

Scrambling of *Wh*-phrases in Japanese*

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Abstract. Despite the a priori desiratum of assimilating the derivation and interpretation of *wh*-questions in Japanese to that in English, empirical evidence shows that overt displacement of *wh*-phrases in Japanese is not the same as overt *wh*-movement in English. The syntax of *wh*-phrases in Japanese is essentially the same as that of non-*wh*-phrases. Failure of scope reconstruction in certain cases is not evidence for a constraint applying specifically to *wh*-movement but is due to the computation of the available readings, the semantic effect or prosody.

Keywords: *wh*-movement, scrambling, scope of displaced *wh*-phrases, reconstruction.

1 Introduction

An obvious difference between English and Japanese, among many others, is that *wh*-phrases in non-echo single-*wh* questions in English must appear in a left-peripheral position, while those in Japanese need not:¹

- (1) a. John bought a book.
b. What_{*i*} did John buy *t_i*?
c. John bought what? (echo question only)
- (2) a. John-ga hon-o katta (koto).
-NOM book-ACC bought fact
'John bought a book.'
b. John-ga nani-o katta no?
-NOM book-ACC bought Q
'What did John buy?'
c. Nani-o_{*i*} John-ga *t_i* katta no?

One of the many issues that arise in the comparative study of English and Japanese is to what extent the two languages are alike, despite their superficial differences. Specifically, we might wonder whether the example in (2c) can be likened to the English example in (1b) in that the *wh*-phrase appears in the same SpecCP position.

I argue that although Japanese and English *wh*-questions are alike in some respects, e.g., the scope of the *wh*-phrase is determined by the relation with a [+WH] C, the derivation and

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¹ As is common practice in formal studies of Japanese syntax, *koto* 'fact' is added at the end of a declarative sentence to avoid the unnaturalness of a matrix clause without a topic marked by the suffix *wa*. For simplicity's sake, *koto* is mostly ignored in the translation. Abbreviations: ACC=accusative, C=complementizer, DAT=dative, GEN=genitive, NOM=nominative, PASS=passive, Q=question, TOP=topic.

syntactic structure of Japanese *wh*-questions, including the one like (2c) that looks very much like the question in (1b), are not exactly like those in English. Specifically, I claim that overt syntactic movement of *wh*-phrases in Japanese is the result of scrambling, the same operation that applies to non-*wh*-phrases. The lack of scope reconstruction in certain cases is not due to a constraint on phrases undergoing *wh*-movement but to a combination of factors having to do with the computation of the available readings, the semantic effect and prosody.

2 Local Scrambling and the Superiority Effect

The similarity of (1b) and (2c) invites the imagination that the two examples in fact have the same syntactic structure, as in (3):

- (3) a. [_{CP} what_i [did [John buy *t_i*]]]
 b. [_{CP} nani-o_i [[_{IP} John-ga *t_i* katta] no]]

Apart from the head position of the CP (in English it occurs to the left of the complement and is occupied by the auxiliary *did*_i; in Japanese it occurs to the right of the complement and is occupied by the scope marker *no*), the two structures are identical.

While the word-order in (2c) is consistent with the structure in (3b), there is evidence showing that the *wh*-phrase *nani-o* ‘what’ is not in SpecCP. The contrast in (4) illustrates the familiar **superiority effect** in English (see Chomsky, 1973), an effect that is absent in Japanese (see (5)) (Takahashi, 1993:663):

- (4) a. Who ate what?
 b. *What_i did who eat *t_i*?
- (5) a. Dare-ga nani-o tabeta no?
 who-NOM what-ACC ate Q
 ‘Who ate what?’
 b. Nani-o_i dare-ga *t_i* tabeta no?

If the *wh*-phrase *nani-o* ‘what’ in (5b) is in the same position as *what* in (4b), then there is no reason why example (5b) is not ungrammatical like example (4b).

