

Questioning Out of Factive Clauses: with Special Reference to *How Many* Questions

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0. Introduction

Factive clauses are known for their interesting peculiarities. In this paper, I would like to consider how such peculiarities would affect the interpretation of *how many* questions in English, where WH-movement is obligatory, and in Japanese, which is a non-WH-movement language.

1. Factive Clauses

Kiparsky and Kiparsky (1971) distinguish two semantic classes of predicates: one being those which assert the truth of their complement (non-factive) and the other being those which presuppose the truth of their complement (factive). Consider the following examples:

- (1) a. John claims that he offended Mary.
- b. John regrets that he offended Mary.

In the (a) example, where the matrix predicate is not factive, what John claims does not necessarily have to be true, while in the (b) example, which involves

a factive verb as the matrix predicate, the complement is a factive clause, so John's offending Mary is necessarily true. In this section, I would like to briefly see some properties of factive clauses.

1.1 Factive Clauses as Islands

One important property concerns WH-movement. Observe the following contrast:

- (2) a. Who does John claim that he offended?
 b. ? Who does John regret that he offended?

The (a) example, where the WH-movement of the argument takes place out of the non-factive clause, is completely acceptable, but the (b) example, where the relevant clause is factive, the WH-movement results in mild deviance. Thus, factive clauses constitute weak islands. (Note that the degree of deviance found in the WH-movement from a factive clause varies from speaker to speaker. Kiparsky and Kiparsky (1971) and Stowell (1981), for instance, find such cases to be quite degraded, while Cinque (1990) finds them to be acceptable.)

1.2 A Condition on Questioning Out of Factive Clauses

One more thing that separates factive clauses from usual clauses has to do with the following sort of questions:

- (3) * From whom do you regret having gotten this letter?
 (Szabolcsi and Zwarts (1993: 271))

This example is reasonably degraded. Noting that the receiving of the letter

from someone cannot happen more than once, Szabolcsi and Zwarts argue that the argument WH-phrase of a predicate denoting a ‘one-time only’ property cannot be extracted from a factive island. Oshima (2005) provides a similar example:

(4) * By whom does Max regret that Alice was killed?

(Oshima (2005: 10))

Since Alice’s being killed can happen only once, the embedded predicate is a ‘one-time only’ predicate. Thus, the WH-movement of the prepositional phrase *by whom*, which is part of this predicate, out of the factive island leads to the severely degraded status of the example.

The following example is taken from Comorovski (1996):

(5) Who does(n’t) Sue know that John is married to?

(Comorovski (1996: 174))

The question above is pointed out to Comorovski by Barbara Partee, who observes that it is odd because it implicates that John is married to more than one person. Assuming that the state of John’s being married to someone is unique in the sense that he can be married only to one person at one time, the embedded predicate could be regarded as a kind of ‘one-time only’ predicate. In sum, elements that are part of the event or state which is unique cannot be questioned out of a factive clause.

2. *How Many Questions*

Consider the following sentence:

- (6) Tom knows that John has five books.

The state described in the factive clause is unique. That is to say, it is impossible to have a situation where Tom knows the fact that John has five books, while Bill knows the fact that John has six books, which would lead to contradiction. It is therefore expected that WH-movement of the object out of the factive clause yields deviance. Let us see if this is so:

- (7) How many books does Tom know that John has?

This example is not as bad as expected. In this section I consider why this is the case.

2.1 How Many Questions and WH-Islands

Research has been made about the behavior of *how many* questions in English (Frampton (1991) and Heycock (1995), among others). These researchers note that the interpretation of *how many* questions is affected when a *how many* phrase undergoes WH-movement out of a WH-island. First consider the following, which does not involve movement across an island:

- (8) How many people do you think *t* shave themselves?
(9) a. How many people are there such that you think they shave themselves?
b. What is the number such that you think that there are that many people who shave themselves?
(Frampton (1991: 42))

Frampton observes that the question above has two types of interpretations:

One is where the asker presupposes a set of individuals and wants to know the cardinality of the set, as in the (a) reading, which we refer to as the individual reading, and the one which invites an answer providing only the number without requiring any special contextual condition, as in the (b) reading, which we call the number reading. This sort of ambiguity is not observed, however, when the movement takes place out of an island:

- (10) How many books do you wonder [whether Jack has read *t*]?
 (11) a. How many books are there that you wonder whether Jack has read?
 b. * What is the number such that you wonder whether Jack has read that many books?
 (Frampton (1991: 41-42))

When the *how many* phrase crosses an island, the number reading disappears and only the individual reading remains.

