In Ayumi Ueyama, ed., *Theoretical and Empirical Studies of Reference and Anaphora—Toward the establishment of generative grammar as an empirical science*, Report of the Grant-in-Aid for Scientific Research (B), Project No. 15320052, Supported by Japan Society for the Promotion of Science, 2006, Kyushu University, pp. 139-185.
[Subsequent to the submission for the publication, a few non-substantive typos have been corrected, and some new remarks have been added in footnotes (#1, #2, etc.). April 2, 2006]

Assessing Competing Analyses: Two Hypotheses about 'Scrambling' in Japanese*

Hajime Hoji
University of Southern California

1. Introduction

This paper is concerned with *falsification* and *corroboration* as crucial notions in assessing various theories and hypotheses in generative grammar.[#1] The paper is an attempt to illustrate these notions by making concrete reference to the so-called scrambling construction in Japanese and two competing hypotheses, i.e., Ueyama 1998 and Saito 2003.

2. Two hypotheses about the OS construction in Japanese

2.1. The OS construction: the basic paradigms

A statement such as (1) has often been made about Japanese 'scrambling' since the late 1980s and its validity widely accepted; cf. Saito 1989, 1992, Ueyama 1998, and the references there.

(1) Clause-internal scrambling exhibits both A and A'-properties while long-distance scrambling exhibits only A'-properties.

A major empirical motivation for (1) is the paradigm schematized in (2) and (3).[1] *BVA(A, B)* stands for *bound variable construal* for *B*, with *A* being 'its binder', *-cm* for a case marker (or preposition) other than the so-called *nominative* case maker *-ga* (represented here as *-NOM*).[2]

---

* Earlier versions of this paper have been presented in various forms, in syntax seminars at USC in the spring of 2002 and in the spring of 2006, as well as at the Mayfest at U. of Maryland, May 2005. I would like to thank the students and the audiences there for their feedback. I am most grateful to Emi Mukai, who has read and commented on numerous draft versions of this paper, within a very short period of time. Without her help, I could not have finished the paper. I would also like to thank Maki Irie, Kiyoko Kataoka, and Ayumi Ueyama for their help. Regular disclaimers apply.

#1 This stems from concern with progress in generative grammar, or what one might call 'growth of knowledge' in generative grammar, and how we can 'measure' it. I would like to address in a separate work how what will be presented below could or should be understood in relation to the concerns expressed in works such as Popper 1959, Kuhn 1962 (*The Structure of Scientific Revolutions*, University of Chicago Press.), and Mayo 1996 (*Error and the Growth of Experimental Knowledge*, University of Chicago Press), and the discussion therein.

1 There are two other (major) types of empirical evidence for (1) discussed in the literature. One has to do with so-called anaphor binding, which we will address later in this paper. The other concerns quantifier scope, which seems to exhibit the same patterns as BVA. I will not address quantifier scope in this paper, and the readers are referred to Hoji 2003 and the works by J.-R. Hayashishita. Many of Hayashishita's works can be downloaded at http://enteroflora.com/linguistics/index.html.

2 Throughout the paper, the affixal element(s) on the Verb are ignored in the schematic structures.

(2) a. A-NOM [… B …]-*cm* Verb
BVA(A, B)
b. [… B …]-NOM A-*cm* Verb
*BVA(A, B)
c. [… B …]-*cm* A- NOM Verb
BVA(A, B)
d. A-*cm* [… B …]- NOM Verb
BVA(A, B)

(3) a. [[… B …]-*cm* [$_{TP}$ … [$_{CP}$ A-NOM … *ec* …] Verb]]
BVA(A, B)
b. [*A-cm* [$_{TP}$ [… B …]-NOM [$_{CP}$ … *ec* …] Verb]]
*BVA(A, B)

The *cm*-marked phrase is what has been called 'scrambled' NP.[3] Crucial here are the observations summarized in (4).

(4) a. The 'scrambled' NP in (2c) behaves like the object NP in (2a).
b. The 'scrambled' NP in (2d) behaves like the subject NP in (2a).
c. The 'scrambled' NP in (3) behaves like the object NP in (2a).

