

[論説]

## ECM, Wh-questions and Phase Theory\*

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### 1. Introduction

In the literature, it has been generally agreed that Japanese exhibits exceptional case-marking (henceforth ECM) constructions (Kuno (1976), among others). In (1), for instance, *Mozart o*, the subject of the embedded clause, is marked with the Accusative case marker ‘-o’:

(1) Ookuno hito ga Mozart o tensai da to omotte iru.

Many people-Nom Mozart-Acc genius is that thinking is  
‘Many people think that Mozart is a genius.’

There has been, however, much disagreement on the syntactic behavior of the ECM subject. First, for instance, Kuno (1976) argues that *Mozart o* in (1) moves in one step (from within the embedded clause) to the object position of the matrix clause, where *Mozart o* is Accusative-marked. Second, Saito (1983) and Hoji (1991) claim that *Mozart-o* is base-generated in the matrix clause, and it controls *pro* in the embedded TP. Third, Kaneko (1988) and Takahashi (2006) argue that *Mozart-o* moves to the Spec of the embedded CP edge.

In this paper, I claim that the third analysis above should be favored. Furthermore, I show that this analysis can also correctly predict the behavior of certain *wh*-questions involving ECM, which have attracted little attention in the literature. The proposed analysis lends support to Chomsky’s (2001)

phase theory, and provides evidence, from ECM questions, for analyses which assume *wh*-movement in Japanese.

This paper is organized as follows: section 2 argues, based on Chomsky's (2001) phase theory, that the embedded subject in ECM constructions should be analyzed as moving from within TP to the edge of the CP phase. Section 3 deals with *wh* questions involving ECM. Sections 4 summarizes this paper.

## 2. A Phase-based Approach to ECM Constructions

### 2.1 Phase Impenetrability Condition

Chomsky (2001) proposes that syntactic computation proceeds phase by phase, and this proposal is formulated as the Phase Impenetrability Condition (henceforth PIC) in (2):

(2) a. Phase Impenetrability Condition (PIC)

The domain of H is not accessible to operations at ZP, but only H and its edge.

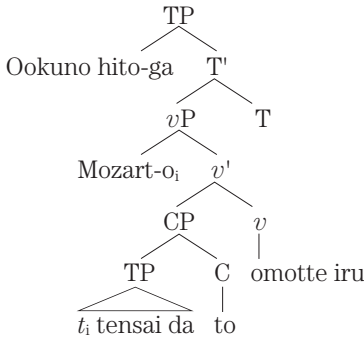
b.  $[_{ZP} Z \dots [_{HP} \alpha [H YP]]]$  (HP,ZP: strong phases;  $\alpha$ : edge; YP: domain)  
(Chomsky 2001)

A phase is assumed to be a verbal phrase with full argument structure, i.e. *v*P (*v*\*P, in Chomsky's notation) or CP. According to (2a), syntactic operations cannot “see” the materials below H, i.e. the domain YP in (2b). In order for material to remain accessible to extraction, it must be either in the head or the edge of the phase.

Not only does (2) derive the notion of cyclicity of derivations, but it also

contributes to the reduction of computational complexity, since it ensures that computation proceeds in phases which are highly restricted domains. So we take the PIC to be one of the most important theoretical assumptions in the minimalist program. Given (2a, b), consider the analyses roughly mentioned in section 1. Kuno's (1976) so-called 'raising-to-object' analysis is illustrated as in (3):<sup>1</sup>

(3) Raising-to-object Analysis (Kuno 1976)



In the recent framework of the minimalist program, however, once the phase  $vP$  is completed, the lower phase  $CP$ , with the exception of its edge, becomes inaccessible to syntactic operations. Thus, the movement of *Mozart-o* directly to the spec of  $vP$  as in (3) violates the PIC. Accordingly, the raising-to-object analysis incorrectly predicts ECM constructions such as (1) to be ungrammatical within the phase theory.