Rizzi (2001) offers a solution for this asymmetry. Noticing that the individual interpretation requires a contextually provided set of individuals, he proposes that in this reading the lexical restriction sits in [Spec, Top] and the *how many* part resides in [Spec, CP] at LF, while in the number reading, which has no such presupposed information, the *how many* part resides in [Spec, CP] with the lexical restriction being reconstructed to the argument position. Thus, the rough LF structures would look like the following:

- (12) a. [_{CP} [How many] [_{TopP} [*t* people] do you think [_{IP} *t* shave themselves]]]]?
 b. [_{CP} [How many] do you think [_{IP} [*t* people] shave themselves]]?

In the (a) structure, the lexical restriction [*t people*] is found in [Spec, TopP] in the matrix clause, guaranteeing the existence of the set of the individual

people which is established in the prior discourse. In the (b) structure, on the other hand, the restriction is reconstructed to the argument position, leaving only the *how many* part in the left periphery, which forces the number reading.

The separation of the *how many* part from the rest of the WH-phrase is independently attested in French:

- (13) a. Combien de probl e mes sais-tu résoudre *t*?
 ‘How many of problems can you solve?’
 b. Combien sais-tu r e soudre [*t* de problèmes]?
 ‘How many can you solve of problems?’
 (Obenauer (1984/85))

It can be said that while the separation takes place overtly in French, it takes place covertly in English.

Let us turn to the case where the WH-movement of the *how many* part takes place out of an island:

- (14) a. [_{CP} [How many] [_{TOPP} [*t* books] do you wonder [whether Jack has read *t*]]]?
 b. [_{CP} [How many] do you wonder [whether Jack has read [*t* books]]]?

Consider the (a) structure first. Except the mild deviance due to the island effect, there is nothing wrong here. Thus the individual reading survives. How about the (b) structure, then? In this structure, the lexical restriction is reconstructed. Rizzi (2001) argues that the relation between *how many* and its trace is inappropriate. He assumes that a structural relation of two elements that are of the same type cannot not be intervened by an element of the same

type. In this structure, the structural relation between *how many*, an A-bar element, and its trace *t*, which is in an A-bar position, is severed by another A-bar element, that is, *whether*. Thus, the number reading is disallowed. This condition is irrelevant to the (a) structure, where nothing intervenes between *how many* and its A-bar trace and while [*t books*] is in an A-bar position, its trace is an A-position⁽¹⁾.

This analysis is supported by the following contrast in French:

- (15) a. ? Combien de problèmes sais-tu comment résoudre *t*?
 ‘How many of problems do you know how to solve?’
 b. * Combien sais-tu comment résoudre [*t* de problèmes]?
 ‘How many do you know how to solve of problems?’
 (Obenauer (1984/85))

Given this let us accept Rizzi’s argument and assume that the location of the restriction is instrumental in the interpretation of *how many* questions and that the *how many* part and its trace cannot be intervened by an A-bar element.

(1) Rizzi (2001) assumes the following system:

- (1) Y is in a Minimal Configuration with X iff there is no Z such that
 (i) Z is of the same structural type as X, and
 (ii) Z intervenes between X and Y.
 (Rizzi (2001:**))
 (2) (A_1, \dots, A_n) is a chain iff, for $1 \leq i < n$
 (i) $A_i = A_{i+1}$
 (ii) A_i c-commands A_{i+1}
 (iii) A_{i+1} is in a Minimal Configuration with A_i

I avoid going into the technical details of his analysis and simply accept his generalization that no A-bar element cannot intervene between an A-bar element and its trace in an A-bar position.

2.2 How Many Questions and Factive Clauses

Let us get back to our case repeated here:

(16) How many books does Tom know that John has?

This example has only the individual reading. Let us consider what kind of structure it would have. Since we have seen in the previous section that factive clauses constitute islands, let us assume, following Melvold (1991), that a factive clause involves a factive operator in [Spec, CP]. Given this, consider the following structures:

- (17) a. $[_{CP} \text{ [How many]} [_{TOPP} [t \text{ books}]] \text{ does Tom know } [_{CP} \text{ OP that John has } t]]]?$
b. $[_{CP} \text{ [How many]} \text{ does Tom know } [_{CP} \text{ OP that John has } [t \text{ books}]]]?$

Let us begin with the (b) structure. Here the structural requirement on *how many* and its trace in an A-bar position cannot be met, due to the intervening factive operator. As a result the number reading is disallowed. At the outset of this section we were only concerned with the number reading, which is to be rejected due to the independently motivated condition on questions. Here this reading is rejected in syntactic terms as well.

Let us turn to the (a) structure, which represents the individual reading, the only available interpretation. The question here is why this sentence is fine. In other words, why does the contradictory reading not arise?

Recall that the condition on questioning out of a factive clause has to do with the uniqueness of the event or the state depicted by the predicate involved. Recall also that when *how many* phrases are extracted from an

island, the only reading available is the individual reading, which presupposes a contextually provided set of individuals.

