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Demonstrative Binding and Principle B*

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1. Introduction

In this paper, I argue that:

- (i) Covariant interpretation, i.e. what is often called bound variable construal, for an argument α , is possible by Dem-binding as well as by Arg-binding.
- (ii) Binding Principle B refers to the feature [-a(naphor)] rather than the feature [+p(ronominal)].

As a consequence of (ii), I conclude that there are no [+p] categories in the binding theoretic sense. Given the absence of [+p] categories, I conclude that the [+/-p] feature is not a binding theoretic feature. This leads us to conclude that Condition C, as it is formulated in LGB and subsequent works, which refers crucially to [-a, -p] categories does not exist.

* The content of this paper has been presented in various forms since 1989. Substantially longer versions of this paper were presented in the spring of 1994, at USC, UCSC, MIT, UConn, U. of Rochester. I would like to thank the audiences there and at NELS, including the students in my syntax courses at USC. I would like to thank Barry Schein and the late Osvaldo Jaeggli, who helped shape the view presented here. I am also indebted to Ayumi Ueyama and Hiroko Yamashita, who made numerous suggestions on the next-to-the-last version of the NELS presentation. Among many others who have helped me understand various issues in this paper are: Joseph Aoun, Hiroshi Aoyagi, Daeho Chung, Sandy Chung, Joseph Emonds, Yosef Grodzinsky, Irene Heim, Yoshi Kitagawa, Masa Koizumi, Yuki Kuroda, Audrey Li, Yuki Matsuda, James McCloskey, Keiko Miyagawa, Shigeru Miyagawa, David Pesetsky, Mamoru Saito, Shin Watanabe and Edwin Williams. I regret that I have not been able to incorporate many of their suggestions in this version.

I also suggest that the contrast between it recommended it in English and its Japanese counterpart soko-ga soko-o suisensita, with respect to local disjointness, is due to the internal structures of it and soko. The suggested analysis is intended as an alternative to Reinhart's Rule I and can also be taken as a confirmation of Kuroda's insight in his 1965 dissertation that Japanese does not have overt categories that can be considered on a par with personal pronouns in English.

Let us first consider the following two observations given in (1) and (2).¹

- (1) The so-called overt pronoun in Japanese, i.e. kare, cannot be construed as a bound variable. (Nakayama (1982), Saito and Hoji (1983))
- (2) Examples like (3) do not show Binding Principle B effects. (Hoji (1990b), Sano (1992))
- (3) kare_i-ga kare_i-o suisensita (koto) 'he recommended him'

An account of (3) based on Reinhart's (1983, Ch. 7) conception of Binding Theory has been proposed in Hoji (1990b), Noguchi (1992), and Sano (1992). According to Reinhart (1983, Ch. 7), Binding Theory regulates only the distribution of bound variable anaphora.² I will call this view of Binding Theory as the Reinhartian view of Binding Theory (RVBT). Given RVBT, the observations in (1) and (2) can be directly related. That is to say, Principle B is not relevant in (3) since the local bindee does not qualify as a bound variable.

There appear to be two problems with this account. First, (4) is fairly acceptable, not exhibiting local disjointness effects.

- (4) Doko_i-ga soko_i-o suisensita no? 'Which {institution/place}_i recommended it_i?'

One might suggest that the status of (4) is due to coreference between doko and soko, in an extended sense of coreference along the lines of Pesetsky's (1987) D-Linking. However, if the relevant referential association in (4) were that of coreference, the sharp contrast in (5) would be unexpected.

- (5) a. *Soko_i-no kumiai-ga doko_i-o uttaeta no?
'Its labor union sued which institution_i?'
b. Doko_i-ga soko_i-no kumiai-o uttaeta no?
'Which institution sued its labor union?'

¹ The observation in (1) is fairly well known and accepted by many researchers. This paper is not intended to provide verification for (1), nor is it intended to offer an explanation for it; the reader is referred to Hoji (1990a, 1991) for some empirical basis for it and to Kuroda (1979) for what seems to me to be the most plausible basis for its explanation, given the close relation between kare and the a demonstrative. The observation in (2), on the other hand, is not uncontroversial. Oshima (1979), Kuno (1986) and Shibatani (1990) claim that kare is subject to Principle B. The arguments below, which crucially assume (2), can thus be regarded as providing support for its validity.

² The crucial aspect of Reinhart's (1983, Ch. 7) proposal is as follows. Bound variable construal for an NP (or DP) is contingent upon it being coindexed with another. Coindexation, in turn, is regulated by Binding Theory. Coreferential relation between two NPs (or DPs), on the other hand, is not contingent upon coindexation in any way. It then follows that coreference is not regulated by Binding Principles, while bound variable anaphora is.

Nor would we expect the contrast between (5a) and (6).

- (6) soko_i-no kumiai-ga (tuburekakatte ita) sono kaisya_i-o uttaeta (koto)
it-GEN labor union-NOM (was about to go bankrupt) that company-ACC sued
'it_i's labor union sued that company_i(, which was about to go bankrupt)'

(5a) seems to be a typical instance of Weak Crossover. As indicated, the relevant coreference is possible in (6), where a referential phrase replaces doko. If the relevant referential association in (4) were that of coreference, (5a) should be as acceptable as (6).

