DEMONSTRATIVES, BOUND VARIABLES, AND RECONSTRUCTION EFFECTS[*]

Hajime Hoji, Satoshi Kinsui, Yukinori Takubo, and Ayumi Ueyama

University of Southern California, Osaka University, Kyushu University, and Kyoto University of Foreign Studies

1. Introduction

The generalization in (1), concerning the so-called overt pronoun *kare* in Japanese, has been widely accepted in the literature.[1]

(1)   *Kare* cannot be construed as a bound variable.

The examples in (2) are from Hoji 1991: (1), with the judgments reported there.

(2)   a.   *<u>Daremo</u>-ga   [NP[S <u>kare</u>-ga tukutta]   omotya]-o   kowasita.
             everyone-NOM   he-NOM   made   toy-ACC   broke
             '<u>Everyone</u> broke the toy that <u>he</u> had made.'
        b.   *<u>Daremo</u>   [NP[S <u>kare</u>-ga   tukutta] omotya]-o mottekonakatta.
             no:one   he-NOM   made   toy-ACC   not:brought:along
             '<u>No one</u> brought along the toy that <u>he</u> had made.'

Kare contrasts with *so-ko* 'it, that place, the place' (and *so-re* 'it, that thing, the thing'); the

[1]   That *kare* cannot be construed as a bound variable has been discussed in Nakai 1977, Kitagawa 1981, Nakayama 1982, Saito & Hoji 1983, Hoji 1990, 1991, and Noguchi 1997.

latter can be construed as a bound variable, as discussed in Saito 1981, Nishigauchi 1986, Yoshimura 1987 and Hoji 1991, 1995.

(3) {Do-no kaisya-mo/Subete-no kaisya-ga} so-ko-no kogaisya-o suisensita.
     which-GEN company-MO every-GEN company-NOM it-GEN subsidiary-ACC recommended
     'Every company recommended its subsidiary.'

The impossibility of split antecedence with *so-ko*, unlike *karera*, indicates that *so-ko* is singular-denoting, as argued in Hoji 1995.[2] Given this, the possibility of the anaphoric relation between a plural denoting NP and *so-ko*, as illustrated in (4), leads to the conclusion that the relevant reading must be that of bound variable anaphora.

(4)   Toyota to Nissan (to)-ga Mazda-ni [CP CIA-ga so-ko-o
       Toyota and Nissan-NOM Mazda-DAT CIA-NOM that-place-ACC
       sirabeteiru to] tugeta. (Hoji 1995: (17))
       is:investigating that told
       '(Each of) Toyota and Nissan told Mazda that the CIA was investigating it.'

Despite the general acceptance of (1), however, it has been reported in Hoji 1991 and Takubo 1996 that it is not always impossible for *kare* to yield a bound reading.

(5) a. ?Do-no gakusei-mo [sensyuu kare-o suisensita sensei-ni] orei-o
         which-GEN student-MO last:week he-ACC recommended teacher-DAT present-ACC
         okutta.
         sent
         'Every student sent a present [to the teacher who recommended him last week].'
     b. Do-no nooberusyoo zyusyoo sakka-mo kare-no hisyo-o turetekita.
         which-GEN Nobel:prize winning author-MO he-GEN secretary-ACC brought
         'Every Nobel prize winning author brought his secretary.'

In this paper, we take this seemingly contradictory set of observations as our initial empirical puzzle and seek its solution by considering what properties underlie bound variable readings.

2. NP Types and Reconstruction Effects

It is well-known that the availability of bound variable construal is affected by the type

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2   See Hoji 1995: section 2.2 for the relevant examples.

of the dependent term. While *so-* in *so-ko* corresponds to *that* in *that N* in English, there is another demonstrative form *a-* that appears interchangeable with *so-*. As illustrated in (6), *so-ko* and *a-soko* can both translate English *it*.[3]

(6)   Toyota-ga {so-ko/a-soko}-no meinbanku-o hihansita.
         'Toyota criticized its main bank.'

Unlike *so-*NPs, however, *a-*NPs cannot be construed as a bound variable, and the relevant judgments are quite uniform and robust.[4]

(7)   a.   Toyota-sae-ga {so-ko/*a-soko}-no meinbanku-o hihansita
           'Even Toyota criticized its main bank.'
      b.   Do-no kaisya-mo {so-ko/*a-soko}-no meinbanku-o hihansita
           'Every company criticized its main bank.'

The availability of a bound reading is also affected by the type of QP, as illustrated by the contrast in (8)).[5]

(8)   a.   Do-no zidoosya-gaisya-mo   [sensyuu   so-no zidoosya-gaisya-o
           which-GEN auto-company-MO   last:week that-GEN auto-company-ACC
           suisensita   seizika-ni]   orei-o   okutta.
           recommended politician-DAT present-ACC sent
           'Every auto company sent a present [to the politician who recommended that auto company last week].'
      b.   *Toyota-sae-ga [sensyuu   so-no zidoosya-gaisya-o   suisensita
           seizika-ni]   orei-o   okutta.
           'Even Toyota sent a present [to the politician who recommended that auto company last week].'
      c.   *Ko-no zidoosya-gaisya-sae-ga   [sensyuu   so-no zidoosya-gaisya-o
           suisensita   seizika-ni]   orei-o   okutta.
           'Even this auto company sent a present [to the politician who recommended that auto company last week].'

Here too, *kare* patterns with *so-no N*; it cannot be 'bound' by *NP-sae*.

