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On the *wh*-Island Condition

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This article critically discusses the view, which has been accepted widely in the literature, that the effects of the *wh*-island condition are freely violable at LF. For this purpose, we examine the famous example from Baker's (1970) seminal work which has been used to support this view. In the course of the discussion, we present the following generalization:

1. The interrogative clause containing the scope-taking element (*wh*-phrase or a quantifier) must be governed by a *know*-type verb.
2. The scope-taking element in the complement clause must be able to serve as the generator of the pair-list interpretation holding *within the complement clause.*

The claim is that there is no direct movement of a scope-taking element to a position interacting scopally with a matrix *wh*-phrase, based on the facts from relevant constructions in English and Japanese.

1.   Introduction

The fact that the following example, first brought to the attention of theoretical linguists by Baker (1970), allows scope ambiguity with respect to the *wh*-in-situ in the complement interrogative clause has motivated what may have by now been established as the 'assumption' that the construal of *wh*-in-situ is not subject to the *wh*-Island Condition effect.

(1) Who remembers where John bought *what*?

On one interpretation, the *wh*-in-situ *what* has the same scope as *where*. This interpretation can be elucidated by means of the following answer.

(1) A. Mary does. Or
       Mary remembers where he bought what.

The other interpretation, which is of our immediate concern in the present article, is that on which the *wh*-in-situ has the matrix scope and is paired with the *wh*-phrase in the main clause.

(1) B. Mary remembers where he bought this, and Jane remembers where he bought that.

Cast in the theoretical framework where the scope behavior of *wh*-in-situ is administered by covert *wh*-movement which takes place in the derivation of LF, this fact has been taken to indicate that covert movement of *wh*, at least in English, is free from the *wh*-Island Condition effects.

In this article, we discuss the various factors which we would show are at work behind the scope ambiguity of (1). More specifically, what we are going to show is the following.

> The *wh*-in-situ in a *wh*-island can be seen to take wide scope just in case both of the following obtain:
>
> - The possible *answers* to the meaning of the complement interrogative clause can covary with the value assigned to the *wh*-phrase in the matrix clause, and:
> - The possible value assigned to the *wh*-in-situ can covary with the value assigned to the *wh*-phrase in the matrix clause.

As we will see later on, the first of these requirements is the prerequisite for the second. Since this is essentially a descriptive statement of what is going on in relevant phenomena, I will not attempt to make it more general by deriving one statement from the other.

The first of these requirements is related with the distinction of verbs taking interrogative complements in terms of their (mainly) semantic behavior. This will be the focus of section 3.. The second requirement is more intricate in nature, and comprises a number of factors. In the present article, we will discuss two of those: One is the functional interpretation of *wh*-phrases, in the sense of Chierchia (1991, 1992–3), Hornstein (1995), etc., and the other is the scopal interaction within the complement clause.

2.   Japanese

Before moving on, let us consider whether the phenomenon illustrated by (1) applies in Japanese. Dayal (1996) considers the following Japanese example, which is parallel to (1) in English.

(2) Dare-ga   [Mary-ga nani-o   doko-de kat-ta ka] sitte imasu ka?
    who-Nom   -Nom what-Acc where-at bought Q   know be-Hon Q
    'Who knows where Mary bought what?'

Dayal's observation is that the Japanese speakers that she had consulted had no problem in accepting a pair-list answer to (2), analogous to (1B). (p.93, fn.3.) While I agree to the judgment reported by Dayal, it is necessary to acknowledge that, for many speakers, a list interpretation appears to require two *wh*'s, *dare* 'who' and *nani* 'what', to be pronounced with stress.

There is one aspect of the matter, not noted by Dayal (1996), that critically distinguishes the *wh*-construction in Japanese from the English counterpart. In English, the *wh*-phrase that has been moved overtly to the initial position of the embedded clause, *where* in the case of (1), is incapable of taking the matrix scope, so that the value filling in *where* cannot be paired with the value filling in the matrix subject *wh*.[1] Therefore, the following list answer is impossible.

(1) C. Mary remembers what he bought at Macy's, and Jane remembers what
       he bought at Bloomingdale's.

The point about Japanese (2) is that it allows the list-interpretation which is elucidated by this answer, if (i) it is read with *dare* 'who' and *doko-de* 'where' stressed to emphasize the pairing, and (ii) the order of the *wh*-phrases is switched, as in the following.

(3) Dare-ga   [Mary-ga doko-de nani-o   kat-ta ka] sitte imasu ka?
    who-Nom   -Nom where-at what-Acc bought Q   know be-Hon Q
    'Who knows where Mary bought what?'

Such an interpretation is marginal, but it is to the same extent that a list interpretation analogous to (1B) is marginal.

This point is related to the 'Superiority' effect observed in English, which basically limits the overt movement to a 'higher' or c-commanding *wh* when there are multiple occurrences of *wh* within a single clause.[2] This underlies the ungrammaticality of the following.

