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Is Q an Inherent Feature of Complementisers?

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In the literature (e.g. Chomsky (1995)), Q-features which trigger movement of wh-phrases are supposed to be inherent features of complementisers. In this paper, I would like to offer a different view. That is, I claim that Q-features, which I call Wh-scope features here, are, in fact, inherent features of verbs, not of complementisers.

The main reason to take this approach is empirical. Once we assume that a Wh-scope feature is an inherent feature of a verb, the fundamental problem of why wh-movement takes place in some languages (e.g. English) but not in others (e.g. Japanese and Chinese) is explained in a reasonable way. What is more, notorious problems like Subjacency condition and successive-cyclic movement of wh-phrases can now be accounted for quite naturally without assuming Chomsky’s (1998) “phase”.

This paper is divided into two sections. In the first section, I claim that a Wh-scope feature is an inherent feature of a verb and show that this claim is theoretically plausible. To illustrate this, I analyse a simple question in English and show how a Wh-scope feature is checked and how it affects LFs. Then, I consider a simple Japanese question and show that my proposal easily accounts for why Japanese does not have wh-movement and why English has wh-movement. In the second section, I show that my account can explain Subjacency Condition and successive-cyclic movement of wh-phrases better than Chomsky’s (1998), which I regard as empirical support for my argument.

1. English

In this section I discuss how a simple English question is derived syntactically. In other words, I show why movement of a wh-phrase takes
place and how it affects the derivation of LFs. There are two important points in this section. One is that [+Wh-scope], which triggers movement of wh-phrases in English, is not an inherent feature of a complementiser but that of a verb. Traditionally, a feature which induces wh-movement, e.g. [+Q] in Chomsky (1995), has been thought to be an inherent feature of a complementiser. The other important point is that some interpretable features of a verb can be handed over to higher functional categories after adjunction (which is called inheritance) and they suddenly become uninterpretable depending on their hosts and nature.

From now on, I illustrate how an English sentence is derived. Examine (1).

(1) What did Ken buy?

(1) is derived as follows:

(2)

(i) VP \rightarrow

Ken_{i}^{ai} V_{i}

buy_{w} \quad \text{what}_{i}

[+Wh-scope_{i}] \quad [+Wh-scope_{i}, +c-focus_{i}]

\rightarrow (iii) TP \rightarrow

Ken_{i}

T_{i}^{'}

T_{i}

buy \quad \text{what}_{i}

[+Wh-scope_{i}][+Wh-scope_{i}]

did

(ii) AgrOP

what_{i} \quad \text{AgrO'}

[+Wh-scope_{i}, \sqrt{+c-focus_{i}}]

\rightarrow (iv) CP \rightarrow

C

C_{i}^{'}

TP

[+T]

Ken_{i}
Examine (2)(i), first. The verb, “buy” and the wh-phrase, “what” have Wh-scope features, which are normally interpretable. Following Barss (2000), I assume that quantifiers have two kinds of scope, absolute and relative scopes, and I also assume that Wh-scope features mark absolute scope for questions. To be more precise, suppose the meaning of (1) is represented as in (3).

(3)  \[ WH(x) \ [Ken \ bought \ x] \]

In (3), “WH(x)” is an operator which generates a set of things. This set fills “x” so that a set of propositions like Ken bought x₁, Ken bought x₂, ... (where x is a thing) is provided. This is the meaning of (1) according to Hamblin (1973). Now coming back to absolute scope, the bracket in (3) corresponds to the absolute scope for “what”. I define this procedure as follows:

(4) When a Wh-scope feature of a verb is checked, the absolute scope for a wh-phrase is marked.

“What” has another feature, [+c-focus]. vi C-focus features are interpretable and mark the relative scope for wh-phrases. They provide a set of alternatives in the semantic component. Relative scope becomes important when there is more than one quantifier. However, since I discuss questions which has just one wh-phrase here, the relative scope is not relevant in this paper. So, c-focus features are not important either and I do not consider this feature any more here (see Morita (to appear) for details).