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[3]   *-So-* in *a-soko* comes from *si* in *asiko* that appeared circa between 800 and 1200, and is unrelated to *so* in *so-ko*, although the etymology of this *si* is not entirely clear.
[4]   The contrast between *so-*words and *a-*words can be illustrated with others pairs such as *so-re/a-re* and *so-itu/a-itu* although we do not provide the relevant examples here.
[5]   If we replace *so-no zidoosya-gaisya* with *so-ko*, the bound reading is possible in all the examples in (8).

(9)　　*[John-sae]-ga [sensyuu　　kare-o suisensita　　　sensei-ni] orei-o　　　okutta.
　　　　 John-EVEN　　　last:week　　he-ACC recommended teacher-DAT present-ACC　　sent
　　　　 'Even John sent a present [to the teacher who recommended him last week].'

If we replace *kare* with *so-no N* in examples such as (5), the bound reading continues to be possible, and in fact, without any problems.[6]　It thus seems that *kare* is closer to *so-no N* than to *so-ko*.

　　　We also observe the relevance of the NP type in regard to reconstruction effects, discussed in Engdahl 1980, van Riemsdijk & Williams 1981, Barss 1986, Lebeaux 1990, and others.

　　　It is generally understood that reconstruction effects obtain only if the trace of the category containing the dependent term is c-commanded by (the trace of) the antecedent QP, as in (10) and (11).　(The trace of the QP is not indicated.)

(10)　a.　(Guess) [which one of his teachers]$_1$ Mary told the principal that every boy should talk to t_1 .
　　　b.　*(Guess) [which one of his teachers]$_1$ Mary told t_1 that every boy should talk to the principal.
(11)　a.　(Guess) [which one of his teachers]$_1$ Mary thinks every boy should talk to t_1 .
　　　b.　*(Guess) [which one of his teachers]$_1$ Mary thinks t_1 should talk to every boy.

Although this structural constraint is often assumed to be the only necessary condition for the reconstruction effects (provided that the relevant movement is a so-called A'-movement), Ueyama (1998) points out that the type of the dependent term also affects their availability. Consider the contrast in (12).

(12)　a.　[Which evaluation of him]$_1$ did every linguist insist that John had demanded t_1 ? (Ueyama 1998: section 3.4.1 (75a))
　　　b.　?*[Which evaluation of that linguist]$_1$ did every linguist insist that John had demanded　 t_1 ?　(Ueyama 1998: section 3.4.1 (76a))
(13)　a.　Every logician was walking with a boy near that logician's house. (Evans 1977: 491)
　　　b.　Every linguist insisted that John had demanded an evaluation of that linguist. (Ueyama 1998: section 3.4.1 (74b))

Even those speakers who readily accept (13), under the intended readings, find the relevant reading in (12b) highly marginal, in contrast to (12a).

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[6]　　　The relevant examples are not supplied here for space reasons.

A similar contrast is observed in Japanese, as also discussed in Ueyama 1998.

(14) a. <u>Do-no   zidoosya-gaisya</u>-mo [<u>so-ko</u>-no   ko-gaisya]-o   suisensita.
          which-GEN auto-company-MO   that-place-GEN child-company-ACC recommended
          '<u>Every auto company</u> recommended [<u>its</u> subsidiary].'
      b. <u>Do-no   zidoosya-gaisya</u>-mo [<u>so-no zidoosya-gaisya</u>-no   ko-gaisya]-o
          which-GEN auto-company-MO   that-GEN auto-company-GEN child-company-ACC
          suisensita.
          recommended
          '<u>Every auto company</u> recommended <u>that auto company</u>'s subsidiary.'
(15) a. [<u>So-ko</u>-no   ko-gaisya]-o   <u>do-no   zidoosya-gaisya</u>-mo suisensita.
          that-place-GEN child-company-ACC which-GEN auto-company-MO recommended
          '[<u>Its</u> subsidiary]$_1$, <u>every auto company</u> recommended t_1 .'
      b. *?[<u>So-no zidoosya-gaisya</u>-no   ko-gaisya]-o   <u>do-no zidoosya-gaisya</u>-mo
          that-GEN auto-company-GEN child-company-ACC which-GEN auto-company-MO
          suisensita.
          recommended
          '[<u>That auto company</u>'s subsidiary]$_1$, <u>every auto company</u> recommended t_1 .'

In regard to reconstruction effects, *so-ko* thus patterns with *him*, and *so-no N* with *that N*.

    When we turn to *kare*, we observe that for a great majority of speakers *kare* fails to
yield the relevant reconstruction effects.[7]   (The 'pre-scrambled version' of (16) is (5a).)

