

# LF Subjacency Condition in Japanese<sup>1</sup>

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## 0. Introduction

Japanese is one of the languages which do not have syntactic wh-movement, i.e., all wh-movement takes place in the LF component. The issue of whether or not the Subjacency Condition holds in such a language has been somewhat controversial in the literature: some linguists claim that there are no Subjacency effects in LF in Japanese (Huang (1982), Saito (1985), Lasnik and Saito (1984, 1989)); while others argue that Japanese actually shows LF Subjacency effects (Fukui (1988), Hasegawa (1985), Nishigauchi (1986, 1990), Pesetsky (1987)). In this paper, we will look at their claims and certain problems for their analyses, and argue that we need something like Subjacency effects to explain data which show incremental grammatical judgements (Section 1).

Also, the status of the Subjacency Condition itself seems far from being settled. It has been widely assumed to be a condition on movement (Chomsky (1973, 1977, 1981), Huang (1982), Pesetsky (1982), Lasnik & Saito (1984, 1989), among others); others have argued it is a condition on representations (Freidin (1978), Freidin & Lasnik (1981), McDaniel (1989), Browning (1991)); and the question is left open in Chomsky (1986). We will address this issue briefly and give some data which might support the claim that the Subjacency Condition is a condition on representations at LF as well as at S-Structure (Section 2).

## 1. LF Subjacency effects in Japanese

### 1.1. No LF Subjacency effects?

Some linguists maintain that the Subjacency Condition plays no role in Japanese and that the only constraint relevant to wh-constructions must be the Empty Category Principle (ECP) (Huang (1982), Lasnik and Saito (1984, 1989), Saito (1985)). The definition of the ECP is as follows:

- (1) The ECP: A non-pronominal empty category must be  
i) lexically governed, or  
ii) antecedent governed. (Chomsky (1981))

One piece of evidence which supports this idea comes from the Complex NP Constraint (CNPC), which is one of those constraints that have been subsumed under the Subjacency Condition. Consider the relevant data below.

- (2) a. Kimi-wa [<sub>NP</sub>[<sub>CP</sub>e<sub>i</sub> nani-o katta] hito<sub>i</sub>] - o sagasite-iru no?  
you TOP what ACC bought person ACC look for Q  
'What are you looking for the person who bought t?'

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- b.\*Kimi-wa [<sub>NP</sub>[<sub>CP</sub><sub>Ei</sub> naze sono hon -o katta] hito]-o sagasite-iru no?  
 why that book ACC bought  
 'Why are you looking for the person who bought that  
 book t?''<sup>2</sup>

(2a) is taken to show that Subjacency cannot be applied since (2a) is grammatical unlike the English equivalent. In (2a) and (2b), the CNPC in Japanese exhibits an asymmetry between arguments and adjuncts, i.e., arguments can extract freely out of the island; while adjuncts cannot. In other words, extraction of arguments does not show Subjacency effects. Their account in terms of the ECP is as follows: nani 'what' can extract out of the island because its trace is lexically governed by the verb katta 'bought'. Naze 'why', however, is neither lexically governed nor antecedent governed, so it cannot extract and hence the sentence is out.

Crucial to this argument, the CNPC in Japanese exhibits the argument/ adjunct asymmetry, rather than the subject/object asymmetry that occurs in English, as seen below.

- (3) that-trace effects  
 a.\*Who do you think that t left?  
 b. Who do you think that Mary likes t?

In Japanese, there are no subject/object asymmetries with respect to LF wh-movement, as follows.

- (4) a. Kimi-wa [<sub>NP</sub>[<sub>CP</sub>[<sub>IP</sub> dare-ga Sachi-o nagutta] (to-yuu)] koto]-ni  
 you -TOP who NOM Sachi ACC hit COMP fact at  
 hara o tatete iru no ?  
 be angry Q  
 'Who are you angry at the fact that t hit Sachi?'
- b. Kimi-wa [<sub>NP</sub>[<sub>CP</sub>[<sub>IP</sub> Sachi-ga nani- o katta] (to-yuu)] koto]-ni  
 you TOP Sachi NOM what ACC bought COMP fact at  
 kyoomi-ga aru no?  
 be interested Q  
 'What are you interested in the fact that Sachi bought  
 t?'

Huang (1982) and Lasnik & Saito (1984, 1989) claim that the subject position (of a finite clause) in Japanese is always properly governed by INFL in LF, like the object position and unlike the adjunct position.

In the following subsections, we will show some problems for the explanation provided in Section 1.1, and will argue for the Subjacency Condition in LF.

### 1.2. The pied-piping analysis

Nishigauchi (1986, 1990) among others argues against the position that there are no Subjacency effects at LF, showing that the CNPC in Japanese does obey Subjacency but the

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<sup>2</sup> In this paper, we will use CP and IP rather than S' and S, following Chomsky (1986).

mechanism of 'pied-piping' is necessary for the analysis (cf. Hasegawa (1985), Pesetsky (1987), among others).

What he claims is roughly the following: the pied-piping mechanism is accomplished by some type of feature percolation (i.e., [+WH] feature, say); in a sentence like (2a) the entire complex NP that contains wh-phrases is pied-piped, so that the sentence does not violate the Subjacency Condition. Schematically, the resulting structure is as follows.

(5) [<sub>CP</sub>...t<sub>i</sub>...[<sub>IP</sub>[<sub>NP<sub>i</sub></sub>[<sub>CP</sub>[<sub>IP</sub>...t<sub>j</sub>...] WH<sub>j</sub>] N ]]]

The feature [+WH] is percolated from wh-phrases such as nani 'what' which is also [+N], assuming that WH must be at least [+N] in the sense of the X-bar feature system in order for [+WH] to percolate up to the complex NP. The percolation allows the entire NP to be marked [+WH], so it can move to the Spec of the CP. Nishigauchi argues that naze 'why' is actually a kind of 'adverbial' and has the features [+WH, -N] which prevent [+WH] from percolating up to the NP, so the entire phrase containing naze cannot be pied-piped and naze must move by itself (i.e., extraction of naze crosses the CP and IP nodes); therefore, sentences like (2b) are ungrammatical.

Thus, the Subjacency Condition is maintained by the use of the pied-piping mechanism. This analysis, however, seems to have a problem of its own, which we will return to later.

### 1.3. Subjacency effects vs. ECP effects

The ECP is a quite rigid constraint which predicts whether the sentence is totally grammatical or totally ungrammatical, whereas Subjacency is a weaker condition which provides incremental grammatical judgements. Consider the two wh-island violations in (6).

- (6) a.??Which problem do you wonder how John could solve  
           t t ?  
       b.\*Which student do you wonder how t could solve the  
           problem t ?