Come back to (i) in (2). Like theta-marking or theta-identification (see Higginbotham (1985) for these mechanisms), Wh-scope features of “buy” and “what” identify each other. As a result, [+Wh-scope] of “buy” receives the same index as that of “what” and becomes [+Wh-scope], which I call feature identification. In (ii), “what” is raised to spec of AgrOP for case-checking (I omit case features in a tree throughout this paper). vii viii Suppose AgrOP has a c-focus feature. Then c-focus of “what” is checked by the same feature of AgrOP. Here the relative scope for “what” is determined.
In (iii), the verb “buy” is adjoined to T and the Wh-scope feature which the verb has is given to the auxiliary “did” (by inheritance). In (iv), an invisible complementiser “∅” is merged with TP and it projects. I assume that “∅” has [+T]. In stage (v), “∅” attracts T. Next I assume the following condition:

(5) [+Wh-scope] with an index becomes uninterpretable in complementisers.

Because of (5), [+Wh-scope], which was handed over from “buy” to “did”, became uninterpretable after “did” is raised to C. To check this uninterpretable feature, “what” must be raised to spec of CP. Then, [+Wh-scope] is checked as in (v). If (5) is correct, the distinction between being interpretable and uninterpretable is not an absolute but relative concept. In other words, whether a feature is interpretable or not depends on a host of the feature and the existence of an index. For example, [+Wh-scope] is interpretable in V, Agr, and T, but not in C if it has an index.

It is necessary to add one condition about checking of [+Wh-scope], which is as follows:

(6) [+Wh-scope], not [+Wh-scope_{x}], of complementisers can be checked by only [+Wh-scope_{x}].

(6) says that if [+Wh-scope] gets an index via feature identification, it can be checked only by a wh-phrase of the same index. This does not hold of [+Wh-scope] which receives an index by feature agreement as we see below in the case of Japanese.

It is possible to check [+Wh-scope] in (ii). However, the [+Wh-scope] of a verb at AgrOP is still interpretable, so it does not need to be checked. If the feature is checked there, semantic anomaly results, which I do not discuss here. See Morita (to appear) for details.

In the section above, I have shown how questions in English are derived syntactically with the new assumption that a feature which triggers movement of a wh-phrase is an inherent feature of a verb, not a complementiser.

2. Japanese

In this section, I show how a simple Japanese question is derived without any kind of wh-movement while continuing to assume that a feature which may trigger movement of a wh-phrase is an inherent feature of verbs.

Consider (7).
There are two differences between Japanese and English questions. First, wh-phrases in Japanese do not have Wh-scope features unlike English. Thus, in stage (i), even when ‘what’ is merged with ‘buy’, feature identification of Wh-scope features between those two lexical items does not take place because ‘what’ lacks [+Wh-scope]. The other difference is that Japanese has a question marker, “ka”, and this marker has [+Wh-scope]. I come back to this later. In stage (ii), the verb is adjoined to AgrO and the wh-phrase ‘what’ is raised to spec of AgrOP for case-checking. Suppose AgrO has [+c-focus]. Then [+c-focus] of ‘what’ and AgrO are checked via spec-head agreement. After this, the verb and its [+Wh-scope] get the index, j, from “what”. It is natural to assume that agreement such as number between a verb and a subject in languages like English and French is a result of checking. If so, it is not surprising that a verb receives an index from a
wh-phrase after feature checking between them takes place, which I call **feature agreement**. However, since this mechanism is different from feature identification, I represent the index of the Wh-scope feature in the verb with a round bracket. One important difference between feature identification and feature agreement is that if a Wh-scope feature receives an index from a wh-phrase through feature identification, then a Wh-scope feature with the exact index is necessary to check the Wh-scope feature. On the contrary, if the process takes place via feature agreement, such a strict identity is not necessary, so any Wh-scope feature can check the Wh-scope with the bracketed index. In stage (iii), the verb is overtly adjoined to T and ‘Ken’ is raised to spec of TP for case-checking. In stage (iv), I assume that the verb is overtly adjoined to C. One thing to note is that Japanese has a question marker “ka”, which has [+Wh-scope]. So, [+Wh-scope\_o] of the verb and [+Wh-scope] of “ka” are also checked at CP when the verb is adjoined to “ka”. Since the Wh-scope feature of the verb has an index from feature agreement, the Wh-scope feature of “ka”, which has no index, can check it though the two indexes are not exactly the same. This is how (7) is derived. Since the Wh-scope features are checked at CP, an LF like (3) will be provided. (3) is repeated below:

(3) \( \text{WH}(x) [\text{Ken bought } x] \)

If there is no wh-movement, an alternative method to mark the absolute scope for a wh-phrase is necessary. In Japanese, [+Wh-scope] of a verb receives an index from a wh-phrase via feature agreement and it is checked by the question marker at CP so that the absolute scope for the wh-phrase is over the CP. This is how the absolute scope for a wh-phrase is determined without wh-movement. If this is correct, it is necessary for a verb to have [+Wh-scope] in Japanese.