2.2. Ueyama's (1998) theory of the OS construction in Japanese

I will follow Ueyama 1998 and refer to the so-called scrambling construction as the *OS construction* (with *OS* standing for *Object Subject*). Ueyama (1998) argues that the OS construction in (5) and that in (6), with the intended BVA, correspond to two distinct Numerations, derivations and LF representations. (5) and (6) are instances of (2c) and (2d), respectively.

(5) (Hoji 2003: (35a))
so-ko-no kantoku-o *Mettu-sae*-ga uttaeta (koto)
that-place-GEN manager-ACC Mets even-NOM sued (fact)
'*its* manager, *even the Mets* sued'

(6) (The OS version of Hoji 2003: (33b))
Mettu-sae-o *so-ko*-no kantoku-ga *ec* uttaeta (koto)
Mets even-ACC that-place-GEN manager-NOM sued (fact)
'*even the Mets*, *its* manager sued '

According to Ueyama 1998: chap. 2, 2003, the OS construction in (5) is represented at LF exactly like its *SO* (*Subject Object*) counterpart—the surface OS order obtains as the result of the PF movement of the object NP to the sentence-initial position—while that in (6) is represented more along the lines of the LF representation for sentences like (7) in English as schematized in (8).[4].

(7) a. *even the most obedient tiger* is difficult for *his* trainer to control *ec* (when so many people are around)
b. *at least one male student* was fairly easy for *his* teacher to praise *ec* in public

(8) a. NP_1 be adjective [$_{CP}$ OP_1 [$_{C'}$ for [$_{IP}$ his_1 trainer [$_{I'}$ to [control t_1]]]]]
b. NP_1 be adjective [$_{CP}$ OP_1 [$_{C'}$ for [$_{IP}$ his_1 teacher [$_{I'}$ to [praise t_1 in public]]]]]

---

[3] The use of *NP* in place of *DP* is inconsequential in this paper.

[4] Chomsky 1977 and Lasnik and Stowell 1991 are among the representative works that discuss the *tough* construction in English.

Note that in (8), BVA(NP_1, his_1) is possible. Ueyama suggests that the movement involved in (6) is an instance of QR (more accurately *CR* (*Constituent Raising*) and that is how she derives the generalization in (1), repeated here.[5]

(1) Clause-internal scrambling exhibits both A and A'-properties while long-distance scrambling exhibits only A'-properties.

Ueyama's (1998, 2003) theory of the OS construction in Japanese can be summarized as follows.

(9) *Deep OS-type* (corresponding to so-called A-scrambling) (e.g., (6)):
PF: NP-ACC/DAT (=DL) ... NP-NOM ... V
LF: NP-ACC/DAT (=DL) [$_{IP}$ *ec*$_1$ [$_{IP}$ ... NP-NOM t_1 ... V]]

(10) *Surface OS-type* (corresponding to so-called A'-scrambling) (e.g., (5)):
PF: NP-ACC/DAT (=DL) ... NP-NOM ... V
LF: NP-NOM ... [NP-ACC/DAT (=DL) ... V]]

(11) *SO-type*:
PF: NP-NOM ... NP-ACC/DAT ... V
LF: NP-NOM ... [NP-ACC/DAT ... V]

In what is called the *Deep OS type* in Ueyama 1998, 2003, the sentence-initial object NP, referred to in Ueyama 1998, 2003 as *Dislocated Phrase* (*DL*), appears in the sentence-initial position throughout the derivation, much as in the case of the matrix subject in English (7). It functions as a Subject of Predication, and is able to serve as *A* of *BVA(A, B)*. In the case of what Ueyama calls the *Surface OS type*, the DL stays in the theta position throughout the derivation to LF, and its appearance at the sentence-initial position is due to the PF movement. Hence, the DL in the *Surface OS type* is expected to behave exactly like the object NP in the *SO-type* (i.e., sentences of the Subject Object Verb order). I.e., we expect total reconstruction in the *Surface OS type*.