The traces at issue here are the trace of which problem in (6a) and of which student in (6b). (6a) shows that the trace is lexically governed by the verb so the sentence satisfies the ECP, but violates Subjacency by crossing more than one 'barrier'<sup>3</sup>; and in (6b) the sentence does not satisfy the ECP because the trace in the subject position is not governed properly. Note that there is a difference in grammaticality between the two sentences, i.e., if the ECP is satisfied but Subjacency is violated, the result is partial ungrammaticality (in (6a)), while if the ECP is violated, the sentence is totally out (in (6b)). This difference in judgements shows the different nature of these two constraints.

We will show that LF extractions of adjunct, idiom, and measure phrase exhibit incremental grammaticality judgements, and on the basis of this we argue that Subjacency is a necessary constraint on LF movement. Again, the ECP predicts that any extraction of adjuncts will be totally ungrammatical.

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<sup>3</sup> So far we have implicitly assumed that Subjacency is defined in terms of bounding nodes like CP and NP, but for the reasons Fukui (1988) discussed and we will argue for later, Subjacency has to be defined in terms of 'barriers' in Chomsky's (1986) sense. The definition will be given later in this subsection.

1.4. LF extractions of adjuncts: naze and how many/much N'(in idiom/measure phrases)

The relevant data below (=8)) are from Fukui (1988). He defends the idea proposed in Chomsky (1986) that the notion of 'barrier' relevant to antecedent-government must be defined in terms of L-marking rather than in terms of category types such as NP, S', etc. (cf. Lasnik & Saito (1984, 1989)). Before examining the data, some definitions of the related part of the Barriers system will be summarized as follows.

- (7) a.  $\alpha$  is a barrier for  $\beta$  iff (i) or (ii):  
 i.  $\alpha$  immediately dominates  $\delta$ ,  $\delta$  a BC for  $\beta$ ; or  
 ii.  $\alpha$  is a BC for  $\beta$ ,  $\alpha \neq IP$ .  
 b.  $\alpha$  is a blocking category (BC) for  $\beta$  iff  $\alpha$  is not L-marked and  $\alpha$  dominates  $\beta$ .  
 c.  $\alpha$  L-marks  $\beta$  if  $\beta$  is a complement of  $\alpha$ , and  $\alpha$  is lexical.

And the Subjacency Condition, as a locality constraint on the relation between a moved phrase and its trace left behind, counts barriers in such a way that when one barrier is crossed, the result will be partially ungrammatical, but when two barriers are crossed, it will be totally ungrammatical. Let us see how this condition works in the following data.

(8) Noun-complement constructions vs. relative clauses

(= Fukui's (14a), (15b))

- a.\*?Kimi-wa [<sub>NP</sub>[<sub>CP</sub> Taroo-ga girlfriend-to naze wakareta] koto]-ni  
 you TOP NOM with why broke up fact at  
 sonnani odorote iru no?  
 so muchbe surprised Q  
 'Why are you so surprised at the fact that Taro  
 broke up with his girlfriend t?'

- b.\* Kimi-wa [<sub>NP</sub>[<sub>CP</sub> Taroo-ga naze e<sub>i</sub> wakareta] onnanoko,]-ni kinoo  
 why broke up girl yesterday  
 paatii-de atta no ?  
 party at met Q  
 'Why did you meet the girl at the party yesterday  
 whom Taro broke up with t?'

c. LF representation of (8b)

[<sub>CP</sub>[<sub>IP</sub> kimi-wa [<sub>NP</sub>[<sub>CP</sub>[<sub>IP</sub> T.-ga t<sub>i</sub>...<sub>IP</sub>] t<sub>i</sub> <sub>CP</sub>]  
 onnanoko<sub>NP</sub>]-ni ... atta ...<sub>IP</sub>] naze<sub>i</sub> <sub>CP</sub>]

Note the difference in degree of unacceptability. In the sentences in (8), it is assumed that the relationship between a head noun phrase and the associated relative clause is that of predication in the sense of Williams (1980) (i.e., the relative clause does not involve the head-complement relation that a noun-complement construction generally involves). So, N<sup>0</sup> does not L-mark the CP and hence there are two barriers in (8b), as the LF representation in (8c) shows. Namely, the CP node for the initial and for the intermediate trace in its specifier position, and the NP node for the intermediate trace by inheriting barrierhood from the CP; therefore, (8b) is extremely

ungrammatical. On the other hand, in (8a), neither the CP node nor the NP node constitutes a barrier because the former is a complement of the nominal head koto 'fact', and the latter of the predicate odoroitte-iru 'be surprised'. Thus there are seemingly no barriers, hence one would expect full grammaticality. To get the correct judgement of (8a), Fukui appeals to the minimality condition presented in Chomsky (1986).<sup>4</sup> That is, the N' node is a barrier for the trace, as shown in (9).

(9) ... [<sub>NP</sub> [<sub>N'</sub> [<sub>CP</sub> ...t ] koto]] ...<sup>5</sup>

The result is partially ungrammatical, with one minimality barrier intervening between the intermediate trace and its potential antecedent-governor outside the NP.

This is a welcome result, considering that there are incremental judgements in grammaticality, and to account for the data correctly, we need the 'barrier' notion of Subjacency, because the ECP does not predict the grammaticality differences.

In what follows, we will expand the wh-phrases examined, which will be proved to be problematic for Fukui's analysis; namely, the wh-phrases with idioms (10a,b) and measure phrases (10c,d).

(10) Noun-complement constructions vs. relative clauses

a. Mary-wa [<sub>NP</sub> [<sub>CP</sub> John-ga sono e - o kaw-no-ni  
TOP NOM that picture ACC to buy  
ikura haratta] koto]-ni sonnani hara-o tatete iru no ?  
how much paid fact at so much be angry Q  
'How much is Mary so angry about the fact that John paid t to buy that picture?'

b.\*?Mary-wa [<sub>NP</sub> [<sub>CP</sub> e<sub>i</sub> sono e-o kaw-no-ni ikura haratta] otoko<sub>i</sub> ]-ni  
man  
party-de atta no?  
at met Q  
'How much did Mary meet the man at the party who paid t to buy that picture?'

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<sup>4</sup>  $\alpha$  is a barrier for  $\beta$  if  $\alpha$  is the immediate projection of  $\delta$ , a zero-level category distinct from  $\beta$ . (Chomsky 1986: 42)

<sup>5</sup> This account could be problematic in that Fukui must assume the N' node is present even without its Specifier. This differs from the Barriers system, which states that bar (prime) structure need not be present when not required, i.e., when the specifier is missing (although it is permitted by X-bar theory).

But, cf. English noun-complement constructions in the following.

i) \*?Which race did John announce a plan to win t ?

ii) \*?Which race did John announce plans to win t ?

Molly Diesing (p.c.) has pointed out to me that plurality actually makes a difference in (i) and (ii), so the acceptability is slightly less bad in (ii) than in (i); however, this difference does not seem to be due to the existence of an extra node (i.e., N'), but rather due to something more semantic.