Logically there are two possible configurations for English. One is when a verb has [+Wh-scope] like Japanese:

(9) \[
\begin{array}{|c|c|c|}
\hline
\text{Verb} & \text{Wh-phrase} & \text{Question Marker} \\
\hline
\text{English} & [+Wh-scope] & [+Wh-scope], [+c-focus], \text{none} \\
\hline
\text{Japanese} & [+Wh-scope] & [+c-focus], [+Wh-scope] \\
\hline
\end{array}
\]

The other is when a complementiser has [+Wh-scope]:
(9) is a configuration I am proposing in this paper while (10) is prevalently assumed (e.g. Chomsky (1995)). The choice depends on whether we assume that the lexical nature of verbs is the same or whether we assume that the lexical nature of complementisers is the same between the two languages. I present three reasons for choosing (9) over (10) here. One is that Japanese overtly has a question marker, which is a complementiser as well, while English does not. Because of this explicit difference of complementisers, it is reasonable to adopt the first option, (9).

The second reason is that we can attribute the existence of wh-movement to the lexical nature of wh-phrases and the existence of a question marker. To be more precise, since Wh-scope features of the question marker and a verb check each other off, there is no wh-movement in Japanese. On the contrary, since there is no question marker and a wh-phrase has a Wh-scope feature, the wh-phrase must be raised to check a Wh-scope feature of a verb at CP in English. Like this, we can account for the existence of wh-movement quite logically.

The third reason is as follows. Suppose (10) is correct. Then the invisible complementiser in English has [+Wh-scope] and this feature attracts a wh-phrase. However, this is not allowed. I have argued that the absolute scope for a wh-phrase is marked when a Wh-scope feature of a verb is checked at CP. Thus, it is a Wh-scope feature of a verb, not that of a wh-phrase, that determines the absolute scope for a wh-phrase. If so, this implies that a Wh-scope feature of a verb needs to have an index of a wh-phrase. Otherwise, it is impossible to define the absolute scope. If this is correct, the possibility that not a verb but a complementiser has [+Wh-scope] in English is not tenable. [+Wh-scope] of a complementiser can be checked by attracting a wh-phrase. But since [+Wh-scope] of the complementiser has no index, it does not mark absolute scope for any wh-phrase. Therefore, it is necessary for a verb to have [+Wh-scope] in English like Japanese. That is to say, we should adopt (9) rather than (10).

Unfortunately, the above three reasons are not so convincing. In the case of the first reason, the fact that Japanese, but not English, has a question marker does not prove that a complementiser in Japanese has [+Wh-scope] whereas one in English does not. It may be that a complementiser has [+Wh-scope] even in English. The second reason is unpersuasive, too. We can also present a logical explanation even if we assume (10). For example, we could argue that English has wh-movement because a Wh-scope feature
of a complementiser must be checked by raising a wh-phrase, whereas Japanese does not have wh-movement because that of a complementiser can be checked by adjoining a verb to the complementiser. This is consistent with (10) and is also a logical explanation. Thus, the fact that we can provide a logical explanation under (9) does not support that (9) is correct, because (10) also can present a reasonable explanation. Finally, the third reason is based on assumptions I have made above, so it is not convincing, either. Therefore, I have not shown that (9) is superior to (10) in this section. However, an important point in this and previous sections is that it is theoretically possible to give a logical explanation even if we assume that a feature which may trigger wh-movement is an inherent feature of verbs, not complementisers. Therefore, whether (9) (my proposal) or (10) (the prevalent account) is correct depends on empirical data, which I present below.

3. Subjacency Condition

In this section I consider Subjacency Condition, which has been a longstanding problem in the literature. I claim that Subjacency Condition is attributed to the existence of Attractors, which are features that attract phrases or features. In other words, the reason why Subjacency Condition is observed under some environment is that there is no Attractors there. I explain this with an example.

Consider the following examples:

(11) * What did John leave after Mary said t?
(12) ?? What did John believe a fact that Mary said t?

