e_j last year] published t_j?)

It is not clear in the case of (2), however, that e_j is in fact preceded by kyonen 'last year'. The order of kyonen 'last year' and the empty object NP can

issue.

- (5) a. [NP[S e_j nani_j-o kaita] hito_i]-mo [VP e_j syuppansita]
 what-acc wrote person-also published

(A x, x=thing, [the person that wrote x] published x)

- b. *?[NP[S e_j kyonen nani_j-o kaita] hito_i]-mo [VP e_j syuppansita]
 last year what acc wrote person-also published

(A x, x=thing, [the person that wrote x last year] published x)

- c. [NP[S e_j nani_j-o kyonen kaita] hito_i]-mo [VP e_j syuppansita]
 what acc last year wrote person-also published

(A x, x=thing, [the person that wrote x last year] published x)

- (6) a. ??[NP[S Yamada sensei-ga [VP e_i hon_j-o kasita]] gakusei_i]-ga
 Prof. Yamada-nom book-acc loaned student-nom

(minna) [VP koko-ni e_j mottekita] (koto)
 all here-to brought

- b. [NP[S Hon-o_j [S Yamada sensei-ga [VP e_i t_j kasita]]] gakusei_i]-ga
 book-acc Prof. Yamada-nom loaned student-nom

(minna) [VP koko-ni e_j mottekita] (koto)
 all here-to brought

(approximate. Every student who Prof. Yamada loaned a book_j to brought it_j here.)

The example in (5) is the type of "donkey sentences" that Nishigauchi (forthcoming) discusses. As in the case of Hasegawa's "donkey sentences", it makes a significant difference whether the wh-phrase appears NP-initially or not. The examples in (6) seem to require more subtle judgments than the other examples that we have considered above. The semantics of indefinite

NP's in Japanese is not very well understood at this point. However, there is a noticeable contrast as indicated in (6), which parallels the contrast in the earlier examples in this appendix. When hon 'book' is taken to be a definite NP, the optional coreference is possible in (6a) as well as in (6b), perhaps without minna 'all'. However (6a) does not seem to allow the reading indicated by the translation for (6b).

Returning to the examples in (5), the restriction that the wh-phrase be in the NP-initial position seems to be observed even in examples like (7).²

(7) a. [_{NP}[_S Dare-ga Osaka-de e_i kaita] hon_i]-mo yoku ureta
 who-nom -in wrote book-also well sold

(A x, x=person, [the book that x wrote in Osaka] sold well)

b. *? [_{NP}[_S Osaka-de dare-ga e_i kaita] hon_i]-mo yoku ureta
 -in who-nom wrote book-also well sold

(the same as (vib))

The nature of this restriction is not clear. But it seems that we can reasonably conclude that such a restriction at a rather general level exists.

Footnotes to Appendix C

¹ As noted in chapter 4, the possibility of analyzing sentences similar to (1b) as Japanese "donkey sentences" is, as far as I know, first recognized by Taisuke Nishigauchi; see footnote 46 in chapter 4.

² As noted in chapter 4, examples like (7a) are first explicitly discussed in Ohno (1983). Nishigauchi (forthcoming) contains extensive discussion of such examples; see also footnote 6 in chapter 4.

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Appendix A

Empty Pronominals and the Notion "Antecedent-of"

In the preceding discussion, it has been assumed that empty pronominals in Japanese can appear not only in the subject position but also in the object position (and in fact in any position in which an overt pronominal can occur). This assumption leads us to the conclusion that the putative asymmetry between the subject "zero pronoun" and the object "zero pronoun" noted in Kuroda (1965), which is cited in Huang (1984) and Hasegawa (1984), is not a grammatical contrast. Thus both (1a) and (1b) are expected to be equally grammatical. (A critique of the position taken by Huang (1984) and Hasegawa (1984) is also found in Kitagawa (1985) as well as in Whitman (1985).)

(1) a. John_i-ga [_S[_S e_i Mary-o butta] to] omotta (koto)
-nom -acc hit COMP thought

(John_i thought that he_i hit Mary.)

b. John_i-ga [_S[_S Mary-ga e_i butta] to] omotta (koto)

(John_i thought that Mary hit him_i.)