- (11) a. Adjunction is possible only to a maximal projection that is a nonargument.  
 (following Chomsky 1986)  
 b.  $\alpha$  is dominated by  $\beta$  iff it is dominated by every segment of  $\beta$ .  
 (Chomsky 1986:7; cf. May 1985)

Thus, a phrase that is a possible adjunction site is not a barrier for movement.

For example, consider a well-known ambiguous sentence like (12).

- (12) A picture of everybody is on sale.  
 a. Wide reading: 'For every  $x$ ,  $x$  a person, there is a picture of  $x$ ,  $y$ , and  $y$  is on sale.'  
 b. Narrow reading: 'There is a picture  $y$  in which everybody appears, and  $y$  is on sale.'

Everybody in (12) takes both wide and narrow scope. First, the wide scope of everybody over the entire sentence can be accounted for as follows. In this sentence, not only everybody but a picture of everybody may be taken as quantificational, since the latter is QNP ranging over, e.g., {a picture of John, a picture of Bob, a picture of Mary}. The QNP a picture of everybody adjoins to the IP, which will enable everybody to be adjoined first to a picture of everybody, then to the higher IP, resulting in (13).

- (13)  $[_{IP} \text{ everybody}_i [_{IP} [_{NP} t_i [_{NP} \text{ a picture of } t_j]]] [_{IP} t_j \text{ is on sale}]]]$

In the course of adjunction, under QR, no steps cross any barrier. The point is that if an island is adjoined to some category (IP, here), it ceases to be an island for extraction because it becomes a non-argument.

As for the narrow reading, Fiengo & Higginbotham (1981) maintain that QR has as adjunction sites both IP and N'. That is, the NP a picture of everybody first adjoins to the IP and then everybody adjoins to N', resulting in (14).<sup>7</sup>

- (14)  $[_{IP} [_{NP_i} \text{ a } [_{N'} [_{NP_j} \text{ everybody}]] [_{N'} \text{ picture of } t_j]]] [_{IP} t_i \text{ is on sale}]]]$

Note that everybody c-commands its trace.<sup>8</sup> And this adjunction to N' correctly predicts that in sentence (15) below everybody only has wide scope because if everybody adjoins to N' to get the narrow reading, it cannot c-command its trace, as shown in (16).

- (15) Everybody's picture is on the table.

- (16)  $*[_{IP} [_{NP_i} t_j [_{N'} \text{ everybody}_j [_{N'} \text{ picture}]]]] [_{IP} t_i \text{ is on sale}]]]$

<sup>7</sup> cf. In his DP approach to this sentence, Bowers (1987) analyzes the quantifier adjoins to NP, resulting in LF representation (i).

i)  $[_{IP} [_{DP_i} \text{ a } [_{NP} \text{ everybody}_j [_{NP} \text{ picture of } t_j]]] [_{IP} t_i \text{ is ...}]]]$

Here, I will not go into the question of what consequences the DP-analysis will bring about in the cases of LF extraction of naze and measure phrases/idiom phrases.

<sup>8</sup> Given a strict version of c-command: i.e., A c-commands B iff the first branching node dominating A also dominates B, and A does not itself dominate B.

Now, along these lines, we can give an account of the Japanese data above, with some additional assumptions. First, recall the difference in level of acceptability between naze and wh-phrases of idioms and measure phrases, i.e., the judgements in the latter are generally less bad than in the former. It seems to be plausible that this difference reflects some semantic distinction between the two phrases. Our assumption is that naze differs from idioms/measure phrases in its semantic behavior in such a way that the latter are really quantificational and partially existential in nature (i.e., existential quantifier), while the former is an operator<sup>9</sup> which has no quantificational force.

Naze, as Nishigauchi (1986, 1990) correctly points out, might be a sentential operator which is neither quantificational nor existential in character, in that it does not show scopal ambiguity with other quantificational expressions in sentences like (17).

- (17) Han Dai-wa, ooku-no gakusei- ga naze zyukensuru no?  
 Osaka U TOP many students NOM why apply Q  
 'As for Osaka University, why do many students apply for it?'

- (18)a. Kyoo Dai yori sukoshi yasasii kara desyoo.  
 Kyoto U than a little easy because perhaps  
 'Perhaps because it is a little easier than Kyoto University.'

- b.??Zibun-no seiseki-kara handan sita no desyoo.  
 self GEN score from judge did perhaps  
 'Perhaps because they decided from their own test scores.'

The judgement is subtle, but the awkwardness of the answer (18b) indicates that sentence (17) only has the interpretation with no scopal ambiguity between naze and the quantifier ooku-no gakusei 'many students', and cannot have the reading with the quantifier ooku-no gakusei taking scope over naze. The same can be said even if the quantifier in the sentence is daremo 'everybody' instead of ooku-no gakusei, though daremo usually takes wide scope more easily than ooku-no N'.

- (19) Han Dai-wa, daremo- ga naze zyukensuru no?  
 Osaka U. TOP everybody NOM why apply Q  
 'As for Osaka University, why does everybody apply for it?'

In this case, the answer (18b) is even harder to get, showing that (19) cannot have the reading with scopal ambiguity between naze and daremo.

Thus, naze lacks ambiguity in terms of scope in that scope relation is predictable regardless of other quantificational expressions which cooccur within the sentence.

One might say that the lack of scopal ambiguity for naze means no quantificational variability in the sense of Berman (1989a,b). Berman claims that wh-phrases, like indefinite

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<sup>9</sup> In this paper, "operator" should be understood simply as a thing that moves at LF and binds a variable. This view might be slightly different from the usual assumption that operators and quantifiers are virtually the same. However, there is a crucial difference between "operator" and "quantifier" here in terms of scopal interaction with other quantificational expressions as I will discuss below.

objects, display variable quantificational force, i.e., wh-phrases themselves are variables which can be bound by other operators like adverbs of quantification (e.g., always, usually, sometimes, etc.). Consider (20).

(20) John usually discovers which books were stolen.

Sentence (20) can mean that for most books which were stolen, John discovers them that they were stolen; the wh-phrase here can have the quantificational force of the adverb. This sentence can also have the reading where the adverb is read simply as a frequency adverb.

Returning to Japanese, it seems to be the case that a sentence like (21) can only have the reading where the adverb itumo 'always' binds time, not reasons, i.e., the sentence does not exhibit a quantificationally variable reading (although itumo permits quantificational variability in binding indefinite objects).

(21) Han Dai-wa, ooku-no gakusei- ga naze itumo zyuken suru no?  
 Osaka U. TOP many students NOM why always apply Q  
 'As for Osaka U., why do many students always apply for it?'<sup>10</sup>

In sum, naze is a non-quantificational operator in that it lacks scopal ambiguity with other quantifiers. And as for the existential force of naze, it seems to be relatively hard to have a pre-determined set of possible reasons (or to check the truth value of their presuppositions (if any) in Comorovski's (1989) sense). Hence naze is neither quantificational nor existential in character.

In the case of existential quantifiers (how many/much N'), Fiengo et al. (1988) make an interesting observation of the interpretation of a sentence like (22).