Ueyama's (1998, 2003) accounts of (2) and (3), repeated here, can be summarized as follows.

(2) a. A-NOM [… B …]-*cm* Verb
BVA(A, B)
b. [… B …]-NOM A-*cm* Verb
*BVA(A, B)
c. [… B …]-*cm* A- NOM Verb
BVA(A, B)
d. A-*cm* [… B …]- NOM Verb
BVA(A, B)

(3) a. [[… B …]-*cm* [$_{TP}$ … [$_{CP}$ A-NOM … *ec* …] Verb]]
BVA(A, B)
b. [*A*-*cm* [$_{TP}$ [… B …]-NOM [$_{CP}$ … *ec* …] Verb]]
*BVA(A, B)

The BVA is expected to be possible in (2c) and (3a) since they can be represented at LF on a par with (2a) in terms of the structural relation between *A* and *B*; see (10). The BVA is expected to be possible in (2d) as an instance of the *Deep OS type*; see (9). The BVA in (2b), on the other hand, is

---

[5] This raises a question as to the locality observed in so-called A-scrambling in Japanese and in the English *tough* sentences. As to the nature of the locality (argued to be) induced by the movement in the *Deep OS type* in Ueyama 1998 (see below), attempts have been made in Hoji and Ueyama 2003 and Fukaya (2003) to obtain a better understanding, extending the empirical coverage to the cleft construction and stripping/sluicing in Japanese, respectively

predicted to be impossible since there is no LF representation for it in which *A* c-commands *B*. Finally, the BVA in (3b) is predicted to be impossible since the movement of the *ec* to the matrix TP-adjoined position would have to cross a clause boundary.[6]

2.3. Saito's (2003) theory of the OS construction in Japanese

Ueyama's account of the A/A' properties observed in the OS construction in Japanese is thus representational; she argues that a given OS construction can in principle correspond to two distinct Numerations, derivations and LF representations. Saito (2003) on the other hand offers a derivational account of the A/A' properties, maintaining that what corresponds to a given OS construction is a single Numeration, derivation and representation. The dual properties of the OS construction as observed in (5) and (6) are attributed in Saito 2003 to the timing of the licensing of the formal relations in question. According to Saito 2003, the BVA in (5) and (6) is available since the necessary formal relation can be licensed/established (henceforth simply licensed) before and after the movement of the object NP to the sentence-initial position; the licensing can take place before the 'binder' loses the feature that is necessary for the 'binding relation' (called *D-feature*; see below). Let us consider Saito's proposal in more detail.

Saito (2003) discusses 'anaphor binding' and BVA in relation to (1).[7] For the reasons that will become clear later, I will focus on BVA(A, B) instead of 'anaphor binding', which I believe is justified, given Saito's remark in (12).

(12) (Saito 2003: note 5)
> Since anaphor binding and the licensing of bound pronouns more or less show the same pattern, I will mainly use examples with lexical anaphors in the discussion of A/A' properties of scrambling from here on.

What is at issue is how the formal relation that underlies *BVA(A, B)* gets licensed.

Saito (2003) starts with the "fundamental hypothesis" (see his note 14) that "Japanese scrambling is uniform, i.e., that it does not have subtypes like A-scrambling and A'-scrambling with different landing sites."[8] The hypothesized grammatical operation is simply the one of Copy and Merge.[9] (p.

---

[6] I will not address the issue having to do with the distinction between the tensed vs. non-tensed clauses although the distinction seems crucial in regard to the *tough* construction in English and one may expect it to be relevant also in Japanese. In the present discussion, the 'clause' here can be understood as a 'tensed clause'.

[7] The following discussion of Saito 2003 has benefited from Satoshi Muraoka's detailed handout on Saito 2003 (prepared for a graduate course at Kyushu University, in the fall of 2005) and Emi Mukai for further clarification and discussion in part on the basis of the Muraoka handout although much of the details of Saito 2003 that have been discussed with/by them are not included in this paper.