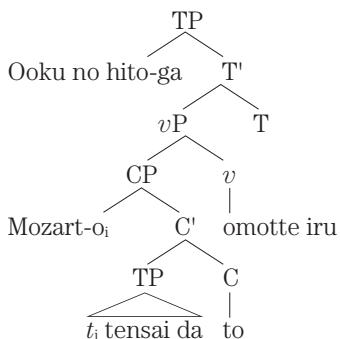
On the other hand, Takahashi's (2006)'raising-to-edge' analysis in (4) based on Kaneko's (1988)'CP-ECM analysis,' can avoid the above-mentioned problem.

(4) Raising-to-edge Analysis (Takahashi 2006)

In an ECM construction with a CP complement, an embedded subject must raise to the edge of the CP phase.

Takahashi (2006) assumes that the driving force of the raising operation is the EPP-feature of C, which can be satisfied by accusative DPs. Given (4) *Mozart-o* in (1) moves to the Spec of CP, as illustrated in (5):

(5)



Assuming that *vP* and *CP* constitute phases, since *Mozart-o* in (5) is in the edge of the *CP* phase, it is visible to the probe *omotte*. So the raising-to-edge analysis can correctly predict the grammaticality of ECM constructions within the phase theory.

It may be the case that once movement to the *CP* edge has applied, further movement to *vP* might remain available as an option. However, as space is limited, we leave the matter open in this paper. Anyway, the crucial point is that the proposed system uses the *CP* edge, unlike Kuno's (1976) analysis.

## 2.2 Sentential Adverbs

(4) implies that the final position of the ECM subject is higher than the embedded TP. So we predict that the ECM subject should precede a sentential adverb. This prediction is borne out. Let us look at the examples in (6a) and (6b):

- (6) a. *Watasi-wa zeikin-o akirakani takai to kanzi-ta*  
 I-Top tax-Acc evidently expensive C feel-Past  
 ‘I felt it evident that tax was expensive.’
- b. *Kare-wa tuma-o mezurasiku kirei da to kanzi-ta*  
 he-Top his wife-Acc unusually beautiful is C feel-Past  
 ‘He felt it unusual that his wife looked beautiful.’

The surface position of the accusative DPs (*zeikin-o* in (6a) and *tuma-o* in (6b)) is higher than that of the sentential adverbs (*akirakani* and *mezurasiku*, respectively). This shows that the accusative DPs are in a position higher than TP, as illustrated in (7a) and (7b):<sup>2</sup>

- (7) a. *Watasi-wa [zeikin-o<sub>i</sub> [TP akirakani [TP t<sub>i</sub> takai] to] kanzita.*  
 b. *Kare-wa [tuma-o<sub>i</sub> [TP mezurasiku [TP t<sub>i</sub> kirei da] to] kanzita.*

The next subsection introduces data which show that *zeikin-o* in (7a) and *tuma-o* in (7b) are not base-generated in the surface positions.

## 2.3 Idiom Chunks

Japanese has idiomatic phrases such as in (8a) and (8b), whose meanings

cannot be derived from the literal definitions of their parts.

- (8) a. *sikii-ga takai*  
doorsill-Nom high  
(‘about a store, restaurant, etc. that is expensive) be awkward to go  
in there’
- b. *kage-ga usui*  
shadow-Nom dilute  
‘to not a standout’

Given the idioms in (8a, b), consider the sentences in (9a, b):<sup>3</sup>

- (9) a. *Watasi-wa sono mise no sikii-o akirakani takai to kanzi-ta*  
I-Top that shop's doorsill-Acc evidently high C feel-Past  
‘I evidently felt it hard to go into the shop.’
- b. *Boku-wa Taro no kage-o tasikani usuku-natta to kanzi-teiru*  
I-Top Taro's shadow-Acc certainly dilute-became C feel-state  
‘I certainly feel Taro's presence has become weaker.’

Note that in the ECM constructions in (9a) and (9b), the ECM subjects, *sikii-o* in (9a) and *kage-o* in (9b), can precede the sentential adverbs *akirakani* and *tasikani*, respectively. Assuming that an idiom chunk must form a constituent at some point of the derivation in order for its idiomatic interpretation to be licensed (e.g. Koopman and Sportiche (1988), Larson (1988)), it follows from these facts that *sikii-o* and *kage-o* originate within the embedded clause. Accordingly, the proposed analysis is to be preferred

to the ‘control’ analysis (Saito (1983) and Hoji (1991)) in that the former assumes that the embedded subject of ECM constructions originates in the embedded TP.