In Huang (1984) as well as in Hasegawa (1984), it is assumed that the pronominal coreference between e_i and John is allowed in (1a) but not in (1b). Hasegawa (1984), for example, attributes this putative contrast in (1) to the different properties of the empty categories in the subject position and in the object position. She argues that the empty category in the subject position but not the one in the object position can be PRO, i.e., an empty category that is both [+anaphor] and [+pronominal]. Adopting Chomsky's (1982) typology of empty categories, she claims that e_i in (1b) can neither be an anaphor, i.e., [+anaphor, -pronominal] nor be a pronominal, i.e., [-anaphor, +pronominal]. The argument is basically that e_i in (1b) cannot be an anaphor since its antecedent appears in a theta position and that it cannot be pro either since Japanese does not have a "rich enough" agreement system; cf. Chomsky (1981, 1982). Under the assumption that an empty category must be one of the four types in (2), she thus concludes that e_i in (1b) is a variable, i.e., [-anaphor, -pronominal]; cf. Huang (1984).

- (2) a. [+anaphor, +pronominal] (PRO)
 b. [+anaphor, -pronominal] (anaphor)
 c. [-anaphor, +pronominal] (pro)
 d. [-anaphor, -pronominal] (variable)

Since a variable is treated on a par with a Name and is subject to Binding Condition (C) of Chomsky (1981), as assumed in Hasegawa (1984), it

cannot be c-commanded by a category that it is coindexed with .

(3) Binding Condition (C)

A Name is free.

Thus Hasegawa (1984) accounts for the putative unavailability of the pronominal coreference in (1b) by Binding Condition (C).

The pair of examples in (1) is often compared with a pair of examples like the following.

- (4) a. John_i-ga [_S[_S kare_i-ga Mary-o butta] to] omotta (koto)
 -nom he-nom -acc hit COMP thought

(John_i thought that he_i hit Mary.)

- b. John_i-ga [_S[_S Mary-ga kare_i-o butta] to] omotta (koto)

(John_i thought that Mary hit him_i.)

Both in (4a) and in (4b), the coreference between John and the overt pronominal kare 'he' is possible. Binding Condition (B), which requires that the pronominal not be c-commanded by its antecedent, roughly, in the minimal S that dominates it, is not violated in (4a) nor in (4b). The overt pronominal kare does not c-command John in (4), thereby not violating Binding Condition (C), either.

If John is c-commanded by the pronominal, as in (5), the intended coreference is as difficult to obtain as in the English translations

(5) a. *Kare_i-ga [_S[_S John_i-ga Mary-o butta] to] omotta (koto)
 he-nom -nom -acc hit COMP thought

(*He_i thought that John_i hit Mary.)

b. *Kare_i-ga [_S[_S Mary-ga John_i-o butta] to] omotta (koto)

(*He_i thought that Mary hit John_i.)

These are the typical instances of Binding Condition (C) violation. When kare is replaced by an empty category, as in (6), the marginality of the intended coreference remains the same. (The nominative case marker for the matrix empty subject is provided only for ease of reference. A Case marker never gets pronounced without a phonetically realized NP to which it is attached.)

(6) a. * e_i(-ga) [_S[_S John_i-ga Mary-o butta] to] omotta (koto)
 (-nom) -nom -acc hit COMP thought

(*He_i thought that John_i hit Mary.)

b. * e_i(-ga) [_S[_S Mary-ga John_i-o butta] to] omotta (koto)

(*He_i thought that Mary hit John_i.)

If (1b) is to be excluded due to the violation of Binding Condition (C), as in Hasegawa (1984), (1b) is expected to be as hopeless as the examples in (6) (and in (5)). However, (1b) is much better than (6), with the intended pronominal coreference. This indicates, contrary to Hasegawa (1984) and Huang (1984), that the object empty category in Japanese need not be a variable and can be a pronominal.¹

In the preceding discussion, it has also been tacitly assumed that the same syntactic conditions hold of empty pronominals and the overt pronominal kare 'he'. Under this assumption, the apparent contrast in (7), noted, for example, in Whitman (1982) and Kuno (1983, 1985), are to be considered non-syntactic.

(7) a. John_i-no hahaoya-ga kare_i-o semeta (koto)
 -gen mother-nom he-acc criticized

b. John_i-no hahaoya-ga e_i(-o) semeta (koto)
 -gen mother-nom (-acc) criticized

(John_i's mother criticized him_i.)