The examples in (6) clearly show that a non-*wh*-phrase object may be scrambled across the subject to a position other than SpecCP:

- (6) a. Dare-ga sakana-o tabeta no?
 who-NOM fish-ACC ate Q
 ‘Who ate fish?’
 b. Sakana-o_i dare-ga *t_i* tabeta no?
 c. [_{IP} sakana-o_i [_{VP} dare-ga *t_i* tabeta] no]]

The *wh*-phrase object in (5b) is conceivably in the same scrambled position as that of the non-*wh*-phrase object in (6b), i.e., it is not in SpecCP.

If the superiority effect is a property of A-bar-movement, then the absence of superiority effect in Japanese may be attributed to the scrambled phrase being in an A-position. Indeed, Kuroda (1988) has suggested that the scrambled phrase in (6b) is in SpecIP while the subject is in SpecVP, as in (6c).² If this is correct, then the structure for example (2c) is on a par with that in (6c), not with that in (3b) that is comparable to the structure in (3a) for English.

² It is conceivable that the scrambled phrase A-moves to SpecAgrOP (see Chomsky, 1989) (see Déprez, 1989 and Mahajan, 1990) on the way to SpecIP.

3 Long-distance Scrambling and the Superiority Effect

In the light of the lack of the superiority effect in monoclausal structures, it is surprising that the effect seems to appear in long-distance movement of a *wh*-phrase.

In (7b) the *wh*-phrase originating in the embedded clause moves over a matrix *wh*-phrase, apparently inducing the superiority effect:

- (7) a. John-ga dare-ni [Mary-ga nani-o tabeta to] itta no?
 -NOM -DAT -NOM what-ACC ate C said Q
 ‘Who did John tell that Mary ate what?’
 b. ??Nani-o_i John-ga dare-ni [Mary-ga *t_i* tabeta to] itta no?
 c. Pizza-o_i John-ga dare-ni [Mary-ga *t_i* tabeta to] itta no?
 ‘Who did John tell that Mary ate pizza?’

Takahashi (1993:661) takes the degraded grammaticality of example (7b) and the lack thereof in (5b) and (7c) to be evidence that long-distance movement of a *wh*-phrase to the clause-initial position of a clause headed by a [+WH] COMP (=SpecCP) counts as *wh*-movement in Japanese, while local movement of a *wh*-phrase may involve a step of A-movement, and long-distance movement of a non-*wh*-phrase is scrambling to some other adjoined position.

Nevertheless, it is far from obvious that the grammatical contrast between (7b) and (7c) is due to the difference between *wh*-movement and scrambling. First, *wh*-phrases and non-*wh*-phrases behave alike with respect to movement in many other cases. Not only do they do so in local movement (see (5b)-(6b)), but also in long-distance movement:

- (8) a. John-ga [_{CP} Mary-ga nani-o katta to] itta no?
 -NOM -NOM what-ACC bought C said Q
 ‘What did John say that Mary bought?’
 b. Nani-o_i John-ga [_{CP} Mary-ga *t_i* katta to] itta no?
 (9) a. John-ga [_{CP} Mary-ga sono hon-o katta to] itta (koto).
 -NOM -NOM that book-ACC bought C said fact
 ‘John said that Mary bought that book.’
 b. Sono hon-o_i John-ga [_{CP} Mary-ga *t_i* katta to] itta.

Indeed, *wh*-phrases and non-*wh*-phrases also behave alike in cases like (10)-(13) (see Sells, 1990:449) where the extraction is out of a syntactic island (see Harada, 1977 for island constraints on scrambling and also Hoji, 1985):

- (10) a. John niyotte [Mary-ga sono hon-o katta koto ga] hookoku-sareta.
 by -NOM that book-ACC bought fact NOM report- did.PASS
 ‘The fact that Mary bought that book was reported by John.’
 b. *Sono hon-o_i John niyotte [Mary-ga *t_i* katta koto ga] hookoku-sareta.
 (11) a. John niyotte [Mary-ga nani-o katta koto ga] hookoku-sareta no?
 by -NOM what-ACC bought fact NOM report-did.PASS Q
 ‘What was reported by John that Mary bought?’
 b. *Nani-o_i John niyotte [Mary-ga *t_i* katta koto ga] hookoku-sareta no?
 (12) a. John-ga [Mary-ga ryori-o kuriya-de siteiru toki] utatta (koto).
 -NOM -NOM food-ACC kitchen-in do time sang fact
 ‘John sang while Mary was cooking food in the kitchen.’
 b. *Ryori-o_i John-ga [Mary-ga *t_i* kuriya-de siteiru toki] utatta (koto).