(22) How many students did everyone see?

- (23) a. 'For every person x, what is the number y of students such that x saw y students?'  
 b. 'What is the number y of students such that for every person x, x saw y students?'  
 c. 'What is the number y, such that for every person x, there is a group z of students (numbering y), x saw z?'

They argue that the NP how many students actually consists of two operators, i.e., a [+wh] operator ranging over numbers and a [-wh] existential quantifier ranging over individual students. This argument comes from the reading (23c) in which the [+wh] operator has wider scope than everyone, while the [-wh] existential quantifier has narrower scope than everyone (i.e., it may or may not be the case that everyone saw the same group of students).<sup>11</sup>

<sup>10</sup> Oddly enough, it seems that the sentence can have both readings, i.e., can show quantificational variability if the adverb is kanarazu 'without fail, always'. It is unclear to me where this difference comes from since these two adverbs are virtually the same in meaning.

<sup>11</sup> As for idioms, although they are considered noncompositional by some, we could allow for internal semantic representation. In the examples above, donokurai hone-o otta no? (lit. how many bones did (you) break?) means 'how much trouble did (you) take?' and we could consider the amount of trouble. And it seems to be possible to have the

A second point we have to make is: adjunction to N', which is argued for in Fiengo & Higginbotham (1981), is useful to characterize the data. Consider (8a) and (10a,c), which are repeated below as (24) and (25).

(24) \*?Kimi-wa [<sub>NP</sub>[<sub>CP</sub> Taroo-ga girlfriend-to naze wakareta] koto]-ni sonnani  
 you TOP NOM with why broke up fact at so much  
 odorosite-iru no?  
 be surprised  
 'Why are you so surprised at the fact that Taro broke up with  
 his girlfriend t?'

(25)a. Mary-wa [<sub>NP</sub>[<sub>CP</sub> John-ga sono e - o kaw-no-ni ikura haratta]  
 that picture ACC to buy how much paid  
 koto]-ni sonnani hara-o tatete iru no ?  
 fact at so much be angry Q  
 'How much is Mary so angry about the fact that John paid t to buy that picture?'

b. Mary-wa [<sub>NP</sub>[<sub>CP</sub> John-ga kanojo-no-tameni donokurai hone- o otta]  
 for her how much bones ACC broke  
 koto]-ni sonnani utareta no?  
 be impressed  
 'How many bones was Mary so impressed with the fact that John broke t for her?'

Recall that Fukui (1988) appeals to the minimality condition in (24), in which the complex NP with koto projects N' as a minimality barrier. In (25), if adjunction of wh-phrases to N' occurs, minimality effects can be voided. While, in (24), no adjunction to N' should be permitted to get the correct minimality effect. This can be accounted for due to the difference in semantic behavior between naze and idioms/measure phrase, i.e., the latter are (existential) quantifiers while the former is not. Thus, the assumption here is that only quantifiers can adjoin to N'.

One might say that the adjunction of a maximal projection to a single-bar level category is somewhat at variance with a strict interpretation of the Structure-Preserving Hypothesis in Barriers, which is a modified version of Emonds' (1976) Structure Preserving Constraint. The central idea roughly is: the output configuration (of Move  $\alpha$ ) is base-generable, i.e., can be generated by the PS base rules. In Barriers, a strict Structure Preserving hypothesis states that adjunction is possible only in the following cases: heads ( $X^0$ ) can adjoin to heads, and a maximal projection ( $X^{\max}$ ) can adjoin to a maximal projection. However, if Structure Preserving is understood in terms of base-generability, not of bar-level of categories, an iteration of AP at D-Structure might give a piece of evidence for the adjunction to N', as in the configuration like:

(26) [<sub>NP</sub>[<sub>N'</sub>[<sub>AP</sub>...][<sub>N'</sub>[<sub>AP</sub>...]] ... [<sub>N'</sub>[<sub>AP</sub>...] N ]].

Since this kind of structure can be base-generated in the case of N'-adjunction, there seems to

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third reading in this case, too. That is, this wh-phrase can be an existential quantifier. However, one might say that whether or not this kind of reading is possible depends on which idiom we choose. I have not been able to come up with a clear solution.

be no reason to prohibit the adjunction to N' in LF.

In sum, wh-phrases in idiom and measure phrases cannot pied-pipe, but can adjoin freely to IP or N' because of their quantificational force; while naze can only move to the Spec of CP, and cannot adjoin anywhere.

## 2. Is the Subjacency Condition a condition on movement or a condition on representation?

We have seen that the Subjacency Condition is necessary to account for the data which show some degree of grammaticality judgements. In this section, we will take a look at the issue of the status of the Subjacency Condition.

### 2.1. The Subjacency Condition in the syntax

The Subjacency Condition, a component of bounding theory, places locality requirements on the syntactic applications of Move  $\alpha$ . And it seems that this condition has been widely assumed to be a condition on movement without much detailed discussion since its original form as proposed in Chomsky (1973, 1977).<sup>12</sup>

The following are two versions of Subjacency.

#### (27) Subjacency 1: Chomsky (1973, 1977)

In the configuration:

...X...[ ... [ ...Y... ] ... ] ...X...  
 $\alpha$   $\beta$

no rule may apply so as to move an element from the position Y to position X or conversely, where  $\alpha$  and  $\beta$  are bounding nodes.

#### (28) Subjacency 2

In the configuration:

...X...[ ... [ ...Y... ] ... ] ...X...  
 $\alpha$   $\beta$

if X and Y are successive chain links then either  $\alpha$  or  $\beta$  is not a bounding node.

Subjacency 1 (27) can naturally be interpreted as a condition on movement (henceforth, the SC-m); Subjacency 2 (28) is somewhat modified so that it can be taken as a condition on representations (henceforth, the SC-r).

Subjacency 3 (29) below is the Barriers version which I will adopt here following Browning (1991).

#### (29) Subjacency 3: Chomsky (1986)

a. If  $(\alpha_i, \alpha_{i+1})$  is a link of a chain, then  $\alpha_{i+1}$  is (1-)subjacent to  $\alpha$ .

b.  $\beta$  is n-subjacent to  $\alpha$  iff there are fewer than n+1 barriers for  $\beta$  which exclude  $\alpha$ .

In (29a) Subjacency is formulated as a condition on chain links, and (29b) states how this condition works in terms of some kind of algorithm which gives incremental grammaticality judgements.

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<sup>12</sup> cf. See the references I mentioned in Section 0.