It has been assumed in Kuno (1985), for example, that the intended coreference is not allowed in (7b) while it is allowed in (7a). The constraint "for the use of zero-form pronouns" proposed in Kuno (1985, 2-10) is (8).

(8) (Kuno's (1985) (23) at 2-10)

A zero-form pronoun cannot be coindexed with an NP (of any kind) that it "k-commands".²

The reason for assuming that the alleged contrast in (8) is not due to grammatical factors is similar to the reason for assuming that the putative asymmetry between the subject and the object empty categories is due to extra-grammatical factors.

The condition in (8) is intended to cover the examples in (6) as well as the example in (7b). The condition in (8) is therefore to take over some of

the task of Binding Condition (C). Since the violation of Binding Condition (C) cannot easily be saved by pragmatic control or slight control of the relevant structure, we expect that the same holds of the violation of the condition in (8). However, the example in (6b) becomes significantly better with the addition of such particles as sae 'even'. Thus consider:

- (9) John_i-no hahaoya-sae(-ga) e_i(-o) semeta
 -gen mother-even(-nom) -acc criticized

(Even John_i's mother criticized him_i.)

Even speakers who do not readily accept (6b) with its intended pronominal coreference find (9) markedly better. What is significant is that the addition of sae does not improve the examples that violate Binding Condition (C), as illustrated in (10).

- (10) a. *Kare_i-ga [_S[_S John_i-sae(-ga) Mary-o butta] to] omotta (koto)
 he-nom -even(-nom) -acc hit COMP thought

(*He_i thought that even John_i hit Mary.)

- b. *Kare_i-ga [_S[_S Mary-ga John_i-sae(-o) butta] to] omotta (koto)

(*He_i thought that Mary hit even John_i.)

- c. *e_i(-ga) [_S[_S John_i-sae(-ga) Mary-o butta] to] omotta (koto)
 (-nom) -even(-nom) -acc hit COMP thought

(*He_i thought that even John_i hit Mary.)

d.* $e_i(-ga)$ [_S[_S Mary-ga John_i-sae(-o) butta] to] omotta (koto)

(*He_i thought that Mary hit even John_i.)

It seems unlikely that the addition of sae alters the structural relation between the pronominal and its intended antecedent. Thus under the assumption that pronominal coreference is governed by some structural condition, we must assume that the possibility of pronominal coreference in (6b) and (9), as far as the relevant syntactic condition is concerned, must be the same. This means that we must assume either that (6b) reflects the core properties of pronominal coreference and something else is going on in (9) or that (9) reflects the core properties of pronominal coreference and something else is going on in (6b).

The tacit assumption in the preceding discussion is that (9) reflects the core properties of pronominal coreference. The reason for making this assumption is that (6b) is better than the typical Binding Condition (C) violations.³ (In fact, some speakers, including myself, allow the intended coreference in (6b).)

Given that Japanese has empty pronominals but English does not, we have a straightforward account of a contrast illustrated by the following examples:

(11) a. Only John thought that he won.

b. His mother loves only John.

c. [Only John]_i, Bill gave a picture of e to t_i.

d. [Only John]_i, Bill gave a picture of him to t_i.

(12) a. [John dake]-ga [_S e katta to] omotta (koto)
 only -nom won COMP thought

(Only John thought that e won.)

b. Mary-ga [Bill-ga e au]-maeni [John dake]-o yonda (koto)
 -nom -nom meet-before only -acc called

(Mary called only John before Bill met e.)

c. [_S [John dake]-o; [_S Mary-ga [Bill-ga e au]-maeni t_i yonda]](koto)
 only -acc -nom -nom meet-before called

([Only John]_i, Mary called t_i before Bill met e.)

As noted in Partee (1975), for example, (11a) is three ways ambiguous; he can (A) be construed as a variable bound to only John, (B) be coreferential with John or (C) refer to some individual other than "John" in the context of discourse.

The WCO example in (11b) disallows the (A) reading but allows the (B) and (C) readings as expected. The Japanese examples in (12a) and (12b) yield ambiguities parallel to (11a) and (11b), respectively. The English parasitic gap example in (11c) allows only the (A) reading since English does not allow empty pronominals. On the other hand, since Japanese has empty pronominals, the Japanese example in (12c) allows all of the three

readings. The readings that are possible in (12c) but not in (11c) are allowed in (11d). Example (11d), however, does not allow a bound variable interpretation for him since overt pronominals in English cannot become a "parasitic gap" (=a formal variable, cf. chapter 2), cf. Chao and Sells (1983).