The second problem with the coreference account of (3) is that it predicts (7) in English to be grammatical.

- (7) *it_i recommended it_i

Just as kare can be used referentially, so can it. Thus the clearly ungrammatical status of (7) is not expected under the coreference account of (3). This, of course, is a general problem for RVBT. Related to the problem at issue is that (8) is acceptable, despite the fact that, as pointed out in Nishigauchi (1986), Hoji (1990a) and Yoshimura (1992), soko, in contrast to kare, seems to be construable as a bound variable.

- (8) soko_i-ga soko_i-o suisensita 'it recommended it'

In this paper, I will make a proposal that accounts for the first problem, without abandoning RVBT. It will be argued that the proposal also accounts for a similar phenomenon in English. I will then suggest an account of the second problem that is crucially based on some difference between the internal structures of the English and Japanese nominal phrases.

2. A Solution to the First Problem

2.1 Dem-binding and Arg-binding

To account for the acceptability of examples like (4), I propose that one of the two syntactic bases for a bound variable construal of a nominal category, i.e. DP or NP, is what I call Demonstrative-binding (henceforth Dem-Binding). The other will be called Arg(ument)-binding. The basic idea is that the syntactic basis for the construal of α being covariant with β can be either (9a) (Arg-binding) or (9b) (Dem-binding).

- (9) The value of α can be covariant with that of β only if
a. α is formally dependent upon β (Arg-binding), or
b. Dem(α) is formally dependent upon Dem(β) (Dem-binding),
where Dem(α) is a demonstrative that is in the checking domain of α in the sense of Chomsky (1993).³

The structural condition for formal dependency is as given in (10).⁴

³ It seems that Chomsky's (1993) distinction between the internal domain and the checking domain of α is equivalent to Kuroda's (1988) distinction between the set of Int(α)(s) and the set of Ext(α)(s), if we put aside the head to head movement cases considered in Chomsky (1993).

⁴ Note that (9) and (10) constitute necessary conditions for the covariant construal of α with respect to β . The requirements in regard to the internal structures of α and β for the relevant construal are separate matters. The syntactic domain of α is based on its c-command domain, as in Reinhart (1983), but it must be

(10) α is formally dependent upon β only if α is in the syntactic domain of β

For ease of exposition, we may represent the relevant formal dependency by means of a subscript and a superscript, as in (11), while not intending these devices to be part of syntactic representation.⁵

(11) Do¹ko-ga so₁ko-o suisensita no? 'Which {institution/place} recommended it?'

The subscript marks that which is formally dependent and the superscript that which is formally depended upon. In (11), the dependency of so upon do is not local, in the way analogous to the non-local binding of his by who in the so-called Spec-binding examples such as (12); see Reinhart (1987) and earlier references cited therein.

(12) Whose¹ father admires his₁ work?

By virtue of so being formally dependent upon do in (11), the value of soko is covariant with that of doko, which one may consider as derivative of formal dependency. I thus crucially distinguish formal dependency, which I assume is subject to local disjointness (Principle B), from dependency that is derivative of formal dependency. I take the formal dependency as indicated in (13a) to be disallowed by Principle B, just as that in (13b) is.

(13) a. *Doko¹-ga soko₁-o suisensita no? 'Which {institution/place} recommended it?'
b. *Who¹ recommended him₁?

I assume that so and do, along with ko and a in Japanese, are members of the functional category, demonstrative, which heads a DemP. I further assume the internal structure of soko and doko to be as in (14).^{6, 7}

(14) a. [NP [DemP so] [N ko]]
b. [NP [DemP do] [N ko]]

The postulation of the category demonstrative for ko/so/a/do is based on well known paradigms as illustrated in (15); cf. traditional works by Sakuma and Mikami.

modified to cover the so-called Spec-binding cases in the sense of Reinhart (1987). In this paper, I leave aside an important question of how Dem-binding is related to Donkey anaphora and other instances of binding that are discussed in the literature under the names of Indirect Binding, Spec-binding, etc., and in particular the question of whether, as I suspect to be the case, there is a general theory of formal dependency that subsumes all these cases.

⁵ Needless to say, I follow the general line of thinking found in Evans (1980), Higginbotham (1980), Heim (1992), and others.

⁶ One may raise the question why the structure in (14) is to be chosen over the alternative structure as indicated in (i).

(i) [DP [DEMP so] [D' [NP ko] [D e]]]

In (i) so, a DemP, is in the Spec of DP, whose head is phonetically unrealized. The discussion in section 3 provides a reason for this choice.

⁷ The absence of the so-called Genitive marker no between the DemP and the N head suggests an alternative analysis in which soko and doko are N⁰s and the structures in (14) are derived by the, presumably covert, movement of the demonstrative. This alternative may be worth considering, in connection with the theory of phrase structure proposed in Chomsky (1994).