[8] He continues that "[this hypothesis] makes the task to explain "the … major properties of Japanese (and Korean) scrambling [given in (i)] more challenging." (p. 482)

(i) (Saito's (1))
- a. Scrambling need not have any effect on the interpretation.
  (the radical reconstruction property)
- b. Clause-internal scrambling and long scrambling are both possible. But only phrase preposed by the former can serve as an "A-binder."
  (the A/A' problem discussed by Mahajan (1990) and Tada (1990))
- c. A trace of scrambling is constrained strictly by the proper binding condition.
  (the proper binding effect)

Given some phenomena that exhibit surface similarities, we do not know a priori that they are manifestations of, or due to, a single operation/relation/representation, etc. The surface similarity under discussion here is the so-called Object Subject order or more generally the appearance of an object in its non-canonical position(s). Observations have been made that the object under discussion seems to exhibit distinct sets of properties. One could try to account for the observations about the surface similarities as well as the observed distinct properties by postulating a single grammatical operation that gives rise to a non-canonical word order and adopting a system that derives the distinct sets of properties. Alternatively, one could give an

492) His account of (2) and (3) makes crucial use of copy and deletion of features. In a nutshell, Saito's proposal is as follows. Let us make reference to (2) and (3) again.

(13) (Cf. (2).)
- a. A-NOM [… B …]-*cm* Verb
  BVA(A, B) because A c-commands B.
- b. [… B …]-NOM A-*cm* Verb
  *BVA(A, B) because A does not c-command B at any stage of derivation.
- c. [$_{\alpha}$ … B …]-*cm* A-NOM Verb
  BVA(A, B) because A c-commands B when A is Merged with the category dominating α, prior to the movement of α.
- d. A-*cm* [$_{\alpha}$ … B …]-NOM Verb
  BVA(A, B) because A c-commands B when a copy of A is Merged with what dominates α.

(14) (Cf. (3).)
- a. [[$_{\alpha}$ … B …]-*cm* [$_{TP}$ … [$_{CP}$ A-NOM … *ec* …] Verb] …]
  BVA(A, B) because A c-commands B when A is Merged with the category dominating α, prior to the movement of α.
- b. [*A-cm* [$_{TP}$ [… B …]-NOM [$_{CP}$ … *ec* …] Verb] …]
  *BVA(A, B) because A has lost the feature needed to be the 'binder' by the time it Merges to the matrix TP.

The contrast between (13d) and (14b) is captured in Saito 2003 on the basis of where a given feature can be retained, and how the formal relation underlying BVA is licensed. The features discussed in Saito 2003 are *D-features*, *P-features, O-features*, and *A-features*.[10]

(15)
- a. The *D-feature* of an NP "makes it possible for the NP to have a "reference" and participate in binding/coreference relations."[11] (p. 490)
- b. *P-features* stand for phonetic features. (p. 490)
- c. An *A-feature* (anaphoric feature) "needs to be bound by a D-feature." (p. 510, before (81)))

On the basis of the exposition on p. 490, I take it that Saito (2003) assumes (16).

(16) An NP/DP (of semantic type *e* or <*et*, *t*>, I assume) enters the Numeration with (or perhaps, as) a certain set of features, including those mentioned in (15).

Let us further assume (17), following what must be assumed in Saito 2003; see Saito 2003: 495 and

---

account by postulating that the surface similarities are indeed only superficial and the same OSV order may be represented quite distinctly at an abstract level, i.e., in terms of the LF representations that it corresponds to. Whichever position one might pursue, one would need to provide substantial justification for one's conclusion, empirical and conceptual. I fail to see how either conclusion/hypothesis would make one's task more or less challenging than the other.

[9] Saito (p. 492) also states, "I assume … that Japanese Scrambling is not feature-driven and is truly an optional movement operation." In his footnote 14, however, he states, "It is actually unclear how crucial the assumption is for the proposals in this paper." We shall not be concerned in this paper with the issue of optionality of scrambling.