The array of data discussed above can be accounted for naturally if we adopt the notion "antecedent-of". Take (12a), which is repeated here as (13), for instance.

(13) [John dake]-ga [_S e katta to] omotta (koto)
 only -nom won COMP thought

(Only John thought that e won.)

When the bound variable interpretation for e obtains, e takes John dake as its antecedent, i.e., e is linked to [_{NP}John dake]. On the other hand, when the pronominal coreference between e and John obtains, e takes John as its antecedent. Thus depending upon whether e takes [_{NP}John dake] or John as its antecedent, we obtain the bound variable interpretation for e or the pronominal coreference between e and John.

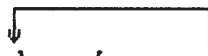
It seems that an example like (14) also exhibits a similar kind of ambiguity with respect to the interpretation of his; cf. Koopman and Sportiche (1981, section 5).

(14) **John**_i loves his_i mother


The overt pronominal his can take as its antecedent either the focused NP John as a whole, which will be S-adjoined by the rule of Quantifier Raising, or John, which is in a sense included in the focused NP John. In other words, just as e in (13) can take either John dake 'only John' or John as its antecedent, as illustrated in (15), so his in (14) can take the focused NP or John as its antecedent, as illustrated in (16).

(15)

a. [_{NP} [John] dake]-ga [_{VP} ... e ... V]

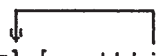


b. [_{NP} [John] dake]-ga [_{VP} ... e ... V]




(16)

a. [_{NP} [John] F] [_{VP} V his ...]



b. [_{NP} [John] F] [_{VP} V his ...]



Let us assume that the focused NP has an abstract marker of some kind; cf. Jackendoff (1972, chapter 6) and Koopman and Sportiche (1981, section 5). This abstract marker is represented in (16) as F. Notice that the focused NP in (16) is analogous to John-dake in (15). The linking in the (a) examples corresponds to the bound variable interpretation while the linking in the (b) examples corresponds to the pronominal coreference.

Examples like (17) discussed in Chomsky (1976) allow the pronominal

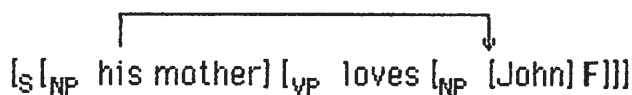
coreference but not the bound variable interpretation for his.

(17) His_i mother loves **John**_i.

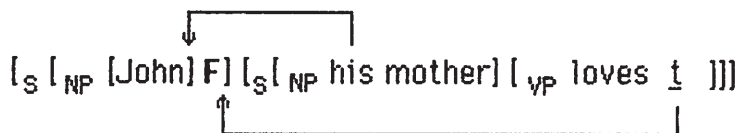
This follows in the account of weak crossover adopted here since the variable left by the application of Quantifier Raising does not c-command his; cf. Koopman and Sportiche (1981). (In Chomsky's (1976) account, the lack of a bound variable interpretation for his is accounted for by the condition that requires that a variable V must occur to the left of a pronoun P in order for P to be construed as a variable bound to the quantificational phrase that binds V. See Higginbotham (1980b) as well as Reinhart (1983, chapter 5) for criticisms of Chomsky's (1976) account of WCO.) If his corefers with John, i.e., if his takes John as its antecedent as in (18), the condition on weak crossover is not violated since his is not taking the variable as its antecedent.

(18)

a. S-structure



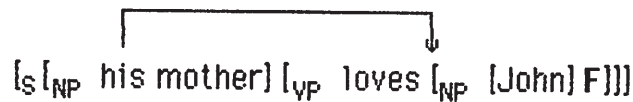
b. LF



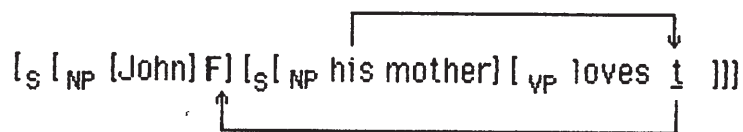
This contrasts with the situation in (19) in which his takes the entire focused NP as its antecedent.