- (15) The ko/so/a/do demonstrative paradigms.
- {ko/so/a/do}+re '{this/that/that over there/which thing}'
 - {ko/so/a(so)/do}+ko '{this place/that place/that place over there/which place}'
 - {ko/so/a/do}+itu '{this guy/that guy/that guy over there/which guy}'
 - {ko/so/a/do}+tira '{this area/that area/that area over there/which area}'
 - {ko/so/a/do}+o '{in this manner/in that manner/in that manner/in which manner (how)} (ao => aa)

I have proposed that the covariant interpretation available in (4) is based on so being formally dependent upon do (Dem-binding), rather than soko being formally dependent upon doko (Arg-binding). This proposal is based on the assumption that soko cannot be formally dependent in its local domain, due to Principle B. The next subsection is intended to demonstrate that soko is indeed subject to Principle B.

2.2 Principle B effects in Japanese

Consider first the example in (16).⁸

- (16) *Toyota_i-ga Nissan_k-ni [CP CIA-ga soko_{i+k}-o sirabete iru to] tugeta
 Toyota-NOM Nissan-DAT CIA-NOM it-ACC is investigating that told
 'Toyota_i told Nissan_k that CIA was investigating it_{i+k}.'

As indicated, soko cannot allow split antecedence, in contrast to they in English (and karera in Japanese, which is generally translated as human 'they'). I take this fact as an indication that soko is singular-denoting. Despite this, soko can be dependent upon a conjoined NP as indicated in (17) below.

- (17) [T to N (to)]¹-ga Mazda-ni [CP CIA-ga soko₁-o sirabete iru to] tugeta
 T and N -NOM Mazda-DAT CIA-NOM it-ACC is investigating that told
 '[each of [Toyota and Nissan]]_i told Mazda that CIA was investigating it_i.'

Given the singular denoting nature of soko, the referential association between soko and the conjoined NP in (17) cannot be that of coreference. It is most natural to assume that it involves bound variable anaphora, as indicated by the translation in (17). Indeed, whenever soko is referentially associated with a conjoined NP, bound variable anaphora must be involved, which in turn requires formal dependency. Since the formal dependency of soko upon T to N 'T and N' requires that the former be in the syntactic domain of the latter, we expect Weak Crossover effects when soko is not within the syntactic domain of the conjoined NP (at the surface structure), thereby predicting the referential association between them in such cases to be impossible (either as coreference or as bound variable anaphora). This is indeed a correct prediction, as illustrated in (18a).

- (18) a. *soko-no kumiai-ga [T to N (to)]-o uttaeta (koto)
 it-GEN labor union-NOM T and N-ACC sued
 'it_is labor union sued [each of [Toyota and Nissan]]_i'
 'their_i labor unions sued [Toyota and Nissan]_i'
 b. [T to N (to)]¹-ga soko₁-no kumiai-ni uttae-rare-ta (koto)
 T and N-NOM it-GEN labor union-DAT was sued
 '[each of Toyota and Nissan]_i was sued by it_is labor union'

⁸ In some of the examples that follow, I use only subscripts, if the issue of formal dependency cannot (easily) be made to be of direct relevance.

Recall that Dem-binding requires what we might call a Dem-binder and a Dem-bindee. Given that conjoined NP, as given in (17) and (18), do not contain a demonstrative, the formal dependency of soko upon the conjoined NP must be due to Arg-binding rather than Dem-binding, predicting that soko cannot be formally dependent upon the conjoined NP in a local context, due to Principle B. The example in (19a), to be contrasted with (19b), indeed confirms this prediction.

- (19) a. */*?[USC to UCLA]¹-ga soko₁-o suisensita (no wa sensyuu-no kaigi-de desu)
 USC and UCLA-NOM it-ACC recommended (it was at the meeting last year that)
 ‘(It was at the meeting last week that) [USC and UCLA]¹ recommended it₁.’
 b. [USC to UCLA]¹-ga [soko₁-no bengosi]-o suisensita
 USC and UCLA-NOM [it-GEN attorney]-ACC recommended
 (no wa sensyuu-no kaigi-de desu)
 ‘(It was at the meeting last week that) [USC and UCLA]¹ recommended [it]_{1s} attorneys.’

We observe the same contrast in (20), in regard to the availability of the reading soko that is bound to the even phrase.

- (20) a. *(Toyota-ga) [Arizona koozyoo-sae]¹-ga soko₁-o suisensita (n desu)
 (T-NOM) [Arizona factory-even]-NOM it-ACC recommended
 ‘(It was Toyota that) [even (its) Arizona factory]¹ recommended it₁.’
 b. (Toyota-ga) [[Arizona koozyoo]-sae]¹-ga [soko₁-no sitauke]-o
 (T-NOM) [Arizona factory-even]-NOM [it-GEN subsidiary]-ACC
 suisensita (n desu)
 recommended
 ‘(It was Toyota that) [even (its) Arizona factory]¹ recommended it_{1s} subsidiary.’