[10] A *wh*-phrase (at least in English or languages in which overt *wh*-movement takes place) enters the Numeration with the *O-feature*, which is said to be "responsible for its interpretation in the CP Spec [position]" as an operator and the restriction. (p. 490) Since *wh*-questions are not dealt with in relation to the main issues in Saito 2003, I will not address them in the ensuing discussion.

[11] The quotations around *reference* are as in the original.

511.

(17) A feature F_1 of an NP A c-commands a feature F_2 of an NP B, if A c-commands B.

Returning to the formal relation underlying BVA, it seems safe to conclude, on the basis of (12) and (15c), that Saito assumes something like (18), using a *bva-feature* to refer to the relevant feature on the category that is to be construed as a variable bound to/by another category.[12]

(18) A *bva-feature* (bound 'pronoun' feature) needs to be bound by a D-feature.

Given that "Condition (A) is an anywhere condition" (p. 506, p. 516), the relations between the postulated features and the linguistic intuition BVA(A, B) can be stated as follows.[13]

(19) BVA(A, B) is available only if the *bva-feature* of B is c-commanded by the *D-feature* of A at some stage of derivation.

As to when an NP retains a given feature, Saito assumes (20a), hypothesizes (20b) and concludes that "it is plausible … to hypothesize" (20c); cf. p. 510, below (81).

(20) a. "P-features are always retained at the head of the chain." (p. 510)
b. D-features … can be retained only in positions where they are selected (in a broad sense). (p. 510)[14]
c. "An A-feature can be retained at any position of a chain." (p. 510)

On the basis of (20c), we can surmise that Saito would also hypothesize (21).

(21) *Bva-features* can be retained at any position of a chain.

What remains to be clarified is where D-features are "selected (in a broad sense)." We can eliminate reference to "in a broad sense" in (20b) if we leave aside VP-internal scrambling. We shall indeed leave aside VP-internal scrambling here, given that the issues concerning VP-internal scrambling do not seem crucial to the main claim in Saito 2003.[15] We then obtain (22).

(22) D-features can be retained only in positions where they are selected.

Let us understand, in accordance with the exposition in Saito 2003 (e.g., pp. 491-493), that a D-feature *d* is selected by α in a position *p* if *p* is selected by α.

The leading idea in Saito 2003 can be stated as follows: The licensing of a *bva-feature* can be done derivationally, as an anywhere condition; hence it can be done while the binder has its D-feature and *before* the D-feature gets eliminated; see (14). The NP cannot retain its D-feature at the

---

[12] Given (15a), the *D-feature* seems obligatory for any NP/DP as long as it is of type *e* or <*et*, *t*>, but such is not the case for the *A-feature* or the *bva-feature*. The *A-feature* is part of the inherent properties of an anaphor. I will leave it open whether the *bva-feature* is part of the inherent properties of some categories.

[13] The 'anaphor binding' counterpart of (19) would be (i).
(i) Ana(A, B) is available only if the *A-feature* of B is c-commanded by the *D-feature* of A at some stage of derivation.

[14] This applies also to O-features; see footnote 10.

[15] Saito 2003 discusses VP-internal scrambling in the next-to-the-last section, in the "Further issues" section, and only "present[s] a tentative analysis for this type of very local scrambling." (p. 511) Given this, it seems reasonable to conclude that the discussion on VP-internal scrambling in Saito 2003 is not crucial to the main point of the paper.

TP-adjoined position since it is not a selected position. Therefore, when the object of an embedded clause is raised to the matrix TP, it never has its D-feature at the matrix-adjoined position. That is to say, the 'long-distance scrambled' NP has lost its D-feature by the time it leaves the embedded clause, not being able to function as a 'binder' at its surface position (i.e., at the matrix TP-adjoined position); see (14b). This is how Saito derives (1), repeated here.

(1) Clause-internal scrambling exhibits both A and A'-properties while long-distance scrambling exhibits only A'-properties.

2.4. Summary and the issues

In summary, both Ueyama 1998, 2003 and Saito 2003 predict and expect the judgments on the availability of BVA in the examples schematized in (2) and (3), repeated here.