## 2.2. The Subjacency Condition as a condition on S-Structure representations

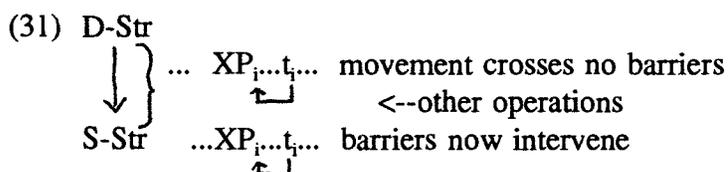
Browning (1991) examines Freidin's (1978) arguments for the elimination of the Strict Cycle Condition (SCC) as a principle of the grammar in favor of the SC-r,<sup>13</sup> and claims that they still hold within the current GB framework. Adding some new data, she concludes that the Subjacency Condition is a condition on S-Structure representations, which only applies to A'-chain links.<sup>14</sup>

Browning defines the SC-m (=her SC<sub>T</sub>) and the SC-r (=her SC<sub>SS</sub>) as follows.

(30) a. SC-m: the condition applies to the chain link ( $\alpha_i, \alpha_{i+1}$ ) only in the representation which is the result of the operation creating the chain link.

b. SC-r: the condition applies at the S-Structure level of representation to all chain links which exist in that representation.

That is, the SC-m has to check the subjacency status of chain links in each intermediate representation during the derivation, while under the SC-r only the chain links on the S-Structure representation are relevant. So, in the derivation like (31) we would expect the SC-m and SC-r to give different results:<sup>15</sup>

(31) D-Str  


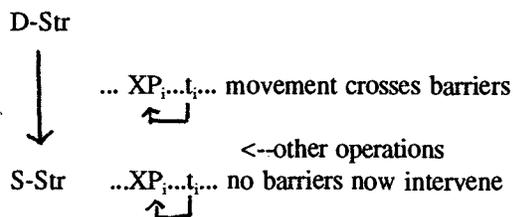
which states that a movement does not take place from within an island but other later operations create an island configuration. The prediction is that the resulting sentence will be grammatical under the SC-m, while it will be ungrammatical under the SC-r.

Now, consider the following sentences.

<sup>13</sup> What Freidin claims is that the SCC should not be taken as a principle of the grammar in that its effects could be explained by the Tensed-S Condition, the Specified Subject Condition, the theory of control, and his Functional Relatedness and Functional Uniqueness conditions, which were all independently motivated.

<sup>14</sup> This reformulation of the SC-r comes from some problems with head-movement and NP-movement. However, I will not go into this problem and focus on A'-chain links in this paper.

<sup>15</sup> Browning provides another derivation which would give different results like:

D-Str  


but rejects it because it cannot be a clear-cut test for the status of the condition.

- (32) \* What did you wonder who bought?
- i) a. [<sub>CP</sub>[ you wonder [<sub>CP</sub>who<sub>1</sub> [ t<sub>1</sub> bought what]]]]
  - b. [<sub>CP</sub>what<sub>2</sub> [ you wonder [<sub>CP</sub>who<sub>1</sub> [ t<sub>1</sub> bought t<sub>2</sub>]]]]
  - ii) a. [<sub>CP</sub>[ you wonder [<sub>CP</sub>what<sub>2</sub> [ who bought t<sub>2</sub>]]]]
  - b. [<sub>CP</sub>what [ you wonder [<sub>CP</sub> t<sub>2</sub> [who bought t<sub>2</sub>]]]]
  - c. [<sub>CP</sub>what<sub>2</sub> [ you wonder [<sub>CP</sub>who<sub>1</sub> [ t<sub>1</sub> bought t<sub>2</sub>]]]]

(33) The Strict Cycle Condition (SCC): Chomsky (1973)

No rule can apply to a domain dominated by a cyclic node A in such a way as to affect solely a proper subdomain of A dominated by a node B which is also a cyclic node.

In the derivations (32i), who moves first to the Spec of the lower CP, and then what moves directly to the Spec of the higher CP, which violates both the SC-m and SC-r. However, in the derivations (32ii), the SC-m is not violated, i.e., what moves first to the Spec of the lower CP on the way to the higher CP, and then who moves to the Spec of the lower CP, each movement crossing no barrier. Under the SC-m, it is the SCC that prevents the movement of who to the Spec of the lower CP after what has moved to its S-Structure position, while under the SC-r there is no need to resort to the SCC, since A'-chain links (what, t<sub>2</sub>) are ruled out because of a barrier intervening between the trace and the head of the chain.

- (34) \* Who did you wonder what bought?
- i) a. [<sub>CP</sub>[ you wonder [<sub>CP</sub>what<sub>2</sub> [ who bought t<sub>2</sub>]]]]
  - b. [<sub>CP</sub>who<sub>1</sub> [ you wonder [<sub>CP</sub>what [ t<sub>1</sub> bought t<sub>2</sub>]]]]
  - ii) a. [<sub>CP</sub>[ you wonder [<sub>CP</sub>who<sub>1</sub> [ t<sub>1</sub> bought what]]]]
  - b. [<sub>CP</sub>who<sub>1</sub> [ you wonder [<sub>CP</sub> t<sub>1</sub> [ t<sub>1</sub> bought what]]]]
  - c. [<sub>CP</sub>who<sub>1</sub> [ you wonder [<sub>CP</sub>what<sub>2</sub> [ t<sub>1</sub> bought t<sub>2</sub>]]]]

Similarly, although derivation (34i) violates both the SC-m and SC-r, (34ii), which can be ruled out by the SC-r alone, does not violate the SC-m and hence needs to appeal to the SCC to rule the sentence out if we adopt the SC-m.

It should be noted here that, as Browning points out, sentence (34) would be ruled out by the ECP in the current framework because traces in the subject position cannot be properly governed.<sup>16</sup> We will return to this point in similar cases in Japanese later.

To sum up, the SC-m can only rule these sentences out in conjunction with the SCC, while the SC-r can rule them out alone.

### 2.3. The Subjacency Condition as a condition on LF representations

Since the question of whether the Subjacency Condition applies to Move  $\alpha$  in LF has been

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<sup>16</sup> Since the subject position in English is neither lexically governed by the verb nor antecedent governed due to lack of the proper governor in a local COMP. Andy Barss (p.c.) has pointed out to me that sentence (32) could also be ruled out by the ECP, but on a particular formulation. See how it could be ruled out in Lasnik & Saito (1984, 1989) and Rizzi (1989): by use of the COMP co-indexing mechanism in Lasnik & Saito, and AGR as a proper head governor for a coindexed element in Rizzi.

controversial, the issue of the status of Subjacency itself has been discussed only in the mapping from D-Structure to S-Structure. Given that there are some Subjacency effects in LF as we have discussed in Section 1, however, it would be more desirable to have a parallelism between the mapping from D-Structure to S-Structure and the mapping from S-Structure to LF, with respect to whether the Subjacency Condition is the SC-m or the SC-r. In this subsection, I will give a piece of evidence in which Freidin's (1978) and Browning's (1991) arguments for the SC-r might hold in LF as well as in the syntax.<sup>17</sup>

The relevant sentence is as follows.

