This paper argues that wh-in-situ in Japanese in fact involves S-structure movement of an invisible entity and therefore that the Subjacency effects discovered and used as evidence for LF Subjacency by Nishigauchi (1986, 1990) and Pesetsky (1987) are due to this S-structure movement. This conclusion is forced on us by the facts that (1) in multiple questions where one of the wh-phrases is inside an island and the other is outside of it, there are no Subjacency effects, contrary to the expectation of the LF Subjacency hypothesis, and that (2) an indirect question constitutes a wh-island for overt movement even though the visible part of the wh-phrase is still in-situ at S-structure.

Since the work by Huang (1982), a common assumption has been that S-structure movement is constrained by Subjacency and the ECP, whereas LF movement is only sensitive to the ECP. There is, however, a growing body of literature including Barss et al. (1991), Bergvall (1983), Choe (1987), Longobardi (1991), Nishigauchi (1986), Pesetsky (1987), and Reinhart (1991), which argues that Subjacency applies to LF movement as well. Thus, there is an apparent conflict here between the evidence that motivates the lack of Subjacency at LF and the one that displays LF Subjacency effects. This paper attempts to resolve this paradoxical situation by focusing on the properties of wh-movement in Japanese. Specifically, it will be argued, by bringing in new data, that Subjacency should constrain only the mapping from D-structure to S-structure.

This paper basically presupposes the Barriers framework of Chomsky (1986) and some subsequent work, where Subjacency subsumes the Condition on Extraction Domain (CED), the Complex NP Constraint, and the wh-island Condition. The main logic of the discussion is the following. We first observe that there are two levels of movement in Japanese interrogatives, only the first of which obeys Subjacency. On the ground that there is a wh-island effect for overt movement in Japanese, it follows that the first level of movement is identified as S-structure movement, since the account of the wh-island effect requires the CP Spec of a wh-island to be filled at S-structure.

Section 1 clarifies the issues surrounding the LF Subjacency hypothesis and then looks at further data which are not examined in the past literature, arguing that apparent LF Subjacency effects do not manifest themselves uniformly. Section 2 attempts to establish that Japanese wh-
questions involve S-structure movement to CP Spec. We will conclude by summarizing the properties of S-structure movement involved in Japanese wh-questions that are relegated to future research.

1. APPARENT LF SUBJACENCY EFFECTS

In this section, we will look closely at LF Subjacency effects. The treatment of LF Subjacency effects is closely tied to the proposal of pied-piping; in cases where a violation is expected but does not show up, large-scale pied-piping of the entire island is invoked to account for the lack of the Subjacency effect. For this reason, we will start with the question of pied-piping as the background of the whole issue. Section 1.1 will list the apparent LF Subjacency effects to be accounted for. Section 1.2 will introduce crucial new data.

1.1. Pied-piping Asymmetry

1.1.1. Review

Huang (1982) argues that LF movement does not obey Subjacency by pointing out that wh-in-situ fails to display island effects, in contrast to overt movement. Thus:

(1) a. *What do you remember where we bought?
   b. Who remembers where we bought what?

(2) a. *Who do you like books that criticize?
   b. Who likes books that criticize who?

(1) illustrates the wh-island Condition and (2) the Complex NP Constraint. In (1b), the relevant interpretation, in which what is construed with the matrix question, is possible.

He also points out that immunity from Subjacency holds for LF movement in a language like Chinese, which has no overt question movement. The sentences below are well-formed in Chinese.

(3) ni xihuan [piping shei de shu]?
   you like criticize who REL book
   ‘Who do you like books that criticize?’
(4) ni xiang-zhidao [shei mai-le shenme]?
you wonder who bought what
'What do you wonder who bought?'

At first sight, the same seems to be true in Japanese, another wh-in-situ language. Thus, Lasnik and Saito (1984, forthcoming) follow Huang (1982) in assuming that LF movement is not subject to Subjacency, noting examples like the following in Japanese. (The examples, including the judgments, are from Lasnik and Saito (forthcoming). For the sake of fairness, it should be noted that Lasnik and Saito (1984) do not discuss wh-islands in Japanese.)

(5) a. John-wa [nani-o katta hito]-o sagasite iru no?
John-Top what-Acc bought person-acc looking-for Q
'What is John looking for the person who bought?'

b.(?)John-wa [Mary-ga nani-o katta ka dooka]
John-Top Mary-Nom what-Acc bought whether
siritagatte iru no?
know-want Q
'What does John want to know whether Mary bought?'

Considering these data alone, it is reasonable to assume that LF movement is subject to Subjacency neither in languages which have overt movement nor in those which allow only I_F question movement, ignoring the marginality of (5b).

There is, however, a subtlety in the judgment of (5b). Nishigauchi (1986, 1990) and Lasnik and Saito (forthcoming) observe that sentences like (5b) are not perfect, probably on a par with the familiar wh-island effect in languages like English. Nishigauchi claims, for this reason and others, that Subjacency is active in Japanese LF movement, contrary to the standard assumption. In order to account for the well-formedness of sentences like (5a) where the Complex NP Constraint is apparently violated, Nishigauchi proposes that large-scale pied-piping, which moves the entire complex NP, is possible at LF^2 (cf. also Choe (1987) for pied-piping). (5a) is analyzed as having the following LF representation, where linear order and the categorial identification of no are irrelevant.

(6) \[CP \{nani-o katta hito\_o \_i \{IP John-wa \_i sagasite iru\_\} \_o\}\]

Since movement of the entire island itself crosses no island, the effect of Subjacency is masked in cases where the option of pied-piping is available.
Pesetsky (1987) gives support to the pied-piping hypothesis by observing that if the pied-piping option is suppressed, Subjacency effects surface again.3 Ittai ‘the hell’ is an item which attaches to the left periphery of the largest wh-phrase that undergoes movement. Pesetsky’s observation is that wh-phrases to which this item attaches cannot move out of an island. Thus, there is a contrast between the following pair.

(7) a. *Mary-wa [John-ni [ittai nani-o] ageta hito]-ni
   Mary-Top John-Dat the hell what-Acc gave person-Dat
   atta no?
   met Q
   ‘What the hell did Mary meet the person who gave to John?’

b. Mary-wa [John-ni nani-o ageta hito]-ni atta no?
   Mary-Top John-Dat what-Acc gave person-Dat met Q
   ‘What did Mary meet the person who gave to John?’

In (7a), the wh-phrase nani-o ‘what-Acc’ has to move out of a Complex NP, violating Subjacency.

Given the full set of island effects observed in Japanese wh-questions, it becomes reasonable to interpret the marginality of (5b) as a wh-island violation and hence a Subjacency violation. Thus, we must conclude that Japanese wh-questions obey Subjacency.

1.1.2. Head-internal Relative Clauses

There is an additional argument for the pied-piping hypothesis and hence for the apparent sensitivity of LF movement to Subjacency, based on head-internal relatives in Japanese. Superficially, they have the following structure (cf. Cole (1987)).

(8) NP
    /\CP NP
   /  \IP
  /  
  ...NP_i, ...
Navajo (Barss et al. (1991) and Platero (1974)), Quechua (Cole (1987) and Lefebvre and Muysken (1988)), Lakhota (Williamson (1987)), and Mooré (Tellier (1989)). The relevance of this construction in this context is that it displays Subjacency effects. Although the lack of them in Lakhota demands an explanation,

Let us consider concrete examples in Japanese. This type of construction in Japanese has been investigated by Kuroda (1974, 1975–76, 1976–77), Ito (1986), and Ishii (1988). Although Ishii (1988) claims, citing an unacceptable example, that head-internal relativization is clause-bounded, I disagree on the generality of the judgment. There are examples where relativization into embedded clauses is allowed. Thus the following examples are acceptable.

