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## Empty Pronominals in Japanese and Subject of NP\*

Hajime Hoji

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### 1. Missing Arguments in Japanese

Consider the following sentences.

- (1) a. John-ga sono hon-o yomimasita ka  
John-nom that book-acc read Q  
(Did John read that book?)  
b. Hai, yomimasita.  
Yes read  
(Yes, he did.)
- (2) a. Did John read the book?  
b. \*Yes, read.

While (2b) is complete garbage, (1b) in Japanese is perfect. Based

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on such facts, it has often been assumed since Kuroda (1965) that Japanese has an empty pronominal, which corresponds to the overt pronominals in English. According to this view, (1b) has an empty pronominal in both the subject and the object positions, as indicated in (3a), analogous to the English sentence in (3b).<sup>1</sup>

(3) a. (Hai) pro pro yomimasita  
       yes he it read  
       (He read it.)

b. (Yes) he read it.

This hypothesis also provides a straightforward account of the well-known ambiguity of sentences such as (4a).<sup>2</sup>

(4) a. Boku-wa unagi da  
       I-top eel copula-present  
       b. Boku-wa pro(-ga) unagi da  
       I-top it(-nom) eel is

(4a) could mean "I am an eel" as in a Halloween party, "I am ordering eel" as in a restaurant, "what I have allergy to is eel" as in a hospital, and so on. If we assume that there is an empty pronominal in the subject position, as indicated in (4b), and if we assume, as in Kuno (1973), that a topic NP can be base-generated in the sentence-initial position, (4a) is exactly like (5), which is as ambiguous as (4a).<sup>3</sup>

(5) As for me, it is (an) eel.

## 2. Variable Binding

In the recent years, the hypothesis that Japanese has an empty pronominal has rendered possible a fairly straightforward account of a range of phenomena in Japanese that have to do with variable binding (Hoji (1985). Observe the contrast between (6) and (7).<sup>4</sup>

(6) a. Daremo<sub>i</sub>-ga [<sub>NP</sub>[<sub>S</sub> pro<sub>i</sub> hitome pro<sub>j</sub> mita] hito<sub>j</sub>]-o sukini natta  
       everyone-nom he one glance him saw person-acc fell in love  
       (Everyone<sub>i</sub> fell in love with the person that he<sub>i</sub> took a glance at.)

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- b. Daremo<sub>i</sub>-ga [<sub>NP</sub>[<sub>S</sub> pro<sub>j</sub> pro<sub>i</sub> butta ] hito<sub>j</sub>]-o uttaeta (koto)  
 everyone-nom he him hit person-acc sued  
 (Everyone<sub>i</sub> sued the person that hit him<sub>i</sub>.)

- (7) \* [<sub>NP</sub>[<sub>S</sub>pro<sub>j</sub> hitome pro<sub>i</sub> mita] hito<sub>j</sub>]-ga [<sub>VP</sub>daremo<sub>i</sub>-o sukini natta]  
 he one glance him saw person-nom everyone-acc fell in love  
 (\*The person that took a glance at him<sub>i</sub> fell in love with everyone<sub>i</sub>.)

In (6), where the quantified NP (henceforth Q-NP) c-commands pro<sub>i</sub>, bound variable interpretation (henceforth bvi) for pro<sub>i</sub> is possible.<sup>5</sup> By contrast, (7), where Q-NP does not c-command pro<sub>i</sub>, the bvi for pro<sub>i</sub> is not possible, a typical case of weak crossover (henceforth WCO). (Cf. Postal (1971), Wasow (1973), Chomsky (1976) and many recent works on this topic.) When Q-NP is replaced by a referential NP such as John, the resulting sentence allows coreference, regardless of the c-command relation between the Q-NP and the pro.<sup>6</sup> This is illustrated in (8).

- (8) a. John<sub>i</sub>-ga [<sub>NP</sub>[<sub>S</sub> pro<sub>i</sub> hitome pro<sub>j</sub> mita] hito<sub>j</sub>]-o sukini natta  
 -nom he one glance him saw person]-acc fell in love  
 (John<sub>i</sub> fell in love with the person that he<sub>i</sub> took a glance at.)
- b. [<sub>NP</sub>[<sub>S</sub> pro<sub>j</sub> hitome pro<sub>i</sub> mita] hito<sub>j</sub>]-ga John<sub>i</sub>-o sukini natta  
 he one glance him saw person-nom -acc fell in love  
 ([The person that took a glance at him<sub>i</sub>] fell in love with John<sub>i</sub>.)

When we prepose the matrix object in (7), as in (9), the bvi is still available.