Both in (19a) and (20a), the formal dependency of the object argument upon the subject argument is local. Furthermore, Dem-binding is not an option because of the absence of a demonstrative in the subject argument. Hence both (19a) and (20a), with the intended bound reading, are ruled out by Principle B.⁹ As expected under RVBT, soko can be coreferential with a referential argument in the local context, as illustrated by (21).

- (21) (Toyota-ga) [Arizona koozyoo]₁-ga soko₁-o suisensita (n desu)
 (T-NOM) Arizona factory-NOM it-ACC recommended
 ‘(It was Toyota that) [(its) Arizona factory]_i recommended it_i.’

The contrast between (20a) and (21), I contend, provides strong support for RVBT, according to which coreference is not subject to Binding Theory.

To summarize, I have argued that (4) allows the covariant interpretation for soko due to Dem-binding, i.e. due to the formal dependence of so upon do. When Dem-

⁹ The intended bound readings for (20a) and (20b) can be grossly paraphrased as in (ia) and (ib), respectively.

- (i) a. Even x, x=Arizona factory (x recommended x)
 (ii) b. Even x, x=Arizona factory (x recommended x's subsidiary)

The reading in (ii), on which Arizona factory and soko are coreferential, is possible for (20a).

- (ii) Even x, x=Arizona factory (x recommended Arizona factory)

binding is not possible, covariant interpretation must be achieved by Arg-binding, as illustrated in (17), i.e. by means of the formal dependence of soko upon the conjoined NP. Formal dependency, however, is subject to local disjointness effects imposed by Principle B, hence the unacceptability of (18a) and (19a). The acceptability of (19c) is consistent with RVBT, since coreference relations are not subject to Principle B.

2.3 Dem-binding in English

Given the analysis of (11), one might wonder whether we find instances of Dem-binding in English as well. I shall in fact argue that the covariant interpretation in (22a) is due to Dem-binding, as indicated in (22b).

- (22) a. Which linguist recommended that linguist for a lucrative project?
 b. Which¹ linguist recommended that₁ linguist for a lucrative project?

Example (22a) is not readily accepted by every speaker; but those who accept (23) tend to also accept (22a) fairly easily.

- (23) Which linguist recommended that linguist's student for a lucrative project?

The relative acceptability of (22) and (23) cannot be due to the possibility of some extended sense of coreference, judging from the WCO effects in (24), to be compared with (25).

- (24) *Which girl asked that professor's student about which professor?
 (25) a. Which girl asked which professor about that professor's student?
 b. Which girl asked John about which professor?
 c. Which girl asked his_i student about Prof. Smith_i?

The contrast between (24) and (25) indicates that the referential association between that linguist and which linguist in (22) and (23) involves covariant interpretation, rather than coreference. According to the proposal in (9), either Dem-binding or Arg-binding must be involved in (22).

I now wish to argue that the relevant formal dependency in (22) cannot be Arg-binding; hence it must be Dem-binding. Consider the pair of examples in (26), in which the linguist is used in place of that linguist.

- (26) a. *Which linguist recommended the linguist for a lucrative project?
 b. ??/?Which linguist recommended the linguist's student for a lucrative project?

As in the case of (22) and (23), (26b) is not uniformly accepted by speakers. There is, however, a crucial difference between the pair in (26) and the pair consisting of (22) and (23). Recall that the status of (22) is more or less comparable to that of (23). By contrast, the status of (26a) seems radically degraded, in comparison with (26b). It seems that we are observing in (26a) local disjointness effects. I wish to contend, in other words, that the degradation of (26a) is for the same reason as that of (27), a familiar case of Principle B violation.

- (27) *Which linguist¹ recommended him₁ for a lucrative project?
 Given the assumption that him does not contain a demonstrative in it, the dependency of him upon which linguist must be based on Arg-binding. Such dependency, as indicated in

(27), however, is local, and hence is disallowed by Principle B. Now, if we assume that the is not a demonstrative and hence is not a legitimate “bindee” in Dem-Binding, the formal dependency as indicated in (28) is not possible.

(28) Which¹ linguist recommended the₁ linguist for a lucrative project?

Given this, the interpretation of the linguist that is covariant with which linguist must be due to Arg-binding. The intended formal dependency in (26) must thus be as indicated in (29).

(29) a. [Which linguist]¹ recommended [the linguist]₁ for a lucrative project?
b. [Which linguist]¹ recommended [the linguist]₁'s student for a lucrative project?

Note that the formal dependency in (29a) is local while that in (29b) is not. The status of (26a), in contrast to (26b), indicates that the formal dependency in (29a) is not allowed while that in (29b) is, assuming the marginality of (26b) to be due to an independent factor. Since what differentiates the two is the locality of formal dependency, a plausible assumption is that the formal local dependency, as in (29a), is disallowed. If the linguist cannot be formally dependent locally, it seems most natural to assume that that linguist cannot, either. Under this assumption, therefore, the formal dependency as depicted in (30) is not possible, due to its local nature.¹⁰

(30) [Which linguist]¹ recommended [that linguist]₁ for a lucrative project?

Since the formal dependency in (30) is not possible, the relevant covariant interpretation in (22) must be based on the formal dependency as indicated in (31).