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[7]   The absence of reconstruction effects with *kare* seems to persist even in the case of
what appear to be instances of Predicate Fronting, in which reconstruction effects of the sort
under discussion are generally understood to be observed obligatorily; cf. Huang 1993.
(i) a. ?<u>Do-no   gakusei</u>-mo [sensyuu <u>kare</u>-o suisensita sensei-ni orei-o okuri]-sae sita.
        which-GEN student-MO last:week he-ACC recommended teacher-DAT present-ACC send-even
            did
        '<u>Every student</u> even did [sending a present to the teacher who recommended <u>him</u> last
            week].'
   b. *[Sensyuu <u>kare</u>-o suisensita   sensei-ni   orei-o   okuri]-sae$_1$ <u>do-no   gakusei</u>-mo t_1
        sita.
        last:week he-ACC recommended teacher-DAT present-ACC send-even which-GEN student-MO
            did
        'Even [sending a present to the teacher who recommended <u>him</u> last week], <u>every student</u>
            did.'
(ii) a. <u>Do-no   kigyoo</u>-mo [sensyuu <u>so-ko</u>-o suisensita seizika-ni   orei-o   okuri]-sae
            sita.
        which-GEN company-MO last:week it-ACC recommended politician-DAT present-ACC sent-even
            did
       '<u>Every company</u> even did [sending a present to the politician who recommended <u>it</u> last

(16)   *?[Sensyuu <u>kare</u>-o suisensita sensei-ni]₁ <u>do-no gakusei</u>-mo t_1 orei-o okutta.
        '[To the teacher who recommended <u>him</u> last week]₁, <u>every student</u> sent a present
        t_1 .'

(16) sharply contrasts with (17), in which the dependent term is *so-ko* instead of *kare*.

(17)   [Sensyuu <u>so-ko</u>-o suisensita seizika-ni]₁ <u>do-no kigyoo</u>-mo t_1 orei-o okutta.
        '[To the politician who recommended <u>it</u> last week]₁, <u>every corporation</u> sent a
        present t_1 .'

The observations in this section thus seem to confirm that *kare* shares some crucial property
with *so-no N* and *that N*, but not with *so-ko* and *him*.

        The observations so far can be summarized as follows. (i) *So-ko* and *him* can be
construed as a bound variable with any type of QP and can give rise to reconstruction effects.
(ii) *Kare, so-no N, that N* can be construed as a bound variable only with some QPs but do
not give rise to reconstruction effects. (iii) *A*-NPs cannot be construed as a bound variable.

        One might express these observations simply by postulating different features so as to
classify the relevant NPs into three types. Such an approach however does not advance our
understanding of bound variable anaphora and reconstruction effects unless the relevant
properties of these NPs are characterized in terms of some theoretical primitives, enabling us
to make falsifiable predictions in regard to phenomena that go beyond what is considered here.
In what follows, we will present the core aspects of Ueyama's (1998) theory of anaphoric
relations, and put forth our account of the above observations in the terms of the theoretical
primitives proposed there, with some modifications.

3. Ueyama's (1998) theory of anaphoric relations and NP types

        Ueyama's theory assumes the following three types of individual-denoting NPs.

(18)   a.   D-indexed NPs   (e.g. John$_{D-3}$)
        b.   0-indexed NPs   (e.g. he)
        c.   I-indexed NPs   (e.g. [that student]$_{I-5}$)

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        week].'
  b. [Sensyuu <u>so-ko</u>-o suisensita   seizika-ni   orei-o   okuri]-sae₁ <u>do-no kigyoo</u>-mo t_1 sita.
    last:week   it-ACC recommended politian-DAT present-ACC sent-even which-GEN company-MO
        did
  '[Even sending a present to the politician who recommended <u>it</u> last week], <u>every company</u>
        did.'

D-indexed NPs are the NPs which are to be understood in connection with an individual which is known to the speaker by direct experience. The relevant connection is established independently of other NPs.[8] From this it immediately follows that a D-indexed NP cannot be a bound variable.[9]

As pointed out in Kuroda 1979, and in a series of works by Takubo and Kinsui, *a*-NPs in Japanese have to refer to an individual which is known to the speaker by direct experience.

(19)   (*Situation*: A wife tells her husband on the phone that someone has called him. He has no idea who the person is. He asks her:)
[So-itu #A-itu]-wa   nante   itteta?
   that-guy   -TOP   what   said
'What did [he] say?'   (based on Ueyama 1998: section 4.2 (16)&(23))

This leads us to the conclusion that *a*-NPs in Japanese must have a D-index, which in turn immediately accounts for the observation that *a*-NPs in Japanese cannot be a bound variable.

Unlike *a*-NPs, *so*-NPs in Japanese cannot independently refer to an individual (when the object is not visible at the scene), even if the object is known to the speaker by direct experience.

(20)   (*Situation*: The detective is looking for a man. He somehow believes that the man should be hiding in a certain room. He breaks into the room and asks the people there.)
[A-itu   #So-itu]-wa   do-ko-da?
   that-guy-TOP   which-place-COPULA
'Where is [he]?'   (based on Ueyama 1998: section 4.2 (10)&(20))
This indicates that *so*-NPs in Japanese cannot have a D-index.

We have observed that *so*-NPs can be construed as a bound variable. Addressing the question of how this observation can be expressed in theoretical terms, Ueyama 1998 argues that being construable as a bound variable is not a unified phenomenon. More

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[8]   More concretely, it is assumed in Ueyama 1998 that outside Grammar there is a set of ordered pairs of a natural number (index) and an individual, which is called σ^D. (i) is one such example.

(i) $\sigma^D = \{<1,\text{John}>, <2,\text{Mary}>, <3,\text{Bill}>, ...\}$

Using the notation $\sigma^D(n)$ to refer to the individual paired with the number n in σ^D, we say that a D-indexed NP is mapped to $\sigma^D(n)$.

[9]   The distinction between NPs that are D-indexed and those that are not is distinct from the one between α-occurrences and β-occurrences in Fiengo & May 1994, as noted in Ueyama 1998: ch.4, fn.13 & fn.27.

specifically, she argues that although both 0-indexed NPs and 1-indexed NPs appear to be construed as a bound variable, the two cases must be distinguished, observing that they are subject to different sets of conditions.