(19)

a. S-structure



b. LF



The linking from his to \underline{t} in (19b) violates the WCO condition discussed in chapter 2. Therefore we expect the bound variable interpretation for his to be unavailable.

Thus sentences with the focused NP such as (14) and (17) as well as sentences with the only NP and NP-dake such as those in (11) and (12) seem to suggest the relevance of the notion "antecedent-of" in distinguishing a bound variable interpretation and optional coreference for a pronominal. To the extent that the proposed account of the Japanese examples in (12) and (13) is crucially based on the assumption that the object empty categories can be pronominals, the relevant interpretations of the examples in (12) and (13), especially those in (12b) and (12c), constitute evidence, contrary to what is assumed by Huang (1984) and Hasegawa (1984), that the object empty categories can be pronominals.

Footnotes to Appendix A

¹ As pointed out to me by Mamoru Saito (personal communication), one can attribute the difference between (1b) and (6) to the fact that in (6) but not in (1b) does the pronominal c-command the Name. This means that even under the assumption that the object empty category is a variable we expect some difference between (1b) and (6).

² The definition of "k-command" is as given in Lasnik (1976).

(i) @ **k-commands** β if the minimal cyclic node dominating @ also dominates β .

It suffices to assume that S and NP are the cyclic nodes.

³ A question still remains as to why there are such apparent differences between the overt pronominal and the empty pronominal regarding the possibility of pronominal coreference as noted, for example, in Ohso (1976), Nakai (1976), Hasegawa (1984) and Kuno (1983, 1985). While the presence and the absence of certain features like gender and number suggest themselves as an obvious clue to the question, I must leave it as an open question since a number of complex and controversial issues must also be discussed in this connection; cf. Evans (1980) and Reinhart (1983, chapter 7) for example.

Appendix B

Pesetsky's "D-linked" WH-Phrases

Pesetsky (1984) argues that the lack of Superiority effects in (1b), as opposed to (1a), is due to the difference between which-phrases and wh-phrases like what and who.

(1) a. ??what_j did you persuade who(m) to read e_j?

b. which book_j did you persuade which man to read e_j?

The difference, Pesetsky argues, is that "roughly, which-phrases are discourse-linked(D-linked), while who or what are normally not D-linked." "When a speaker asks a question like which book did you read, the range of felicitous answers is limited by a set of books both speaker and hearer have in mind. If the hearer is ignorant of the context assumed by the speaker, a which-question sounds odd (except in "quiz show" contexts)." He argues that D-linked wh-phrases are able to receive a Baker-style (i.e., a version of COMP indexing) interpretation, without movement, thereby becoming able to escape the Nested Dependency Condition, cf. footnote 25 in chapter 4, which is assumed to be responsible for Superiority effects.

Pesetsky further argues that apparent violation of the subadjacency condition in Japanese wh-questions, cf. Lasnik and Saito (1984), can be attributed to the property of Japanese wh-phrases, namely that even nani 'what' and dare 'who', can be D-linked, more easily than English what and who. He reports that making the wh-phrase "aggressively non-D-linked" by adding ittai, which seems to have the same function as English the hell, the examples like (2a) become unacceptable, as shown in (2b).

(2) a. Mary-wa [_{NP}[_S John-ni nani-o ageta] hito]-ni atta no
 -top -dat what-acc gave person-dat met

(Lit. Mary met the person who gave John what?)

b. *Mary-wa [_{NP}[_S John-ni ittai nani-o ageta] hito]-ni atta no
 -top -dat the hell what-acc gave person-dat met

(Lit. Mary met the person who gave John what the hell?)

In the context of the preceding discussion, Pesetsky's argument predicts that while examples like (3) below can be rendered acceptable with the D-linked interpretation on nani 'what', with ittai it cannot.

(3) (= (119b) in chapter 4)

*[_S [_{NP} John ka Bill]-ga [_{VP} nani-o nomimasita]] ka
 or -nom what-acc drank Q

(What did John or Bill drink?)

It seems that such is in fact the case. While it seems possible to force the D-linked interpretation on nani 'what' in (3) and construe the sentence

on a par with (4);

(4) ??[_S [_{NP} John ka Bill]-ga [_{VP} dono biiru-o nomimasita]] ka
 or -nom which beer-acc drank Q

(Which beer did John or Bill drink?)

(5b) cannot seem to be saved in such a way.