(31) Which¹ linguist recommended that₁ linguist for a lucrative project?

Hence (22) is an instance of Dem-binding.

2.4 Principle B regulates [-a] rather than [+p] categories.

The question arises as to why the linguist exhibits the local disjointness effects, which is akin to Principle B effects. I propose that the reason for this is that Principle B refers to [-a(naphor)] rather than [+p(ronominal)] categories, as proposed in Oshima (1979). More specifically, I propose:¹¹

¹⁰ One might wonder whether the formal dependency in (i) can be as in (iib) in addition to (iia).

- (i) which linguist recommended that linguist's student for a lucrative project?
(ii) a. which¹ linguist recommended that₁ linguist's student for a lucrative project?
b. [which linguist]¹ recommended [that linguist]₁'s student for a lucrative project?

The answer hinges on the conditions on Arg-binding that have to do with the internal structure of the Arg-bindee. The discussion in section 3 will indicate that the formal dependency in (iib) is possible only marginally.

¹¹ An alternative account of the local disjointness in (26a) would regard the linguist as [+p, -a], as in Lasnik's (1989) treatment of epithets, thereby making it subject to Principle B. I reject this alternative on the following ground. The assignment of the [+p] feature to a common noun (or a DP whose NP complement is headed by a common noun) amounts to analyzing every definite description as [+p], since any common noun can function as linguist does in the relevant respect. This, I believe, is a undesirable result, as long as we assume that the positive value of a grammatical feature of the sort under discussion is assigned to members of a presumably closed class category, based on positive linguistic evidence.

- (32) Binding Principle B is to be formulated as: A [-a(naphor)] (rather than [+p(ronominal)]) category cannot be formally dependent in a local domain.

With the reformulation of Principle B as in (32), no Principle in Binding Theory refers to [+p] categories. Principle A, if it is an independent Principle, refers to [+a] categories and Principle B to [-a] categories. Hence, nothing in Binding Theory refers to [+p] categories; it is therefore reasonable to conclude that there are no [+p] categories (binding theoretically). Given the absence of [+p] categories, it would be rather peculiar to assume the existence of [-p] categories. I thus maintain (33).

- (33) The [+/-a] feature is the only binding theoretic feature.

From (33), follows (34), which is argued for in Reinhart (1983, Ch. 7).

- (34) Condition C, which refers to [-a, -p] categories, does not exist as a binding principle.

Whatever rules out (35) must be independent of Binding Theory.¹²

- (35) *he_i recommended John_i's student

The acceptability of examples like (23), Evans' example in (36) and many other similar examples cited in past works suggest that this is indeed a correct empirical result; see Bach and Partee (1980, note 11), Milner (1990), etc.¹³

- (36) Every logician_i walks with a boy near that logician_i's house. (Evans (1977, p. 273))

2.5 A Summary

I have argued that:

- (37) a. One of the two ways in which a nominal category, i.e. DP or NP, can be construed as covariant with another category is by means of what I call Dem(onstrative)-binding; see (9) and (10).
 b. Binding Principle B is to be formulated as: A [-a] (rather than [+p]) category cannot be formally dependent in the local domain.
 c. The [+/-a] feature is the only binding theoretic feature.

Questions remain as to precisely how Dem-binding is to be expressed syntactically and how it is to be translated into a semantic representation. To answer these questions is beyond the scope of this paper. Here I shall only mention the following: UG

¹² Lasnik (1989) states the relevant condition as:

(i) A more referential expression cannot be bound by a less referential expression.

Following Huang (1988), Hoji (1990b, and subsequent works) refers to this condition as Condition D. I will now refer to the condition that has the effects of (i) as Condition D.

¹³ For example, Haik (1984, p. 204 n. 21) cites acceptable (i), attributing it to Haj Ross.

(i) My brother invests in many projects that the idiot thinks will make him rich.

Bach and Partee (1980, p. 25 footnote 11) states:

‘Here we simply disagree about the status of examples like the following, starred by Reinhart: Jill loves Jill's mother; Jill believes that Jill is OK.’

must specify what can be the Dem-binder and the Dem-bindee and the child has the task of identifying the morphemes that qualify as such. UG must also specify what can be an Arg-bindee, in terms of its structural properties. (I assume that any argument can be an Arg-binder.) In both the Dem-binding and the Arg-binding cases, given what qualifies as a bindee, (9) and (10) specify the structural positions for its possible binder(s).¹⁴ Principle B further narrows down the possible structural positions for its binder(s). For the ease of exposition, we have represented the relevant bindee and the relevant binder, by means of a subscript for the former and the superscript for the latter, while not intending these devices to be part of syntactic representation.

3. A Speculative Suggestion toward a Solution to the Second Problem

In the preceding discussion, I assumed that Principle B regulates the possibilities of formal dependency, which I assume is a basis for a covariant interpretation of α with respect to β . Coreference, on the other hand, is not subject to Principle B. As noted earlier, this leaves unaccounted for the unacceptability of (7), in contrast to (8). I repeat (7) and (8), for convenience.

