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On Traces in Japanese and English*

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0. Introduction

Takahashi (1994) assumes that the absence of the subject island effect in Japanese is attributed to the fact that a subject in Japanese can remain within VP at overt syntax. This assumption will be reviewed in section 1, and I will show that a subject in Japanese must move to [Spec, IP] at overt syntax. Section 2 will consider scrambling of subjects in a major subject construction, and examine how this is constrained by the Proper Binding Condition (PBC). In the following section, it will be pointed out that the VP Internal Subject Hypothesis (Fukui and Speas (1986), Kuroda (1988), and Koopman and Sportiche (1991)) exhibits an apparently violation of the PBC. Then, finally, I will show that traces are subject to the PBC.

1. Takahashi's Minimality of Movement

Takahashi (1994) discusses the lack of the subject island effect in Japanese, using the Shortest Movement Condition (SMC) and the Uniformity Corollary on Adjunction (UCA) as below:

- (1) a. SMC: Make the shortest movement.
- b. UCA: Adjunction is impossible to a proper subpart of a uniform group, where a uniform group is a nontrivial chain or a coordination.

On the grounds that chains must be uniform, he assumes that constituents cannot adjoin to heads of nontrivial chains. Provided that in a chain (X_1, \dots, X_n), some constituent adjoins to X_1 , the chain is no longer uniform. Based on this assumption, he considers the difference in the subject island effect between English and Japanese, using the following examples, in which phrases are extracted out of subjects:¹

- (2) a.?^{*} [_{CP} who did [_{IP} t' [_{IP} [_{DP} ____ [_{D'} a [_{NP} t' [_{NP} picture of t]]]][_I I
[_{VP} t_{DP} please you]]]]

- b. [OP [Mary-ga t yonda no]-ga akirakana
 -NOM read that-Nom is-obvious
 yorimo] John-wa takusan-no hon-o yonda
 than -TOP many-Gen book-Acc read
 '(*)John read more books than that Mary read is obvious.'

According to Takahashi, (2a) is deviant because movement of *who* from the position of *t'* to the position of *t''* skips over the specifier of DP, violating the SMC. Note that the DP moves from [Spec, VP] to [Spec, IP] within the minimalist framework involving the VP Internal Subject Hypothesis. The UCA predicts that *who* in the position of *t'* cannot move to [Spec, DP] since the subject movement forms a nontrivial chain. Hence the *wh*-phrase skips over [Spec, DP], violating the SMC.

What about the Japanese example in (2b)? Takahashi accounts for the lack of the subject condition in Japanese by assuming that a subject can remain in situ at overt syntax. Given this assumption, the null comparative operator can move to [Spec, DP], meeting the SMC as shown in (2b):

- (2) b' [_{DP} OP [_D Mary-ga t yonda no]-ga akirakana
 yorimo] John-wa takusan-no hon-o yonda

This account appears to be tenable, but there are some examples which are incompatible with this account.

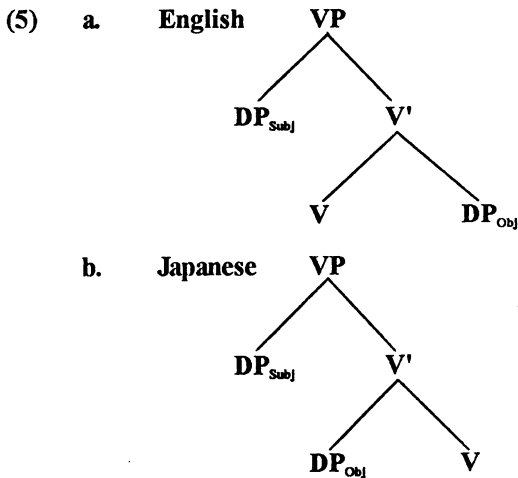
For example, consider the following example containing a floated quantifier:²

- (3) Yuube, kuruma ga doroboo ni 3-dai nusum-are-ta.
 last night cars Nom thief by 3-CL steal-PASS-past
 'Last night, three cars were stolen by a thief.'