- (13) a. John-ga [Mary-ga nani-o kuriya-de siteiru toki] utatta no?
 -NOM -NOM what-ACC kitchen-in do time sang Q
 ‘What did John sing while Mary was cooking in the kitchen?’
 b. *Nani-o_i John-ga [Mary-ga t_i kuriya-de siteiru toki] utatta no?

The positions of the *wh*-phrases mirror exactly those of the non-*wh*-phrases in the examples in (8)-(13). It is thus hard to not to conclude that the syntactic distribution of *wh*-phrases is much the same as that of non-*wh*-phrases.

Second, given the inherent semantic difference between *wh*-phrases and non-*wh*-phrases, it suffices to bring this difference to bear directly on the grammatical difference between (7b) and (7c), instead of supposing that the moved phrases occupy different positions. This point is particularly worth entertaining in light of the very similar syntactic distribution of *wh*-phrases and non-*wh*-phrases observed elsewhere. In other words, it cannot be excluded that the *wh*-phrase in (7b) in fact occupies the same position as the *o*-marked non-*wh*-phrase in (7c), and the grammatical contrast between them is due to some other independent reason.

Indeed, Takahashi (1993:665, note 6) observes that example (7b) is acceptable if the *wh*-phrase receives heavy stress (see also Ishihara, 2002) claiming that the stressed *wh*-phrase is discourse-linked and hence escapes the superiority effect for some reason. While the claim concerning the relation between stress and discourse-linking remains to be fleshed out, it seems relatively clear the degraded grammaticality of the example in (7b) is not due to a syntactic constraint deriving the superiority effect.

In sum, the degraded grammaticality of (7b) is no conclusive evidence that long-distance movement of a *wh*-phrase must be to a [+WH] COMP, and that it is not in the same position as that of a non-*wh*-phrase.

4 Reconstruction for Binding and Scope

Saito (1989) argues that scrambling can be freely undone at LF in that the scrambled phrase can be reconstructed to its original position. Thus, in (14) the embedded object scrambled to the matrix clause can be reconstructed to the embedded clause; consequently, the reflexive comes to be c-commanded and bound by the embedded subject:

- (14) a. Zibunzisin-o_i Taroo-ga [Hanako-ga t_i hihansita to] itta (koto)
 self-ACC -NOM -NOM criticized C said fact
 ‘Herself, Taroo said that Hanako criticized.’
 b. LF: Taroo-ga [_{CP} Hanako-ga zibunzisin-o hihansita to] itta (koto).

Scrambled *wh*-phrases behave very much the same in that they can be reconstructed to their original positions and have scope in the clause they move from:

- (15) a. Dare-o_i John-ga [_{CP} Mary-ga t_i hihansita ka] sitteiru (koto).
 what-ACC -NOM -NOM criticized Q know fact
 ‘John knows who Mary criticized.’
 b. LF: John-ga [_{CP} Mary-ga dare-o hihansita ka] sitteiru (koto).

In this light it is surprising that in (16a) the *wh*-phrase cannot be reconstructed to its original position in the embedded clause to yield the representation as in (16b) without scrambling:

- (16) a. Nani-o_i John-wa [_{CP} Mary-ga t_i tabeta ka] siritagatteiru no?
 what-ACC -TOP -NOM ate Q know-want Q
 ‘What does John want to know whether Mary ate?’
 NOT ‘Does John want to know what Mary ate?’