(7) * it_i recommended it_i

(8) $soko_i$ -ga $soko_i$ -o suisensita 'it recommended it'

I suggest that the difference between (7) and (8) is due to the difference between the internal structures of it and soko, and more generally, that between the English and Japanese nominal categories. Following Postal (1969), I assume that the so-called personal pronouns in English are phonological realizations of grammatical phi features on D. Given the proposal made earlier regarding the internal structure of soko, the difference between the internal structures of it and soko is as indicated in (38).

- (38) a. it : [DP [D F]] (or simply [DP F] (F=the phi features))
 b. $soko$: [NP [DemP so] [N ko]]

Now, I would like to speculate that the difference between (38a) and (38b) is responsible for the difference between (7) and (8). More specifically, I wish to suggest that a nominal category whose sole content is grammatical phi features on D undergoes some process P, in the unmarked cases, whose result may be considered as similar to cliticization. As the result of P, I suggest, the nominal category must be formally dependent upon a c-commanding category that is closest to it structurally. This amounts to saying that (7) must be represented obligatorily as in (39), in the unmarked cases. This account thus treats (7) on a par with *who_i recommended him_i, unlike Reinhart (1983, Ch.7); cf. Grodzinsky (1992).

(39) it^1 recommended it_1

Since the formal dependency in (39) is local, it is ruled out by Principle B.¹⁵

¹⁴ Clearly, the structural condition in (9b) is a necessary but not sufficient condition for the covariant interpretation of a given category with respect to another. The Dem-binding as indicated in Which¹ cat bit off that_i dog's tail cannot yield an interpretation in which the value of that dog is covariant with that of which cat.

¹⁵ What can it in (i) be formally dependent upon?

(i) it recommended John

While highly speculative, this suggestion receives some support from the following considerations. First, it makes an interesting and apparently correct prediction regarding the behavior of the so-called small *pro*, namely, a null argument, in Japanese.¹⁶ Let us assume that the structure of covert elements mirror that of overt elements, as in Chomsky (1982). Assume further that the postulation of an empty head and its projections is to be minimal. Then the structure of *pro* in Japanese must be like (40).

(40) *pro*: [NP *e*]

Not consisting solely of phi features on a D, *pro* need not undergo process P. Hence *pro* is expected to behave differently from *it*, in the relevant respect here. This is confirmed by the contrast between (41) and (42).

(41) */*? Speaking of USC, I want to know why USC¹ recommended it₁.

(42) USC-ni kansite iciba, watasi-wa [naze USC_i-ga *pro*_i suisensita ka] siritai (n desu)
'Regarding USC, I want to know [why USC_i recommended it_i].'

The (B) examples in (43) and (44) also seem to illustrate the same contrast.¹⁷

(43) A: Dono computer-ga sono computer-o suisensita no?
'Which computer recommended that computer?'

B: Sono computer_i-ga *pro*_i suisensita (n desu)
'That computer_i recommended it_i.'

(44) A: Which computer recommended that computer?

B: */*?That computer¹ recommended it₁.

The perfect to fairly acceptable status of (42) and (43B), in contrast to unacceptable (41) and (44B), thus confirms that *pro* in Japanese behaves differently from *it* in English, in terms of local disjointness effects, as predicted by the analysis of the Japanese nominals as in (38b).

Given the elementary observation that the nominal N head can be followed by particles such as *sae* 'even', *mo* 'also', *wa*, etc., it is natural to assume that nominal projections in Japanese can also be headed by some functional categories. However, the observations made in (41) to (44) and the considerations given above indicate that the internal structure of the Japanese nominals is not quite like that of the English nominals in the sense relevant to the foregoing discussion. The status of (42) and (43B) would thus pose a challenge to the view that the Japanese nominal projections are DPs, just as in the case of English.

Given the suggestion made above, I would have to assume that *it* in (i) is formally dependent upon a covert category whose syntactic domain contains *it*. Whether this is totally untenable, only highly dubious, or somehow plausible, I shall leave undiscussed here.

¹⁶ Given the proposal above, it is not [+pronominal]; hence it is misleading to call it a small *pro*. But for the purposes of convenience, I shall continue to refer to it as *pro*.

¹⁷ Since (44B) seems far worse than (i), the failure to use VP deletion alone cannot be responsible for the degradation of (44B).

(i) (as an answer to (44A)) ??/?That computer_i recommended that computer_i.

Incidentally, the status of (43B) seems analogous to that of (ii).

(ii) (as an answer to (43A)) Sono computer_i-ga sono computer_i-o suisensita (n desu)
'That computer_i recommended that computer_i.'