(9) a. John-ga [NP IP CP kaizoku-ga kai-tei-ni
John-Nom pirate-Nom bottom-of-sea-Loc
takara-o sizumeta to] iwarete ita]-no]-o
treasure-Acc sank Comp said-Pass had-NM-Acc
hakken-sita.
discovered

‘John discovered the treasure which it had been said that the pirates had sunk into the bottom of the sea.’

b. Mary-ga [NP IP John-ga CP zibun-no gakusei-ga
Mary-Nom John-Nom self-Gen student-Nom
juuyooana kasetu-o teian-sita to]
important hypothesis-Acc proposed Comp
jiman-siteita]-no]-no kekkan-o siteki-sita.
boasted-NM-Gen defect-Acc pointed out

‘Mary pointed out a defect of the important hypothesis which John boasted that his student proposed.’

Here, we are not concerned with the identity of no, which is homophonous with the genitive marker and is glossed above as NM ‘nominalizer’. See Kitagawa and Ross (1982) for some discussion. The English gloss is rendered with the ordinary relative clauses. The head of the relative (which is bold-faced in (9) and throughout this paper) is contained in the relative clause but functions as the object of the main verb in (9a) and as a genitive phrase in (9b). Now I propose that the head of the
relative is eventually raised into Spec of CP. After raising, we have the following structure. This much is reasonable under the standard assumption.

(10)

I am assimilating the head-internal relatives to free relatives in languages such as English that have overt *wh*-movement for questions. Groos and Riemsdijk (1981), observing that Extraposition in Dutch and German, which moves CP but not NP, also moves free relatives, argue for positing the structure shown in (10) for free relatives (with a difference in word order and in the S’ system). Now the option of a head-internal relative seems to be available only in languages which allow in-situ *wh*-questions; Navajo, Quechua, Lakhota, and Mooré all have the in-situ strategy. Suppose that the factor that forces S-structure movement for questions and free relatives is the same across languages. Then, in languages like Japanese, just as an interrogative *wh*-phrase remains in-situ, the head of free relatives remains also in-situ. Given that (10) is derived from (8) by raising of the head, it follows that the head-internal relative involves LF movement, under the standard assumption. (One of the main goals of this paper is to overturn this assumption. Here I am intentionally vague about our ultimate idea concerning head-internal relatives; see section 1.2.)

Returning to Japanese, it is important to notice that the head-internal relatives in Japanese also obey Subjacency, as in Navajo and Quechua. Consider the following contrast.


‘An excellent paper which John said in praise that Mary had written was published.’
b. ?*[John-ga [Mary-ga subarasii ronbun-o kaita John-Nom Mary-Nom excellent paper-Acc wrote to-yuu| uwasaj-o kiita]-no]-ga shuppan-sareta. Comp rumor-Acc heard NM-Nom publish-Pass

‘An excellent paper which John heard a rumor that Mary had written was published.’

c. *[John-ga [subarasii ronbun-o kaita] hito]-o John-Nom excellent paper-Acc wrote person-Acc homete ita]-no]-ga shuppan-sareta. praised had-NM-Nom publish-Pass

‘An excellent paper which John had praised the person who wrote (it) was published.’

In (11b, c), the head is contained in a Complex NP. (11c) is more degraded than (11b), since the latter involves a relative clause, a familiar contrast. Actually, the reading forced in (11b, c) is the one in which the Complex NP is interpreted as the relative head, leading to semantic anomaly. The wh-island effect also seems to be observed, though the judgment here is not clear.

(12) ?*[John-ga Tom-ni [Mary-ga itsu ronbun-o John-Nom Tom-Dat Mary-Nom when paper-Acc siageru-ka] tazunete ita]-no]-ga shuppan-sareta. finish-Q asked had-NM-Nom publish-Pass

‘The paper which John had asked Tom when Mary would finish was published.’

The point is that the Subjacency effects here are straightforwardly observed. In the case of head-internal relatives, the pied-piping strategy is severely restricted by whatever forces the (categorial) matching in free relatives. In English, there is a contrast between the following pair (from Bresnan and Grimshaw (1978)).

(13) a. I’ll reread whatever paper John has worked on.

b. *I’ll reread on whatever paper John has worked.

Since even small-scale pied-piping cannot be used to give the appropriate interpretation, it is plausible to think that large-scale pied-piping cannot
either. Thus, in (11b, c) the underlined NP has to undergo movement in order to get the appropriate interpretation.

The significance of this fact is that we are observing LF Subjacency effects and the apparent lack of them in the same language. In order to account for the apparent lack of Subjacency effects in questions in Japanese and their presence in head-internal relatives, the pied-piping hypothesis is necessary unless one denies the LF movement involved in the latter construction. Thus, this section supplies another area where LF Subjacency is apparently observed, in addition to the \textit{ittai} cases that Pesetsky (1987) discusses. The conclusion is that there are apparent LF Subjacency effects in Japanese \textit{wh}-questions and head-internal relatives.

1.2. Subjacency Asymmetry

Now what about the Subjacency effects in languages like English? If Fiengo et al. (1988) (see also Huang (1982) and Aoun (1985)) are correct in arguing that there is no large-scale pied-piping available in languages like English, then it follows that there are no Subjacency effects at LF in such languages. Now it seems that we must admit, as Nishigauchi (1986, 1990) does, that Japanese displays the LF Subjacency effects that English fails to display. This is an unexpected situation, given the idea that principles applying at LF are not parameterized. There are two conservative positions to take to avoid this situation. One is to suppose that Subjacency constrains LF movement universally and to try to explain the apparent lack of it somehow. The other is to maintain the standard assumption that Subjacency is at work only in a mapping to S-structure and to try to return the apparent LF Subjacency effects to S-structure. We will consider other options at the end of this section.

Later, we will argue that the standard position is correct. As a first step toward that demonstration, we will look at some additional data in the following section.

1.2.1. Multiple Questions

When we examine the examples used to show that LF movement in Japanese obeys Subjacency, we notice that all the cases involve movement of a \textit{wh}-phrase to a Spec of CP. Consider the \textit{wh}-island effect in Japanese, whose degree of unacceptability varies among different speakers. (5b) is repeated as (14) below, where the grammaticality status is changed to ?? in order to reflect the judgment of the relevant speakers.
(14) ??John-wa [Mary-ga nani-o katta ka dooka]
    John-Top Mary-Nom what-Acc bought whether
    siritagatte iru no?
    know-want Q
    ‘What does John want to know whether Mary bought?’

Here, the movement of the embedded object nani-o ‘what-Acc’ alone is considered. Now for those to whom (14) is clearly degraded, there is an interesting contrast.

(15) a. John-wa [Mary-ga nani-o katta ka dooka]
    John-Top Mary-Nom what-Acc bought whether
    dare-ni tazuneta no?
    who-Dat asked Q
    ‘Who did John ask whether Mary bought what?’

b. ??John-wa [Mary-ga nani-o katta ka dooka]
    John-Top Mary-Nom what-Acc bought whether
    Tom-ni tazuneta no?
    Tom-Dat asked Q
    ‘What did John ask Tom whether Mary bought what?’

When a second wh-phrase is added outside of an island to make a multiple question, the sentence improves. Notice that addition of a wh-phrase does not lead to improvement when it is placed inside the wh-island. Consider (16).

(16) ??John-wa [dare-ga nani-o katta ka dooka]
    John-Top who-Nom what-Acc bought whether
    Tom-ni tazuneta no?
    Tom-Dat asked Q
    ‘What did John ask Tom whether who bought what?’

(16) appears to have the status of a wh-island violation. Thus, it is the presence of an additional wh-phrase outside the island that voids the wh-island effect.

Then how can we account for the contrast in (15)? The pattern in (15) is reminiscent of the contrast between S-structure and LF movement in English. The familiar picture is that S-structure movement is subject to Subjacency while LF movement is not, as illustrated in (17).
Suppose that Japanese interrogatives involve invisible S-structure movement, namely, that a simple wh-question has the following schematic S-structure representation, where $Op$ in Spec of CP is moved from the IP-internal wh-phrase. A head-internal relative clause has the same structure, with an indefinite NP instead of a wh-phrase; cf. fn. 5. (Hereafter, we will place Spec of CP to the right in Japanese, without justification.)