- b. John-wa [_{CP} Mary-ga nani-o tabeta ka] siritagatteiru no?
 -TOP -NOM what-ACC ate Q know-want Q
 ‘What does John want to know whether Mary ate?’ OR
 ‘Does John want to know what Mary ate?’

Example (16a) (Takahashi, 1993:657) does not have the second reading of example (16b). This interpretation would obtain, if the scrambled *wh*-phrase could be reconstructed to its original position.³

The difference between (15a) and (16a) is that the matrix clause is a declarative clause in the former and is a question with the question particle *ka* in the latter. Apparently, the scope of the scrambled *wh*-phrase is fixed in the scrambled position in the matrix clause, much like the well-known fact in English that a *wh*-phrase undergoing syntactic movement to a [+WH] SpecCP cannot have scope in a higher clause (Fiengo, 1977; Lasnik and Saito, 1984). The question in (17a) can have (17b), not (17c), as a felicitous answer where the values of the matrix *who* and the embedded *what* are given, but that of *where* is not, i.e., *where* cannot have matrix scope.⁴

- (17) a. Who wondered where Mary bought what?
 b. John wondered where Mary bought books, Bill wondered where Mary bought pens.
 c. !John wondered what Mary bought at the bookstore, and Bill wondered what Mary bought at the market.

Takahashi (1993:657) thus suggests that unlike movement internal to a clause, long-distance displacement of *wh*-phrases in cases like (16a) is necessarily *wh*-movement, i.e., movement to a [+WH] COMP, much like *wh*-movement in English. It differs from scrambling in being subject to a condition that has the effect in (18a):

- (18) a. A *wh*-phrase which has undergone syntactic *wh*-movement cannot move any further in LF.
 b. A scrambled phrase can move (back and forth) in LF.

Scrambling is movement to other positions, e.g., A-positions and adjoined positions, and is subject to the constraint deriving the effect in (18b).

Along these lines, the scrambled non-*wh*-phrase may be reconstructed to the embedded clause. In (15a) the *wh*-phrase may move back to its original position and come to have the CP headed by the scope marker *ka* as its scope. This is possible since the *wh*-phrase is scrambled to a [-WH] position; the movement is hence not *wh*-movement. By contrast, the *wh*-phrase in (18a) cannot move back to its original position in the embedded clause. This is because it is moved to a [+WH] COMP; the movement is hence *wh*-movement.

Takahashi’s (1993:660) account also explains the scope property of the *wh*-phrase in (19). In the examples in (19), the most deeply embedded clause and the matrix clause are interrogative clauses, whereas the intermediate clause is a declarative clause:

- (19) a. Kimi-wa [John-ga [Mary-ga nani-o tabeta ka] sitteiru to] omotteiru no?
 -NOM -NOM -NOM what-ACC ate Q know C think Q
 ‘Do you think that John knows what Mary ate?’ OR
 ‘What do you think that John knows whether Mary ate?’

³ Speaker judgment seems to vary here. Saito (1989:199, note 17) remarks that movement of the sort (16a) is slightly degraded, plausibly due to a violation of subadjacency. Nishigauchi (1990:33) notes that the first reading in (16b) is more readily available to speakers of the eastern (Tokyo-type) dialects than to speakers of the western (Osaka) dialects.

⁴ The example in (17a) also has the reading in which the *wh*-phrase *what* has embedded scope. In that case, it is a single *wh*-question. An appropriate answer to this question is one in which a value is given to the matrix *wh*-phrase, e.g., *John wondered where Mary bought what*.

- b. Kimi-wa [nani-o_i John-ga [Mary-ga tabeta t_i ka] sitteiru to] omotteiru no?
 ‘Do you think that John knows what Mary ate?’ OR
 ‘What do you think that John knows whether Mary ate?’
- c. Nani-o_i [kimi-wa [t_i John-ga [Mary-ga t_i tabeta ka] sitteiru to] omotteiru no?
 ‘What do you think that John knows whether Mary ate?’
 NOT ‘Do you think that John knows what Mary ate?’