In section 2, I suggested that UG must specify what can be an Arg-bindee, in terms of its internal structure. Suppose that a part of the relevant specification is that the Arg-bindee in the unmarked case does not have any content on N. This predicts that, as an Arg-bindee, it is unmarked while soko is marked. The latter has a content on N, i.e. ko, while the former does not. Indeed, it and soko differ not only in terms of the “local disjointness effects for coreference,” as discussed above, but also in terms of how readily they can be construed as bound variables. While the bound variable use of it, as in (45), is accepted by speakers without any difficulty at all, the reactions to the Japanese counterpart of (45), with soko in the genitive position, vary among the native speakers. Likewise, while many speakers find (17) to be perfect, some find it somewhat marginal.¹⁸

(45) every university closed its Linguistics Department

This observation confirms that while the Arg-bindee use of it is unmarked, the Arg-bindee use of soko is marked. This is not unexpected; the Arg-bindee use of soko requires the “suppression” of the (content of) the N, which, I assume, gives rise to some degree of markedness.

It has often been noted that stressed HIM does not exhibit local disjointness effects.

(46) HE_i recommended HIM_i

Given the account of the contrast between (7) and (8), suggested above, it is plausible to analyze the stressed HIM as having the structure as in (47).

(47) HIM: [DP [D F₁] [NP F₂]] (F₁=grammatical phi features, F₂ = the feature relevant for stress/focus)

Since HIM does not consist solely of the grammatical phi features on a D, it does not undergo the process P, hence the acceptability of (46), as in the case of (8). Since the content on the N(P) is only the feature relevant for stress/focus, we may expect HIM to be an “Arg-bindee.” Indeed it can be “Arg-bound,” as indicated in (48).¹⁹

(48) every player¹ thought that the Raiders would pick HIM₁

Furthermore, it does exhibit local disjointness, as expected.

(49) *every player¹ recommended HIM₁

There also appear to be differences among HIM, him and 'im. Some speakers find the contrasts as indicated in (50).²⁰

¹⁸ The local disjointness effects are observed for both types of speakers.

¹⁹ Some speakers find (48) somewhat marked. The status of (48), I assume, is analogous to the status of (17); see the remark immediately preceding (45) above. Note that both HIM and soko, under the proposed analysis, have some content on the N, which must be “suppressed” in order for them to function as Arg-bindees.

²⁰ Other speakers find these examples worse than they are marked here. But the relative contrasts among the three examples do seem to obtain for those speakers as well.

- (50) a. John_i recommended HIM_i.
 b. ???John_i recommended him_i.
 c. */*?John_i recommended 'im_i

The status of (50a) is as discussed just above. The status of (50c) can be attributed to the incompatibility of the reduced form 'im and the feature relevant to the stress/focus. Thus (50c) is out essentially for the same reason as (44B). What about (50b)? Why is it better than (50c)? I assume that this is because it is marginally possible for him to have the focus feature that is not phonetically realized, following the suggestion made by Chomsky (UCI Lecture, spring 1993). Thus only to the extent that him is analyzed as in (47), (50b) is acceptable.

There is yet another consequence of the analysis suggested here. Suppose, along the lines of the preceding discussion, that the more content on the N head a given nominal projection α has, the more difficult it is for α to be an Arg-bindee (presumably because of the increasing difficulty in "suppressing" the content of the N.) We can then account for the fact that soko can be construed as a bound variable much more readily than soitu 'that guy'. While soko can be "bound to" a conjoined NP relatively easily, as in (17), it is impossible for soitu to be "bound to" a conjoined NP.²¹ In the terms of the present discussion, this means that the Arg-bindee use of soitu is (almost) impossible while that of soko is somehow possible. The ko in soko simply means "place", while itu in soitu has the additional derogatory meaning, as its translation 'that guy' indicates. Hence the relevant difference between soko and soitu is not unexpected at all, within the context of the preceding discussion.

4. On the Principle B effects with kare.

I have assumed the acceptability of the coreference in examples like (51).

- (51) kare-ga kare-o suisensite (koto) 'he_i recommended him_i'

It has, however, been argued, in Oshima (1979), Kuno (1986) and Shibatani (1990), that kare exhibits local disjointness effects, even when covariant construal is not at stake. The contrast indicated by a pair like (52) below is in fact clear, and one might, as in the works cited above, take this as evidence for the local disjointness effects exhibited by kare even for coreference.

- (52) a. *kare-ga kare-o nagusameta (koto) 'he_i consoled him_i'
 b. kare-ga kare-no hahaoya-o nagusameta (koto) 'he_i consoled his_i mother'

Note that we detect the local disjointness effects of the sort observed in (52a), not only with kare but also with R-expressions, as pointed out by Oshima (1979).

- (53) a. *John-ga John-o nagusameta (koto) 'John consoled John'
 b. John-ga John-no hahaoya-o nagusameta (koto) 'John consoled John's mother'

Note further that, just as (51a) contrasts with (52a), so (53a) contrasts with (54).

- (54) John-ga John-o suisensita (koto) 'John recommended John'

²¹ I am grateful to Y. Kitagawa for having continued to remind me over the years of the fact that speakers like him find the bound variable use of soitu highly marginal. Crucially, those speakers find a significant difference between soko and soitu, as noted in the text.

If (52a) were out due to Principle B, (53a) should also be out due to the same principle. Oshima (1979) in fact proposes, in effect, that Principle B refers to [-a] categories, instead of [+p] categories.²² What differentiates my proposal from Oshima's is of course the fact that I adopt RVBT and assume coreference to be outside the jurisdiction of Binding Theory, while Oshima does not make such a distinction.