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[1]This matter is discussed extensively by Lasnik and Saito (1984, 1992).

[2]Chomsky (1973) first discussed the Superiority Condition. See Hornstein (1995) and Comorovski (1996) for recent approaches to this issue.

(4) *Who remembers [what John bought where]?

What, which originates as the direct object of the V, is selected here as an element to be moved overtly to the initial position of the embedded clause, over and above *where*, which is underlyingly outside VP and hence 'higher' than *what*.

The fact that (1C) is available, even marginally, as an answer to (2) can be traced to the absence of the Superiority effect in Japanese. The Superiority effect is quite likely a defining characteristic of languages with overt *wh* movement and has no force in *wh*-in-situ languages like Japanese.[3]

3.   Quantificational Variability and Complement Types

We remarked above that the scope ambiguity of (1) relies on a number of factors. This section will be devoted to one of them.

This discussion is indirectly (but not so remotely) related with the quantificational nature of *wh*-phrases. It has been recognized, since Kuroda (1965) and in the traditional studies in Japanese grammar, that the *wh*-phrase in Japanese shows quantificational variability — it can be used as having various quantificational meanings other than as an interrogative pronominal.

This idea has been revived by Nishigauchi (1990), Berman (1991), Lahiri (1991), Li (1992), among others, leading to new insights to the nature of *wh*-phrases and constructions.

Berman (1991), Lahiri (1991) among others, discuss the issues involving embedded questions as complement to V's such as *know, remember* etc., which are mostly what have been traditionally labeled 'factive' verbs. Chierchia (1992–3) characterizes these verbs by saying that they semantically define the relation between the subject and the *answer* to the embedded question: The meaning of *John knows who failed* may be identified as the relation between the individual *John* and the possible answers to the question *Who failed?* This is in opposition to constructions involving verbs like *wonder*, which define the relation with the question itself. In the present discussion, we refer to the distinction between the so-called *know*-type Vs and *wonder*-type Vs the QV (quantificational variability) distinction.

What has been observed in connection with quantification relevant to the present context is that the felicitous utterance of sentences like *John remembers who came to the party* is normally taken as meaning that John remembers *all* the people who came to the party. Use of an adverb of quantification modifying

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[3]See Lasnik and Saito (1984), among others, for the relevance of this constraint to a variety of languages.

the main V affects the quantificational force of the *wh* phrase, so that *John mostly remembers who came to the party* means John remembers most of the participants.

3.1 The QV distinction in Japanese

The following Japanese example exhibits the property discussed in the previous section.

(5) John-wa [dare-ga   paatii-ni kuru ka] (daitai) sit-te iru.
      -Top who-Nom party-to come Q   mostly know is
   'John (mostly) knows who will come to the party.'

Without the Q-adverb *daitai* 'mostly', this sentence means John knows every participant of the party, while with the adverb, it means John knows most of them.

In Japanese, *wonder*-type V's show a peculiar property with respect to the form of the complementizer. *Wonder*-type V's, but not *know*-type V's, allow their interrogative complements to be headed by *ka-to*, viz. the interrogative C followed by another C which has hitherto been assumed to correspond to *that* in English.

(6) [Dare-ga   kuru   ka-to] omot-ta / tazune-ta / utagat-ta / ibukat-ta /
    who-Nom come   wondered asked   doubted   wondered

   *sit-ta /   *osie-ta /   *oboe-te-iru, etc.
   knew   told   remembers

One of the V's, *omow*, is peculiar in that it requires the complement to be headed by *ka-to* in order to behave as an interrogative-taking V. Otherwise, it selects a non-interrogative complement headed by *to* 'that', and behaves in ways parallel with *think* or *believe*. Other *wonder*-type V's allow their complements to be headed by either *ka* or *ka-to*.

In Spanish, it has been observed that the complementizer *que* 'that' may sometimes precede a *wh*-phrase just in case the governing V involved is a *wonder*-type V, and that this is not possible with *know*-type V's. Consider the following examples from Rivero (1980).

(7) a. Te preguntan que para qué quieres   el préstamo.
     you ask(3p)   that for   what want(2s) the loan
     'They ask you what you want the loan for.'

   b. El detective sabe   (*que) quién la   mató.
     the detective know(3s) that   who her killed(3s)
     'The detective knows who killed her.'

It has also been noted that, in Spanish, direct questions can be embedded under *wonder*-type V's while this is impossible with *know*-type V's. This property can also be observed in parallel fashion in Japanese *ka-to*. For discussion along this thread in Spanish, see Lahiri (1991) and references cited there.

3.2   The QV distinction and the *wh*-Island

Now, this distinction poses a new research topic in the context of the *wh*-Island effect of Subjacency: Complements to *wonder*-type V's show much stronger resistance to covert *wh*-movement out of them.

In English, the *wh*-island effect turns out to be stringent with the choice of *wonder*-type V in (1), which allowed the *wh*-in-situ within the *wh*-Island to take matrix scope.