In this example, the numeral quantifier *3-dai* modifies the DP *kuruma-ga*.³ The movement of *kuruma-ga* is forced because the passive participle cannot assign accusative Case to it. Recall that in order to satisfy Takahashi's UCA, the subject must remain within VP at overt syntax. In passive constructions such as (3), however, they are assumed to be structures such as (4):

- (4) DP_i-Nom [_{VP} PP-by *t_i* Num-CL V]

This poses a problem for Takahashi's account of the lack of the subject island effect in Japanese. This example indicates that a subject in Japanese moves out of VP at overt syntax. Then, why is a constituent allowed to move out of a subject in Japanese? It is plausible to assume that Japanese allows a constituent to move out of a subject because a subject in Japanese, unlike a subject in English, is canonically governed in the same way as an object, as shown in the following:



2. Scrambling of Subjects in Major Subject Constructions

As shown in (5), a subject in Japanese is canonically governed. This might lead us to the assumption that a subject can be scrambled. This assumption, however, is refuted by major subject constructions such as the following:

- (6) a. John-ga imooto-ga kawai-i
 John-Nom sister-Nom pretty-be
- b. *imooto_i-ga John-ga t_i kawai-i
- c. ano kaisyā-de-wa John-ga taido-ga waru-i
 that company-Loc-Top John-Nom attitude-Nom bad-be
- d. *taido_i-ga anakaisyā-de-wa John-ga t_i waru-i

In (6b, d), the inner subject is scrambled to the sentence initial position, and they are assumed to be assigned structures such as (7):

- (7) [_{IP(AGR_{IP})} DP_i-ga [_{IP(AGR_{IP})} DP-ga [_{IP(AGR_{IP})} t_i ...]]]

If we follow Rizzi's (1990) Relativized Minimality, and adopt Chomsky's (1994, 1995) multiple specifier hypothesis, we would expect (6b, d) to be grammatical since movement of the inner subject is an A'-movement, and hence the intervening outer subject in an A-position does not count as a potential governor in Rizzi's sense.⁴ Notice also that within the minimalist framework, the two subjects are in the same minimal domain, and either of them can be moved to the higher target. So (6b, d) are wrongly predicted to be grammatical. Why are (6b, d) deviant?

Before proceeding to account for the deviance of (6b, d), let us review Saito's (1989) suggestion that traces formed by scrambling must meet the Proper Binding Condition (PBC) proposed by Fiengo (1977):

- (8) In surface structure S_n , if $[e]_{NPn}$ is not properly bound by $[...]_{NPn}$, then S_n is not grammatical.

With this in mind, consider the following examples:⁵

- (9) a. $[_{IP} \text{ John-ga } [_{CP} \text{ Mary-ga } \text{ sono hon-o } \text{ yonda to}] \text{ itta}] \text{ (koto)}$
 John-Nom Mary-Nom that book-Acc read COMP said fact
 'John said that Mary read that book'
- b. $*[_{IP} [_{CP} \text{ Mary-ga } t_i \text{ yonda to}]_i [_{NP} \text{ sono hon-o}]_i]$
 Mary-Nom read COMP that book-Acc
 $[_{IP} \text{ John-ga } t_i \text{ itta}]] \text{ (koto)}$
 John-Nom said fact
 'John said that Mary read that book'

CP and NP in (9b) are multiply scrambled within a sentence. This operation is licit because more than one element can be scrambled in Japanese. Saito shows that (9b) is ruled out by the PBC, because t_i , a variable, is not bound by the antecedent.