(2) a. A-NOM [… B …]-*cm* Verb
BVA(A, B)
b. [… B …]-NOM A-*cm* Verb
*BVA(A, B)
c. [… B …]-*cm* A-NOM Verb
BVA(A, B)
d. A-*cm* [… B …]-NOM Verb
BVA(A, B)

(3) a. [[… B …]-*cm* [$_{TP}$ … [$_{CP}$ A-NOM … *ec* …] Verb]]
BVA(A, B)
b. [*A-cm* [$_{TP}$ [… B …]-NOM [$_{CP}$ … *ec* …] Verb]]
*BVA(A, B)

One might thus wonder whether the two approaches make the same empirical predictions. Predictions are made in a given theory by combining its main hypothesis with the auxiliary hypothesis/ses it adopts. Even if Ueyama's (1998) and Saito's (2003) hypotheses regarding the OS construction seemingly have the same empirical consequence, as we have just seen, we would therefore not be surprised if different results emerged as long as they adopt different auxiliary hypotheses. Ueyama (1998) and Saito (2003) indeed adopt or assume different hypotheses about how BVA can arise, and that results in distinct sets of predictions under the two approaches. Before we start discussing the details, we should first go over the two key concepts in evaluating competing theories, *falsification* and *corroboration*.

3. Falsification and corroboration

In regard to when a given hypothesis is to be considered *falsified*, the basic idea being pursued here is that the hypothesis should be considered *falsified* if the examples that are predicted to be impossible are judged acceptable by informants, including the linguistic scientist him/herself. For the ease of exposition, let us refer to an example that is predicted to be unacceptable (under a specified interpretation) as *Eg**. It is crucially assumed here that if an *Eg** is predicted to be unacceptable due to a grammatical reason, no lexical or pragmatic adjustments should be able to save it; hence, the *Eg** is predicted to be judged unacceptable, as long as it is constructed with care (i.e., controlling the unwanted factors/noise) and as long as the instructions are given to the informants clearly and the informants follow the instructions correctly.

Suppose that an example is to be judged on the 'scale' in (23), and the five choices in (23) will be computed as in (24), with "–2" corresponding to "Bad" and "+2" to "Good"—although the non-researcher informants are not told what numeric values will be assigned to each of the five circles (radio buttons when the judgments are collected on-line).

(23) Bad < ===== > Good
o o o o o

(24) –2, –1, 0, +1, +2

The predicted value on an *Eg** should therefore be "–2," if everything were to go *ideally*. Since we cannot expect everything to go ideally, however, we may want to decide on some numeric value F such that the hypothesis in question is to be regarded *falsified* if the average score on the *Eg** in an given experiment is greater than F. The selection of the *exact numeric value* of F is bound to be arbitrary; let us, for the time being, adopt (25).

(25) *Falsification*
A hypothesis is *falsified* iff the average score for *Eg** (i.e., an example that is predicted to be unacceptable) is greater than –1.0.