Let us first consider the bound reading involving a 0-indexed NP. Building on Hoji 1998, Ueyama 1998:ch.3 proposes that a 0-indexed NP must enter into FD (Formal Dependency) in order to be interpreted. Here are the relevant descriptive generalizations.

(21)   a.   *FD(α,β) if α does not c-command β at LF.
       b.   A 0-indexed NP can be interpreted only if it is (what she calls) a ^{small}NP.
       c.   A 0-indexed NP can be covariant with any type of QP.

Listed in (22a) are some examples of ^{small}NP, which is a descriptive term used in contrast to a ^{large}NP illustrated in (22b).

(22)   a. ^{small}NPs: *so-ko* 'it/that institution', *so-re* 'it/that thing', (*so-itu* 'he/that guy')
       b. ^{large}NP: *so-no zidoosya-gaisya* 'that automobile company'

Basically following the characterization given in Hoji 1995: section 3, Ueyama 1998 assumes that the distinction between ^{small}NPs and ^{large}NPs is determined based on the 'amount of semantic content' of NP. Since the 'amount of semantic content' is a matter of degree, it follows that the relevant distinction is relative, rather than absolute. Furthermore, since the 'amount of semantic content' can be subjective in nature, it will certainly depend on speakers what expression qualifies as a ^{small}NP in a given context.[10]

It is claimed in Ueyama 1998: ch.5 that (21b) should not be stated as an independent condition, and that the relevant effects can be derived as a consequence of the interpretation of the FD.

(23) β in FD(α,β) is to be interpreted exactly as α.

According to (23), if α is interpreted as a variable, β should also be interpreted as the same

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[10]   *So-ko* 'that place/it' and *so-re* 'that thing/it' are the dependent terms whose semantic content is the smallest among the (overt) NPs in Japanese. Therefore, they are most likely, among the overt NPs in Japanese, to exhibit properties of a ^{small}NP. Nevertheless, it is possible that even these expressions do not qualify as a ^{small}NP for some speakers, since they do retain some semantic content due to [N *-ko*] and [N *-re*]. *So-no zidoosya-gaisya* 'that auto company' is even less likely to 'qualify' as a ^{small}NP. However, this does not mean that it can never be regarded as a ^{small}NP. For example, if everyone has been talking about automobile companies and the NP 'auto company' is no longer informative, *so-no zidoosya-gaisya* 'that auto company' might be taken as a ^{small}NP.

variable; this is thus an instance of pure bound variable anaphora, and the semantic content of β (if any) will be 'ignored'. The generalization in (21b) is now expected, since, generally speaking, the amount of semantic content of a ^{large}NP would be too large to be 'ignored', and hence, the result would be felt inappropriate, in line with the general principle of recoverability.

Let us now turn to the bound reading involving an I-indexed NP. Ueyama (1998: ch.5) claims that an ID (Indexical Dependency) is formed when the two co-I-indexed NPs are contained in a single sentence.[11] Here are some relevant descriptions.

(24) a. *ID(α,β) if α does not precede β at PF.
    b. Not only a ^{small}NP but also a ^{large}NP can be interpreted as an I-indexed NP.
    c. β_{I-n} can be covariant with α_{I-n} only if α is (what she calls) an ^{existential}QP.[12]

The most important in the context of this paper is the correlation between (24a) and (24b) as well as that between (21a) and (21b). Apparent bound variable anaphora that is based on co-I-indexation fails to exhibit typical reconstruction effects, due to (24a). A ^{large}NP can give rise to apparent bound variable anaphora only based on co-I-indexation, due to (21b). It thus follows that reconstruction effects are not observed with a ^{large}NP.

An I-indexed NP is characterized in Ueyama 1998: ch.5 as a free variable whose ultimate referent is determined by making reference to its co-I-indexed antecedent (cf. Evans 1977, 1980). Since it is a free variable, it can be accompanied by some description, and hence there is no constraint on the form of the dependent term. This accounts for the acceptability of the examples in (25) and (26), with the dependent term being a ^{large}NP.

(25) Few conservative congressmen admire Kennedy, and {they/those congressmen/those conservative congressmen} are very junior.

(26) [Every farmer who owns a skinny donkey] beats {it/that donkey/that skinny donkey}.

While considering (25) and (26) to be typical instances of co-I-indexation, Ueyama (1998) argues that the apparent bound variable anaphora with a ^{large}NP in examples like (8a) and

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[11]   There is no such operation as 'co-I-indexation' in this theory; an I-index is freely assigned at Numeration, and if two NPs happen to have the same I-index, they are said to be 'co-I-indexed'.

[12]   The term $^{existential}QP$ is first used in Ueyama 1999 although the relevant concept is already introduced in Ueyama 1998. (i) contains some examples of an $^{existential}QP$, distinguished from ^{FD}QPs illustrated in (ii). (Cf. (8) in section 2 above.)

(i) a. ^{existential}QPs: *do-no* N 'which N', *do-no* N-*mo* 'every N'
    b. ^{FD}QPs: NP-*sae* 'even NP', *kanarinokazu-no* N 'most of the Ns',
            10 *izyoo-no* N 'ten or more Ns', 55%-*no* N '55% of the Ns'

It is claimed in Ueyama 1998: ch.5 that the effects of (24c) obtain as a consequence of the interpretation of an I-indexed NP, but we cannot go into the relevant discussion in this paper.