The deviance of (9b) shows that a variable must be bound. It remains to examine whether an NP-trace is subject to the PBC or not. Consider the following representations of (6b, d) with irrelevant details omitted:

- (10) a. $*[_{IP(AGR_1P)} [_{DP} t_i \text{ imooto}]_i\text{-ga } [_{IP(AGR_1P)} [_{DP} \text{ John}]_i\text{-ga } [_{I(AGR_1)} t_i [_{I(AGR_1)} \text{ kawai } [_{I(AGR_1)} i]]]]]]]$
- b. $*[_{IP(AGR_1P)} [_{DP} t_i \text{ taido}]_i\text{-ga } [_{IP(AGR_1P)} \text{ anokaisya-de-wa } [_{IP(AGR_1P)} [_{DP} \text{ John}]_i\text{-ga } [_{I(AGR_1)} t_i [_{I(AGR_1)} \text{ waru } [_{I(AGR_1)} i]]]]]]]]]$

The trace indexed by *j* in (10a, b) is left by movement of the outer subject to the specifier of IP (AGRsP).⁶ Recall here that *t_i* in (10a, b) is properly head-governed by INFL (AGRs) in accordance with the conjunctive ECP. The ungrammaticality, therefore, may be attributed to a violation of the PBC rather than the ECP, since *t_j* in (10a, b) is not bound.⁷ In the next section, I will show that the analysis of examples (10a, b) is incompatible with VP preposing constructions.

3. NP Traces in English

In the previous section, I have shown that an NP trace must satisfy the PBC. This may undermine Huang's (1993) argumentation that a VP containing a subject trace moves to the sentence initial position.⁸

(11) [_{VP} *t_i* criticize himself_{*i*}], John said that Bill_{*i*} never will.

The subject base-generated within VP is moved from [Spec, VP] to [Spec, IP]. As Huang points out, a problem arises as to whether the subject trace is properly governed or not. Given the requirement that a trace must meet the conjunctive ECP, the trace is antecedent-governed before the verb phrase is fronted to the sentence-initial position. However, it is not head-governed. He then suggests that in (11), what has been preposed is not a VP but a maximal category right above VP.⁹

(12) [_{XP} X [_{VP} *t_i* criticize himself_{*i*}]], John said that Bill_{*i*} never will.

In (12), *t_i* is properly head-governed by X in accordance with the ECP. It should be pointed out, however, that *t_j* in (12) is not bound. As a result, (12) is wrongly predicted to be deviant by the PBC. To avoid this undesirable result, let us examine VP preposing. Suppose that XP in (12) is adjoined to IP. Then, one might argue that the trace is bound if XP in (12) is reconstructed. This manipulation, however, cannot extend to VP preposing, as seen from sentences such as the following:¹⁰

- (13) a. John wondered who Bill bought pictures of.
 b. *Pictures of_{*i*}, John wondered who Bill bought_{*i*}.
 c. *[[Pictures of *t_i*]_{*i*}, [John wondered who_{*i*} Bill bought *t_j*]].

The constituent, *pictures of t_i*, is topicalized, and it is adjoined to IP. Rochemont and Culicover (1990) show that (13b) as represented in (13c) is deviant because *t_i* does not satisfy the ECP. If

pictures of t in (13b) were reconstructed, the example would not violate the ECP, and its deviance would remain unexplained.¹¹ Why are sentences such as (11) grammatical?

Consider a VP preposing construction such as (14):¹²

(14) We thought she would lose her temper, and [_i lose it]_i she_i did _i

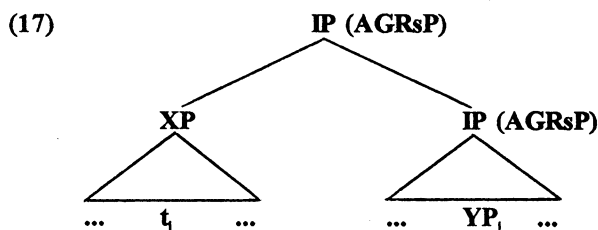
It should be noted that the grammatical (14) would be ruled out by the PBC for the same reason that (10a, b) are. To avoid this undesirable consequence, we have to examine how VP preposing and topicalization should be analyzed. Consider the following examples:¹³

- (15) a. They say that John can't pass the test, but I believe that he will pass the test.
 b. *They say that John can't pass the test, but I believe that [pass the test]_i he will _i.
 c. John said that [this book]_i, he thought you would like _i