Given the proposal made above, the degraded status of (52a) and (53a) cannot be due to Principle B, since formal dependency is not at issue here. Note that the claim that Principle B regulates coreference (as well as bound variable anaphora) amounts to saying that any non-anaphoric nominal cannot share its denotation with another nominal in the local domain of the former.²³ We have seen, as in (4) and (51), that this is not necessarily true.

We cannot explain away the acceptability of (4) and (51) by simply stating that some semantic properties of the predicate *suisens* 'recommend' make Principle B inapplicable here. For if that were the case, then (19a) and (20a) too should be immune to Principle B, since the same predicate is used in all these examples. As I argued above, formal dependency in the local context is at stake in (19a) and (20a) but not in (4) and (51). Hence, the simple recourse to the semantic properties of the relevant predicate does not help one's account of (4) and (51), if one adopts the view that Binding Theory regulates coreference (as well as bound variable anaphora).

The contrast between (51a) and (52a), i.e. the 'recommend' vs. 'console' contrast, persists even when *soitu* 'that guy' is used in place of *kare/John*.

- (55) a. *soitu-ga soitu-o suisensita* (koto) 'that guy recommended that guy'
 b. **soitu-ga soitu-o nagusameta* (koto) 'that guy consoled that guy'
 (56) a. *Doitu-ga soitu-o suisensita no?* 'Which guy recommended that guy?'
 b. **Doitu-ga soitu-o nagusameta no?* 'Which guy consoled that guy?'

In English as well, speakers typically find (57a) better than (57b), and also detect the contrast between (57b) and (57c), as indicated below.

- (57) a. **??/?John* {recommended/voted for} *John*
 b. **John* consoled *John*
 c. *??/?John* consoled *John*'s mother.

Some speakers find (a) and (c) examples in (57) quite acceptable. For them, the contrast between (a) and (b) as well as that between (b) and (c) are quite robust. It appears that the analysis that rules out (52a) by Principle B would also rule out (57b) by the same principle, not a particularly impressive result, to say the least. I take the above considerations as compelling evidence that the status of (52a) is NOT due to Principle B, thereby confirming the proposal made earlier in the paper regarding the nature of Principle B.

It seems that the relevant factor regarding the 'recommend' vs. 'console' contrast is how easy it is to assign different guises to the coarguments that share the same denotation. Apparently, it is easier to do so with *suisens* 'recommend' than with

²² Oshima's proposal is restricted to Japanese; see also Kuno (1986) for a proposal to the same effect as Oshima's.

²³ The claim that a pronominal cannot share its denotation with another nominal in the local domain, which is more along the lines of the standard LGB Binding Theory, is subsumed under this.

nagusame 'console', presumably due to their semantico-functional properties. We can indeed see that pragmatic considerations affect the coreference possibility, by keeping the predicate constant, as in (58).

- (58) a. kare-ga kare-o bengosita 'he defended him'
 b. John-ga John-o bengosita 'John defended John'

The examples in (58) are more or less acceptable when used in a courtroom situation, as is described in (59), for example.

- (59) John was arrested. John was the best attorney to represent this case. After hours of discussion with the judge, a special arrangement was made. It was decided that John would defend John. Indeed John defended John (wonderfully).

By contrast, they are basically unacceptable when used in a marital crisis situation, as described in (60).

- (60) John's wife found out about John's affair. She was upset and become hysterical. John defended John (desperately).

In fact, the last sentences of (59) and (60) seem to show the same contrast as their Japanese counterparts.

5. Remaining Questions

Among the questions that remain are (i) how Strong Crossover (SCO) cases would be accounted for, without Principle C and (ii) at what level of representation, Binding Principles apply. I assume that the SCO cases will be subsumed under Condition D, when this condition is appropriately generalized. Related to this, is the nature of Condition D itself. Whatever the nature of this condition may be, the condition seems independent from Binding Principles and Formal Dependency, though obviously they do interact in interesting ways, as indicated by the contrast between ^{??/?}which syntactician recommended that linguist for a lucrative project and *which linguist recommended that syntactician for a lucrative project. As to the relevant level of representation, I assume at this point, that Binding Principles belong to the formal interpretive system and apply to the output of the computational system. In this paper, I must also leave undiscussed many other important questions and issues, such as (iii) whether Principle A and Principle B can be collapsed, (iv) what categories "carry" the [+a] feature and (v) whether or not there is any category in Japanese that "carries" the [+a] feature, hoping to return to them in future work.

Notwithstanding the many remaining questions, I hope to have (i) demonstrated the existence of the formal dependency relationship, dubbed here as Dem-binding and (ii) provided confirmation for the basic tenet of the Reinhartian (1983, Ch.7) view of Binding Theory, with the consequence of the elimination of the [+/-p] feature from the Binding Theory.²⁴

²⁴ I do not, however, subscribe to her pragmatic account of the disjointness effects for coreference, or Rule I in Grodzinsky and Reinhart (1993), for cases like (39).

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