  (8) Who wonders where John bought *what*?

Unlike (1), this sentence does not have the interpretation elucidated by (1B). The same point is observed in the following, which differs from (2) in terms of the matrix V and the complementizer form.

  (9) Dare-ga   [Mary-ga doko-de   nani-o   kat-ta   ka-to]
       who-Nom   -Nom where-at what-Acc bought   Q
       omotte imasu   ka?
       wonder be-Hon Q
       'Who wonders where Mary bought what?'

Thus, there is a significant generalization: The *wh*-Island effect is stringent with *wonder*-type V's, and this effect is alleviated only in the complement to *know*-type V's. Then, where does this difference come from?

In the first place, the fact that the LF-movement of *wh* out of a *wh*-island that is a complement to *wonder*-type V is impossible suggests that Subjacency effects at LF exist, contrary to the view popular in the current literature. On this assumption, burden of explanation lies rather with the behavior of *know*-type V's: Why do *know*-type Vs allow a *wh*-in-situ to take scope across the *wh*-island?

One aspect of the matter that suggests itself is the defining property of the *know*-type V: It denotes the relation between an individual and an answer to the question. This makes it possible to have the *answer* to the interrogative complement covary with the value of the *wh*-phrase in the matrix clause. This leads to the satisfaction of one of the two requirements that we suggested at the outset of the present article on the *wh*-in-situ to take the matrix scope in apparent violations of the *wh*-Island Condition.

4.   A QR Solution

Dayal's (1996) approach is one way to realize what we have observed so far. Dayal argues that the apparent violation of the *wh*-island condition at LF should be related with the QV phenomenon with *know*-type V's which in turn should be accounted for in such a way that the complement CP to this type of V is subject to QR (Quantifier Raising) at LF, along the lines of Berman (1991) and Lahiri (1991). Unlike Berman and Lahiri, Dayal claims that only multiple *wh* complement, which can semantically be considered a set of questions, can trigger QR.[4]

(10)   a. Who remembers where John bought what? $\Rightarrow$

      b. [$_{CP}$ where John bought what]$_i$ who remembers t_i

The *wh*-in-situ *what* can be further moved and adjoined to CP:

(10)   c. [$_{CP}$ *what*$_j$ [$_{CP}$ where John bought t_j]]$_i$ who remembers t_i

In this position, Dayal claims that *what* can have scope interaction with the *wh* of the matrix clause. In Dayal's analysis, it is this scope interaction with a matrix *wh*, effected by QR, that enables a *wh*-in-situ in a *wh*-island to take matrix scope, in apparent violation of the *wh*-island effect.

5.   Scope Ambiguity in Japanese

Earlier, we observed that a Japanese sentence that corresponds to (1) allows two interpretations exhibiting a *wh*-island violation, one of which is missing from (1) in English. That is to say, we observed that (2), repeated here, allows two interpretations of relevance:

(2) Dare-ga   [Mary-ga nani-o   doko-de kat-ta ka] sitte imasu ka?
    who-Nom   -Nom what-Acc where-at bought Q   know be-Hon Q
    'Who knows where Mary bought what?'

We repeat the relevant interpretations below:

(1) B. Mary remembers where he bought this, and Jane remembers where he
       bought that.

   C. Mary remembers what he bought at Macy's, and Jane remembers what
      he bought at Bloomingdale's.

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[4]This is based on the fact that multiple *wh* questions such as *Who bought what?* can be answered by a set of propositions: *John bought this, Bill bought that,* etc. We will turn to this issue in the next section.

Of these, the second interpretation (1C) was missing from the original "Baker sentence", which is the English translation of (2). It was also observed above that this second reading was more easily obtained when the order of the *wh*-phrases in the complement clause is changed, as in:

(3) Dare-ga   [Mary-ga doko-de nani-o   kat-ta ka] sitte imasu ka?
    who-Nom   -Nom where-at what-Acc bought Q   know be-Hon Q

In what follows, we are going to present a hypothesis which focuses on the heterogeneous functions of the *wh*-phrases in the complement clause:

(11) 1. One *wh*-phrase is there to determine the nature of the complement clause as an interrogative clause.

   2. The other *wh*-phrase is capable of taking wide scope and functions as the 'generator' for the functional relation between the two *wh*-phrases in the complement clause.

Let us discuss the net effects of these with the help of the following tree diagram.