(18) \[
[CP [\text{IP} \ldots \text{wh-phrase}, \ldots] [C, ka] Op_i]
\]

Suppose further that [+wh] C° requires one and only one $Op$ to occupy Spec of CP at S-structure, namely, that Japanese and English have the same S-structure requirement concerning [+wh] Comp. Then, the contrast in (15) can be explained on the standard assumption about Subjacency that it constrains only S-structure movement; (15a) is well-formed since the wh-phrase outside the island can be affected by S-structure movement, while (15b) is deviant since there is only one wh-phrase and it must be affected by S-structure movement. The island effects with head-internal relatives discussed in section 1.1.2 are also straightforwardly attributed to S-structure movement of an invisible entity.

Notice that the contrast in (15) presents an almost insurmountable obstacle to the kind of approach which stipulates that LF movement is uniformly subject to Subjacency. At this point, one might counter by saying that only one wh-phrase per [+wh] Comp is affected by movement in Japanese and that the other wh-phrases are interpreted in-situ, in the manner that Pesetsky (1987) argues that D-linked wh-phrases are interpreted. This does not stand up to scrutiny, however. We will turn to evidence below.

The data up to this point in fact only support the following weaker hypothesis:

(A) Two-level Movement Hypothesis (I)
One and only one wh-phrase per [+wh] Comp is affected at the first level of movement, which is subject to Subjacency. All the other wh-phrases in multiple questions move subsequently at the second level, which is immune to Subjacency.

We have not shown that first-level movement has to take place at S-structure. That is the task of section 2. Technical details of executing the S-structure movement hypothesis for wh-phrases, which is schematized in
(18), on the other hand, will be set aside in this paper, due to space limitations. Without going through the engineering problems, we can show that our point holds, as we will see. What we should note is that although part of the wh-phrase is assumed to move in (18), it behaves as if the entire wh-phrase undergoes movement with respect to Subjacency and the ECP. Keeping this in mind, we will next examine the confirmation of the Two-level Movement Hypothesis.

1.2.2. _Anti-superiority_

As a preliminary to the confirmation of the Two-level Movement Hypothesis, we will first look at some independent facts in Japanese that demand differentiation of two levels of movement involved in multiple questions. They have to do with the ECP, but it is relevant to examine whether the two levels observed with respect to the ECP coincide with the two levels that I have proposed for Subjacency. If they do, the Two-level Movement Hypothesis will be strengthened.

1.2.2.1. _The ECP Cases._ Saito (1982, 1989a) discusses the following contrast. We will proceed by slightly adapting his arguments.

(19) a. ?Kimi-wa nani-o naze katta no?
    you-Top what-Acc why bought Q
    ‘Why did you buy what?’

    b. *Kimi-wa naze nani-o katta no?
    you-Top why what-Acc bought Q
    ‘What did you buy why?’

(19a) is more or less acceptable, but (19b) sounds strange. It is tempting to assimilate this contrast to the ECP effect found in English, as illustrated in (20). The gloss in (19) is only intended to reflect this intuition. (19b) is not acceptable under any reading.

(20) a. Why did you buy what?

    b. *What did you buy why?

Assuming some kind of Comp indexing mechanism in the spirit of Aoun et al. (1981) which states that only the wh-phrase that is put in the Spec of CP first can be an antecedent governor, Huang (1982) explains the contrast in (20) in the following way: the trace of why in (20b) is neither...
antecedent governed nor lexically governed, violating the version of the ECP proposed in Chomsky (1981), whereas the trace of why in (20a) is acceptable with respect to the ECP because in this case antecedent government holds.

Essentially the same account can be carried over to the contrast in (19), with one additional assumption about the levels of movement. (19a) is derived by scrambling from the structure that underlies (19b). Thus, the S-structure representations of the examples in (19) are (21).

(21) a. Kimi-wa nani-o, naze t~ katta no?
    b. *Kimi-wa naze nani-o katta no?

There are in principle two LF derivations for each of the examples. In (21a), either nani-o 'what-Acc' or naze 'why' can move into CP Spec at LF. If nani-o is placed in the Spec of CP first, the Comp indexing mechanism disallows antecedent government of the trace of naze, resulting in an ECP violation. If naze is put in the Spec of CP first, securing the antecedent government of its trace, then a well-formed LF representation is obtained. The acceptability of (19a) indicates that the option of moving naze first is available for (19a). On the other hand, either derivation results in ungrammaticality in the case of (19b). Here again, two LF derivations from the S-structure representation (21b) are logically possible. If nani-o is moved first, aborting the antecedent government of the trace of naze, then that derivation results in an ill-formed LF representation. If naze can be moved first, we should be able to get a well-formed LF representation. This option, therefore, should be prohibited. Let us call this an *anti-superiority* effect.

(22) Anti-superiority effect
The *wh*-phrase that is moved first cannot c-command the other *wh*-phrase at S-structure which takes the same scope.

Thus, the contrast in (19) is explained through the Comp indexing mechanism plus whatever produces the anti-superiority effect (22).

Note that crucial to this account is, again, the Two-level Movement Hypothesis, but this time with respect to the ECP.

(B) Two-level Movement Hypothesis (II)
One and only one *wh*-phrase per [+wh] Comp is affected at the first level of movement, which secures antecedent government from Comp. All the other *wh*-phrases are moved at the second level of movement, failing to antecedent-govern the trace from Comp.
Here we understand antecedent government from Comp at a somewhat descriptive level. The ordering between the two levels of movement is dictated by the English facts. Now the point of the contrast in (19) is that the two levels relevant to anti-superiority (22) are the levels specified by the Two-level Movement Hypothesis (II).

Note also that this account of the contrast in (19) relies on the idea that every *wh*-phrase is subject to movement. If *naze* 'why' did not move, there would be no ECP violation. Thus, the account of the contrast in (15) mentioned above, in which only one *wh*-phrase per [+wh] Comp undergoes movement, is shown to be untenable.

Notice, incidentally, that if the S-structure movement hypothesis for *wh*-phrases, schematized in (18), is correct, the ECP effect should come out in the same way as when the entire *wh*-phrase is moved. This property must be expressed in the future execution of the S-structure movement hypothesis.

Returning to the main concern, Saito (1989a) accounts for the impossibility of moving *naze* first in (19b) by invoking the Path Containment Condition of Pesetsky (1982) but going back to the older formulation in terms of linearity (cf. Kuno and Robinson (1972) and Fodor (1978)). The following is the version that Pesetsky (1982) proposes.

(23) Path Containment Condition (PCC)
If two paths overlap, one must contain the other.

And a path is defined hierarchically. Informally:

(24) The path between an A'-binder b and its locally A'-bound trace t is the set of nodes that connect the node α immediately dominating b and the node β immediately dominating t, including α and β.

The PCC has the effect of deriving the Superiority Condition originally discussed by Chomsky (1973), which states in modern terms that at S-structure, the trace of the *wh*-phrase in the Spec of CP cannot be c-commanded by the *wh*-in-situ which takes the same scope.10 Thus, (25b) is ruled out by the PCC, on assumption (26).

(25) a. Who did you persuade t to read what?

b. *What t did you persuade who to read t ?

(26) The *wh*-phrase which is moved later lands in a higher position than the *wh*-phrase moved earlier.