Although topicalization occurs in an embedded sentence, as shown in (15c), VP preposing does not, as shown by the deviance of (15b). If the preposed VP is adjoined to IP, it is impossible to account for the deviance of (15b). If, on the other hand, we assume that the preposed VP is in CP, we can account for the deviance of (15b) by saying that the complementizer *that* and the preposed VP cannot cooccur. Given that VP preposing is a movement to [Spec, CP], preposed VPs, like other *wh*-elements, can be reconstructed.¹⁴ With this in mind, consider an LF representation of (14) such as (16), in which the preposed VP has been reconstructed:

(16) We thought she would lose her temper, and she_i did [_i lose it]

In (16), there is no trace violating the PBC. This account cannot extend to (10a, b) or (13b). If the scrambled elements in (10a, b) and the topicalized element in (13b) moved into CP and were reconstructed, these examples would be wrongly ruled in. The preceding argumentation indicates that the following configuration violates the PBC:



It is important to note that t_j in (17) is subject to the PBC, regardless of whether it is left by movement to an A-position or an A'-position.¹⁵

4. Conclusion

In this paper, I have shown that, contra Takahashi (1994), a subject in Japanese moves to [Spec, IP] at overt syntax, and suggested that the lack of the subject island effect in Japanese is due to the fact that a subject in Japanese is canonically governed. This approach allows a subject in Japanese to be scrambled. However, I have shown that an inner subject in a major subject construction cannot be scrambled, since it violates the PBC. The suggested approach is incompatible with VP preposing constructions which are wrongly ruled out by the PBC. To avoid this, I have suggested that VP preposing, unlike topicalization, is a movement into CP, and can be reconstructed. This allows us to capture the generalization concerning configuration (17).

If the foregoing discussion is correct, it follows that traces must meet the PBC, regardless of whether they are NP traces or variables.

Notes

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¹ Examples (2a, b) are adapted from Takahashi (1994: 62-65).

² Example (3) is cited from Miyagawa (1989: 148).

³ For the purpose of construing the numeral quantifier as a modifier of the DP, Miyagawa (1989: 30) proposes the following requirement:

(i) **Mutual C-Command Requirement:** For a predicate to predicate of a NP, the NP or its trace and the predicate or its trace must c-command each other.

The DP *kuruma-ga* must be in VP to meet the above requirement.

⁴ Chomsky (1994: 41) provides the following multiple specifier configuration:

(i)