Somehow extraction out of adjunct clauses or clauses headed by NPs is prohibited as in (11) and (12), which is called Subjacency Condition. Within Government and Binding framework, Chomsky (1986) argues that a phrase cannot cross a barrier and adjunct clauses constitute barriers. This is how Subjacency is explained in the framework. However, under the Minimalist framework, which I am assuming here, it is difficult to explain Subjacency Condition. The economy principle is expected to provide a solution to the condition, but it cannot do so. This is because there is no intervening element, for example in (11), between a complementiser in the matrix clause and “what”. In order to account for this problem, Chomsky (1998) has introduced the “phase”. He argues that a phrase cannot be attracted from a category called phase which has already converged (or been sent to Spell-out) because a converged category is invisible for further computation. He claims that a phase is propositional and vP and CP are
such examples. If this is correct and “after” cannot attract a wh-phrase to its spec in (11), the adjunct clause, which is a CP, converges with the wh-phrase in it. It is impossible to attract a phrase from one which has already been converged. Therefore, it is impossible to attract the wh-phrase in (11). This is how Subjacency Condition is explained under the Minimalist framework. However, Chomsky’s (1998) account has a problem in explaining (12). Suppose that the wh-phrase in (12) is attracted to spec of “that” (we know that “that” can attract a wh-phrase, which is the case in successive-cyclic movement of a wh-phrase as we see below). Once “what” is moved to spec of “that”, it should have been raised to spec of the matrix CP without violating any condition. Remember that in Chomsky’s account, Q features in C attract wh-phrases. Therefore, nothing should prevent “what” from being raised from the spec of “that” to the spec of the matrix CP (unless NP (or DP) is a phase, which is not the case in his account). The ungrammaticality of (12) suggests that (12) is still violating Subjacency Condition. Hence Chomsky’s account cannot explain this phenomenon properly.

My proposal, in fact, does not need the speculative concept “phase” to account for Subjacency condition. I have shown that [+Wh-scope] of a verb needs to retain an index of a wh-phrase to mark the absolute scope for the wh-phrase. If so, it is possible to consider that Subjacency Condition takes place because [+Wh-scope] (with an index of a wh-phrase) of the embedded verb somehow cannot be transferred to (or copied on to) that of the matrix verb. As a result, since the matrix verb has no indexed Wh-scope feature, nothing can attract a wh-phrase. This can be implemented as follows. In (11), suppose that [+Wh-scope] is not an inherent feature of “after”5. This implies that “after” is never able to possess a Wh-scope feature. Thus, a derivation crashes if “after” receives [+Wh-scope] from the embedded verb through feature movement. This means that feature identification does not take place between the embedded verb and a wh-phrase so that [+Wh-scope] of the matrix verb gets no index. As a result, nothing can attract the wh-phrase inside the adjunct clause in the end. This is because a complementiser in the matrix clause does not have an indexed [+Wh-scope]. Since there is no Attractor in (11), (11) violates Subjacency Condition.

Similarly, we can account for the ungrammaticality of (12). Suppose “what” is raised to spec of “that”. However, still the matrix verb and “that” are too far, so feature identification of Wh-scope features between these two words cannot take place as illustrated in (13). As a result, Subjacency violation follows.
4. Successive Cyclic Movement of a Wh-phrase

The second evidence for the claim that Wh-scope features, which may trigger wh-movement, are inherent features of verbs can be shown in long-distance movement of a wh-phrase in English. Examine the following example:

(14) What do you think that Ken bought?

Languages like Irish and Spanish explicitly show that a wh-phrase moves to spec of intermediate CPs until it reaches the headed CP.\(^x\) I assume this is the case with English. We know that [+Wh-scope] at the final CP attracts a wh-phrase after every intermediate CP is visited by the same wh-phrase. A problem is what kind of feature attracts a wh-phrase to the intermediate CPs. I propose one possible answer here, which is to claim that the Wh-scope features of embedded verbs are such a feature.