Turning to Japanese, the PCC, coupled with (26), makes a wrong prediction for (19); it dictates that the higher *wh*-phrase gets moved first.
If so, the Comp indexing mechanism would wrongly block the antecedent government of the trace of *naze* in (19a), while allowing it in (19b), giving us the opposite result. For this reason, Saito (1989a) claims that the PCC should be interpreted in linear terms. On the assumption that *wh*-phrases in Japanese are adjoined to the right and that the *wh*-phrase moved later than some other *wh*-phrase is adjoined to the right of the *wh*-phrase that is moved first, the linear PCC dictates that (19a, b) must be mapped to the schematic structure (27a, b), respectively. It is crucial here that the path starts out at the position that the *wh*-phrase occupies at S-structure. 11

(27) a. $[\text{CP} [\text{IP} \ldots t_i \ldots t_j \ldots t'_j \ldots ] [\text{naze}] [\text{nani}]]$

$b. [\text{CP} [\text{IP} \ldots t_i \ldots t_j \ldots ] [\text{nani}] [\text{naze}]]$

In (27a), *naze* is moved first; in (27b), *nani* is moved first. (27b) leads to an ECP violation through the Comp indexing mechanism, correctly. The other mapping for (19b) where *naze* is moved first, although well-formed with respect to the ECP, violates the linear version of the PCC, as can be seen from (28).

(28) $[\text{CP} [\text{IP} \ldots t_i \ldots t_j \ldots ] [\text{naze}] [\text{nani}]]$

Since both of the two logically possible LF derivations for (19b) are blocked, its unacceptability is accounted for.

Pending further discussion of what derives the superiority effect in
languages like English and the 'anti-superiority' effect in Japanese, which is pursued in Watanabe (1991, in preparation), let us reiterate Saito's insight that the contrast in (19) is of the same nature as the superiority effect in English. To substantiate this claim, Saito (1989a) points out that the same kind of amelioration is observed in Japanese as is observed for the English superiority. Kayne (1983) discusses the contrast between (29) and (30).

(29) *I'd like to know where who hid it.

(30) ?I'd like to know where who hid what.

Pesetsky (1982, 617) extends the observation to the pure superiority cases.

(31) a. *What books did you persuade who to give to Bill?

b. ?What books did you persuade who is give to whom?

Adding another wh-phrase to the position higher than the S-structure trace does not improve the sentence, as Pesetsky (1982) notes.

(32) *What books did you tell what man to persuade who to give to me?

Saito observes that the same seems to be true of Japanese: adding another wh-phrase improves (19b).

(33) a. *Kimi-wa naze nani-o katta no? (= (19b))

you-Top why what-Acc bought Q
‘What did you buy why?’

b. Dare-ga naze nani-o katta no?
who-Nom why what-Acc bought Q
‘Who bought what why?’

We can add that the position of an additional wh-phrase matters in Japanese as well. (34) is minimally different from (33b) in the position of naze.

(34) *Naze dare-ga nani-o katta no?

Finally, consider the justification for the use of c-command in the description of anti-superiority in (22). The linear PPC and the anti-superiority (22) make different predictions. The relevant cases are the following.
(35) a. (?)_cp[John-ga naze kubininatta to] dare-ga itta no?  
   John-Nom why was-fired Comp who-Nom said Q

b. Dare-ga _cp[John-ga naze kubininatta to] itta no?  
   who-Nom John-Nom why was-fired Comp said Q

   ‘Why did who say [that John was fired t]?” (≡ a, b)

(35a) is derived from (35b) by preposing the complement clause. Now, the
linear PCC predicts that (35a) should be significantly worse than (35b),
while the anti-superiority predicts both of them to be good, since naze
does not c-command the other _wh_-phrase. Though the judgment is
delicate, the difference between (35a) and (35b) is subtle enough to be
ignored. Thus, there is a reason to prefer the description in (22).

To summarize, we have seen that Japanese multiple questions exhibit
two levels of movement with respect to the ECP, which are regulated by
whatever principle derives anti-superiority.

1.2.2.2. Subjacency Cases. The next question is whether the levels speci-

dified by the Two-level Movement Hypothesis (I) concerning Subjacency
are the same as the ones required by the Two-level Movement Hypothesis
(II) concerning the ECP. As is obvious, they are the same in English. The
null hypothesis is that this holds true in Japanese as well. If so, the
correctness of the Two-level Movement Hypothesis (I) for Japanese will
be reinforced. And this seems to be confirmed.

The key factor which can relate the Two-level Movement Hypotheses
(I) and (II) is anti-superiority (22). Let us consider the contrast in (15)
again.

(15) a. John-wa [Mary-ga nani-o katta ka dooka]  
   John-Top Mary-Nom what-Acc bought whether
   dare-ni tazuneta no?  
   who-Dat asked Q

   ‘Who did John ask t whether Mary bought what?’

b. ??John-wa [Mary-ga nani-o katta ka dooka]  
   John-Top Mary-Nom what-Acc bought whether
   Tom-ni tazuneta no?  
   Tom-Dat asked Q

   ‘What did John ask Tom whether Mary bought t?’

In both examples, the embedded indirect question clause is scrambled so
as to precede the indirect object. Now if the clause is left in the underlying position, the improvement does not take place.

(36) a. ??John-wa dare-ni [Mary-ga nani-o katta
    John-Top who-Dat Mary-Nom what-Acc bought
    ka dooka] tazuneta no? 12
    whether asked Q
    ‘Who did John ask whether Mary bought what?’

b. ??John-wa Tom-ni [Mary-ga nani-o katta
    John-Top Tom-Dat Mary-Nom what-Acc bought
    ka dooka] tazuneta no?
    whether asked Q
    ‘What did John ask Tom whether Mary bought what?’

The contrast between (15a) and (36a) is accounted for if anti-superiority regulates the two levels of movement relevant to Subjacency as well. In (36a), the matrix wh-phrase cannot be affected by the first level of movement; instead, the one inside the island has to be affected, violating Subjacency. In (15a), neither wh-phrase c-commands the other, and therefore the matrix wh-phrase can be affected at the first level.

Note that Kurata (1991) finds (37) less than perfect on the reading according to which the embedded subject takes the matrix scope, having roughly the status of a wh-island violation.

(37) Dare-ga [dare-ga nani-o katta ka] oboete-imasu ka?
    who-Nom who-Nom what-Acc bought Q remember Q
    ‘Who remembers what who bought?’

We can take this example to be manifesting the same phenomenon as (36a).

The asymmetry in the suppression of the wh-island effects is also found with subjects. Thus, (38) patterns with (36).

(38) a. ??Dare-ga John-ni [Mary-ga nani-o katta
    who-Nom John-Dat Mary-Nom what-Acc bought
    ka dooka] tazuneta no?
    whether asked Q
    ‘Who asked John whether Mary bought what?’
b. ??Dare-ga [Mary-ga nani-o katta ka dooka] who-Nom Mary-Nom what-Acc bought whether John-ni tazuneta no? John-Dat asked Q
   ‘Who asked John whether Mary bought what?’

On the other hand, if the embedded clause is scrambled out of the c-command domain of the matrix wh-phrase, as in (39), we get well-formed sentences.

dare-ga tazuneta no? dare-ga who-Nom asked Q
   ‘Who asked John whether Mary bought what?’ (= a, b, c)

b. [Mary-ga nani-o katta ka dooka] John-ni dare-ga tazuneta no?
c. [Mary-ga nani-o katta ka dooka] dare-ga John-ni tazuneta no?

Now turning to the amelioration of the anti-superiority effect due to an additional wh-phrase, we find that the same principle as behind (33) and (34) above is working in the cases involving wh-island violation. Thus, all the sentences in (41) are well-formed in contrast to (40).

(40) ??Dare-ga John-ni [dare-ga kita ka dooka] kiita no? who-Nom John-Dat who-Nom came whether asked Q
   ‘Who asked John whether who came?’