(14b) given above is also based on co-I-indexation.[13]

Having introduced the relevant aspects of Ueyama 1998 as summarized in (21) and (24), we are now in a position to offer our account of the observations made in section 2.

4. Proposal

As indicated in (27), *a*-NPs and *so*-NPs are classified in Ueyama 1998 as D-indexed and non-D-indexed, respectively.

(27)

D-index	I-index	0-index
a-soko, a-no NP		
	so-no NP, so-itu, so-ko	

Crucially, *so*-NPs are not divided between I-indexed and 0-indexed NPs. This means that *so*-NPs can all be 0-indexed and hence they can potentially be mapped to a pure bound variable. Whether or not a 0-indexed *so*-NP is interpreted as a pure bound variable depends solely on how much semantic content it is understood to have. This, we wish to maintain, is the reason for a wide range of judgmental variations and fluctuation in terms of bound variable construal and the availability of reconstruction effects with the *so*-NPs.

If the semantic content of an NP is 'understood to be small enough', it is successfully interpreted as β in FD(α,β), with α being a trace of ^{FD}QP, such as *NP-sae*, and can be interpreted as a pure bound variable. The more semantic content it is understood to have, the more difficult it is for it to be interpreted as a pure bound variable. Recall that apparent bound variable construal based on co-I-indexation does not exhibit reconstruction effects: cf. (24). Therefore, no matter what the 'antecedent' QP might be, a necessary condition for reconstruction effects with respect to bound variable anaphora is the establishment of an FD. Hence we expect a tight correlation between the availability of (i) the presence of reconstruction effects with β (irrespective of the type of the 'antecedent' QP) and (ii) the

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[13]   For an attempt to provide a unified semantics for these cases, see Ueyama 1998: ch.5. The conclusion that the donkey anaphora is the same type of anaphoric relation with the apparent bound variable anaphora based on co-I-indexation is also supported by the observation that the covariant interpretation in (26) is possible only with ^{existential}QPs. For example, the relevant anaphoric relation is not possible in (i-a), in contrast to (i-b) and (ii).

(i)   a.   *<u>Even this conservative congressman</u> is trying to figure out what the Kennedy family thinks of {<u>that congressman</u>/<u>that conservative congressman</u>}.

        b.   <u>Even this conservative congressman</u> is trying to figure out what the Kennedy family thinks of <u>him</u>.

(ii)   <u>Every conservative congressman</u> is trying to figure out what the Kennedy family thinks of {<u>that congressman</u>/<u>that conservative congressman</u>}.

'bindability' of β by a ^{FD}QP. The falsifiability of the present study lies in part in this correlation; i.e., our proposal will be falsified if this correlation does not hold.

In sections 1-2, we have reported that (i) *kare* cannot be construed as a bound variable in some cases but it can in some other cases and (ii) reconstruction effects are not observed with *kare*. One might express these observations in terms of Ueyama 1998 as follows. *Kare* need not have a D-index[14], but its semantic content is not small enough; i.e., *kare* is very much like *so-no N*.

(28)

D-index	I-index	0-index
kare		

Under this analysis, *kare* can readily yield a covariant interpretation based on co-I-indexation but not based on FD.

There are some reasons to pursue an alternative analysis, however. First, the judgmental fluctuation does not seem to arise in the case of *kare* for FD-based bound variable anaphora, in contrast to *so-ko* 'the/that place' and *so-no kaisya* 'the/that company'; i.e., the pure bound variable construal for *kare* is disallowed quite uniformly by the speakers under discussion, while a fair amount of judgmental fluctuation is observed in regard to the pure bound variable construal for *so-ko* 'the/that place' and *so-no kaisya* 'the/that company'. Furthermore, the pure bound variable construal does not seem to become easier with *kare* in the way it does with *so-no kaisya* 'the/that company'; see the remarks in footnote 10. Finally, it is not clear what makes the semantic content of *kare* significantly larger than that of *so-ko* 'the/that place' or *so-no kaisya* 'the/that company'. On the basis of these considerations, we would like to adopt the characterization of *kare* as in (29), instead of (28).

(29)

D-index	I-index	0-index
kare		

Kare can have either a D-index or an I-index but it cannot be a 0-indexed NP.

Let us now consider English NPs in light of the foregoing discussion. The observation that personal pronouns such as *he* can be used (i) referentially, (ii) as an E-type pronoun, and (iii) as a pure bound variable (e.g., as being anaphorically related to (the trace of) *even NP*) suggests that *he* can be any of the three types.

(30)

D-index	I-index	0-index

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[14] Since *kare* can be used in the context given in (20), it seems reasonable to conclude that *kare* can have a D-index, assuming that this test is reliable in determining the property in question.

he

More interesting cases arise when we consider *the N* and *that N*. First, consider the examples in (31) and (32).

(31) a. The invited speaker told me that Chomsky had endorsed the speaker's new theory.
      b. The invited speaker told me that Chomsky had endorsed that speaker's new theory.
(32) a. Even the invited speaker told me that Chomsky had endorsed his new theory.
      b. ?Even the invited speaker told me that Chomsky had endorsed the speaker's new theory.
      c. *Even the invited speaker told me that Chomsky had endorsed that speaker's new theory.