(5) a. Ittai dare-ga sake ka biiru-o nomimasita ka
 the hell who-nom sake or beer-acc drank Q

(Who the hell drank sake or beer?)

b. *John ka Bill-ga ittai nani-o nomimasita ka
 or -nom the hell what-acc drank Q

(What the hell did John or Bill drink?)

c. Ittai nani-o John ka Bill-ga nomimasita ka
 the hell what-acc or -nom drank Q

(What the hell did John or Bill drink?)

d. Sake ka biiru-o ittai dare-ga nomimasita ka
 sake or beer-acc the hell who-nom drank Q

(Who the hell drank sake or beer?)

The syntax and semantics of ittai is not very well understood at this point. For example, we must carefully exclude from our immediate discussion the usage of ittai, in which it is used basically in the matrix clause, expressing a strong sense of surprise or something. (There is yet another usage of ittai, meaning something like "in general", which David

Pesetsky (personal communication) reports that Junko Ito has pointed out to him. This usage of ittai must also be excluded from our discussion here.) The contrast intended in (5) becomes therefore clearer when the wh-question is embedded as in indirect questions.

Notwithstanding such complications due to different usages of ittai, Pesetsky's generalization seems to be a correct one. For example, not only does ittai make the LF extraction of a wh-phrase out of a relative clause impossible, as Pesetsky points out, it also makes the LF extraction of a wh-phrase out of a "regular" NP impossible. Thus the contrast illustrated in (6) is clear.

(6) a. Mary-wa [_{NP} John-no nan-no ryoori]-o tabeta no
 -top -gen what-gen cooking-acc ate

(Lit. Mary ate John's cooking of what?)

b. ?*Mary-wa [_{NP} John-no ittai nan-no ryoori]-o tabeta no
 -top -gen what the hell-gen cooking-acc ate

(Lit. Mary ate John's cooking of what the hell?)

The ungrammatical example in (6b) contrasts with the example in (7), in which ittai seems to be used as modifying the entire sentence, supplying a strong sense of surprise or something.

(7) Mary-wa ittai [_{NP} John-no nan-no ryoori]-o tabeta no
 -top the hell -gen what-gen cooking-acc ate

Furthermore, the presence and the absence of ittai make significant difference in regard to the possibility of LF wh-extraction out of the S'

complement to non-bridge verbs. Thus (8a) is much more awkward than (8b).

(8) a. ??Kimi-wa [_S Mary-ga ittai nani-o tabeta to]
 you-top -nom what-acc ate COMP

sakenda/sasayaita no
 shouted/whispered

(??What the hell did you shout/whisper that Mary ate?)

b. Kimi-wa [_S Mary-ga ittai nani-o tabeta to] omotta/itta no
 you-top -nom what-acc ate COMP thought/said

(What the hell did you think/say that Mary ate?)

A wh-phrase with ittai thus seems to behave on a par with naze 'why', which, being unable (or almost unable) to be construed as D-linked, must get moved to COMP or get S'-adjoined. As observed in Fukui (1985), the LF extraction of naze into COMP is significantly more restricted out of the S' complement to a non-bridge verb than out of the S' complement to a bridge verb. The contrast is illustrated in (9).¹

(9) a. ?? Kimi-wa [_S Mary-ga naze zisatusita to]
 you-top -nom why committed suicide COMP

sakenda/sasayaita no
 shouted/whispered

(??Why_i did you shout/whisper that Mary committed suicide t_i?)

b. Kimi-wa [_S Mary-ga naze zisatusita to] omotta/itta no
 you-top -nom why committed suicide COMP thought/said

(Why_i did you think/say that Mary committed suicide t_i?)

Clearly, much more must be understood about the syntax and semantics of ittai before we can draw more definitive conclusions for our analysis of Japanese wh-questions based on the behavior of this phrase. Nevertheless, given the above qualifications on different usages of ittai, the contrasts noted above support Pesetsky's proposal that a wh-phrase with ittai must undergo an LF movement while a wh-phrase without it need not.

Footnotes to Appendix B

¹ See also Saito (1984) for discussion on the bridge and non-bridge verb difference in Japanese regarding the possibility of complementizer deletion.