Above I have suggested that [+Wh-scope] becomes uninterpretable when it is raised to C and has an index. Suppose an indexed Wh-scope feature of an embedded verb is raised to its immediately dominating C. Then the Wh-scope feature becomes uninterpretable at the C. To check this, a wh-phrase is raised to spec of the C ("that" in the case of (14)). If this is the case, a wh-phrase needs to be raised to every intermediate CP to check an indexed Wh-scope feature because a verb in each clause has [+Wh-scope] and this Wh-scope feature is carried up to a CP with an index. Furthermore, the wh-phrase needs to be moved to the target CP to again check [+Wh-scope], which is originated from the matrix verb. In other words, the intermediate movement is caused by [+Wh-scope] of an embedded verb and the
movement to the last CP is triggered by [+Wh-scope] of a matrix verb. This is why a wh-phrase is moved successive-cyclically.\textsuperscript{xii}

One problem arises in this approach. Throughout this paper, I have argued that [+Wh-scope] decides the absolute scope for a wh-phrase. However, in the above case, [+Wh-scope] for one wh-phrase is checked more than once. For example, one is at the embedded CP and the other is at the matrix CP in (14). Since it is impossible for one wh-phrase to have two distinct absolute scopes, it is necessary to resolve this ambiguity. Therefore, we need a rule like ‘if there are alternatives, take one which is defined at the latest.’

One important point with reference to Subjacency Condition is that in the case of argument clauses like (14), Subjacency Condition is not observed. Thus, unlike adjunct clauses like (11), it is possible to move a wh-phrase across an embedded clause. This difference is captured in my approach, too. I argue that argument complementisers like “that” can possess a Wh-scope feature. Thus, nothing prevents a Wh-scope feature of a verb from being raised into the argument complementisers. Furthermore, Wh-scope features of the argument complementisers and those of higher verbs go through feature identification. As a result, a matrix (or higher) verb gets an exact copy of an indexed Wh-scope feature from an embedded complementiser. Therefore, the Wh-scope feature of the matrix verb can attract a wh-phrase from an embedded clause. This is why Subjacency Condition is not operational in argument clauses like (14).

Successive-cyclic movement of a wh-phrase is the second piece of evidence for the argument that [+Wh-scope] is an inherent feature of verbs, not complementisers. This is because if only C in the matrix clause has a feature to attract a wh-phrase, there is no need for the wh-phrase to go to intermediate CPs. But this is not the case. To account for this problem, the prevalent view such as Chomsky (1995) needs to resort to Chomsky’s (1998) “phase”. He argues that a phrase cannot be attracted from a phase which has already converged. He assumes that (an intermediate) CP converges as soon as it is formed, so CP is a phase. However, he also assumes that a matrix verb can see not only the complementiser C but also its spec. Because of this, a wh-phrase must be somehow moved to spec of the intermediate CP for later movement (to target the higher CP).\textsuperscript{xiii} To achieve this, he further assumes that the embedded complementiser optionally can have an EPP feature which attracts a wh-phrase. Though this explanation is compatible with my argument, it is speculative that an embedded complementiser optionally can have an EPP.

In my proposal, such a speculative account is not necessary. Only when an indexed Wh-scope feature is raised into a complementiser, a wh-phrase needs to be raised. Therefore, if a sentence is declarative like “I think Ken bought a car”, it is not necessary to raise a wh-phrase to an intermediate C. This is because a Wh-scope feature without index is interpretable in complementisers, hence, it does not be checked. However, in the case of
Chomsky (1998), since an EPP feature of complementisers is optional, there can be a derivation which requires a wh-phrase to move to an intermediate CP, which leads to crash because of no wh-phrase. In my account, simply this kind of derivation never takes place. So, my account is a more economical mechanism than Chomsky’s (1998).

Above I have shown two pieces of evidence for the claim that a feature which may trigger wh-movement is an inherent feature of verbs, not of complementisers. The discussions of English and Japanese questions have shown that it is theoretically possible to explain questions in the two languages even if we make the above claim. Thus, whether my claim or the prevalent view such as Chomsky’s (1995) is correct depends on empirical data. Accordingly, I have presented a few pieces of evidence for my claim. Two pieces of evidence are found in Subjacency Condition and successive-cyclic movement of a wh-phrase. I have claimed that Subjacency Condition takes place when a matrix (or higher) verb fails to get an indexed Wh-scope feature from an embedded clause through feature identification. If this account is correct, we do not need to assume Chomsky’s (1998) “phase” to explain the two phenomena (though the notion “phase” is compatible with my account). In the case of successive-cyclic movement, the prevalent view like Chomsky (1995) has failed to answer what kind of feature attracts a wh-phrase to intermediate CPs in a reasonable way. Chomsky (1998) resolves this problem by introducing “phase” and assuming that complementisers can optionally have an EPP feature. I am not sure if this move is justified due to the speculative nature of his account. However, the successive-cyclic movement of a wh-phrase is not a problem under my account. I have argued that a wh-phrase needs to drop in at intermediate complementisers to check a Wh-scope feature, which is originally from a verb. Like this, my account has clearly shown what kind of feature attracts a wh-phrase to intermediate clauses. There is no need to assume “phase” or an optional EPP feature of complementisers here.