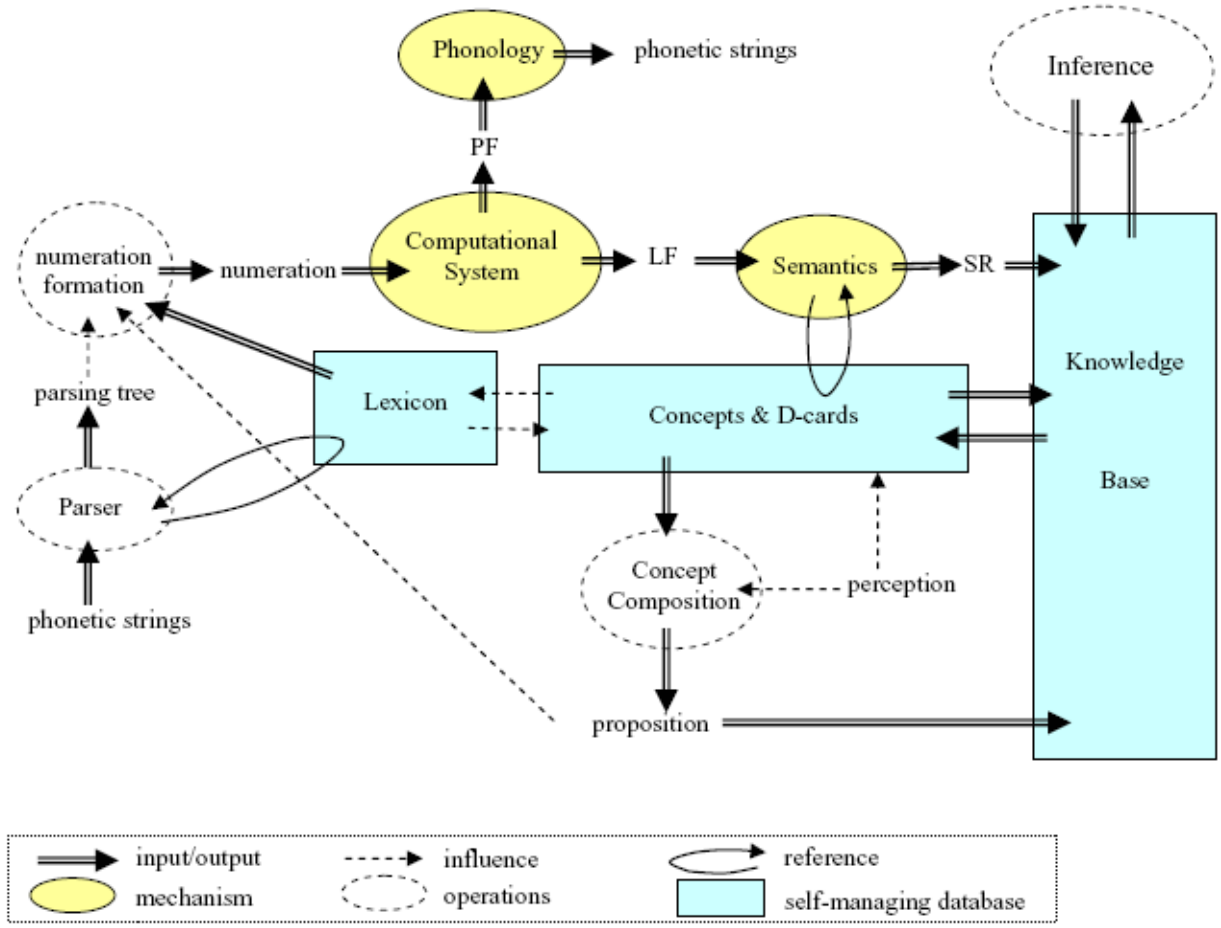
That a given hypothesis is not *falsified* does not necessarily make it plausible. After all, an *Eg** can be felt to be unacceptable for reasons that are independent of what is hypothesized to be responsible for its predicted unacceptability. We thus need to ensure that an example that forms a minimal pair with an *Eg** is indeed judged to be fairly acceptable. Let us refer to such an example as *Eg*. I state in (26) what is meant by *Eg** and *Eg*.

(26) a. *Eg**: an example that is predicted to be impossible (under a specified interpretation)
b. *Eg*: an example that forms a minimal pair with an *Eg** under discussion.

We may use an index to specify which *Eg** a given *Eg* forms a minimal pair with, as in Eg_1 and Eg^*_1. Just as we wish the average score on an *Eg** to be as close to "–2" as possible, so we would hope for the one on an *Eg* to be as close to "+2" as possible.

Given that an *Eg** is predicted to be unacceptable by hypothesis H, in conjunction with another hypothesis (or a set of hypotheses), a single occurrence of an *Eg** that is judged to be not so unacceptable can, in principle, *falsify* H. The role of an *Eg*, on the other hand, is quite distinct from that of an *Eg**. To appreciate this point, which seems to me to be rather poorly understood in the field at large, we may need to consider, albeit briefly, what seems to be involved in the process of making an acceptability judgment. Consider the diagram in (27) taken from Ueyama 2006.