(41) a. Dare-ga dare-ni [dare-ga kita ka dooka] kiita no? who-Nom who-Dat who-Nom came whether asked Q
   ‘Who asked who whether who came?’ (= a, b, c)

b. Dare-ga [dare-ga kita ka dooka] dare-ni kiita no? who-Nom who-Nom came whether who-Dat asked Q
c. [Dare-ga kita ka dooka] dare-ga dare-ni kiita no? who-Nom came whether who-Nom who-Dat asked Q

The sentences in (41) have the same interpretation, differing only in word order due to scrambling. Just adding another wh-phrase is not sufficient,
for (43) shows that the contrast in (42) remains after adding another wh-
phrase inside the wh-island.

dare-ni tazuneta no? who-Dat asked Q
‘Who did John ask t whether Mary bought what?’

b. ??John-wa dare-ni [Mary-ga nani-o katta
John-Top who-Dat Mary-Nom what-Acc bought
ka dooka] tazuneta no? whether asked Q
‘Who did John ask t whether Mary bought what?’

dare-ni tazuneta no? who-Dat asked Q
‘Who did John ask t whether who bought what?’

b. ??John-wa dare-ni [dare-ga nani-o katta
John-Top who-Dat who-Nom what-Acc bought
ka dooka] tazuneta no? whether asked Q
‘Who did John ask t whether who bought what?’

Schematically, what we have is the following.

(44) a. ?? . . . wh₁ . . . [wh-island . . . wh₂ . . . ka dooka] . . . Q

b. . . . [wh-island . . . wh₁ . . . ka dooka] . . . wh₂ . . . Q

c. . . . wh₁ . . . wh₂ . . . [wh-island . . . wh₃ . . . ka dooka] . . . Q

d. . . . wh₁ . . . [wh-island . . . wh₂ . . . ka dooka] . . . wh₃ . . . Q

e. . . . [wh-island . . . wh₁ . . . ka dooka] . . . wh₂ . . . wh₃ . . . Q

(45) a. ?? . . . wh₁ . . . [wh-island . . . wh₂ . . . wh₃ . . . ka dooka] . . . Q

b. . . . [wh-island . . . wh₁ . . . wh₂ . . . ka dooka] . . . wh₃ . . . Q
Now (22) is revised to (46) to cover (33—34) and (40–43).

(46) Anti-superiority
A multiple question is well-formed only if there is a *wh*-phrase which is not c-commanded by the *wh*-phrase that is moved first.

With the help of (46), the patterns in (44) and (45) can be explained by the Two-level Movement Hypothesis (III), which combines (I) and (II).

(C) the Two-level Movement Hypothesis (III)
One and only one *wh*-phrase per [+wh] Comp is affected at the first level of movement, which is subject to Subjacency and is responsible for the antecedent-government from Comp. All the other *wh*-phrases in multiple questions move subsequently at the second level, which is immune to Subjacency and does not result in antecedent-government from Comp.

In (44a), the derivation either violates Subjacency or (46). (46) prohibits moving $wh_1$ first, while moving $wh_2$ first violates Subjacency. The same account applies to (45a). In (44b, c, e), there is an option of moving $wh_2$ first, which does not violate Subjacency. In (44d, e) and (45b), a potential Subjacency violation can be circumvented by moving $wh_3$ first.

To summarize, we have seen that the anti-superiority (46) and the Two-level Movement Hypothesis (III) have considerable explanatory power. The next task is to make theoretical sense of each of them. (46) is discussed in Watanabe (1991, in preparation). In this paper, we will concentrate on articulating the Two-level Movement Hypothesis (I).

Here, we can distinguish at least three alternative ways of implementing the Two-level Movement Hypothesis (I) for Japanese interrogatives.

(47) I. There is an invisible S-structure movement involved in Japanese interrogatives and head-internal relatives. Thus, the first level of movement is identified with S-structure movement, which is subject to Subjacency.

II. The first level of movement is an operation of satisfying the [+wh] Spec-head agreement and obeys Subjacency whether it takes place in the mapping to S-structure as in English or to LF as in Japanese. The second level of movement is a distinct operation which forms a multiple question and might be called Absorption.
III. There is an additional level of representation between S-structure and LF which might be called S'-structure. Japanese links S-structure to PF, while English pronounces S'-structure. The first level of movement takes place during the mapping to S'-structure, which obeys Subjacency.15

The next section is devoted to choosing among these alternatives.

2. SPEC OF [+WH] CP FILLED AT S-STRUCTURE

In this section, we will show that the abstract S-structure wh-movement hypothesis (47I) is correct, but not (47II), nor (47III). In order to do so, we have to demonstrate that a [+wh] Spec of CP is filled by something at S-structure. This is expected only under the S-structure movement hypothesis. This entire section is devoted to this end.

The most direct evidence that a [+wh] Spec of CP is filled at S-structure would be that we could actually see something sitting there. A candidate in Japanese is the element ka, which appears at the end of an interrogative clause, as in (48).

(48) John-wa [cP Mary-ga nani-o katta ka] kiita.
John-Top Mary-Nom what-Acc bought Q asked

‘John asked what Mary bought.’

In (48), this item is glossed as ‘Q’. But to show that this item is actually occupying the Spec of CP, we must show that it is an XP, for which there is no evidence. Thus, we must look for other kinds of evidence.

Another way of arguing for a filled Spec of CP is to show that extraction is blocked out of the clause whose CP Spec we are wondering whether something occupies. To see this, we will examine whether an interrogative clause is an island for S-structure movement in Japanese. If there is an invisible S-structure movement, then an interrogative clause should constitute an island. We will consider three configurations, Comparative Deletion, ordinary scrambling, and scrambling reconstruction.

2.1. Comparative Deletion

Let us first consider the clearest case of a wh-island effect noted in the literature. Kikuchi (1987) argues that Comparative Deletion in Japanese is a process of overt syntax by showing that it licenses parasitic gaps and that it is sensitive to Subjacency, including the wh-island condition. So it is
worth examining whether the latter can be taken as evidence for the invisible S-structure movement in interrogatives.

Comparative Deletion has the following form in Japanese.

(49)   John-ga [Mary-ga e yonda yori(mo)] takusan-no
        John-Nom Mary-Nom read than many-Gen
              hon-o yonda.
              book-Acc read
        ‘John read more books than Mary read.’

Let us call the embedded clause in (49) a *comparative clause*. The comparative clause must contain a gap, just as the English counterpart in the gloss must have one.

(50)   *John-ga [Mary-ga Bariyaaz-o yonda yori(mo)]
        John-Nom Mary-Nom Barriers-Acc read than
              takusan-no hon-o yonda.
              many-Gen book-Acc read
        ‘John read more books than Mary read Barriers.’

Importantly, this construction is sensitive to the presence of an island, as illustrated in (51).

(51) a. [[[John-ga e yonda to] iwareteiru to] Tom-ga
        John-Nom read Comp say-Pass Comp Tom-Nom
              uwasasiteiru yori(mo)] Mary-wa takusan-no hon-o
              rumor than Mary-Top many-Gen book-Acc
              yonde-ita.
              read-had
        ‘Mary had read more books than Tom rumors that it is said that John read.’

b. *[Paul-ga [NP [CP ei ei yonda] hito]-ni atta yori(mo)]
        Paul-Nom read person-Dat met than
        John-ga takusan-no hon-o yonda.
        John-Nom many-Gen book-Acc read
        ‘John read more books than Paul met a man who read.’
c. *[Minna-ga naze Paul-ga e yonda ka] siritagatteiru
   everyone-Nom why Paul-Nom read Q know-want
   yori(mo)] John-ga takusan-no hon-o yonda
   than John-Nom many-Gen book-Acc read
‘John read more books than everybody wants to know why
Paul read.’

d. *[Minna-ga [adjunct Paul-ga e yonda ato]-de sampo-ni
   everyone-Nom Paul-Nom read after-at walking-to
dekaketa yori(mo)] John-wa takusan-no hon-o yonda.
   went-out than John-Top many-Gen book-Acc read
‘John read more books than everyone went out for walking
after Paul read.’