Since the two phenomena, Subjacency Condition and successive-cyclic movement of a wh-phrase are accounted for more naturally under my account than the prevailing view like Chomsky (1995, 1998), my claim, which is theoretically plausible, is more favourable.

Notes

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1 What I have meant by “inherent features” is either (i) “intrinsic” features or (ii) “optional” features which can be inserted before a lexical item is sent to a numeration like a φ-feature of a verb (or a tense). See Chomsky (1995) for details.
As we see below, [+Wh-scope] can be an inherent feature of some complementiser in Japanese and in English. But an important point here is that a feature which may trigger wh-movement is an inherent feature of verbs, not complementisers.

In this paper, I assume VP-Internal Subject Hypothesis (see Kuroda (1988) for example).

Word order in a tree is not relevant here. This is the case throughout the present paper.

As Tamoyuki Yoshida (p.c.) points out, one might think it strange that the absolute scope for wh-phrases are not fixed at the beginning but are decided later during derivations. Certainly it is strange if the absolute scope for wh-phrases are changing during derivations. However, I assume that the absolute scope is defined when Wh-scope features are checked. Thus, the movement of [+Wh-scope] via verbs does not mean that the absolute scope is changing. Furthermore, the semantic component sees a representation (an LF) when a derivation reaches Spell-out and it does not care how the representation is created. Therefore, the movement of [+Wh-scope] is nothing strange or confusing for the semantic component because the component watches the last point of derivation only.

Shima (1999) independently claims that two features are necessary in wh-question constructions. However there are two differences between his account and mine. The first difference is that he assumes that an inherent feature of C attracts a wh-phrase like Chomsky (1995, 1998). The second difference is that Shima (1999) resorts to “unsselective binding” (Heim (1982)) to derive semantics of Japanese wh-phrases, that is, wh-phrases in situ. On the contrary, I show below that appropriate semantics is available without using “unsselective binding” while maintaining “compositionalty”. Furthermore, there are a few theoretical and empirical problems with the “unsselective binding” account. See Morita (to appear) for details.

Here, I assume that a case feature, which is uninterpretable, attracts a DP. However, Chomsky (1998) argues that case features cannot attract DPs. Nevertheless, I follow Chomsky (1995) in that a case feature attracts a DP in this paper and this choice does not affect my argument.

In this paper, I use TP and AgrOP for the places where nominative and accusative case features are checked respectively. In fact, it does not make any difference even if one employs Chomsky’s (1995) vP for checking accusative cases, as long as the checking position for accusative is lower than the one for nominative.

Prohibition of extracting a phrase out of adjuncts or complex NPs are thought not to be all instances of Subjacency condition. For example, wh-islands are supposed to be included Subjacency. However, due to the limited space, I assume that extractions out of adjuncts or complex NPs are only instances of Subjacency Condition in this paper.

Here I assume that there are three kinds of lexical items with respect to the possession of [+Wh-scope]. The first kind is such that it has [+Wh-scope] inherently like a verb. The second is such that it does not have [+Wh-scope] inherently, but it still can inherit [+Wh-scope]. The third is such that it can never have [+Wh-scope] under any circumstance. “After” belongs to the third kind.

In Irish, a complementiser changes its form when a wh-phrase passes through it (see McCloskey (1979) for details). In Spanish, verb-preposing takes place in the same situation (see Torrego (1984) for details).

In the case of Japanese, no successive-cyclic movement of a wh-phrase should be allowed because Japanese wh-phrases cannot have [+Wh-scope]. Then a problem arises because I have argued that a Wh-scope feature with an index becomes uninterpretable in C. In other words, if a verb with an indexed Wh-scope feature is raised to C in Japanese, something other than a wh-phrase must check the Wh-scope feature. There are two ways to resolve this problem. One is to assume that “to”, which corresponds to “that”, can optionally have a Wh-scope feature and let the feature percolate up to the embedded CP. If so, the indexed Wh-scope feature of the verb is automatically checked when it is raised to the embedded C. The other way is to suppose that Wh-scope features whose indexes are acquired through feature agreement (not feature identification) remain interpretable in C. I am not sure which is the case. I leave this open.

See Terada (1999) for problems with this assumption.
References


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