## 2.4 Scrambling

Further evidence for the proposed analysis has to do with scrambling. As we are assuming that an ECM subject uses the CP edge, we predict that scrambling of the CP containing the ECM subject is possible. This prediction is borne out. Consider the sentence in (10a):

- (10) a. [<sub>CP</sub> Mozart-o tensai da to] ookuno hito ga omotte iru.  
 Mozart-Acc genius is C many people-Nom thinking is  
 ‘Many people think that Mozart is a genius.’
- b. Ookuno hito ga [<sub>CP</sub> Mozart-o tensai da to] omotte iru.  
 Many people Nom Mozart-Acc genius is C thinking is

The sentence in (10a) is derived by scrambling of a constituent, i.e. the CP, applied to the underlying structure in (10b).

So far I have argued for the raising-to-edge analysis in (4).<sup>4</sup> In the next section, I attempt to demonstrate that the analysis can also correctly predict the behavior of *wh*-phrases in ECM questions.

## 3. WH-Movement in ECM Questions: A Preliminary Study

### 3.1 ECM Questions

In Japanese, alternation between the Acc-marker *o* and Nom-marker *ga* can be observed in *wh* questions in ECM environments, as in the (a) and (b)

sentences in (11) and (12), although this phenomenon has attracted little attention in the literature:<sup>5</sup>

- (11) a. Anata-wa dare-o tekinin da to omoi-masu ka?  
you-Nom who-Acc eligible is C think-Pres Q  
‘Who do you think is eligible?’  
b. Anata-wa dare-ga tekinin da to omoi-masu ka?  
you-Nom who-Nom eligible is C think Q
- (12) a. Kanozyo-wa nani-o rokudemonai to omoi-masita ka?  
she-Top what-Acc not good at all C think-Past Q  
‘What did she feel is not good at all?’  
b. Kanozyo-wa nani-ga rokudemonai to omoi-masita ka?  
she-Top what-Nom not good at all is C think-Past Q

The Accusative-marked *dare-o* in (11a) and (12a) is interpreted as the subject in the complement clause, just like in (11b) and (12b). Thus, it is natural to consider (11a) and (12a) to be interrogative sentences involving exceptional case-marking of the embedded subject (henceforth ECM questions). In the remainder of this paper, I attempt to show, as a preliminary study, that (11a) and (12a), apparently not involving *wh*-movement, do involve syntactic *wh*-movement.

### 3.2 WH-movement

First, consider (13a) and (14a):



- (13) a. Anata-wa dare-o tekinin da to omoi-masu ka?  
 you-Top who-Acc eligible is C think-Pres Q  
 b. \* $[t_i \text{ tekinin da to}]_j$  anata-wa dare-o<sub>i</sub> t<sub>j</sub> omoi-masu ka?
- (14) a. Kanozyo-wa nani-o rokudemonai to omoi-masita ka?  
 she-Top what-Acc not good at all C think-Past Q  
 b. \* $[t_i \text{ rokudemonai to}]_j$  kanozyo-wa nani-o<sub>i</sub> t<sub>j</sub> omoi-masita ka?

The wh-word *dare-o* in (13a) and *nani-o* in (14a) is the ECM subject. Given the analysis in section 2, *dare-o* in (13a) and *nani-o* in (14a) should also undergo string vacuous (*wh-*) movement. However, as is well known, some researchers argue that Japanese exhibits *wh*-movement (Takahashi (1993) among others) or scrambling, and others argue that Japanese *wh*-words are licensed without movement (Tsai (1994), among others). Thus, the question arises whether *dare-o* in (13a) and *nani-o* in (14a) undergoes *wh*-movement or not.

If *dare-o* in (13a) and *nani-o* in (14a) has undergone (*wh-*) movement and leaves a trace, we predict that the scrambling of a constituent containing the trace should lead to the violation of the Proper Binding Condition in (15):

- (15) Proper Binding Condition  
 Traces must be bound.