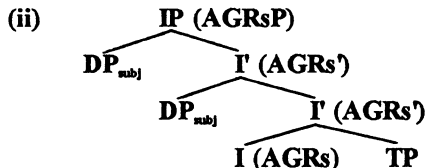
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      XP
     / \
  SPEC1 /  \ X'
        /    \
     SPEC2    X'
             /  \
            H    Complement
  
```

Chomsky states that if a language allows (i), (i) can permit multiple licensing of Case and agreement from H. However, Chomsky suggests that some element could covertly fill SPEC1 for the same Case-checking as SPEC2. Slightly extending this assumption to major subject

constructions, I assume

that SPEC1 can be overtly filled for Case-checking, as shown below:



See Sasaki (1996) for detailed discussion.

⁵ Sentences (9a, b) are adapted from Saito (1989: 189-190).

⁶ With regard to (10), I adopt the movement approach to major subject constructions on the basis of the observation that an adverb can occur between multiple subjects:

- (i)
- | | | | | |
|----|----------------------|----------|--------|--------------|
| a. | ano kaisya-de-wa | John-ga | itiban | taido-ga |
| | that company-Loc-Top | John-Nom | most | attitude-Nom |
| | waru-i | | | |
| | bad-be | | | |
| b. | *ano kaisya-de-wa | John-no | itiban | taido-ga |
| | that company-Loc-Top | John-Gen | most | attitude-Nom |
| | waru-i | | | |
| | bad-be | | | |

I claim that major subjects constructions are generated from structures underlying their genitive counterparts. This claim is supported since if major subjects are base-generated at specifiers of DP, it is impossible to add an adverb modifying the predicate as in (ib).

One might point out that major subjects can be base-generated at IP-adjoined positions, and an adverb can appear between them. I do not adopt this approach since if major subjects are base-generated at IP-adjoined positions, it is unclear where θ -roles for outer subjects come from. See also Fukuda (1991) for the movement approach to multiple subject constructions.

⁷ Since scrambling is an optional movement, scrambled elements, unlike topicalized ones, are freely undone or reconstructed in the sense of Saito (1989) and Poole (1996). If scrambled elements are undone, sentences (10a, b) do not exhibit the PBC violation, as pointed out to me by H. Sakai (personal communication):

- (i)
- | | |
|----|--|
| a. | *[_{IP(AGRp)} [_{IP(AGRp)} [_{DP} John] _i -ga [_{I(AGRs)} [_{DP} <i>t</i> _i imooto]-ga [_{I(AGRs)} kawai [_{I(AGRs)} i]]]]] |
| b. | *[_{IP(AGRp)} [_{IP(AGRp)} anokaisya-de-wa [_{IP(AGRp)} [_{DP} John] _i -ga [_{I(AGRs)} [_{DP} <i>t</i> _i taido]-ga [_{I(AGRs)} waru [_{I(AGRs)} i]]]]] |

I leave this problem for future research.

⁸ Example (11) is from Huang (1933: 112).

⁹ Huang (1993) denotes the maximal category as an XP, suggesting that the XP is an AGRoP.

¹⁰ Examples (13a-c) are from Rochemont and Culicover (1990: 89).

¹¹ Note that *t_i* in (13c), a variable, is not bound. See also Baltin (1982), and Lasnik and Saito

(1992) for topicalization.

¹² Sentence (14) is taken from Emonds (1976: 115).

¹³ Examples (15a,b) are adapted from Akmajian and Heny (1975: 371), and (15c) is from Lasnik and Saito (1992: 81).

¹⁴ Takano (1995) also reaches the same conclusion. First, Takano (1995: 328) argues that VP preposing exhibits reconstruction effect regarding Principle C, providing the following sentences:

- (i) a. *Criticize John_i, he_i did.
b. *How proud of John_i is he_i?
c. *Criticize John_i, I think he_i did.
d. *How proud of John_i do you think he_i is?

Just as (ib, d) violate Principle C when they are reconstructed, (ia, c) violate this principle when they are reconstructed.

Secondly, Takano also notices that a preposed VP including a subject trace does not induce a PBC violation because the VP moves to [Spec, CP], as shown in the following:

- (ii) a. [_{CP} [_{VP} Op t_i eat the apple]_j [_{IP} John_i did t_j]]
b. [_{CP} Op_k [_{VP} t_k t_i eat the apple]_j [_{IP} John_i did t_j]]
c. [_{CP} Op_k [_{IP} John_i did [_{VP} t_k t_i eat the apple]]]

LF representation (iic) is grammatical in accordance with the PBC.

¹⁵ Lasnik and Saito (1992) suggest that a raising adjective construction might violate the PBC, as shown in (i):

- (i) a. [how likely t_i to win]₂ is John_i t₂
b. [how likely [PRO_i to win]]₂ is John_i t₂
c. John_i is likely [t_i to win]
d. John_i is likely [PRO_i to win]

According to Lasnik and Saito, (ia) is ruled out by the PBC. This leads them to propose that *likely* is not a raising predicate but selects an infinitival complement with a PRO subject, as shown in (ib). If so, there is no trace contravening the PBC in (ib). This leads Lasnik and Saito to conclude that a raising adjective construction is represented as (id) rather than (ic). Although their argument sounds convincing, PRO is governed by *likely*, violating the PRO theorem. Therefore, contra Lasnik and Saito, we continue to assume the traditional analysis of raising predicates, as shown by (ia, c). It should be noted that (ia) does not violate the PBC, if the *wh*-phrase is reconstructed.

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