- (9)  
 [<sub>S</sub>[<sub>NP</sub>[<sub>S</sub>pro<sub>i</sub> hitome pro<sub>j</sub> mita] hito<sub>j</sub>]-o<sub>k</sub> [<sub>S</sub>daremo<sub>i</sub>-ga [<sub>VP</sub>t<sub>k</sub> sukini natta]]]  
 he one glance him saw person-acc everyone-nom fell in love  
 ([The person that he<sub>i</sub> took a glance at]<sub>k</sub>, everyone<sub>i</sub> fell in love with t<sub>k</sub>.)

To the extent that NP-o NP-ga order is derived by the syntactic movement of the object NP, as argued originally by Harada (1977) and further argued for in a series of works by Saito (1983, 1985) (cf. also

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Whitman (1982)) the availability of bound reading in (9) can be assimilated to the so-called "reconstruction" examples such as (10).<sup>7</sup>

(10) [Which one of his<sub>i</sub> poems]<sub>k</sub> does every poet<sub>i</sub> want to read t<sub>k</sub>?  
(Engdahl, 1980)

The facts illustrated in (6) through (9) can thus be accounted for straightforwardly if we assume that Japanese has an empty pronominal and that it can freely occur in the argument positions within the sentence.

### 3. Missing Arguments in NP

Having seen evidence that intuitively missing arguments in the sentence are actually present as empty pronominals, let us consider whether intuitively missing arguments inside NP are also syntactically realized as empty pronominals. Consider the following.<sup>8</sup>

- (11) a. John-no Bill-no hyooka  
John-gen Bill-gen evaluation  
(John's evaluation of Bill)  
b. John-no Bill-no hihan  
John-gen Bill-gen criticism  
(John's criticism of Bill)

The question is whether (12) can mean both "someone's criticism of Chomsky" and "Chomsky's criticism of someone". The answer seems to be yes.

- (12) Chomsky-no hihan  
Chomsky-gen criticism  
(someone's criticism of Chomsky)  
(Chomsky's criticism of someone)

One might thus hypothesize that (12) can have either (13a) or (13b) as its representation.

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- (13) a. [<sub>NP</sub> pro(-no) Chomsky-no hihan]  
 b. [<sub>NP</sub> Chomsky-no pro(-no) hihan]

In fact, we can construe the object of 'criticism' as coreferential with John in (14a) and it seems that we can also interpret the subject of 'criticism' as coreferential with John in (14b). The alleged existence of the empty pronominal inside the NP is indicated in (14).

- (14) a. John<sub>i</sub>-ga [<sub>NP</sub> Mary-no pro<sub>i</sub>(-no) hihan]-o musi-sita  
 John-nom Mary-gen he(-gen) criticism-acc ignored  
 (John<sub>i</sub> ignored Mary's criticism of him<sub>i</sub>.)  
 b. John<sub>i</sub>-ga [<sub>NP</sub> pro<sub>i</sub>-no Mary-no hihan]-o kaita  
 John-nom he(-gen) Mary-gen criticism-acc wrote  
 (John<sub>i</sub> wrote his<sub>i</sub> criticism of Mary.)

Another example is given in (15). The empty pronominal, which is not represented here, can be assumed to be either in the object position or in the subject position in the NP Mary-no hyooka.

- (15) John-ga [<sub>NP</sub>[<sub>S</sub>[<sub>NP</sub>Mary-no hyooka]-o mita] uwayaku]-o  
 -nom -gen evaluation-acc saw boss-acc  
 saketeiru  
 is avoiding  
 OK(John<sub>i</sub> is avoiding the boss who saw Mary's evaluation(s) of  
 him<sub>i</sub>.)  
 ?(John<sub>i</sub> is avoiding the boss who saw his<sub>i</sub> evaluation(s) of Mary.)

I should mention at this point that (14a), for example, is felt to be like John<sub>i</sub> ignored Mary's criticism of him<sub>i</sub>, as in the translation above. It is not like John ignored Mary's criticism, in which the linguistically implicit criticizee is construed to be John. Thus the object position of the nominals in examples like (14a) really seems to be occupied by an empty pronominal. (14b), on the other hand, does not feel quite like John<sub>i</sub> wrote his<sub>i</sub> criticism of Mary although that is the translation given above. (14b) feels more like John wrote criticism of Mary. Hence it is not clear whether we in fact have an empty pronominal in the NP as indicated in (14b).

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Recall that the existence of the empty pronominal within the S in Japanese has been supported by variable binding tests; cf. (6), (7), (8), (9) and footnote 5. Let us thus conduct the variable binding tests and see whether the intuitively missing arguments in NP are really there. Consider the example in (16).