(12)
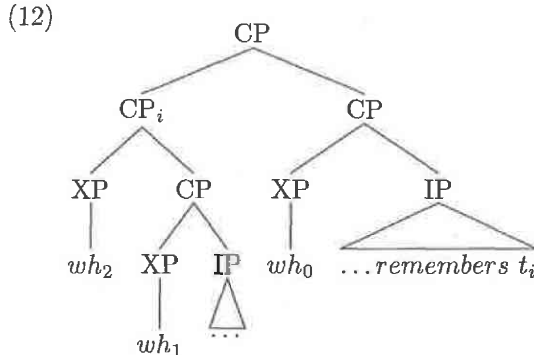
The net effect of the first of (11) is that one *wh*-phrase in the complement clause, wh_1 occupies [Spec, CP] of the complement clause and, if the governing V is a *know*-type V, triggers QR of the entire complement clause, in keeping with Dayal's QR analysis. CP_i is moved from the complement position of the main clause, and, with Dayal, we hypothesize that it is adjoined to CP (though the same result would obtain if this instance of QR adjoins the complement CP to the matrix IP, given the segment theory of May (1985).)

The net effect of the second of (11) is that the other *wh*-phrase, wh_2, gets adjoined to the complement CP. In this position, wh_2 is capable of being in a mutual c-command relation with the *wh*-phrase of the matrix clause, viz.

wh$_0$ of [Spec, CP]. This we take is what lies behind the pair-list interpretation
that holds between the matrix *wh*-phrase and a *wh*-in-situ in the *wh*-island, in
apparent violation of the *wh*-island condition.

This point is directly related with the factual observation that we made
about (2) and (3): We observed that it was easier to get the wide scope inter-
pretation for *what* in the former, while the wide scope interpretation for *where*
was more readily available in the latter. And this stems from the fact that
the *wh*-phrase in question precedes (and presumably c-commands) the other
wh-phrase in the respective sentences.

This point in turn is related with the interaction of the relative order of
relevant constituents and scope interpretation in multiple *wh*-constructions in
Japanese. As the following examples indicate, the *wh*-phrase in a position c-
commanding the other *wh*-phrase behaves more easily as the *generator* for the
other *wh*-phrase which serves as a functional element. (Cf. Chierchia (1991,
1992–3), Hornstein (1995), Nishigauchi (1998a,b), etc.)

(13) a. Dare-ga   nani-o   motte kuru no?
        who-Nom what-Acc bring come Q
        'Who will bring what?'

     b. Nani-o   dare-ga   motte kuru no?
        what-Acc who-Nom bring come Q

Question (13a) unequivocally expects an answer in which with respect to each
of the individuals relevant to the discourse, it is specified what that person will
bring. While question (13b) allows the just-mentioned interpretation, it also
has an interpretation which expects an answer in which given a set of things
which have been discussed in the discourse, it is specified who will bring each
of them. Both of these interpretations can be fulfilled by the following answer:

(14) John will bring rice, Bill will bring fish, etc.

yet, the object in each pair will receive stress in the first interpretation, while
in the second interpretation the subject will be pronounced with stress.

This is correlated with the interpretations of the following sentences, in
which the *wh*-interrogative clauses of (13) are embedded.

(15) a. Dare-ga   [dare-ga   nani-o   motte kuru ka] sitte iru no?
        who-Nom [who-Nom what-Acc bring come Q   know be Q
        'Who knows who will bring what?'

  b. Dare-ga   [nani-o   dare-ga   motte kuru ka] sitte iru no?
     who-Nom what-Acc who-Nom bring come Q   know be Q

Question (15a) can be answered by the following:

(16) Mary knows what John will bring, Susan knows what Bill will bring , etc.

Here, the *wh*-phrase in the matrix subject and the *wh*-phrase in the complement subject position, which we just showed is capable of taking wide scope and serving as the generator in the complement clause, can be interpreted pair-wise.

Question (15b) is ambiguous, allowing the following type of answer as well as (16).

(17) Mary knows who will bring rice, Susan knows who will bring fish, etc.

In this answer, the matrix subject *wh*-phrase is paired with the complement object *wh*-phrase which has been fronted to the left of the complement subject, which we take as enabling the object *wh*-phrase to take wide scope in the complement clause.

If this judgment is correct, it shows that there is a significant correlation between the scope within a local domain and the capability of a *wh*-phrase in the complement clause to (apparently) take the matrix scope.

What is of relevance to (2) and (3) is that it is the *wh*-phrase which has a chance to take *wide scope in the complement interrogative clause* that is capable of being in interaction with the *wh*-phrase in the matrix clause in apparent violations of the *wh*-island condition.

Is there any evidence that it is the *wh*-phrase taking wide scope *in the embedded clause* that interacts with the *wh*-phrase in the matrix clause? If the *wh*-phrase in the complement clause were to be able to take the entire clause in its scope, the result would be the same as saying that the *wh*-phrase takes matrix scope, which in turn comes to being the same as saying that the *wh*-phrase in Japanese is capable of violating the *wh*-island condition, which we have been trying to argue against. One such case suggesting the relevance of taking wide scope in the embedded clause comes from the behavior of non-*wh*-quantifiers. We will look at this point in the next section.

6.   Quantifiers

It has been pointed out, by Kuno and Robinson (1972) for example, that it is not only a *wh*-in-situ that can interact with a *wh*-phrase in the matrix clause in apparent violations of the *wh*-island condition. Such cases are seen in the following example.