Appendix C

A Restriction on Japanese "Donkey Sentences"¹

As the examples in the following suggest, while the wh-phrase in Japanese "donkey sentences" is preferred to be in the NP-initial position, as indicated in (1), such restriction does not seem to hold of the empty category that is to be construed as a variable bound to the wh-phrase in parasitic gap constructions like (2). Here, the relevant sense of "NP-initial" is that a wh-phrase is NP-initial if no lexical categories precede it in the NP.

(1) a. *?_{[NP]S} e_j kyonen nani_j-o kaita] hito_i]-ga [_{VP} e_j syuppansita] no
last year what-acc wrote person-nom published

(Lit. [The person that wrote what_j last year] published it_j?)

b. [<sub>NP]S e_i nani_j-o kyonen kaita] hito_i]-ga [_{VP} e_j syuppansita] no
what-acc last year wrote person-nom published</sub>

(Lit. [The person that wrote what_j last year] published it_j?)

(2) [_S nani_j-o_j [_S [<sub>NP]S e_i kyonen e_j kaita] hito_i]-ga [_{VP} t_j syuppansita]]] no
what-acc last year wrote person-nom published</sub>

(What_j did [the person that wrote e_j last year] published t_j ?)

counterparts of Hasegawa's and Nishigauchi's "donkey sentences" in Japanese. I will not provide a full discussion of this topic here, but the following examples illustrate the point at issue.

- (5) a. [_{NP}[_S e_i nani_j-o kaita] hito_i]-mo [_{VP} e_j syuppansita]
 what-acc wrote person-also published

(▲ x, x=thing, [the person that wrote x] published x)

- b. *? [_{NP}[_S e_i kyonen nani_j-o kaita] hito_i]-mo [_{VP} e_j syuppansita]
 last year what acc wrote person-also published

(▲ x, x=thing, [the person that wrote x last year] published x)

- c. [_{NP}[_S e_i nani_j-o kyonen kaita] hito_i]-mo [_{VP} e_j syuppansita]
 what acc last year wrote person-also published

(▲ x, x=thing, [the person that wrote x last year] published x)

- (6) a. ?? [_{NP}[_S Yamada sensei-ga [_{VP} e_i hon_j-o kasita]] gakusei_i]-ga
 Prof. Yamada-nom book-acc loaned student-nom

(minna) [_{VP} koko-ni e_j mottekita] (koto)
 all here-to brought

- b. [_{NP}[_S Hon-o_j [_S Yamada sensei-ga [_{VP} e_i t_j kasita]]] gakusei_i]-ga
 book-acc Prof. Yamada-nom loaned student-nom

(minna) [_{VP} koko-ni e_j mottekita] (koto)
 all here-to brought

(approximate. Every student who Prof. Yamada loaned a book_j to brought it_j here.)

The example in (5) is the type of "donkey sentences" that Nishigauchi (forthcoming) discusses. As in the case of Hasegawa's "donkey sentences", it makes a significant difference whether the wh-phrase appears NP-initially or not. The examples in (6) seem to require more subtle judgments than the other examples that we have considered above. The semantics of indefinite NP's in Japanese is not very well understood at this point. However, there is a noticeable contrast as indicated in (6), which parallels the contrast in the earlier examples in this appendix. When hon 'book' is taken to be a definite NP, the optional coreference is possible in (6a) as well as in (6b), perhaps without minna 'all'. However (6a) does not seem to allow the reading indicated by the translation for (6b).

Returning to the examples in (5), the restriction that the wh-phrase be in the NP-initial position seems to be observed even in examples like (7).²

(7) a. [_{NP_i} Dare-ga Osaka-de e_i kaita] hon_i]-mo yoku ureta
 who-nom -in wrote book-also well sold

(▲ x, x=person, [the book that x wrote in Osaka] sold well)

b. *?[_{NP_i} Osaka-de dare-ga e_i kaita] hon_i]-mo yoku ureta
 -in who-nom wrote book-also well sold

(the same as (vib))

The nature of this restriction is not clear. But it seems that we can reasonably conclude that such a restriction at a rather general level exists.

Footnotes to Appendix C

¹ As noted in chapter 4, the possibility of analyzing sentences similar to (1b) as Japanese “donkey sentences” is, as far as I know, first recognized by Taisuke Nishigauchi; see footnote 46 in chapter 4.

² As noted in chapter 4, examples like (7a) are first explicitly discussed in Ohno (1983). Nishigauchi (forthcoming) contains extensive discussion of such examples; see also footnote 6 in chapter 4.