(16)

Daremo<sub>i</sub>-ga<sub>NP</sub>[S<sub>NP</sub>Mary-no hihan]-o syuppansita] kaisya]-o uttaeta  
 Everyone-nom -gen criticism-acc published company-acc sued

(17) translation of (16)

- a. OK(**Everyone<sub>i</sub>** sued the company that published Mary's criticism of **him<sub>i</sub>**.)  
 b. ??(**Everyone<sub>i</sub>** sued the company that published **his<sub>i</sub>** criticism of Chomsky.)

(16) can mean (17a). But the interpretation (17b) for (16) is somewhat difficult. Although the judgments are not completely clear, it seems that when (16) is to be interpreted as (17b), its interpretation is similar to that of (18b) with the putative reading on which the "criticizer" is to be bound by everyone. In other words, the bvi for the "criticizer" seems quite marginal.

- (18) a. Everyone sued the company that published Mary's criticism.  
 b. Everyone sued the company that published the criticism of Mary.

On the other hand, when (16) is to be interpreted as (17a), it clearly has bvi for the criticizee, unlike (18a), for example. (19) illustrates the same point as (16).

(19)

Daremo<sub>i</sub>-ga<sub>NP</sub>[S<sub>NP</sub>Mary-no hyooka]-o mita]uwayaku]-o saketeiru  
 Everyone-nom -gen evaluation]-acc saw boss-acc is avoiding  
 OK(**Everyone<sub>i</sub>** is avoiding the boss that saw Mary's evaluation of **him<sub>i</sub>**.)

??(**Everyone<sub>i</sub>** is avoiding the boss that saw **his<sub>i</sub>** evaluation of Mary.)

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4. Weak Crossover

Already, we have reason to be suspicious about the existence of the subject empty pronominal in the relevant NP's in (16) and (19). Let us now consider the weak crossover test and see what it suggests regarding the existence of the empty pronominals inside the NP in Japanese. (20) sets the stage for the test.

(20) [<sub>NP</sub>[<sub>S</sub>pro<sub>i</sub> [<sub>NP</sub>Mary-no hihan]-o hoodoosita] terebi kyoku<sub>i</sub>]-ga  
           it               -gen criticism-acc broadcasted TV station-nom  
           [<sub>VP</sub>John<sub>i</sub>-o uttaeta]/[<sub>VP</sub>John<sub>i</sub>-ni ayamatta]  
           -acc sued                               -dat apologized

(21) translation of (20)

- a. OK(The TV station that broadcasted Mary's criticism of **him<sub>i</sub>**  
       sued John<sub>i</sub>/apologized to John<sub>i</sub>.)
- b. ?(The TV station that broadcasted **his<sub>i</sub>** criticism of Mary sued  
       John<sub>i</sub>/apologized to John<sub>i</sub>.)

In (20), the empty pronominal could potentially be either in the subject position or in the object position of hihan 'criticism'. Notice that the empty pronominal, whether it is in the subject position or in the object position, is not c-commanded by the matrix object John. As indicated in (21), coreference seems possible in either case. However, there seems to be a difference between the two, just as in the case of (15). With the interpretation in (21b), in which the empty pronominal is assumed to be in the subject position, the coreference in (20) is like the putative "coreference" between the criticizer and John in (22b) below. With the interpretation in (21a), on the other hand, the coreference in (20) is indeed like (21a), in which the object of criticism is occupied by him, as compared to (22a), in which the object of criticism is not lexically realized.

- (22) a. The TV station that broadcasted Mary's criticism sued John.
- b. The TV station that broadcasted the criticism of Mary sued John.

(23) is another example like (20).



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(23)

[<sub>NP</sub>[<sub>S</sub>[<sub>NP</sub>Mary-no hyooka]-o mita] uwayaku]-ga [<sub>VP</sub>John-o kubinisita]  
 -gen evaluation-acc saw boss-nom -acc fired

OK(The boss that saw Mary's evaluation of **him**<sub>i</sub> fired John<sub>i</sub>.)

?(The boss that saw **his**<sub>i</sub> evaluation of Mary fired John<sub>i</sub>.)

Now the prediction is that if the empty pronominal is really present inside the NP (as the object or the subject), we should be able to detect its existence by observing the contrast with respect to the possibility of bvi, as observed in the case of (6)-(9) for the empty pronominal inside the sentence.

Consider again the example in (16), repeated below.