(18) Who remembers where Mary bought *these books*?

This sentence allows an answer similar to (1B), in which the plural expression in the complement clause behaves like a *wh*-in-situ.

Essentially the same point can be seen from the contrast in the following examples.

(19) a. Who remembers who *every boy in the class* went out with?

b. Who remembers who went out with *every boy in the class*?

It is possible to answer (19a) by the following:

(20) Mary remembers who John went out with, Susan remembers who Bill went out with, etc.

In contrast, (19b) does not allow this interpretation, and it can only be answered by supplying a value to the matrix *wh*-phrase.

This fact we take as suggesting the correlation between the wide scope of a quantifier in the complement clause and its capability to interact pair-wise with a matrix *wh*-phrase. Consider the following examples, which correspond to the complement clauses in (19).

(21) a. Who did *every boy in the class* go out with?

b. Who went out with *every boy in the class*?

Question (21a) allows a pair-list answer, such as (22a), while (21b) can only be answered by mentioning an individual, as in (22b). (Fore related discussion, cf. May (1985).)

(22) a. John went out with Mary, Harry went out with Sally, etc.

b. Mary.

The contrast between the following examples in Japanese points to the same direction.

(23) a. Dare-ga   [kurasu-no daremo-ga   dare-to   deeto-si-ta ka]
          who-Nom class -of   everyone-Nom who-with   dated   Q
          sitte-ru   no?
          know-be Q
          'Who knows who everyone in the class went out with?'

     b. Dare-ga   [dare-ga   kurasu-no daremo-to   deeto-si-ta ka]
       who-Nom who-Nom class -of   everyone-with dated   Q
       sitte-ru   no?
       know-be Q
       'Who knows who went out with everyone in the class?'

Question (23a) allows answer (20), in which the quantifier in the complement
subject position is paired with the *wh*-phrase in the matrix clause, while this
interpretation is unavailable in (23b).

    The observation made in this section so far constitutes a strong piece of
evidence for the claim that it is only by virtue of taking wide scope *in the
complement clause* that a scope-taking element in the complement clause can
interact scopally with a *wh*-phrase in the matrix clause in apparent violation of
the *wh*-island condition, and that it is mistaken to suppose that a *wh*-phrase is
capable of moving directly to a matrix CP position at LF, as has been standardly
assumed in the literature.

    This point is supported by the fact that a quantifier such as *every* . . . , not
just *wh*-phrases, is capable of interacting with a matrix *wh*-phrase across a *wh*-
island, for the scope of quantifiers is generally supposed to be clause-bounded:

(24) a. Someone said *every boy in the class* went out with Mary.

      b. Who said *every boy in the class* went out with Mary?

In the examples of (24), it is impossible to interpret *every boy in the class* as
having scope over a scope-taking element in the matrix clause, attesting to the
clause-boundedness of the scope of the universal quantifier.

7.   Some Refinement

Thus far, we have observed at a descriptive level that apparent violations of the
wh-island condition at LF require at least the following ingredients.

(25) 1. The interrogative clause containing the scope-taking element (*wh*-
        phrase or a quantifier) must be governed by a *know*-type verb.

      2. The scope-taking element in the complement clause must take wide
        scope *within the complement clause.*

The first of these ingredients is related with Dayal's (1996) claim that an inter-
rogative clause governed by a *know*-type verb can be QR-ed to be adjoined to
the matrix clause. The second of these presupposes that there should be at least

one element in the complement clause which makes the clause licensed as an interrogative clause ('clause-typing' in the sense of Cheng (1997)) and asserts that the other scope-taking element must take scope over that element.

The statement of the second part of the observation (25) calls for some refinement: Although scope relations are essentially involved in the set of facts related to the present consideration, reference to them is not sufficient to complete the entire landscape. To see this, consider the following example.

(26) Who remembers who *most boys in the class* invited to the party?

This sentence does not allow an answer analogous to (20), where the subject *wh*-phrase is paired with each of the boys. Yet, it is possible to interpret the complement clause in such a way that the quantifier in the subject takes scope over the *wh*-phrase in the initial position in the clause.

(27) Who did *most boys in the class* invite to the party?

While this sentence does allow *most boys* to be interpreted as having wide scope, it is important to note that this sentence does not allow a pair-list answer, such as:

(28) John invited Mary, Harry invited Sally, etc.

One possible way to answer (27) while maintaining the wide scope of *most boys* is to provide a *functional answer* such as: *Their favorite math teachers.* One must recall in this connection that a pair-list answer to a question with a *wh*-phrase and a quantifier interacting scopally is a special case of functional answers, and that a pair-list answer is possible only when the generator, viz. the wide-scope quantifier, has universal force (cf. Chierchia (1991, 1992–3), Hornstein (1995), Comorovski (1996), etc.).