Although some speakers do not find examples like (31) to be perfectly acceptable, presumably due to so-called Binding Condition C effects, many speakers accept them fairly readily. Those who do also find the relevant bound variable construal more or less acceptable in (32b), but not in (32c). Given the foregoing discussion, the contrast between (32b) and (32c) suggests that *the speaker* can be 0-indexed while *that speaker* cannot.[15] If this is indeed the relevant difference between *the speaker* and *that speaker*, we predict that *the speaker* can give rise to reconstruction effects, to the extent that it can be interpreted as a pure bound variable, while *that speaker* cannot. An initial investigation in fact seems to confirm this prediction.[16]

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[15]   Jim Higginbotham (p.c. September, 1999) suggested to us that the relevant contrast between (32b) and (32c) can be more clearly illustrated if we use examples as in (i), avoiding the Condition C effects.
(i)   a. [[Even the invited speaker]'s archenemy] told me that Chomsky had endorsed his new theory.
      b. [[Even the invited speaker]'s archenemy] told me that Chomsky had endorsed the speaker's new theory.
      c. ?*[[Even the invited speaker]'s archenemy] told me that Chomsky had endorsed that speaker's new theory.
The availability of the bound readings in examples like (i-a) and (i-b), as well as in those like (ii-a) in the next footnote, raises a nontrivial, and in fact quite general, question in regard to the c-command relation relevant to FD (i.e., the treatment of the so-called 'Spec-Binding' cases), but we cannot discuss the issues any further in this paper; cf. Reinhart 1987 and the references therein.
[16]   Examples like (i) and (ii) avoid the complications due to Condition C effects.
(i)   a. [[Every generative grammarian]'s parents] believed that the administration had demanded Chomsky's evaluation of the linguist].
      b. [[Every generative grammarian]'s parents] believed that the administration had demanded Chomsky's evaluation of that linguist].

(33) a. <u>Every generative grammarian in this department</u> believed that the administration had demanded Chomsky's evaluation of <u>the linguist</u>].

     b. <u>Every generative grammarian in this department</u> believed that the administration had demanded Chomsky's evaluation of <u>that linguist</u>].

(34) a. ?[Whose evaluation of <u>the linguist</u>]$_1$ did <u>every generative grammarian</u> believe that the administration had demanded t_1 ?

     b. *[Whose evaluation of <u>that linguist</u>]$_1$ did <u>every generative grammarian</u> believe that the administration had demanded t_1 ? (Cf. (12b).)

Since the pure bound variable construal for *the speaker* requires 'the suppression of its semantic content', so to speak, we expect there to be a fair amount of speaker variations in regard to the acceptability of examples like (34a). Given the 'standard' assumption (cf. Postal 1969) that the LF objects that correspond to an English personal pronoun such as *he* are nothing but grammatical ϕ-features, it is reasonable to assume that they simply do not have any semantic content in the sense relevant to the present discussion. It then follows that the pure bound variable use of *he* does not require 'the suppression of its semantic content' at all, thereby accounting for the readily available pure bound variable construal for English personal pronouns and little speaker variation in the relevant respect, in sharp contrast with the pure bound variable construal with *so-ko* in Japanese, as pointed out in Hoji 1995.

     The chart in (35) summarizes the relevant properties of *that N, the N,* and *he*, under the assumption that their referential use, i.e., their felicitous use without a linguistic antecedent, suffices to qualify them to have a D-index.

(35)

D-index	I-index	0-index
that N		
the N, he		

5. Summary

Our proposal is summarized in the charts (27), (35), and (29).

(27)

D-index	I-index	0-index
a-soko, a-no NP		
	so-no NP, so-itu, so-ko	

(ii) a. ?[Whose evaluation of <u>the linguist</u>]$_1$ did [[<u>every generative grammarian</u>]'s parents] believe that the administration had demanded t_1 ?

     b. *[Whose evaluation of <u>that linguist</u>]$_1$ did [[<u>every generative grammarian</u>]'s parents] believe that the administration had demanded t_1 ?

(35)

D-index	I-index	0-index
that N		
the N, he		

(29)

D-index	I-index	0-index
kare		

Notice that the crucial division in (27) is between 'D-index' and the rest, and this distinction is marked by the morphology of *a-/so-*. Notice further that the crucial division in (35) is between '0-index' and the rest, and this distinction is marked morphologically by *that*. If the chart in (29) did not exist, we could say that Japanese and English each morphologically mark only one of the two logically possible divisions. In other words, English does not have the *a-/so-* distinction and Japanese does not have *that*. The existence of the chart in (29), however, complicates the pattern, in some sense, since one might argue that the '0-index' vs. the rest is morphologically marked in Japanese, just as in English, suggesting that *that* in English and *kare* in Japanese share the crucial property.

      It is interesting to note that, unlike the NPs in (27), *kare* is not part of the 'productive lexicon'; as pointed out in Okumura 1954 and further discussed in Takubo 1996, the modern-day usage of *kare* is a rather recent innovation and how *kare* is used in Modern Japanese is not quite stabilized, in sharp contrast with NPs with demonstratives *ko-/so-/a-/do-* 'this/that/that/which'. One might thus suspect that the relevant properties of *kare*, i.e., D-indexed or I-indexed but never 0-indexed, as recorded in (29), might not be as stable as the properties of the NPs in the other two charts. Although we have so far reported what we believe to be the judgments of the majority of adult speakers of Japanese, there are some speakers (although their number seems quite small at the moment) who allow *kare* to be 0-indexed.[17] For such speakers, *kare* can be bound by NPs like *NP-sae* 'even NP' and it gives rise to reconstruction effects.