(16)

Daremo<sub>i</sub>-ga [<sub>NP</sub>[<sub>S</sub>[<sub>NP</sub>Mary-no hihan]-o syuppansita]kaisyu]-o uttaeta  
 everyone-nom -gen criticism-acc published company]-acc sued

Recall that (16) allows the reading "**everyone**<sub>i</sub> sued the company that published Mary's criticism of **him**<sub>i</sub>," while the reading "**everyone**<sub>i</sub> sued the company that published **his**<sub>i</sub> criticism of Mary" is marginal.

As indicated in (24) below, if an empty pronoun is assumed to be the object of criticism, we get the typical weak crossover effects.

(24) [<sub>NP</sub>[<sub>S</sub>[<sub>NP</sub>Mary-no hihan]-o hoodoosita] terebi kyoku]-ga  
 -gen criticism-acc broadcasted TV station-nom  
 [<sub>VP</sub>daremo-o uttaeta]/[<sub>VP</sub>daremo-ni ayamatta]  
 everyone-acc sued / everyone-dat apologized

\*(The TV station that broadcasted Mary's criticism of **him**<sub>i</sub> sued **everyone**<sub>i</sub>/apologized to **everyone**<sub>i</sub>.)

??(The TV station that broadcasted **his**<sub>i</sub> criticism of Mary sued **everyone**<sub>i</sub>/apologized to **everyone**<sub>i</sub>.)

On the other hand, if the empty pronoun is assumed to be in the subject position, the status of (24) is as unclear as (16) with the empty pronoun being assumed in the subject position. The bvi for the "criticizer" in (24) is as marginal as that for the criticizee in (25a).

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- (25) a. The TV station that broadcasted Mary's criticism sued everyone/apologized to everyone.  
 b. The TV station that broadcasted the criticism of Mary sued everyone/apologized to everyone.

(26) is another example like (24).

- (26) [<sub>NP</sub>[<sub>S</sub>[<sub>NP</sub> Mary-no hyooka]-o mita] uwayaku]-ga  
 -gen evaluation-acc saw boss-nom  
 [<sub>VP</sub> daremo-o kubinisita]  
 everyone-acc fired]  
 \*(The boss that saw Mary's evaluations of **him<sub>i</sub>** fired **everyone<sub>i</sub>**.)  
 ??(The boss that saw **his<sub>i</sub>** evaluations of Mary fired **everyone<sub>i</sub>**.)

## 5. "Reconstruction"

The subject/object asymmetry also shows up in the case of "reconstruction" type of examples.<sup>9</sup>

- (27) [<sub>S</sub>[<sub>NP</sub>[<sub>S</sub> pro<sub>j</sub> [<sub>NP</sub> Mary-no hihan]-o hoodoosita] terebi kyoku<sub>j</sub>]-o<sub>k</sub>  
 it -gen criticism-acc broadcasted TV station-acc  
 [<sub>S</sub> daremo-ga [<sub>VP</sub> t<sub>k</sub> uttaeta]]]  
 everyone-nom sued  
 OK([The TV station that broadcasted Mary's criticism of **him<sub>i</sub>]<sub>k</sub>,  
**everyone<sub>i</sub>** sued t<sub>k</sub>.)  
 ??([The TV station that broadcasted **his<sub>i</sub>** criticism of Mary]<sub>k</sub>,  
**everyone<sub>i</sub>** sued t<sub>k</sub>.)**
- (28) [<sub>S</sub>[<sub>NP</sub>[<sub>S</sub>[<sub>NP</sub> Mary-no hyooka]-o mita] uwayaku]-o<sub>k</sub>  
 -gen evaluation-acc saw boss-acc  
 [<sub>S</sub> daremo-ga [<sub>VP</sub> t<sub>k</sub> saketeiru]]]  
 everyone-nom is avoiding  
 OK([The boss that saw Mary's evaluations of **him<sub>i</sub>]<sub>k</sub>, **everyone<sub>i</sub>** is  
 avoiding t<sub>k</sub>.)  
 ??([The boss that saw **his<sub>i</sub>** evaluations of Mary]<sub>k</sub> **everyone<sub>i</sub>** is  
 avoiding t<sub>k</sub>.)**

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To review the relevant data, consider (29) through (33). When the antecedent is referential as in (29) and (30), coreference is possible, regardless of (i) whether the pro is assumed to be in the subject position or in the object position and (ii) whether the pro is c-commanded by its antecedent.