Thus, our statement of the factual observations concerning the capability of a scope-taking element to show an apparent violation of the *wh*-island condition must be restated as follows:

(29) 1. The interrogative clause containing the scope-taking element (*wh*-phrase or a quantifier) must be governed by a *know*-type verb.

    2. The scope-taking element in the complement clause must be able to serve as the generator of the pair-list interpretation holding *within the complement clause.*

Now let us take another look at the example from Kuno and Robinson (1972), which we repeat below.

(30) Who remembers where Mary bought *these books*?

This sentence is different from the examples considered in this and the preceding section in that it does not apparently involve universal quantification. And yet this example attests to the same point that we have been trying to make. Firstly, the complement clause of this sentence allows a functional interpretation and also a pair-list interpretation.

(31) Where did Mary buy these books?

It is possible to answer this question by providing a list of pairs consisting of a book and a place where the book was bought.

(32) She bought this (*War and Peace*) at Crown's, this (*Sophie's World*) at Walden's, etc.

In (31), the generator for the functional relation is *these books*, a definite expression, so that here the functional relation involving it is not subject to the Ban on Weak Crossover (Chierchia (1991, 1992–3), Hornstein (1995)), which only restricts cases involving indefinites and quantifiers (and their trace). Thus, the expression *these books* can still serve as the generator even though it does not c-command the *wh*-phrase (or its trace) in (31).

Furthermore, examples (30) and (31) still involve universal quantification in that for them to have the interpretation that we intend, it is necessary to interpret *these books* exhaustively. These sentences do not make sense if answers are given to the relevant question with respect to only some of these books or most of these books.

From these considerations, we conclude that Kuno and Robinson's example (30) confomrs to our generalization (29).

8. Some Implications

Thus far, we have developed our analysis of apparent violations of the *wh*-island condition at LF, where we have observed that the availability of a functional interpretation (more specifically, a pair-list interpretation) within the *wh*-island is a necessary condition. This immediately suggests that its contrapositive must hold: If a pair-list interpretation is not available, an apparent violation of the *wh*-island is impossible. We have already seen that this contrapositive is true from (27), where neither a pair-list interpretation in the complement clause nor an apparent violation of the *wh*-island condition at LF was available.

In a series of work, Nishigauchi (1997, 1998a) points out some conditions that must be honored in order for functional interpretations to be available. One

of them, discussed in Nishigauchi (1998a), is that there is a locality restriction that holds between a generator and a functional *wh*-element. That is, the observation there is that a functional interpretation is difficult to obtain when the relevant elements are separated by a clause-boundary:

(33) John-wa dare-ni   [Bill-ga nani-o   tabe-ta   to]
          -Nom who-Dat   -Nom what-Acc eat-past that
      it-ta no?
      said Q
      'Who did John tell that Bill had eaten what?'

While I believe that this fact is relevant to the present discussion, I am hesitant to discuss it in the present context, for two reasons: One is that this discussion requires that we must make observations of sentences in which sentences like (33), which some speakers already find unnatural, are further embedded as interrogative complements. Second is that, as discussed in Nishigauchi (1998a), this locality requirement is not a stringent condition and can be weakened by contextual factors.[5]

8.1 *Donna N*
At least two other sets of facts discussed by Nishigauchi (1997, 1998a) are relevant and easier to handle in the present context. One of the points discussed by Nishigauchi (1997) is concerned with the contrast in the following.

(34) a. Dare-ga   donna   hito-o   ture-te kuru no?
         who-Nom what-like person-Acc bring   come Q
         'Who will bring what kind of person?'

      b. ??Donna hito-ga   dare-o   ture-te kuru no?
         what-like person-Nom who-Acc bring   come Q
         'What kind of person will bring whom?'

The expression *donna N* asks for a description of an individual, and cannot be fulfilled by a name of an individual, such as *Mary* or *Susan*. Question (34a) can be answered by a list of pairs of a name of an individual and a description of an individual, say a description of what kind of individual, or of what kind

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[5] Kuno and Robinson (1972) and Sloan (1991) argue for the clausemate requirement. My judgment about an example with sentence (33) embedded as complement is that the interpretation in which the higher *wh*-phrase in this sentence interacts with a still higher *wh*-phrase in the matrix clause is unavailable, and to this extent is in keeping with the prediction of the present analysis.

of relation an individual holds to the first individual, etc. The following is a possible answer to (34a).

(35) John will bring his girlfriend, Bill will bring his mother-in-law, etc.

Question (34b) does not allow a pair-list answer such as (35) — not only that, this sentence is awkward, if not completely ungrammatical.

Nishigauchi (1997) accounts for the low grammaticality and the absence of a functional interpretation of (34b) by reference to the semantic type of *donna N*: Nishigauchi defines the semantic type of this expression as a *predicate*, for it can be considered as a function mapping an individual to a description (property).[6]

Now, a predicate is of a higher-order expression than an individual, a first order expression. Nishigauchi's (1997) analysis draws on Williams' (1994, pp. 66–67) analysis based on the following constraint:

(36) **Constraint on (Skolem) Dependence (CSD):**
    A first-order term cannot depend on a higher-order term.

where the notion of *dependence* is roughly defined as:[7]

(37) X depends on Y if X covaries under the influence of Y.