The question under consideration can be construed as asking for each member of a preestablished set whether Tom knows that John has that member and how many of the members yield a positive value. Since it is assumed that there are more than one member, the relevant predicate depicting the state is not a ‘one-time only’ predicate anymore, hence the absence of the anomaly.

2.3 *In-Situ* How Many Phrases

The wrong prediction made at the outset of this section presupposes that *how many* questions ask only for the cardinality. It has turned out, however, that there is an available interpretation, namely, the individual reading, which is made possible thanks to the presence of the lexical restriction in the matrix [Spec, TopP], which is mediated by the movement of the *how many* phrase.

This line of reasoning raises an interesting question with regards to *how many* phrases which do not move but stay in their original position. Let us consider a case where the *how many* phrase remains inside the factive clause:

- (18) * Who knows that John has how many books?

This example is anomalous, which is what we expected in the beginning of this section, where we did not take into consideration the individual reading, which is facilitated by the movement of WH-phrases. Thus the anomaly as well as the lack of the otherwise possible individual reading in this example shows that in-situ WH-phrases do not undergo covert

movement but stay there, as claimed by Hornstein (1995) and Simpson (2000), among others.

3. *How Many Questions in Japanese*

In the first section we have seen that questioning out of a factive clause involving a ‘one-time only’ predicate leads to anomaly. In the previous section we have seen that a *how many* question, despite the expectation, can nullify such an interpretive abnormality owing to the movement of the *how many* phrase. The oddity shows up, however, when the WH-phrase remains in-situ. In this section I would like to consider the effect in Japanese, a WH-in-situ language.

3.1 *In-Situ How Many Phrases in Japanese*

It has generally been assumed that what happens at LF cannot be learned, so it is not subject to parametrization. Given this, it must be that the absence of covert movement of in-situ WH-phrases, which we have seen in the previous section, applies not just to English but to Japanese as well. With this in mind, observe the following:

- (19) * Tom-wa [[John-ga nan-satsu-no hon-o motteiru]
 Tom-Top John-Nom what-Class-Gen book-Acc own
 koto]o sitteiru no?
 fact-Acc know Q
 ‘Q Tom knows the fact that John has how many books?’

This example, which involves no instance of WH-movement, disallows the individual reading, and it is interpretively weird, indicating that it violates the

now familiar condition on questioning out of a factive clause⁽²⁾. This effect is nicely captured on a par with the English case under the assumption that the in-situ *how many* phrase in Japanese does not undergo covert movement, on a par with the English counterpart, in accordance with the widely held view that there is no parameter available at LF.

3.2 Scrambling of How Many Phrases

That Japanese is a WH-in-situ language does not necessarily mean that WH-phrases in this language cannot move. They can be fronted by way of scrambling:

- (20) Nani-o Tom-wa Bill-ni [John-ga *t* tabeta to]
 what-ACC Tom-TOP Bill-DAT John-Nom ate COMP
 tutaeta no?
 told COMP
 ‘Q what Tom told Bill that John ate *t*’

It has been independently observed, for instance by Saito (1989, 1992, 1994) and Takahashi (1993) that scrambling can be semantically significant. We have seen that the movement of the *how many* phrase facilitates the lexical restriction to sit in [Spec, TopP], yielding the individual reading. The account

(2) Note that the deviance here is not syntactic but purely interpretive. The sentence improves if the factive clause is altered in the following way:

- (1) Tom-wa [[John-ga [[nan-satsu-no hon-o motteiru]
 Tom-Top John-Nom what-Class-Gen hon-Acc own
 hito]-ni atta] koto]-o sitteiru no?
 person-Dat met fact-Acc know Q
 ‘Q you know that John met a person who has how many books?’

This example is fine because it assumes that there are more than one person who has some books, which makes the uniqueness condition irrelevant.

presented in the previous section expects that scrambling may also give rise to the same effect. Let us see if this is the case:

- (21) ?? Nan-satsu-no hon-o Tom-wa [[John-ga *t* motteiru]
 what-Class-Gen book-Acc Tom-Top John-Nom own
 koto]-o sitteiru no?
 fact-Acc know Q
 ‘Q how many books, Tom knows the fact that John has?’

This example is mildly degraded, to begin with, because of the island effect, but it is fairly easy to interpret this question under the intended individual reading (and only under this reading, in fact). Thus our account for the effects observed in English correctly captures the effects in Japanese as well, which is based on the assumption that there is no movement of WH-phrases in covert syntax.

4. Conclusion

In this paper, I dealt with the presence and the absence of the anomaly arising from *how many* questions out of factive clauses. I argued that the oddity has to do with the number reading, which disappears when the restriction of the *how many* phrases is outside the factive clause, which is why the oddity is absent if extraction of the *how many* phrase takes place out of the factive island. This consideration is supported by the anomaly of the cases with the *how many* phrase remaining inside the factive island under the assumption that there is no movement of WH-phrases in covert syntax.

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