- (35) Kimi-wa [<sub>CP</sub>[<sub>IP</sub> dare-ga nani-o katta] ka] siritai no ?  
 you TOP who NOM what ACC bought Q want-to-know Q  
 'Do you want to know who bought what?'  
 #'For which x, x a person, do you want to know who x bought?'  
 #'For which y, y a thing, do you want to know who bought y?'<sup>18</sup>

As in the translation, (35) has the interpretation of a Yes-no question, with both wh's dare 'who' and nani 'what' taking their scope within the embedded clause; neither wh-phrase can take wider scope over the other. So, the LF representations in (36) are both ungrammatical.<sup>19</sup>

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<sup>17</sup> Browning actually examines the second set of data which the SC-m in conjunction with the SCC cannot rule out but the SC-r alone can correctly rule out, namely, extraction from left branch constituents. I have not been able to come up with Japanese examples that give a similar difference in the results at this point.

<sup>18</sup> Except for the cases where the wh-phrase is focus (and hence stressed). (The focused wh will be scrambled if it is the object.)

- i) Kimi-wa [[DARE-ga nani-o katta] ka] siritai no?  
 (capitalized are indicated as Focus)  
 'For which x, x a person, do you want to know what x bought?'  
 ii) Kimi-wa [[NANI-o dare-ga t katta] ka] siritai no?  
 'For which y, y a thing, do you want to know who bought y?'

Nishigauchi (1986, 1990) also remarks on this point, and adds that the status of wh-island effects could be parameterized dialectally, observing that speakers of the Tokyo-type (eastern) dialects appear to get the reading (i) more easily than speakers of the Osaka (western) dialect without putting much stress on dare. Although Focus seems to play an interesting role with respect to the interpretation of multiple wh-questions, suffice to say here that Focus can escape from islands, leaving a full account for further research. cf. Rooth (1984) for a non-movement analysis of focus.

As for scrambling effect, scrambled wh-phrases seem to get wider scope than other quantifiers within the sentence.

- iii) Daremo- ga nani-o katta no?  
 everybody NOM what ACC bought Q  
 iv) Nani-o daremo- ga t katta no?  
 what ACC everybody NOM bought Q

Sentence (iii) is ambiguous in that nani can take both wide and narrow scope, while (iv) only has the reading with nani taking wide scope. cf. Saito (1989) claims that scrambling in Japanese is semantically vacuous, but it might not be the case with wh-phrases.

<sup>19</sup> In Japanese, wh-phrases undergo a rightward movement, but to get a parallelism to English more easily I put wh-phrases in the Spec of the CP's on the left of the clauses.

(36) a. \*[dare<sub>1</sub>-ga [ kimi-wa [ nani<sub>2</sub>-o [ t<sub>1</sub> t<sub>2</sub> katta]]..  
 who NOM you TOP what ACC bought

b. \*[nani<sub>2</sub>-o [ kimi-wa [ dare<sub>1</sub>-ga [ t<sub>1</sub> t<sub>2</sub> katta]]..  
 what ACC you TOP who NOM bought

The following are the derivations of (36a) and (36b) (I omit the derivations which violate both the SC-m and the SC-r).

(37) (=the derivations of (36a))

- a. [<sub>CP</sub>[ kimi-wa [<sub>CP</sub>dare<sub>1</sub>-ga [ t<sub>1</sub> nani-o katta]]..
- b. [<sub>CP</sub>dare<sub>1</sub>-ga [ kimi-wa [<sub>CP</sub> t<sub>1</sub> [ t<sub>1</sub> nani-o katta]]..
- c. [<sub>CP</sub>dare<sub>1</sub>-ga [ kimi-wa [<sub>CP</sub>nani<sub>2</sub>-o [ t<sub>1</sub> t<sub>2</sub> katta]]..

(38) (=the derivations of (36b))

- a. [<sub>CP</sub>[ kimi-wa [<sub>CP</sub>nani<sub>2</sub>-o [ dare-ga t<sub>2</sub> katta]]..
- b. [<sub>CP</sub>nani<sub>2</sub>-o [ kimi-wa [<sub>CP</sub> t<sub>2</sub> [ dare-ga t<sub>2</sub> katta]]..
- c. [<sub>CP</sub>nani<sub>2</sub>-o [ kimi-wa [<sub>CP</sub>dare<sub>1</sub>-ga [ t<sub>1</sub> t<sub>2</sub> katta]]..

In (37), dare first moves to the Spec of the higher CP passing through the Spec of the lower CP and then nani moves to the lower CP, without violating the SC-m. Similarly in (38), dare moves to the Spec of the lower CP after nani has vacated that position and reached its LF position, which does not violate the SC-m. In both cases, we have to resort to the SCC to prevent the derivations if we assume the SC-m; while if we adopt the SC-r, it can rule out A'-chain links, (dare, t<sub>1</sub>) in (37c) and (nani, t<sub>2</sub>) in (38c), by itself, which exhibits a parallelism to the English examples in the previous subsection.

Notice, however, that these LF representations cannot be ruled out by the ECP, unlike the English counterparts in (34) (and (32)). Recall that Japanese exhibits no asymmetries of subject/object with respect to extraction out of an island (e.g., see sentences (4a,b)). Whatever the proper governor may be, traces in the subject position, as well as those in the object position, should be properly governed in the Huang/Lasnik & Saito framework; there should be nothing to prevent the derivations in (37) and (38).

So far we have discussed the interpretations we cannot have for sentence (35) and the corresponding ungrammatical LF representations (36a,b). What about the possible reading(s), then? In what follows, we will examine what the grammatical representations for these would be like, which will turn out to be an additional piece of evidence for Subjacency at LF.

In addition to the reading of a Yes-no question, there seems to be another interpretation (i.e., (40b) below) for sentence (35), which is repeated as (39).

(39) Kimi-wa [ [ dare-ga nani-o katta] (ka) siritai no?  
 you TOP who NOM what ACC bought Q  
 kadooka  
 whether

(40) a. 'Do you want to know who bought what?'

A: Hai (siritai desu).

yes want to know

'Yes ((I) want to know (it)).'

- b. 'For which x, y, x a person, y a thing, do you want to know x bought y?'  
 A1: Takumi-ga hon-o katta ka/kadooka siritai desu.  
       book  
 'I want to know whether Takumi bought a book.'  
 A2: Takumi-ga hon-o, Sachi-ga violin-o,... katta ka/kadooka siritai desu.  
 'I want to know whether Takumi bought a book, Sachi bought a violin,....'
- c.#'For which x, x a person, do you want to know what x bought?'
- d.#'For which y, y a thing, do you want to know who bought y?'

(40b) shows the interpretation with both wh-phrases being in matrix scope. Interestingly, some speakers appear to get the reading (40a) more easily if the sentence has ka instead of kadooka, which is usually translated as 'whether'; while for others these two seem to be interchangeable without affecting the availability of the two interpretations.<sup>20</sup> Consider the sentences below.

- (41) a. Watasi-wa [[ John-ga kuru] kadooka] siritai  
       I      TOP      come whether  
       'I want to know whether John is coming.'  
 b. Watasi-wa [[ dare-ga kuru] kadooka] siritai  
               who                  Q  
       'I want to know who's coming.'