Returning to (34b), if the first *wh*-phrase *donna N* serves as the generator and the second *wh*-phrase *dare* is rewritten as a functional expression with an empty element bound by the generator (cf. Chierchia (1991, 1992–3), Hornstein (1995)), we obtain the following skeletal LF:

(38) *Donna hito$_i$* ... [e_i N] ...

This is ruled out by the CSD (36) because here the functional expression, a first-order term, is dependent on *donna N*, a predicate and a second-order term. What if *donna N* were rewritten as a functional expression, and *dare* as a generator? Then the following LF would result:

(39) [e_i N](= *donna hito*) ... *dare$_i$* ...

This is in no violation of CSD (36), but it is ruled out since it violates the Ban on Weak Crossover (WCO), since the *wh*-phrase serving as a generator does not c-command the empty category in the functional element at LF. Thus, there is no way sentence (34b) can be mapped to an LF representation properly expressing a functional interpretation.

Now, with this much in mind, consider the following examples, with sentences in (34) embedded as complement clauses.

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[6]Following the suggestion of Bill Ladusaw.
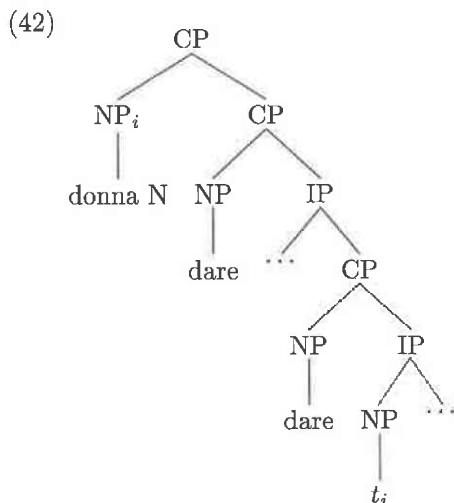[7]Williams (1994) does not provide a precise definition of this notion.

(40) a. Dare-ga   [dare-ga   donna   hito-o   ture-te kuru ka]
        who-Nom who-Nom what-like person-Acc bring   come Q
        sitteru no?
        know   Q
        'Who knows who will bring what kind of person?'

   b. Dare-ga   [donna   hito-ga   dare-o   ture-te kuru ka]
      who-Nom what-like person-Nom who-Acc bring   come Q
      sitteru no?
      know   Q
      'What kind of person will bring whom?'

As predicted, sentence (40a) readily allows an answer where the matrix *wh*-phrase is paired with the first *wh*-phrase in the complement clause, while sentence (40b) does not allow such an interpretation. Curiously, (40b) is somewhat improved in grammaticality in comparison with (34b), for which I have no explanation at the moment. Further, my judgment is that this sentence has a faint chance of relating the second *wh*-phrase with the matrix *wh*-phrase pairwise, though I am not confident that other speakers will share this intuition. In addition, it is definitely impossible to relate the first complement *wh*-phrase *donna N* with the matrix *wh*-phrase, which, if permissible, would have expected an answer such as:

(41) John knows who his math teacher will bring, Bill knows who his mother-
     in-law will bring, etc.

It would not have been surprising if this answer were available, in a possible world in which a *wh*-phrase in a *wh*-island could be directly related with a matrix *wh*-phrase, as has been standardly assumed in the literature. For, in such a possible world, the *wh*-phrase could freely be moved at LF and adjoined to the matrix CP.

(42)

```
                          CP
                        /    \
                    NP_i      CP
                     |       /   \
                 donna N   NP     IP
                           |     /  \
                         dare  ···   CP
                                    /   \
                                  NP     IP
                                   |    /  \
                                 dare  NP   ···
                                       |
                                       t_i
```

In this position, *donna N* could be in a mutual c-command relation with the subject *wh*-phrase of the matrix clause. If, further, *donna N* is rewritten into a functional element, with the matrix *wh*-phrase serving as its generator, there should be no violation of the CSD (36) nor of the Ban on WCO.

That this is not the case in the actual world suggests the following: (1) There is no direct movement of a *wh*-phrase across a *wh*-island at LF; and (2) The availability of a functional interpretation in the complement interrogative clause is a necessary condition for apparent violations of the *wh*-island condition.

8.2 *Naze*

Another case discussed by Nishigauchi (1997, 1998a) in connection with the relevance of the functional interpretation is concerned with the contrast in the following.