In (19b) the *wh*-phrase is moved to the [-WH] COMP of the intermediate clause; the movement is not *wh*-movement. By (18b), it may be reconstructed to its original position and have scope in the most deeply embedded clause. In (19c) the *wh*-phrase is moved to the matrix [+WH] COMP and has matrix scope. By (18a), it may not at LF be reconstructed to its original position and have scope in the most deeply embedded clause; hence, the second reading is missing.

Thus, to the extent that the interpretive difference between (15a) and (19b) on the one hand, where reconstruction is possible, and (16a) and (19c) on the other hand, where reconstruction is impossible, can be captured by the distinction between *wh*-movement (for the latter) and scrambling (for the former), and inasmuch as the lack of reconstruction for long-distance displaced *wh*-phrases in cases like (16a) and (19c) can be assimilated to the scope property of the *wh*-moved phrase in English in (17a), the case for treating long distance displacement of *wh*-phrases in Japanese as overt *wh*-movement may seem *prima facie* strong. I argue presently that despite the appearance, the claim that syntactic long-distance displacement of *wh*-phrases in Japanese is much like *wh*-movement in English has no empirical basis.

Takahashi’s account for (16a) and (19c) is troublesome insofar as it relies on the yet to be justified assumption that displacement of a *wh*-phrase to a clause with the question particle *ka* is necessarily *wh*-movement. In Japanese a [+WH] SpecCP need not be occupied by a *wh*-phrase, and a *wh*-phrase may be scrambled to a [-WH] position in the matrix clause (see (15a) and (19b)). The *wh*-phrase in (19c) may well be scrambled to a [-WH] position. Reconstruction of the *wh*-phrase to the embedded clause should be possible in (19c) inasmuch as it is in (19b).

In fact, in order for the displaced *wh*-phrase in (16a) and (19c) to be reconstructed and have embedded scope, the question particle *ka* in the matrix clause must be understood to be a marker for a yes/no question. Tanaka (1999:384-386) gives an account for why reconstruction of the *wh*-phrase to the embedded clause is impossible in this case. He assumes that the yes/no question marker *ka*, a shortened form of *ka dooka*, has a null yes/no question operator in the right-occurring SpecCP where *dooka* occurs (see Watanabe, 1992). This *ka* is the same *ka* that is the scope marker for *wh*-phrases. He argues that the *wh*-phrase in cases like (16a) and (19c) is scrambled long-distance (see Saito, 1992) to the matrix clause where it is adjoined to TP, the SpecCP being occupied by the null operator. The *wh*-phrase checks the [+WH] feature of *ka*, just as it does in a *wh*-question. By virtue of Epstein’s (1992) economy-based constraint in (20) (see Chomsky, 1989 on economy), the *wh*-phrase cannot be reconstructed to the embedded clause, just as the *wh*-phrase *where* in the embedded SpecCP in (17a) cannot have matrix scope:

(20) Satisfy filters by using the fewest possible applications of Affect- α

The problem with this analysis is that it in principle excludes the example in (21a):

- (21) a. ?Zibun no dono syasin-o_i John-wa [Mary-ga t_i mita ka] siritagatteiru no?
 self GEN which picture-ACC -TOP -NOM saw Q want to know Q
 ‘Which pictures of herself does John want to know whether Mary saw?’
- b. Zibun no dono syasin-o_i John-wa [Mary-ga t_i mita to] omotteiru no?
 self GEN which picture-ACC -TOP -NOM saw C think Q
 ‘Which pictures of herself does John think that Mary saw?’

The *wh*-phrase in (21a) must be reconstructed to the embedded clause, lest the reflexive *zibun*

would not be c-commanded and bound by the embedded subject. Reconstruction of the sort in (21a) is no different from that in (21b).⁵ Takahashi's (1993) account relying on a syntactic constraint deriving the effect in (18a) has the same problem.