- (29) a. OK John<sub>i</sub>-ga [VP.. [NP Mary-no pro<sub>i</sub> N] V]  
 b. ? John<sub>i</sub>-ga [VP.. [NP pro<sub>i</sub> Mary-no N] V]

- (30) a. OK [NP Mary-no pro<sub>i</sub> N]-ga [VP John<sub>i</sub> V]  
 b. ? [NP pro<sub>i</sub> Mary-no N]-ga [VP John<sub>i</sub> V]

- (31) a. OK Q-NP<sub>i</sub>-ga [VP.. [NP Mary-no pro<sub>i</sub> N] V]  
 b. ?? Q-NP<sub>i</sub>-ga [VP.. [NP pro<sub>i</sub> Mary-no N] V]

- (32) a. \* [NP Mary-no pro<sub>i</sub> N]-ga [VP Q-NP<sub>i</sub> V]  
 (as bad as regular weak crossover cases)  
 b. ?? [NP pro<sub>i</sub> Mary-no N]-ga [VP Q-NP<sub>i</sub> V]

- (33) a. OK [<sub>S</sub> [NP ...[NP Mary-no pro<sub>i</sub> N]...]<sub>k</sub> [<sub>S</sub> Q-NP<sub>i</sub>-ga [VP t<sub>k</sub> V]]]  
 (as good as the regular "reconstruction" case)  
 b. ?? [<sub>S</sub> [NP ...[NP pro<sub>i</sub> Mary-no N]...]<sub>k</sub> [<sub>S</sub> Q-NP<sub>i</sub>-ga [VP t<sub>k</sub> V]]]

Once we replace John with a Q-NP, however, there arises an interesting difference depending on whether the pro is assumed to be in the object or the subject position. When the pro is assumed to be in the object position, the bvi for it is possible in (31a), where it is c-commanded by the Q-NP, but impossible in (32a), where it is not c-commanded by the Q-NP. Such clear contrast does not obtain when the pro is assumed to be in the subject position. The status of the bvi is not clear in (31b) and it stays the same in (32b) despite the fact that it appears in the WCO configuration. In the "reconstruction" configuration as well, the bvi is clearly possible for the object pro but not for the subject pro.

The variable binding test thus suggests that there is no syntactic position for the so-called subject of NP in Japanese. What appears to be the subject of NP in the above examples can and perhaps should be analyzed as an adjunct, as Grimshaw (1986) argues for English

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nominals.

### 5. PRO in NP

Let us now consider what the variable binding test tells us about the existence of the subject of NP in English. The existence of the PRO subject in NP has sometimes been argued for based on examples like (36). (Cf. Higginbotham (1980) and Safir (1984).)

(36) PRO<sub>i</sub> devotion to his country<sub>i</sub> inspires everyone<sub>i</sub>.

But if there is PRO in NP, we expect that the bvi for the subject of devotion is available in (37) regardless of the existence of the lexical pronominal his.

- (37) a. Everyone still remembers the reasons for devotion to the queen.  
 b. Everyone<sub>i</sub> still remembers the reasons for **his**<sub>i</sub> devotion to the queen.  
 c. No one remembers the reasons for devotion to the queen.  
 d. No one<sub>i</sub> remembers the reasons for **his**<sub>i</sub> devotion to the queen.

While (37b) and (37d) clearly allow the bvi for the subject of devotion, it is not clear that (37a) and (37c) also allow bvi for the "devoter". The status of the bvi for "devoter" in (37a) and (37c) seems analogous to that for the "criticizee" in (18a), which is repeated here.

(18a) Everyone sued the company that published Mary's criticism.

Notice that there is not much contrast between the PRO option and the his option in the NP gerund in (38).

- (38)  
 a. Everyone<sub>i</sub> still remembers the reasons for **PRO**<sub>i</sub>/**his**<sub>i</sub> devoting much time to that cause.  
 b. No one<sub>i</sub> remembers the reasons for **PRO**<sub>i</sub>/**his**<sub>i</sub> devoting much time to that cause.

This bit of evidence then supports the view that there is no subject position in the English NP either. The crucial assumption throughout

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this paper is that only syntactically realized categories can receive bound variable interpretation.

6. Process Reading and the Subject of NP

What is interesting is that when we add constant as in (39) and force the process reading on the nominal, using the method that Grimshaw (1986) uses, the possibility of the bound reading seems to increase.<sup>10</sup>

(39)

- a. Everyone still remembers the reasons for constant devotion to the queen.
- b. No one remembers the reasons for constant devotion to the queen.

Furthermore, those who find contrast as indicated in (40) also find the contrast indicated in (41). For these speakers, therefore, the addition of constant/frequent helps in (40) but works the other way around in (41) in getting the bound variable reading.

- (40) a. Everyone/No one discussed the reasons for ??(**constant**) assignment of difficult problems.
- b. Everyone/No one was surprised by the consequences of ??(**frequent**) examination of the patient.