The ungrammatical status of (13b) and (14b) shows that our prediction is borne out. Consequently, if the analysis above is adequate, *dare-o* in (13b) and *nani-o* in (14b) undergoes (*wh-*) movement.<sup>6</sup>

Furthermore, the following data show that the landing site of *dare-o* and *nani-o* is higher than TP. Consider the paradigm in (16) and (17):

- (16) a. Anata-wa dare-o fukinsinnimo tekinin da to omoi-masu ka?  
you-Top who-Acc indiscreetly eligibel is C think-Pres Q  
b. \*Anata-wa dare-ga fukinsinnimo tekinin da to omoi-masu ka?  
you-Top who-Nom indiscreetly eligible is C think-Pres Q
- (17) a. Kanozyo-wa nani-o kenmeinimo rokudemonai to  
she-Top what-Acc cleverly not good at all C  
omoi-masita ka?  
think-Past Q  
b. \*Kanozyo-wa nani-ga kenmeinimo rokudemonai to  
she-Top what-Nom cleverly not good at all C  
omoi-masita ka?  
think-Past Q

In (16a) and (17a), *dare-o* can precede the sentential adverb *fukinsinnimo* and *kenmeinimo*, respectively, whereas *dare-ga* in (16b) and *nani-ga* (17b) cannot. This contrast shows that *wh*-words in ECM questions undergo movement to a position higher than TP.

Although this paper is no more than a preliminary study, it seems reasonable to assume that the embedded subject in ECM questions undergoes *wh*-movement to the CP edge. If this analysis is on the right track, it gives support to analyses which assume syntactic *wh*-movement in Japanese (Takahashi (1993), among others).

#### 4. Summary

In this paper, I have argued that the embedded subject in Japanese ECM constructions moves to the CP edge. Furthermore, I have claimed that the *wh*-words in ECM questions also move to the CP edge. The proposed analysis lends support to Chomsky's (2001) phase theory, and provides evidence, from ECM questions, for analyses which assume *wh*-movement in Japanese.

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#### Notes

- 1) For lack of space, this paper discusses only some points of previous analyses, i.e. (i) the presence or the absence of a movement operation, and (ii) if a movement operation applies, the landing site of that movement. For a detailed discussion of previous analyses of ECM constructions, see Takahashi (2006).
- 2) The proposed analysis also predicts that failure to raise on the part of the DP (embedded subject) should result in ungrammaticality. This prediction is also borne out in the contrast between (a)-sentences and (b) -sentences in (i) and (ii).
  - (i) a. \*Watasi-wa akirakani zeikin-o takai to kanzita  
I-Top evidently tax-Acc expensive C feel-Past
  - b. Watasi-wa akirakani zeikin-ga takai to kanzita  
I-Top evidently zeikin-Nom expensive C feel-Past
  - (ii) a. \*Kare-wa mezasuraku tuma-o kirei da to kanzi-ta

he-Top unusually his wife-Acc beautiful is C feel-Past

b. Kare-wa mezurasiku tuma-ga kirei da to kanzi-ta

he-Top unusually his wife-Nom beautiful is C feel-Past

- 3) One of the anonymous reviewers pointed out to me that the ECM sentences in (9a) and (9b) may sound odd, since the expressions such as “sikii o takai” and “kage o usui” are unfamiliar expressions. However, to the extent that ECM sentences involving such expressions are acceptable for at least some informants, the acceptability must be accounted for as a characteristic of UG.
- 4) The proposed analysis can also correctly predict the behavior of Romanian ECM constructions. See Takahashi (2006) for details.
- 5) In Japanese, sentences in which a *wh*-word is in sentence initial position are also possible as in (i):

(i) Dare-o anata-wa tekininda to omoi-masu ka?

who-Acc you-Top eligible C think-Pres Q

However, since what we focus on in this paper are sentences which apparently involve no movement, (i) is beyond the scope of this paper.

- 6) Following Chomsky (2000), we assume that a *wh* phrase bears an uninterpretable *wh*-feature and an interpretable Q-feature, which matches the probe, an uninterpretable Q-feature of C. We also assume that, independently of the operation Agree between C and a *wh* phrase, the EPP-feature of C triggers the movement of the *wh* phrase.

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