      It seems that *kare* can be D-indexed, I-indexed, or 0-indexed for these speakers. It is significant to note that for them the pure bound variable construal and the reconstruction effects for *kare* seem to be available quite readily, in contrast to *so-ko* and especially *so-no N*. Note that this observation provides indirect support for our contention that the inability for *kare* to be construed as a pure bound variable for the majority of speakers is not due to the semantic content of *kare* but due to the impossibility of *kare* as a 0-indexed NP.[18]

      We started our discussion by pointing out that there are observationally three types of

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[17]   There are also speakers for whom examples like (5) are only marginally acceptable. Condition D' proposed in Takubo & Kinsui 1998 seems to be related, but we refrain from discussing it further mostly for the space considerations.

[18]   *Kare*'s general inability to be construed as a pure bound variable is thus independent of "demonstrativity" (contra Hoji 1991) or the absence of D (contra Noguchi 1997).

NPs, as in (36).

(36)   a.   NPs that can be construed as a bound variable with any type of QP and can give
            rise to reconstruction effects; e.g., *so-ko* and *him*.
       b.   NPs that can be construed as a bound variable only with some QPs (i.e.,
            ^{existential} QPs) but do not give rise to reconstruction effects; e.g., *kare, so-no N,*
            that N.
       c.   NPs that cannot be construed as a bound variable; e.g., *a*-NPs.

Our initial observation thus grouped together *so-ko* and *him* on the one hand, and *kare, so-no N,* and *that N* on the other.

It has turned out, however, that the similar observational properties of the NPs that were initially grouped together arise differently. Take the NPs in (36b), for example. *That N* has the relevant properties because it can be I-indexed but cannot be 0-indexed. *So-no N* shares with *that N* the property that they can be I-indexed, but its properties (i) that it cannot be construed as a bound variable with any type of QP, i.e., it cannot be a pure bound variable, and (ii) that it does not exhibit reconstruction effects, are not due to its failure to be 0-indexed, but they are rather due to its semantic content and the general condition on recoverability. Since the relevant semantic content of *so-no N* can be understood to be relatively little, given an appropriate context, it is not always impossible for it to exhibit the properties in (36a), as we have observed. Turning to the NPs in (36a), *so-ko* and *him* can both be a pure bound variable and exhibit reconstruction effects. But there is a difference between the two. The latter does so quite readily, but the former only with varying degrees of marginality among speakers. We have argued that this is because *him* has no semantic content in the sense relevant here, consisting only of φ-features, while *so-ko* does have some semantic content, as argued in Hoji 1995.

Note that *so-ko* and *so-no N* do not differ at all in terms of the relevant theoretical primitives; they can both be I- or 0-indexed. Furthermore, they both have some semantic content. The difference between the two as indicated in (36a,b) is due to how much semantic content these NPs are understood to have, the notion not expressible in terms of theoretical primitives, we maintain. We have also argued that *the N* is analogous to *so-ko* and *so-no N* in this respect, thereby predicting, correctly we believe, that it can exhibit the properties in (36a), with varying degrees of marginality, just as in the case of *so-ko* and *so-no N*.

To summarize, we have proposed that the availability of pure bound variable anaphora and reconstruction effects is contingent upon two things, apart from the LF c-command relation. First, whether the relevant NP (the dependent term) can be 0-indexed. Second, how much semantic content it is understood to have. The first notion is a formal notion. The second notion, however, is not, and is a source of a great deal of judgmental fluctuation. One might thus object that our proposal cannot be empirically falsifiable, in regard to whether

a given NP can be a pure bound variable and give rise to reconstruction effects, apart from NPs like English *he*. This is indeed a valid objection, insofar as we consider, with respect to *so-no N, so-itu, so-ko* and *the N*, (i) the possibility of a pure bound variable construal and (ii) the availability of reconstruction effects, independently of each other. The falsifiability of our proposal however lies in its prediction in regard to the correlation between (i) and (ii). Whenever we have one of (i) and (ii), it means, given our proposal, that the relevant NP is 0-indexed and that the relevant anaphoric relation is based on FD. Since (i) and (ii) are related theoretically in our proposal, in terms of the properties of FD, the prediction is thus made that if one of (i) and (ii) obtains, the other also obtains. As we noted briefly at the end of section 4.1, our proposal will be empirically falsified, at least at this point of our empirical investigation, if this correlation fails to obtain for the same speaker.[19]

The point also applies to *kare*. The relevant judgments vary in the case of *kare* even more than they do in the case of *so*-NPs. This, we have suggested, is related to the fact that the modern day use of *kare* is a fairly recent innovation, originally for literary purposes, dating from about a hundred years ago, as documented in Okumura 1954. Despite the murky status of *kare* and the judgmental fluctuation, once we focus on the abstract properties that are relevant to FD and ID, the patterns of judgments are remarkably consistent with what the theory predicts, suggesting that even the categories that have been introduced to the lexicon of a language rather recently and exhibit an amalgam of properties due to some 'historical accident' are subject to the laws of UG, at some level of abstraction, just as the categories that have a completely stable status in the language, certainly an encouraging sign for the generative enterprise.

References

Barss, Andrew (1986) *Chains and Anaphoric Dependence, On Reconstruction and Its Implications*, Doctoral dissertation, MIT, Cambridge.

Engdahl, Elisabet (1980) *The Syntax and Semantics of Questions in Swedish*, Doctoral dissertation, University of Massachusetts, Amherst.