(41) indicates that kadooka can behave both as 'whether' and as a scope marker which marks the scope of a wh-phrase. If, however, kadooka is simply a scope marker, we should not expect a wh-island effect in (42).<sup>21</sup>

- (42) ?Kimi-wa [[dare-ga sore-o katta] kadooka] siritai no?  
               it ACC whether  
       'Who do you want to know whether t bought it?'

As the judgement shows, kadooka in (42) yields a mild Subjacency violation.<sup>22</sup>

Thus, kadooka sometimes behaves like the English counterpart whether, but sometimes behaves simply as a scope marker.

In the case of the interpretation (40b), there are two possible answers to this question: a

<sup>20</sup> The difference in distribution between ka and kadooka is as follows: ka can occur both in matrix and embedded clause (and when it occurs in a matrix clause, it can be replaced by no in colloquial speech), while kadooka can only occur in an embedded clause.

<sup>21</sup> So, kadooka as a scope marker differs from kadooka as 'whether' in not showing Subjacency effects, unlike German and Romani scope markers which obey Subjacency (cf. McDaniel 1989).

<sup>22</sup> That whether yields a much weaker wh-island effect than other (moved) wh-phrases also holds in English.  
 i) ? What do you wonder [[whether] John bought t]?  
 ii) ??What do you wonder [when [John bought t t]?  
 iii)\* What do you wonder [who[ t bought t]]?  
 For discussion of this status of whether with respect to the Vacuous Movement Hypothesis, see Chomsky (1986:ch.9).

unique-pair answer, i.e., the answer shows exactly one person bought exactly one thing (A1); and a multiple answer, i.e., the answer gives multiple pairs of 'buyers' and 'buyees' (A2). The latter answer indicates that Absorption in Higginbotham & May's (1981) sense may apply to the LF representation (40b).

A rule of Absorption collapses a pair of (structurally adjacent)<sup>23</sup> quantifiers into a new operator which ranges over pair of individuals. Although singular which-phrases in isolation have a singular presupposition, this presupposition disappears when they are absorbed, permitting a multiple answer to the question (43).

(43) Which man do you think saw which woman?

A1: I think John saw Mary.

A2: I think John saw Mary, Bob saw Sue, Bill saw Jane...

However, the question (44) only has a unique-pair reading.

(44) Which woman do you think which man saw?

A1: I think John saw Mary.

A2: I think John saw Mary, Bob saw Sue, Bill saw Jane...

Barss (1990) takes "anti-superiority" cases like this as one piece of evidence for Pesetsky's (1987) analysis of optional LF movement of wh's-in-situ: a wh-in-situ may stay and get the interpretation due to unselective binding by the abstract interrogative element Q, or it may move and Absorption takes place, as shown in (45) (=44) and its LF representations (46).

(45) [<sub>CP</sub> which woman<sub>2</sub> [..[<sub>CP</sub> [ which man<sub>1</sub> saw t<sub>2</sub>]]]]?

(46) a. [<sub>CP</sub> which man<sub>1</sub> which woman<sub>2</sub> [..[<sub>CP</sub> [ t<sub>1</sub> saw t<sub>2</sub>]]]]

b. [<sub>CP</sub> Q<sub>1,2</sub> which woman<sub>2</sub> [..[<sub>CP</sub> [ which man<sub>1</sub> saw t<sub>2</sub>]]]]

In (46a), two NP's are structurally adjacent and hence can get absorbed, while in (46b) the structural requirement for Absorption is not satisfied (because which man does not move to the higher Spec of CP). In other words, yielding a multiple answer indicates that Absorption has taken place and hence the wh-in-situ has moved in LF. Therefore, in the Japanese sentence (39), both wh's-in-situ move to the Spec of the matrix CP and get absorbed, giving a multiple answer (40b).

However, what is an appropriate derivation to get matrix scope for both wh-phrases? One possible answer is as follows. Either wh-phrase first moves to the lower Spec of CP and then the other one adjoins to this moved wh-phrase, constituting one NP which dominates both wh-

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<sup>23</sup> Two NP's A and B which are wh-phrases are an adjacent pair if A c-commands B and A c-commands nothing which c-commands B ( $\alpha$  c-commands B iff the first branching node dominating  $\alpha$  dominates B, and neither  $\alpha$  or B dominates the other). (Higginbotham & May 1981:49)

phrases. Since Japanese displays no superiority asymmetries<sup>24</sup> unlike English, the order of wh-movement may be irrelevant here. Assuming that the dominating NP gets both indices of the wh-phrases which constitutes it, the whole NP finally moves to the higher Spec of CP, leaving an intermediate trace with both indices. The following are the derivations.

- (47) a.  $[_{CP}[\text{kimi-wa } [_{CP}\text{dare}_1\text{-ga } [t_1 \text{ nani-o katta}]]]\dots$   
 b.  $[_{CP}[\text{kimi-wa } [_{CP}[\text{dare}_1\text{-ga nani}_2\text{-o}][t_1 t_2 \text{ katta}]]]\dots$   
 c.  $[_{CP}[\text{dare}_1\text{-ga nani}_2\text{-o} ] [\text{kimi-wa } [_{CP} t'_{1,2} [t_1 t_2 \text{ katta}]]]\dots$

The interesting property of this structure is that an intermediate trace bears both indices, which makes it possible for LF chain links of dare and nani to be satisfied by Subjacency (by converging at the lower COMP and diverging again, i.e., (dare,  $t'_{1,2}$ ,  $t_1$ ) and (nani,  $t'_{1,2}$ ,  $t_2$ )).

As Andy Barss (p.c.) has pointed out to me, the assumption that the dominating NP may get coindexed with both wh-phrases is problematic in English since the English analogue is ungrammatical, schematically shown in (48).

- (48) a. D-Str:  $[_{CP} [ \dots [_{CP} [ \text{who} \dots \text{what} ] ] ] ] ]$   
 b. S-Str:  $[_{CP} [ \dots [_{CP} \text{who}_1 [ t_1 \dots \text{what} ] ] ] ] ]$   
 c. LF1: \*  $[_{CP} [ \dots [_{CP} [\text{what}_2 \text{ who}_1] [ t_1 \dots t_2 ] ] ] ] ]$   
 d. LF2: \*  $[_{CP} [\text{what}_2 \text{ who}_1] [ \dots [_{CP} t'_{1,2} [ t_1 \dots t_2 ] ] ] ] ]$

This problem may be accounted for by adopting the position that in English if a wh-phrase is in some Spec of CP, i.e., if it is a moved wh-phrase at S-Structure, it has to remain there at LF (Indexing of the Spec of CP is determined in terms of which wh-phrase has undergone movement in the syntax, which is basically the spirit of the Comp indexing mechanism in Aoun, Hornstein, & Sportiche (1981)<sup>25</sup>).