(41)

- a. The reasons for **PRO<sub>i</sub>** ??(\*?**constant**) devotion to the queen have long been forgotten by everyone<sub>i</sub>.
- b. The reasons for **PRO<sub>i</sub>** ??(\*?**frequent**) examination of the patient were confessed by no one<sub>i</sub>.

This is clearly analogous to the situation in Japanese that we have seen earlier. The more available the bound reading is in the right c-command configuration, the more clearly we find the WCO effects in the right WCO configuration. And if this is a sign of the existence of the empty category that gets to be or that fails to be bound to a quantifier, we must conclude that constant and frequent "forces" or "facilitates" the existence of the subject position of the NP in (40)

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and (41). According to this view, there is PRO subject in the NP in (40) and (41) only when there is constant/frequent.

Assuming, not very controversially, that NP gerunds have PRO subjects, we expect the relevant WCO contrast with or without the overt subject in the case of NP gerunds. This seems right, as indicated by (42).<sup>11</sup>

(42)

- a. Everyone<sub>i</sub> still remembers the reasons for **PRO<sub>i</sub>/his<sub>i</sub>** devoting much time to that cause.
- b. No one<sub>i</sub> confessed the reasons for **PRO<sub>i</sub>/his<sub>i</sub>** devoting a lot of time to that cause.
- c. \*?The reasons for **PRO<sub>i</sub>/his<sub>i</sub>** devoting a lot of time to that cause have long been forgotten by everyone<sub>i</sub>.
- d. \*?The reasons for **PRO<sub>i</sub>/his<sub>i</sub>** devoting a lot of time to that cause were confessed by no one<sub>i</sub>.

When the nominal is forced to have a result reading (by means of plurality, for example), the addition of constant/frequent does not seem to increase the availability of the bound reading. (Cf. Grimshaw (1986).) Thus neither (43a) nor (43b) seems to allow bvi for the "examiner".

(43)

- a. No one confessed the reasons for the (**frequent**) examinations of the patient.
- b. The reasons for the (**frequent**) examinations of the patient were confessed by no one.

Thus the variable binding test indicates that the existence of the subject position of NP is correlated with the process reading, the correlation noted in Lebeaux (1984). (Cf. also Walinska de Hackbeil (1983) and Safir (1986).)

Given this result, one might expect that the Japanese nominals can also have a subject position with the addition of adjectives such as hinpanna 'frequent'. A surprising result is that the nominal counterpart of (44a), namely (44b), sounds extremely awkward.

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- (44) a. John-ga Mary-o hinpanni hihansita  
 John-nom Mary-acc frequently criticized  
 (John criticized Mary frequently.)
- b. ?\*John-no Mary-no hinpanna hihan  
 John-gen Mary-gen frequent criticism  
 (John's frequent criticism of Mary)

Suppose that the direct object of V/N must be adjacent to the V/N (for Case considerations (Stowell, 1981) or theta considerations) at D-structure. Then Mary-o in (44a) must have been moved (by VP-adjunction) from its D-structure position, as indicated in (45a). Under this assumption, Mary-no in (44b) must have been moved as indicated in (45b).

- (45) a. John-ga Mary-o<sub>i</sub> hinpanni t<sub>i</sub> hihansita  
 John-nom Mary-acc frequently criticized  
 (John criticized Mary frequently.)
- b. \*John-no Mary-no<sub>i</sub> hinpanna t<sub>i</sub> hihan  
 John-gen Mary-gen frequent criticism  
 (John's frequent criticism of Mary)

Since only in (45a) the variable t<sub>i</sub> can receive Case, given the assumption that N does not assign Case, the structure in (45b) can be ruled out. (See footnote 8.)

Thus we might want to check the nominal counterpart of (46a), in which the direct object remains adjacent to the V.

- (46) a. John-ga hinpanni Mary-o hihansita  
 John-nom frequently Mary-acc criticized  
 (John criticized Mary frequently.)
- b. ??John-no hinpanna Mary-no hihan  
 John-gen frequent Mary-gen criticism  
 (John's frequent criticism of Mary)

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As indicated above, however, the nominal counterpart of (46a), namely (46b), is also awkward. Here we are concerned with the process reading of these nominals. What is crucially missing in (45b) and (46b) is process reading. For the illustration of this point, consider (47) and (48).

- (47) a. I saw John's frequent evaluation of Mary.  
 b. I saw John frequently evaluate Mary.

- (48) a. I heard John's frequent criticism of Mary.  
 b. I heard John frequently criticize Mary.