The comparative clause in (51a) embeds only declarative clauses, and the
result is acceptable, though a little clumsy. But the construction becomes
deviant when an island intervenes between the gap and the operator
position of the comparative clause, which is assumed by Kikuchi (1987) to
have the following schematic structure.

\[(52) \quad [PP [CP [\ldots e_i \ldots] Op_i] yorimo]^{16}\]

(51b) is a case of the Complex NP Constraint and (51c) the wh-island
condition, our main concern here. (51d) violates the Adjunct Condition.
Kikuchi also observes that Comparative Deletion licenses parasitic
gaps.\(^7\)

\[(53) \quad Ronbun-no koto-o iuto Bill-wa [John-ga
   article-Gen matter-Acc saying Bill-Top John-Nom
   [adjunct pro London-de e kaita ato] Paris-de e shuppan-sita]
   London-Loc wrote after Paris-Loc published
   yori(mo)] ooku-no ronbun-o America-de kaita.
   than many-Gen article-Acc America-Loc wrote
‘Speaking of articles, Bill wrote more articles in America than
John published at Paris after he wrote at London.’

From the Subjacency facts and the licensing of parasitic gaps,\(^8\) Kikuchi
(1987) concludes that Comparative Deletion is derived by S-structure
movement.

One might object, as an anonymous reviewer points out, that the wh-
island violation involving Comparative Deletion in (51c) is stronger than the standard cases of *wh-island violation. A natural candidate, then, is an ECP violation. But if this is so, the S-structure movement status of Comparative Deletion is seriously undermined, given the version of the ECP in Lasnik and Saito (1984), where γ-marking of non-arguments is done at LF: the violation in (51c) can be due to LF movement of an empty operator.

In this connection, it should be noted that Comparative Deletion also exhibits an argument/adjunct asymmetry of the familiar sort, as Ishii (1990, 1991) observes. Consider the following contrast from Ishii (1991).


(54) involves extraction from a Complex NP. Adjunct extraction in (54b) is worse than argument extraction in (54a), suggesting that what is violated in (54a) is not the ECP but Subjacency. The same asymmetry is also observed in the case of *wh-islands. Thus:

(55) a. *[Minna-ga [naze Paul-ga e yonda ka] siritagatteiru everyone-Nom why Paul-Nom read Q know-want yori(mo)] John-ga takusan-no hon-o than John-Nom many-Gen book-Acc yonda (= (51c)) read 'John read more books than everybody wants to know why Paul read.'
b. **[Minna-ga  naze Paul-ga e hataraita ka]
   everyone-Nom why Paul-Nom worked Q
   siritagatteiru yori(mo) John-ga issyokenmei hataraita.
   know-want than John-Nom very hard worked
   ‘John worked harder than everybody wants to know why
   Paul worked.’

Therefore, we can still maintain that (51c) = (55a) is a Subjacency violation.\(^*\)

Returning to our main concern, note first that these facts about Comparative Deletion argue against the hypothesis (47II) that Subjacency is a condition on a particular operation, and thus the first level of movement in Japanese interrogatives, though taking place at LF, obeys Subjacency. If every movement in Japanese interrogatives takes place at LF, a _wh_-clause should not induce the _wh_-island effect for Comparative Deletion, for the operator movement for Comparative Deletion is an S-structure process given the licensing of parasitic gaps.

Second, these facts about Comparative Deletion also argue against the hypothesis (47III) that posits another level of representation. At first sight, it appears that the facts about Subjacency and parasitic gaps can easily be made consistent with the S’-structure hypothesis; S’-structure might have the relevant properties. Consider Subjacency. Suppose that it holds at S’-structure. Then, the _wh_-island effect can be accounted for by assuming that Japanese _wh_-question phrases and Comparative operators undergo movement at S’-structure. Since Comparative Deletion involves a null operator, it is impossible to decide the level at which it moves by just looking at the string. By the time a Comparative operator moves, the CP Spec of an interrogative clause is filled by a _wh_-phrase, causing a Subjacency violation in (51c). Parasitic gaps might also be licensed at S’-structure. This predicts, however, that _wh_-questions in Japanese should license parasitic gaps, contrary to fact. Consider the following examples from Hoji (1985).

(56) a. John-ga  [Mary-ga e, yomu]-maeni sono honi-o
   John-Nom Mary-Nom read-before that book-Acc
   suteta.
   threw away
   ‘John threw away that book before Mary read it.’
Hoji (1985) argues that (56b) is ruled out as an instance of weak crossover, since the variable at LF does not c-command the empty pronoun in the adjunct clause. Now, we must also take care of another possible structure for (56b), namely, the parasitic gap interpretation of the empty object in the adjunct. If a wh-phrase is moved in the mapping from S-structure to S’-structure, then a parasitic gap should be licensed in (56b). Since that option is not available, it follows that the hypothesis (47III) which posits S’-structure is inconsistent with the facts about Comparative Deletion.

On the other hand, the facts about Comparative Deletion are consistent with the S-structure movement hypothesis if the Comparative operator moves at S-structure, as Kikuchi (1987) argues. It is instructive to remember that the wh-island effect with Comparative Deletion is a problem for Kikuchi (1987), who adopts the standard assumption that wh-phrases move only at LF in interrogative clauses. Now this problem can be turned upside down to support the S-structure movement hypothesis here.

2.2. Scrambling

Next, we turn to an obvious case of S-structure movement, which is scrambling, discussed in detail by Saito (1985). He argues that scrambling is a movement operation, drawing on the observation by Haig (1976) and Harada (1977) that scrambling obeys the Complex NP Constraint. (57) below is a case of long-distance scrambling.

(57) Ano hon-o, [IP John-ga [CP Mary-ga t_i katta to] that book-Acc John-Nom Mary-Nom bought Comp omotteiru].

think

‘John thinks that Mary bought that book.’

Scrambling obeys the Complex NP Constraint, as the following example from Saito (1985, 246) shows.
(58) ?*Ano hon-o, [IP John-ga [NP [\(i \_ t\_i\) katta] hito-o]
that book-Acc John-Nom bought person-Acc
sagasiteiru rasii.]
looking-for seem
'It seems that John is looking for the person who bought that book.'

In these cases, we can be sure that scrambling is an instance of S-
structure movement if there is a process of movement at all, since the
scrambled phrase is actually displaced from the base position. Thus, it is
necessary to check whether scrambling shows the wh-island effect or not.
The result is almost negative. Saito (1985, 274) detects a marginality in
(59b), but it seems that the contrast between (59a) and (59b) is too subtle
to base the argument on. (The question mark on (59b) is Saito's.)

(59) a. Sono hon-o, John-ga [Mary-ga [\(i \_ t\_i\) katta to]
that book-Acc John-Nom Mary-Nom bought Comp
omotteiru.
think
'John thinks that Mary bought that book.'

b. ?Sono hon-oi John-ga [dare-ga [\(i \_ t\_i\) katta ka]
that book-Acc John-Nom who-Nom bought Q
siritagatteiru.
know-want
'John wants to know who bought that book.'

It is possible that Japanese is like Italian in that it does not display
standard wh-island effects when a single embedded question is involved
(cf. Rizzi (1982) for Italian). So we might try multiple wh-clauses, as in the
following examples.

(60) a. ?*Sono hon-o, [Mary-ga [dare-ga Tom-ni
that book-Acc Mary-Nom who-Nom Tom-Dat
[dare-ga [\(i \_ t\_i\) katta ka] tazuneta ka] siritagatteiru.]
who-Nom bought Q asked Q know-want
'Mary wants to know who asked Tom who bought that book.'
(60a) is derived from (60b) by scrambling the object of the most embedded clause. (60c) is a case of long-distance scrambling from the equally embedded declarative clause and is put here for the sake of comparison. There seems to be a contrast between (60a) and (60b), but (60b) is considerably deviant, probably due to center embedding. If the contrast is real, it shows that interrogative clauses in Japanese block S-structure movement, but again, I am not sure that the data is secure.

So far, we have examined ordinary scrambling, and the result is not clear. We will next turn to some unusual instances of scrambling.

2.3. Scrambling Reconstruction

In this section, we will look at another construction where the S-structure wh-island effect can be observed. We start by reviewing the account of this construction given by Saito (1989b).