It thus seems that the lack of the second reading in (16a) and (19c) is most probably not due to some general syntactic principle, but to something else. Indeed, according to Ishihara (2002:191), the second reading in (16a) is not impossible; it is merely more difficult to get than the first. He argues that the difficulty with the second reading is much like the (slightly) degraded example in (22) (Saito, 1989:191-192) where the clause hosting the *wh*-phrase does not have the question particle *ka*, in contrast with that in (16a):

- (22) ?Dono hon-o_i [Mary-ga [John-ga *t_i* tosyokan-kara karidasita ka] siritagatteiru koto.
 which book-ACC -NOM -NOM library-from checked out Q want to know fact
 'The fact that Mary wants to know which book John checked out from the library.'

The second reading of (16a) is marginally possible if it has the intonation contour of *wh*-questions in Japanese in which the material between the *wh*-phrase and the question marker *ka* delimiting its scope is deaccented. He attributes the marginality of the second reading to the existence of the first reading.⁶

The binding fact in (21a) shows that clearly we cannot categorically state that a *wh*-phrase displaced to a clause with the question marker *ka/no* cannot be reconstructed to a lower clause. The various degrees of ease with which reconstruction is possible are most likely due to a combination of factors having to do with the computation of the readings, the semantic effect and prosody. In (16a) and (19c) the question marker *ka* in the matrix clause is readily understood to be the scope marker for the *wh*-phrase in the same clause. To get the embedded scope reading for the *wh*-phrase would require taking *ka* to be the yes/no question marker and thereby disassociating it from the *wh*-phrase in the same clause. This would take up some computing cost as *ka* is generally taken to be the scope marker for the *wh*-phrase in the same clause (see Saito, 1989:199, note 17). The less accessible reading becomes easy to get with the intonation in which the scope of the *wh*-phrase is explicitly marked by deaccenting the material between it and the scope marker. Reconstruction of the *wh*-phrase in (21a) is least problematic, for it must take place, lest the anaphor cannot be bound by the embedded subject.

Regardless of what ultimately explains the facts in (16), (19) and (21), it is quite clear that the interpretive properties of these examples do not justify the claim that overt long-distance displacement of *wh*-phrases in Japanese is necessarily *wh*-movement and not scrambling.

5 Conclusion

I thus conclude that Japanese *wh*-phrases have no special syntax. They essentially have the same syntactic distribution as that of non-*wh*-phrases. There is no syntactic operation like *wh*-movement specifically for long-distance movement of *wh*-phrases.

This conclusion is largely independent of the issue of whether Japanese has *wh*-movement akin to English *wh*-movement at all. Should it turn out that Japanese has *wh*-movement much like English (see Watanabe 1992 and Hagstrom 1998), contra Kim (1990), Cheng (1991) and

⁵ Certain difficulties also arise in Takana's analysis. If checking of the sort he proposes is possible, it is not clear why a *wh*-phrase cannot be base-generated in a yes/no question. Furthermore, he assumes that the [+WH] feature of *ka* is checked against that of the null operator when it does not have a *wh*-phrase in its checking domain (Tanaka, 1999:384, note 7). It is unclear how the [+WH] feature of the null operator is checked in cases like (16a) and (19c) where it has a *wh*-phrase in its checking domain and why *dooka* cannot appear in the position of the null operator in matrix yes/no questions.

⁶ Ishihara (2002:192) attributes the degraded grammaticality of (16a) is attributed to the incorrect *wh*-scope marking, but it is not clear in what sense the intonation given in his (20a) corresponds to incorrect *wh*-scope marking. Despite the unclarity, it seems safe to conclude that the second reading of (16a) is indeed possible, at least for some speakers. Nishigauchi (1990:33-34) and Yoshida (1999:15, note 7) also point out the bearing of stress on the interpretation of in-situ *wh*-phrases associated with the question particle *ka* in a higher clause.

Tsai (1994), it is still possible that overt long-distance displacement of *wh*-phrases first involves scrambling like non-*wh*-phrases and then *wh*-movement (see Mahajan 1990). This state of affairs by no means negates the conclusion of this paper.

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