Evans, Gareth (1977) "Pronouns, Quantifiers, and Relative Clauses," *Canadian Journal of Philosophy* (I) 7-3, pp.467-536, (II) 7-4, pp.777-797.

Evans, Gareth (1980) "Pronouns," *Linguistic Inquiry* 11-2, pp.337-362.

Fiengo, Robert & Robert May (1994) *Indices and Identity*, The MIT Press, Cambridge.

Hoji, Hajime (1990) "On the so-called Overt Pronouns in Japanese and Korean," in Eung-Jin Baek, ed., *Papers from the Seventh International Conference on Korean Linguistics*, pp.61-78, International Circle of Korean Linguistics & Osaka University of Economics and

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[19] The discussion in Hoji & Ueyama 1998 suggests that the availability of 'resumption' in Japanese is also correlated to (i) and (ii). If the conclusion in Hoji & Ueyama 1998 is correct, we will have three-way, rather than two-way, correlations that the theory predicts and that are falsifiable.

Law, Osaka.

Hoji, Hajime (1991) "*KARE*," in C. Georgopoulos & R. Ishihara, eds., *Interdisciplinary Approaches to Language: Essays in Honor of S.-Y. Kuroda*, Kluwer Academic Publishers, pp.287-304.

Hoji, Hajime (1995) "Demonstrative Binding and Principle B," *NELS* 25, pp.255-271.

Hoji, Hajime (1998) "Formal Dependency, Organization of Grammar, and Japanese Demonstratives," *Japanese/Korean Linguistics*, vol.7, pp.649-677, CSLI Publications.

Hoji, Hajime & Ayumi Ueyama (1998) "Resumption in Japanese," ms., University of Southern California.

Huang, C.-T. James (1993) "Reconstruction and the Structure of VP: Some Theoretical Consequences," *Linguistic Inquiry* 24-1, pp.103-138.

Kitagawa, Chisato (1981) "Anaphora in Japanese: *Kare* and *Zibun*," in *Coyote Papers* 2, University of Arizona, Tucson.

Kuroda, S.-Y. (1979) "(Ko) So, A nituite (On (*ko*), *so* and *a*)," in *Eigo to Nihongo to* (English and Japanese), Kuroshio Syuppan, Tokyo, pp.41-59.

Lebeaux, David (1990) "Relative Clauses, Licensing, and the Nature of the Derivation," *NELS* 20-2, pp.318-332.

Nakai, Satoru (1977) "*Kare* and *Kanozyo*," *Eigo Eibungaku Kenkyuu*, 16.

Nakayama, S. (1982) *On English and Japanese Pronouns*, MA thesis, University of Tokyo, Tokyo.

Nishigauchi, Taisuke (1986) *Quantification in Syntax*, Doctoral dissertation, University of Massachusetts, Amherst.

Noguchi, Tohru (1997) "Two types of pronouns and variable binding," *Language* 73, pp.770-797.

Okumura, Tsuneya (1954) "Daimeisi 'kare, kanojo,karera' no Kosatsu (Remarks on the pronouns '*kare, kanozyo, karera*')," in *Kokugo kokubun* 23-10, pp.591-606.

Postal, M. Paul (1969) "On So-Called 'Pronouns' in English," in *Modern Studies in English*, D. A. Reibel & S. A. Schane, eds., pp.201-224. Englewood Cliffs, New Jersey: Prentice-Hall.

Reinhart, Tanya (1987) "Specifier and Operator Binding," in E. Reuland & A. ter Meulen, eds., *The Representation of (In)definiteness*, pp.130-167, The MIT Press, Cambridge.

van Riemsdijk, Henk & Edwin Williams (1981) "NP-structure," *The Linguistic Review* 1, 171-217.

Saito, Mamoru & Hajime Hoji (1983) "Weak Crossover and Move α in Japanese," *Natural Language & Linguistic Theory* 1, 245-259.

Takubo, Yukinori (1996) "The Semantics and the Semantic Change of the Japanese Distal Demonstrative *Kare*," a talk presented at Japanese/Korean Conference held at UCLA, 11/09/96.

Takubo, Yukinori & Satoshi Kinsui (1998) "On the Relation between the Deictic and the Non-Deictic Use of the Japanese Demonstratives," a talk presented at a Symposium on Diachronic and Synchronic Studies on Syntax of East Asian Languages, University of Southern California, November 6-8, 1998

Ueyama, Ayumi (1998) *Two Types of Dependency*, Doctoral dissertation, University of Southern California, distributed by GSIL publications, USC, Los Angeles.

Ueyama, Ayumi (1999) "Two Types of Scrambling Constructions in Japanese," to appear in A. Barss & T. Langendoen, eds., *Anaphora: A Reference Guide*, Blackwell, Cambridge.

Yoshimura, Noriko (1987) "Comments on Stowell's Paper," a talk presented at UCSD Workshop

on Japanese and Logical Form.

Department of Linguistics,
University of Southern California,
Los Angeles, CA 90089-1693, USA

hoji@usc.edu

Department of Linguistics,
Faculty of Letters, Kyushu University,
Fukuoka 812-8581, JAPAN

takubo@lit.kyushu-u.ac.jp

Graduate School of Letters,
Osaka University,
Toyonaka, Osaka 560-8532, JAPAN

kinsui@let.osaka-u.ac.jp

Kyoto University of Foreign Studies,
6 Kasame-cho, Saiin, Ukyo-ku,
Kyoto 615-8558, JAPAN

a_ueyama@kufs.ac.jp