A peculiarity of scrambling in Japanese noted by Saito (1989b) is that it can raise a wh-phrase out of its own scope. Let us consider the following example.

(61) ?dono hon-o, [Mary-ga [John-ga toshokan-kara t]
which book-Acc Mary-Nom John-Nom library-from
karidasita ka] siritagatteiru].
checked-out Q know-want

‘Mary wants to know which book John checked out from the library.’

Saito (1989b) notes that although (61) is somewhat marginal, it is far better than a case such as (62) where a wh-phrase has to move to a position lower than its original position.
    know-want
    ‘Who wants to know Q John bought that book.’

    John-Nom who-Dat Mary-Nom come Q taught
    ‘John told who Q Mary is coming.’

Since the embedded C⁰ is the only [+wh] Comp in (62), the wh-phrase has to move from the matrix clause to the embedded CP Spec. The resultant schematic LF structure is the following.

(63)  \[IP \ldots t_i \ldots [CP [IP \ldots ] C⁰ wh-phrase,] V+Infl\]

Saito’s explanation for the severe ungrammaticality of (62) is that it violates the Proper Binding Condition, but here we can simply assume that the structure (63) violates the ban against vacuous quantification, which applies at LF. The subsequent discussion is cast in terms of the ban against vacuous quantification, by translating Saito’s (1989b) original discussion.

(64)  Ban against Vacuous Quantification
    An operator must bind a variable.

In (63), the wh-phrase is not binding its trace, violating (64). Chomsky (1989) argues that (64) is ultimately derived from the principle of Full Interpretation.

Going back to (61) with its schematic S-structure (65), we find that the marginality there is very weak, compared with the strong violation in (62).

(65)  \[IP \ldots w_i \ldots [CP \ldots t_i \ldots Q] V+Infl\]

A more striking example is the following.

(66)  ??[John-ga dono hon-o toshokan-kara karidasita John-Nom which book-Acc library-from checked-out
tol_j Mary-ga [minna-ga t_i omotteiru ka] siritagatteiru. Comp Mary-Nom all-Nom think Q know-want
    ‘Mary wants to know which book everybody thinks that John
    checked out from the library.’
Saito (1989b) notes that though (66) is still a little worse than (61), it is far better than (62). Here the S-structure configuration is the following.

\[(67) \quad [iP \ldots wh\text{-}phrase, \ldots ] [iP \ldots [CP \ldots \ell \ldots Q] V + \text{Infl}]\]

Although in the case of (61) we can assume that the scrambled wh-phrase moves to the target CP Spec without leaving a trace, that is impossible for (66), since the presence of a trace is required. If the trace is left, the LF representation will be like (68).

\[(68) \quad [tp \ldots \ell \ldots ] [tp \ldots [CP [\ell \ldots ] Q \text{wh\text{-}phrase}] V + \text{Infl}]\]

The wh-phrase in CP Spec is not binding its original trace, violating the ban against vacuous quantification. Since (66) is still far better than the case of the ordinary Proper Binding violation such as (62), (68) should not be the LF representation for (66). Saito's (1989b) solution is that scrambling can be 'undone' at LF. That is, the scrambled phrase can be placed back into its original position. Thus, instead of (68), (66) has the schematic LF representation (69), which is derived by moving the scrambled CP to its original position.

\[(69) \quad [iP \ldots [CP [\ell \ldots \ell \ldots ] Q \text{wh\text{-}phrase}] V + \text{Infl}]\]

(69) is well-formed with respect to the ban against vacuous quantification.

The remaining question is why (61) and (66) are not perfect. Saito (1989b) suggests in a footnote two possibilities which are not incompatible with each other. One possible factor is Subjacency, and another is some kind of weak S-structure requirement that a wh-phrase be within the c-command domain of the target Comp. Notice that in the CP system, the first factor is a tenable explanation only if the Spec of CP is filled. If it is not filled, then scrambling can pass through the empty CP Spec in the same way as in the case of extraction from a declarative clause. The fact that the marginality of (61) and (66) remains even if the wh-phrase is replaced by a non-wh phrase, say sono hon 'that book', is irrelevant, since the embedded clause is a yes-no question, which can be analyzed as hosting an empty operator in Spec of CP, in the manner suggested by Larson (1985) and Kayne (1991). Then, they would count as ordinary cases of wh-island violation. In the original examples (61) and (66), however, no such analysis is possible. Recall that the peculiarity of the construction that we have been considering is that a wh-phrase is outside of its scope domain at S-structure. Therefore, the only way for the target CP Spec to be filled at S-structure is by moving the operator part of the wh-phrase to be scrambled into Spec of the embedded [+wh] CP before scrambling takes place. Otherwise, the Subjacency account of the margi-
nality of (61) and (66) does not go through. Note that the point is very acute, since the scrambled phrase will be placed back into the embedded clause at LF, as we have seen.

On the other hand, the second factor, though reasonable, is still obscure. It basically restates the problem. For this reason, we conclude that what makes (61) and (66) marginal is Subjacency. And this in turn supports the hypothesis (47I) that an apparent wh-in-situ in Japanese interrogatives in fact involves invisible S-structure movement.

To summarize, we have seen in this section that interrogative clauses block S-structure extraction. Therefore, the S-structure movement hypothesis for Japanese interrogatives is supported. Notice that this conclusion is independent of whether the wh-island effect is due to Subjacency as in the standard treatment or is derived from something else as in Frampton (1990), as long as it is caused by the fact that something occupies the Spec of CP at S-structure. At this moment, it is not obvious why the ordinary scrambling that we saw in section 2.2 does not display clear wh-island effects. But the overall strength of the evidence from the other constructions warrants our conclusion.

3. CONCLUSION

To sum up the discussion in this paper, we have argued that Japanese interrogatives (and also head-internal relatives modulo the non-wh nature of the IP-internal element) have the following schematic representation at S-structure, where coindexation is added for convenience.

\[
\text{(70)} \quad [\text{CP} [\text{IP} \ldots \text{wh-phrase}, \ldots ] [\text{Spec} \text{ka}] \text{Op}]
\]

Since a wh-question clause forms an island for S-structure movement, something invisible is occupying the CP Spec at S-structure, and Op in (70) is intended to represent this element. The relation between this element and the wh-phrase inside IP obeys Subjacency. By examining multiple wh-questions, we have seen that only one wh-phrase has to be associated with the element in CP Spec at S-structure. A similar analysis should also apply to head-internal relatives, which display Subjacency effects.

Given these facts, we are led to conclude that the IP-internal wh-phrase and Op in Spec of CP are related by movement, even without going into technical details of how this movement takes place.

Our discussion has neutralized the evidence from wh-questions and head-internal relatives in Japanese for LF Subjacency discussed in section 1. The Subjacency effects observed with these constructions can be
attributed to the S-structure movement argued for in section 2. The same solution is expected to be applicable to the scope properties of negative phrases and only phrases in Italian discussed by Longobardi (1991). Unless there is other evidence for LF Subjacency, the null hypothesis is that Subjacency constrains only the mapping from D-structure to S-structure. Let me note, however, that the hypothesis (47II), which characterize Subjacency as a condition on the operation that satisfies the agreement property of [+wh] C^0 heads becomes tenable once it turns out that S-structure movement always takes place for Japanese interrogatives, as pointed out by N. Chomsky (personal communication).

Note further that consideration about restrictiveness of UG also supports our conclusion. The S-structure movement hypothesis for Japanese interrogatives implies that [+wh] agreement at Spec of CP is universally satisfied at S-structure. The correlation of wh-in-situ and the existence of head-internal relatives adds further credibility to this universal property. Then, parametric variation in syntax is reduced in this respect, making acquisition easier. In other words, the S-structure movement hypothesis is desirable from the viewpoint of language acquisition as well. It remains to work out the mechanism of the S-structure movement, so that the Subjacency and the ECP facts in section 1 will come out correctly. This task is pursued in Watanabe (1991, in preparation).