(43)　a. Dare-ga　naze soko-e　itta　no?
　　　　　who-nom　why　there-to went Q
　　　　　'Who went there why?'

　　　b. *Naze dare-ga　　soko-e　itta　no?
　　　　　why　who-nom there-to went Q
　　　　　'(no interpretation)'

The relative ordering of the two *wh*-phrases, one corresponding to *why* in English and the other corresponding to *who*, results in a fairly sharp contrast in

grammaticality. Following A. Watanabe (1992), we consider this as a case of **anti-superiority**, since *why* in Japanese appears to resist a position 'superior' to other *wh*-phrases in the sentence.

It is not our purpose here to discuss the contrast of (43).[8] The point of interest for the present context is the status of (43a): As was discussed in Nishigauchi (1997, 1998a), although (43a) is a fine sentence, it does not allow a pair-list interpretation. It does not allow an answer that supplies a list of pairs consisting of a person and a reason why that person went there. If at all, the only way (43a) can be read is, given a situation in which a certain person went there for some reason, this question asks who was that person and what was the reason. In contrast, the following example, in which an expression meaning 'for what reason' is substituted for *naze*, allows a pair-list answer:

(44) Dare-ga donna   riyuu-de kita no?
      who-Nom what-like reason-for came Q
      'Who came for what reason?'

Nishigauchi (1997) suggests that this contrast should be accounted for in terms of semantic types: The expression corresponding to 'for what reason' is a functional element of the first-order — it's a function mapping an individual (person) to an individual (reason), while *naze* 'why' is a function of a higher order, mapping a proposition to a proposition (reason).

Now, if we embed (43a) and (44) as complement clauses, we obtain the following sentences.

(45) a. Dare-ga [dare-ga donna   riyuu-de kita ka] sitteru no?
        who-Nom who-Nom what-like reason-for came Q   know   Q
        'Who knows who came for what reason?'

   b. Dare-ga [dare-ga naze soko-e   itta ka] sitteru no?
      who-Nom who-Nom why there-to went Q   know   Q
      'Who knows who went there why?'

As predicted, sentence (45a) allows an interpretation in which the matrix subject *wh*-phrase and the complement subject *wh*-phrase are paired:

(46) John knows for what reason Mary came, Harry knows for what reason Sally came, etc.

In contrast, (46b) does not allow this interpretation. To this extent, the contrast in (46) supports our hypothesis.

[8]See S. Watanabe (1995) for an approach based on the functional nature of *naze*. Nishigauchi (1997) presents some problems with S. Watanabe's analysis.

9.   Conclusion and Remaining Issues

In this article, we have been critically examining the view, which has been established as an 'assumption' in the GB tradition, that the effects of the *wh*-island condition are freely violable at LF. The claims that we have made in this discussion are the following:

(47) 1. The interrogative clause containing the scope-taking element (*wh*-phrase or a quantifier) must be governed by a *know*-type verb.

      2. The scope-taking element in the complement clause must be able to serve as the generator of the pair-list interpretation holding *within the complement clause.*

These claims have been developed on the basis of the following sets of data:

(48) 1. Multiple *wh*-constructions in Japanese

      2. Japanese sentences with quantifier-*wh* interactions

      3. English sentences with quantifier-*wh* interactions

Crucially, these environments do not include an important set of environments: Multiple *wh*-constructions in English.

    Multiple *wh*-constructions in English do not fit the present analysis in that the characterization of the phenomena stated in (47-2) does not hold. To see this, consider the following example:[9]

(49) Who knows who went out with whom?

This sentence allows pretty freely answers like the following:

(50) John knows who went out with Mary, Harry knows who went out with Sally, etc.

On the other hand, consider the following sentence, which corresponds to the complement clause of (49).

(51) Who went out with whom?

This sentence allows only the interpretation on which the first *wh*-phrase serves as the generator, so that it allows only a pair-list answer like (52a) or a functional answer like (52b).

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[9]Kuno and Robinson's (1972) judgment about this type of sentence is that a matrix scope interpretation of the compelemment subject *wh* requires some contextual setting.

(52) a. Mary went out with John, Sally went out with Harry, etc.

b. Everyone went out with her favorite football player.

This situation contradicts what we have been observing in the present discussion, in that a *wh*-in-situ in English which interacts with a matrix *wh*-phrase, as in (49), is itself a potential functional element in the complement clause, not a generator, while our generalization (47) claims that it is only a generator which can escape the *wh*-island effect.

One important feature that crucially distinguishes multiple *wh*-constructions in English from the environments listed in (48) is that multiple constructions in English are rigid with respect to the following points:

(53) a. Environments in (48) allow scopal ambiguity.

b. The *wh*-phrase in [Spec, CP] of the complement clause is always both the generator and the 'clause-typer' (in the sense of Cheng (1997)).

Thus, our provisional conclusion about (47) is that it holds only when there is freedom in scope relations and freedom in the division of labor among the scope taking elements with respect to being a generator and a clause-typer in the complement interrogative clause. This result, if correct, means the present analysis has only a limited range of validity. The task awaiting us, of course, is to broaden it.

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