It seems that the (a) example and the (b) example in (47) and (48) have essentially the same interpretation. In Japanese, however, such parallel between the verbal projection (or S) and the nominal projection does not seem to obtain. Thus (49a), if it were acceptable at all, could not mean what (49b) does.

- (49) a. ?\*Watasi-wa John-no hinpanna Mary-no hihan-o kiita  
 I-top -gen frequent -gen criticism-acc heard  
 (Intended as: I heard John's frequent criticism of Mary.)
- b. Watasi-wa John-ga hinpanni Mary-o hihansuru no-o kiita<sup>12</sup>  
 I-top -nom frequently -acc criticize -acc heard  
 (I heard John frequently criticize Mary.)

Similarly, (50a) does not mean what (49b) and (50b) mean.

- (50) a. Watasi-wa [<sub>NP</sub>hinpanna John-no Mary-no hihan]-o kiita  
 I-top frequent -gen -gen criticism-acc heard
- b. Watasi-wa [<sub>S</sub>hinpanni John-ga Mary-o hihansuru] no-o kiita  
 I-top frequently -nom -acc criticize -acc heard  
 (I heard John frequently criticize Mary.)

To the extent that (50a) is acceptable, it means something like "I heard John's criticism of Mary, which was read frequently". On this reading, "John's criticism of Mary" is taken to be something like an article. The relevant NP in (50) does not have process reading.



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We have seen that no matter where we place hinpanna 'frequent', we cannot get process reading for the relevant nominal in Japanese. It seems therefore reasonable to hypothesize that Japanese nominals simply do not allow process reading.<sup>13</sup> This hypothesis in fact receives an interesting support from the relationship between the theta-marking nominals and the corresponding verbs in Japanese. In English, the so-called deverbal nominals are "derived" from the corresponding verbs by suffixation (of tion, for example). Lebeaux (1984) argues that the process reading of a nominal is possible when tion is raised at LF, creating (or leaving behind) a verbal projection. In Japanese, on the other hand, it is the verbal that has an extra suffix, as indicated below.

(51) a. hihan 'criticism'  
b. hihan-su 'to criticize'

(52) a. hyooka 'evaluation'  
b. hyooka-su 'to evaluate'

In fact it is an extremely productive process in Japanese to create a verb out of a noun by adding su 'do'.

Suppose that the process reading is possible only when there is a subject. Suppose further that only S's but not NP's have subjects, for which the preceding discussion provides some evidence. If the existence of suffixation like tion is a necessary requirement for the "creation of an S" in nominals (by LF affix raising as in Lebeaux (1984), for example<sup>14</sup>) then the lack of process reading in Japanese nominals is what we expect given the fact that there is nothing like tion in Japanese.

## 7. Summary

The initial hypothesis in this paper was that Japanese has an empty pronominal (Kuroda, 1965), which can occur in argument positions, including the object position (contra Huang (1984) and Hasegawa (1986)), within the S. The hypothesis has been supported by variable binding tests in Hoji (1985) and Hoji and Saito (in preparation). The same variable binding tests have suggested that in Japanese NP's there is a syntactic position only for the object but not for the

subject. This conclusion, if correct, constitutes very strong evidence for the existence of empty pronominals in Japanese. Notice that, given this conclusion, it is no longer the case that whenever we intuitively feel an argument missing, there is an empty pronominal. The subject of the relevant NP in Japanese is felt to be missing, just like the object of such an NP. But it is only the object and not the subject that is realized as an empty pronominal inside the NP.

When applied to the English nominals, the same tests cast doubt over the existence of the so called PRO in NP.<sup>15</sup> It is then observed that when process reading is forced by means of the addition of an adjective such as frequent, the syntactic position for the subject of NP becomes more available.<sup>16</sup> (Cf. Lebeaux (1984) and Grimshaw (1986).) It is then noted that in Japanese the addition of such adjectives like hinpanna 'frequent' does not make the subject position any more available. I have suggested that Japanese nominals do not yield process reading at all. This observation is then related with the fact that Japanese does not have suffixes like tion. Although I have left aside a number of important issues that must be addressed, it seems that the preceding discussion certainly indicates the fruitfulness of the variable binding tests in discovering the properties of natural language.<sup>17</sup>

#### FOOTNOTES

\*I would like to thank John Boyd, Koichi Takezawa, Thomas Roeper and Edwin Williams for helpful discussions while I was shaping the ideas in this paper. I would also like to thank Nobuko Hasegawa, Dave Lebeaux, Ken Safir, Tim Stowell and Barbara Partee for discussing with me some of the issues in this paper. All the shortcomings of the paper are my own. Thanks also due to Caroline Scherzer for her editorial help.