NOTES

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1 L. Cheng (personal communication) questions Huang's claim that matrix questions out of wh-islands are possible. We will discuss Japanese counterparts below.

2 Fiengo et al. (1988) argue rather convincingly that the pied-piping hypothesis is not an adequate solution to the lack of LF Subjacency effects in languages like English. (See also Aoun (1985).) Here I will not repeat their arguments but just note that the lack of large-scale pied-piping in English does not necessarily lead one to conclude that it is not available in languages like Japanese. It is possible that languages like English do not allow that option while languages like Japanese do allow it. Of course the question remains why this is so, but if that is the right way of formulating the problem, we have to address it.

3 Pesetsky's main point concerns the d-linked vs. non-d-linked distinction. To simplify our
account, this point is ignored here, which does not mean that it is irrelevant in the present context.

There is a question why non-wh-phrases can be the head of head-internal relatives in these languages if the parallelism with free relatives is to be maintained.

Itô (1986) claims on the basis of (i) that the head-internal relatives do not obey Subjacency.

\[(\text{NP}[\text{CP}[\text{NP} \text{kodomo} \text{ga}\ v\ \text{kawaigatteita}\ \text{inu}]-\text{ga sinedesimatta}-\text{no}\]-\text{o nagusameta}.]
\]

consoled.

'I consoled the child who the dog that (he) was fond of died.'

As N. Kawasaki cited in Ishii (1988) suggests, this sentence can be analyzed as having kodomo outside of the inner relative clause, as in (ii).

\[(\text{NP}[\text{CP} \text{kodomo} \text{ga}\ \text{NP}[\text{CP} \text{pro} v\ \text{kawaigatteita}\ \text{inu}]-\text{ga sinedesimatta}-\text{no}\]-\text{o nagusameta}.]
\]

This analysis is possible because Japanese allows the 'multiple subject' construction where more than one Nominative Case is allowed per clause, as in (iii), which is taken from Kuno (1973).

\[(\text{NP}[\text{CP} \text{kodomo} \text{ga}\ \text{NP}[\text{CP} \text{pro} v\ \text{kawaigatteita}\ \text{inu}]-\text{ga sinedesimatta}-\text{no}\]-\text{o nagusameta}.]
\]

\text{civilized countries-Nom male-Nom average-life-span-Nom short}

'The average life-span of males of civilized countries is short.'

Thus, (i) cannot be the evidence that the head-internal relatives do not obey Subjacency.

Here we are ignoring the question of intermediate traces, which is orthogonal to our concerns.

In fact, the PCC cannot fully cover the superiority effect thus stated. This matter is pursued in Watanabe (1991, in preparation).

Here we are ignoring the problem posed by the reconstruction of scrambling discussed by Saito (1989b). To avoid this problem, Saito claims that the linear PCC applies at S-structure, taking into account paths consisting of a wh-phrase in-situ and the target Comp. This is why the trace of scrambling does not count for path formation. For critical discussion of Saito's account, see Watanable (1991, in preparation).

An anonymous reviewer does not find the contrast between (15a) and (36a) significant, and there are also other speakers who report that examples like (36a) are as acceptable as (15a) for them. If this is the real fact, it poses problems, since the level of movement relevant to the Comp indexing and the one pertinent to Subjacency are not the same, which makes Japanese different from English in drastic ways.

The same reviewer instead suggests the relevance of stressing. (S)he observes that in order for the multiple questions to be properly construed, both wh-phrases must be destressed, but (s)he tends to stress the matrix wh-phrase in (36a), making it sound worse than (15a); (s)he observes that when stress is properly controlled, both (15a) and (36a) are quite tolerable.

I take the natural stress pattern to reflect the levels of movement imposed by the grammar. It is also instructive to note that the same kind of (de)stressing is felt in cases where an argument wh-phrase and an adjunct wh-phrase interact, as in (19).
The relevance of the *ittai* test for detecting the levels of movement is not clear. Pesetsky (1987) cites the following observation by Kitagawa (1984).

(i) a. *[Itta dare-ga] nani-o takamaeta no. the-hell who-Nom what-Acc caught Q

`Who the hell caught what?`

b. ??Dare-ga [ittai nani-o] tukamaeta no.

`who-Nom the-hell what-Acc caught Q`

They argue that the contrast in (i) suggests the superiority effect. If our discussion in the text is correct, the contrast in (i) should come from something else. Strictly speaking, the net value of the contrast in (i) is only that there is some asymmetry with respect to the position of *ittai*.

One might wonder if the anti-superiority paradigm with islands could be constructed with the help of *ittai*. The facts are not clear, unfortunately. This is probably due to the restriction which requires *ittai* to c-command every *wh*-phrase, as suggested by Hiroaki Tada (personal communication).

I owe the discussion on this point to N. Chomsky and D. Pesetsky (personal communication).

We might recall as well the proposal of NP structure by Riemsdijk and Williams (1981). S'-structure here would correspond to their S-structure.

Kikuchi places *Op* to the left. We will not be committed to the position of Spec of CP in Japanese. Also the examples used in the text are slightly altered from Kikuchi’s original ones.

We have to rule out the possibility that the gap in the adjunct clause is an empty pronoun. Kikuchi notes that parasitic gaps in question are sensitive to Subjacency, just as parasitic gaps in English. The following example, where a parasitic gap is embedded inside a relative clause within an adjunct, illustrates this point.

(i) ?*[Kimi-ga [Adjunct pro [NP e, e, yomi-oeta] otoko|-ni atta ato-de] e, yonda yori] ooku-no hon-o John-wa yonde-ita.

`you-Nom read-finished man-Dat met after-Loc
read than many-Gen book-Acc John-Top read-Asp
`John read more books than you read after you met a man who read.'

Ishii (1991) reanalyzes Comparative Deletion as movement of a floating quantifier, on the strength of the parallelisms between quantifier floating and Comparative Deletion. As he argues, this analysis predicts that Comparative Deletion will not license parasitic gaps, which are possible only when the real gap is an argument NP. He therefore claims that apparent cases of parasitic gaps in fact involve empty pronouns and that the configuration exemplified by (i) is well-formed, citing (ii). (The gloss and the other irrelevant structural information are slightly modified, but the string is the same.)


`Bill bought more books in America than John bought in Paris after he met the person who wrote in London.' (p. 191)
If it turns out that Comparative Deletion does not license parasitic gaps, we will lose evidence that Comparative Deletion involves S-structure movement.

Although (ii) sounds more or less good on the first reading, I am not sure whether it really has the meaning of comparison. The comparative clause sounds as if it were describing a specific entity. Thus, it is not clear whether Ishii’s analysis is supported in this regard.

As far as the parallelisms with floating quantifiers are concerned, it seems profitable to make use of Heim’s (1987) idea that the NP gaps of Comparative Deletion created by movement are interpreted as indefinite NPs of the form \( x(-\text{many}/-\text{much}) N' \).

18 He also discusses extraction of Genitive phrases, but I omit it here because it is less conclusive than the others.

19 One might still wonder why Subjacency violation in the case of Comparative Deletion is worse than in the standard cases of movement. My suggestion is that referentiality is involved. Cinque (1990) observes that nonreferential items resist extraction out of islands more strongly than referential items, whether extraction takes place overtly or at LF. Although we cannot accept Cinque’s theory about this contrast for the reasons that Ishii (1990) presents based precisely on ‘half’-relatives and Comparative Deletion (recall the contrast in (54) and (55)), we can make use of Cinque’s observation to say that the null operator involved in Comparative Deletion is nonreferential as suggested by Ishii (1990) and hence induces a more severe violation, perhaps for semantic reasons.

Then what about the mild violation in the case of wh-questions? We are led to claim that a wh-in-situ moves at LF so that it can form a chain headed by a referential wh-phrase, even though S-structure movement involves only part of a wh-phrase. See Watanabe (1991, in preparation) for technical details.

20 The discussion of Reinhart’s (1991) arguments for LF Subjacency from English elliptical expressions has to be relegated to future research.

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