However, it should be noted that the contrast in the judgements of the interpretations between (40a,b) and (40c,d) could be an additional piece of evidence for the Subjacency Condition in LF. LF chain links satisfy Subjacency when both wh-phrases take the same scope whether it is matrix scope (40b) or embedded scope (40a), i.e., when the whole NP bearing both indices of the wh-phrases moves; while they violate Subjacency when wh-phrases are split between matrix and

<sup>24</sup> cf. Kitagawa (1984), cited in Pesetsky (1987), claims that the following sentences exhibit superiority effects, assuming that ittai-phrase must move to COMP first.

- i) [Ittai dare- ga] nani-o tukamaeta no?  
 the-hell who NOM what ACC caught Q  
 ii)??Dare-ga [ ittai nani-o] tukamaeta no?  
 who NOM the-hell what ACC caught Q

Some people (including myself) do not seem to share this judgement, i.e., both are grammatical, and furthermore, the question why ittai-phrase must move first is still unclear, as noted by Pesetsky. In this paper, I ignore this as an irrelevant issue.

<sup>25</sup> The Comp indexing mechanism (at S-Str):

$[\dots X \dots] \rightarrow [\dots X \dots]$   
 Comp i            Comp i    i

iff COMP dominates only i-indexed elements. (Aoun, Hornstein, & Sportiche 1981:80)

embedded Spec's of CP (40c,d).

In summary, we have shown in this subsection a piece of data which might support what Freidin (1978) and Browning (1991) claim in favor of the SC-r, i.e., Subjacency as a condition on A'-chain links. Although it might not be decisive, having assumed Browning's claims are correct the right track (in the syntax), it would be welcome to have some parallelism in terms of the status of the condition between the mapping from D-Structure to S-Structure and the mapping from S-Structure to LF.

### 3. Conclusion

We have examined the claim that the Subjacency Condition plays no role in LF in Japanese and that the relevant constraint must be the ECP (Huang (1982), Lasnik & Saito (1984, 1989, Saito (1985)), showing some problems, and concluded on the contrary that we need Subjacency to account for the data with incremental grammatical judgements, because of the difference in nature of ECP effects and Subjacency effects. We have also taken a brief look at the issue of whether the Subjacency Condition is a condition on movement (the SC-m) or a condition on representations (the SC-r), concluding that it might be the case that the Subjacency Condition is a well-formedness condition, the SC-r, on A'-chain links in LF as well as in the syntax.

### References

- Aoun, J., N. Hornstein, and D. Sportiche. 1981. Some aspects of wide scope quantification. Journal of Linguistic Research 1:3, 69-95.
- Barss, A. 1990. Optional movement, absorption, and the interpretation of WH-in-situ. talk at NELS 21, Montreal.
- Berman, S. 1989a. An analysis of quantificational variability in indirect questions. In, E. Bach et al., eds., Papers on quantification. UMass, Amherst.
- \_\_\_\_\_. 1989b. On certain differences between wh-phrases and indefinites. In, E. Bach et al., eds., Papers on quantification. UMass, Amherst.
- Bowers, J. 1987. Extended X-bar theory, the ECP and the left branch condition. WCCFL 6, 47-62.
- Browning, M.A. (1991) Bounding conditions on representation. LI 22, 541-563.
- Chomsky, N. 1973. Conditions on transformations. In, S. Anderson & P. Kiparsky, eds., A festschrift for Morris Halle, 232-86. New York: Holt.
- \_\_\_\_\_. 1977. On wh-movement. In, P. Culicover et al., eds., Formal syntax, 71-132. New York: Academic Press.
- \_\_\_\_\_. 1981. Lectures on government and binding. Dordrecht: Foris.
- \_\_\_\_\_. 1986. Barriers. Cambridge, MA: MIT Press.
- Cinque, G. 1989. 'Long' wh-movement and referentiality. Paper presented at the II Princeton Workshop on Comparative Grammar.
- Comorovski, I. 1989. Discourse and the syntax of multiple constituent questions. Doctoral disst. Cornell Univ.
- Emonds, J. 1976. A transformational approach to English syntax. NY: Academic Press.
- Fiengo, R. and J. Higginbotham. 1981. Opacity in NP. Linguistic Analysis 7, 395-422.
- Fiengo, R., J. Huang, H. Lasnik, and T. Reinhart. 1988. The syntax of wh-in-situ. WCCFL 7, 81-98.
- Freidin, R. 1978. Cyclicity and the theory of grammar. LI 9:4, 519-549.
- Freidin, R. and H. Lasnik. 1981. Disjoint references and wh-trace. LI 12:1, 39-53.
- Fukui, N. 1988. LF extraction of naze: some theoretical implications. NLLT 6, 503-526.

- Hasegawa,N. 1985. More argument for the pied-piping analysis of wh-questions in Japanese. Ms. Univ. of Massachusetts, Amherst.
- Higginbotham,J. and R.May. 1981. Questions, quantifiers and crossing. The Linguistic Review 1, 41-80.
- Huang,C.-T.J. 1982. Logical relations in Chinese and the theory of grammar. Doctoral disst. MIT.
- Kitagawa,Y. 1984. Superiority effects in Japanese: an argument for LF. MS. Univ. of Massachusetts, Amherst.
- Lasnik,H. and M.Saito. 1984. On the nature of proper government. LI 15, 235-289.
- \_\_\_\_\_. 1989. Move  $\alpha$ . Ms. Univ. of Connecticut.
- May,R. 1977. The grammar of quantification. Doctoral disst. MIT.
- \_\_\_\_\_. 1985. Logical form: its structure and derivation. Cambridge, MA: MIT Press.
- McDaniel,D. 1989. Partial and multiple wh-movement. NLLT 7, 565-604.
- Nishigauchi,T. 1986. Quantification in syntax. Doctoral disst. Univ. of Massachusetts, Amherst.
- \_\_\_\_\_. 1990. Quantification in the theory of grammar. Dordrecht: Kluwer Academic.
- Pesetsky,D. 1982. Paths and categories. Doctoral disst. MIT.
- \_\_\_\_\_. 1987. Wh-in-situ: movement and unselective binding. In, E.J.Reuland & A.G.B.terMeulen, eds., The representation of (in)definiteness, 98-129. Cambridge, MA: MIT Press.
- Rizzi,L. 1990. Relativized minimality. Cambridge, MA: MIT Press.
- Rooth,M. 1984. Association with focus. Doctoral disst. Univ. of Massachusetts, Amherst.
- Saito,M. 1985. Some asymmetries in Japanese and their theoretical implications. Doctoral disst. MIT.
- \_\_\_\_\_. 1989. Scrambling as semantically vacuous movement. In, M.R.Baltin & A.S.Kroch, eds., Alternative conceptions of phrase structure, 182-200. Chicago: Chicago Univ. Press.
- Stowell,T. 1981. Origins of phrase structure. Doctoral disst. MIT.
- Williams,E. 1980. Predication. LI 11, 203-238.