<sup>1</sup>I use pro for empty pronominals in Japanese. It is not immediately clear how pro in Japanese is related to so-called "small pro" in Romance languages. See Huang (1984), Hasegawa (1986), Hoji (1985, Appendix A) and Hoji and Saito (in preparation) for discussion of the nominal empty categories in Japanese.

<sup>2</sup>Okutsu (1978) contains extensive discussion of such sentences.

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<sup>3</sup>For recent discussion of Japanese "topicalization", see Saito (1985, chapter 4) and Hoji (1985, chapter 3).

<sup>4</sup>I assume, following the essentials of Kuno's (1973, chapter 21) claim, that the Japanese relative clause is licensed by "aboutness" that holds between the head noun and the "relative clause". Thus I use pro in the position of the gap that is associated with the head of the relative. Evidence for this hypothesis based on the lack of syntactic connectedness effects is provided in Hoji (in preparation).

<sup>5</sup>The relevant contrast obtains also with other Q-NP's. It is typically the case that the relevant contrast is clearer with such Q-NP's as the negative polarity daremo 'no one', A ka B 'A or B' and ittai dare/nani 'who/what the hell', which do not allow "group" or "specific" reading. Due to space limitation, however, I use only daremo 'everyone'. See Hoji (1985, chapters 2 and 3).

<sup>6</sup>I am assuming that there is a node in Japanese that dominates the object NP('s) and the verb while not dominating the subject NP, for which there has been accumulating evidence in the recent years (Whitman (1982), Saito (1983, 1985) and Hoji (1985) among others).

<sup>7</sup>See Hoji (1985, chapters 2 and 3) for more detailed discussion. There are several pieces of evidence that the binding in (9) cannot be attributed to the possibility of the NP-o NP-ga order being derived in PF. They include (i) change in the anaphor binding possibility (Kurata (forthcoming)), (ii) the licensing of parasitic gaps (Hoji (1985, chapter 2) and Saito (1985, chapter 2)) and (iii) change in scope interpretation (Kuroda (1970) and Hoji (1985, chapter 4; 1986)).

<sup>8</sup>I take these NP's to be unambiguous; i.e., I take it that the reading in which the second NP-no receives the subject theta role is impossible (Saito, 1985). Saito (1985, pp. 228-233) argues that (i) is impossible because the variable, i.e., the trace of NP<sub>i</sub>, is without Case, violating the condition that variables must have Case (Chomsky (1981, p.65, p.175)).

(i) NP-no<sub>i</sub> NP-no t<sub>i</sub> N

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Saito further argues that PP-no, unlike NP-no, can be preposed because the trace of a PP is not a variable.

There is independent evidence for Saito's claim based on the presence and absence of the syntactic connectedness effects (or the reconstruction effects). But due to space limitation, the relevant argument cannot be included here.

<sup>9</sup>As the readers might suspect, the asymmetry shows up in the case of the parasitic gap construction as well. Thus when we prepose the matrix object in (24) and (26) to the sentence-initial position, the bvi for the empty object of hihan 'criticism' becomes possible. Such preposing, however, does not change the possibility of the bvi for the empty subject, if there is one, of hihan 'criticism'.

<sup>10</sup>Speakers' judgments vary. But the variation seems somewhat systematic, reflecting, partially, how tolerant the speaker is for long distance control. I owe Tim Stowell (p.c.) for pointing out the possibility of this correlation. See the following footnote.

<sup>11</sup>Some speakers do not get the bound reading for PRO in (42). Such speakers do not seem to get the bound reading even in (i).

(i) Everyone<sub>i</sub> thought that it was impossible PRO<sub>i</sub> to win.

<sup>12</sup>No after hihan-suru 'criticize' is what has been called 'nominalizer' (Nakau, 1973). It is essentially a nominal head that is needed in the Japanese perception construction. See Kitagawa and Ross (1982) on no.

<sup>13</sup>What is expressed by the process reading of English nominals can be expressed in Japanese typically by means of the 'nominalizer' no, which takes an S. See the previous footnote.

<sup>14</sup>LF affix raising is proposed in Pesetsky (1985) on independent grounds.

<sup>15</sup>See Bouchard (1982), Roeper (1984), Safir (1986) and Williams (1986) among many others for much relevant discussion.

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<sup>16</sup>The fact that the speakers' judgments vary a great deal suggests that the subject position is basically available for English action nominals and that the addition of adjectives like frequent simply makes it easier to construe the relevant NP as having a subject. See Lebeaux (1984) for much relevant discussion.

<sup>17</sup>Reinhart's (1983) position on anaphora and bound pronouns seems to antedate the direction of this paper.

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