(27) (From Ueyama 2006)



It seems reasonable to assume, as suggested in Ueyama 2006, that when an informant 'judges' a sentence, he/she comes up with a Numeration (as his/her guess, so to speak), on the basis of the phonetic string (or its variant, depending upon how the sentence is presented), the Lexicon and the Parser. Once the Numeration enters the computational system, it will yield an LF-PF pair automatically and unambiguously, except for some optional operations[16] (if such operations are indeed allowed in the computational system). Suppose that it yields a PF representation that is compatible with the sentence in question (as the informant has guessed, so to speak). It remains to be seen whether the LF representation is compatible with the intended interpretation. That will be evaluated ultimately by checking whether the Semantic Representation (SR) derived from the LF is compatible with a specified situation of some sort, which in the context of the present discussion is one that is crucially related to a covariant interpretation of one linguistic expression with respect to another.[17] The compatibility is most likely affected by extra-grammatical factors, as implied in (27).[18]

Given the above view of what is involved in the process of making an acceptability judgment,

---

[16] The view that I have been pursuing since the mid 1990s is that adjunction operations at LF and PF are optional operations allowed in UG and they are indeed the only movement operations in Japanese targeting a maximal projection.

[17] According to A. Ueyama (p. c., March 2006), "a specified situation of some sort" here would be something like "a specified state of (a particular portion of) the Knowledge Base," in reference to (27), and once we add Working Memory in the diagram in (27), as in the diagram in Appendix B, it would be something like "a specified state of the working memory."

[18] We are only making reference to the parts of (27) (and the diagram in Appendix B, for that matter) that concern us directly.

two things become clear. First, even if a phonetic string A can correspond to a PF-LF pair that can be compatible with a specified situation of some sort B, there is no guarantee that (i) the informant makes a correct guess as to the correct Numeration that would lead to the 'intended' PF-LF pair or (ii) (even if he/she does so) the extra-grammatical factors that influence the compatibility of the SR and B can lead to the judgment that A is not compatible with B. Second, if there is no Numeration that can correspond to A that would result in the PF-LF pair necessary in order for the SR (derived from the LF in question) to be compatible with B, then A can never be felt to be compatible with B. I.e., in this latter case, the computational system simply fails to give rise to a mental representation that can be assessed in terms of its compatibility with B. Let us summarize the crucial aspects of the above in (28).[19]

(28) a. What is in principle possible in terms of the computational system can be felt to be unacceptable.
b. What is not possible in terms of the computational system cannot be felt to be acceptable.

Consider the claim in (29).

(29) For a given PF string P, there is no Numeration that results in the LF representation that can be compatible with the interpretation in question R.

The prediction is then (30).

(30) R is never possible for P.

How the prediction in (30) can be disconfirmed is straightforward; i.e., the demonstration of the possibility of R for P would do.

Consider now the claim in (31).

(31) For a given PF string P, there is a Numeration that results in the LF representation that can be compatible with the interpretation in question R.

One can deduce (32) from (31).

(32) R is in principle possible for P.

How the prediction in (32) can be disconfirmed is not straightforward, unlike (30). The demonstration of the impossibility of R for P would not do since the judgment of 'unacceptability' may arise in a way that goes beyond the grammatical factors, as noted just above.

Therefore, the score on an *Eg* would never result in the *falsification* of a hypothesis (unlike the score on an *Eg**); it could however enhance the plausibility of the hypothesis. Let us thus adopt (33).

(33) *Corroboration*
A hypothesis is *corroborated* iff the difference between the average score on Eg^*_n and that on Eg_n (henceforth $Dif\text{-}Eg_n$) is greater than 3.

As in the case of (25), the numerical value specified in (33) is somewhat arbitrary, but not totally so. Suppose that $Dif\text{-}Eg_n$ is greater than 3. Since the scale is between –2 and +2, the average score on Eg^*_n cannot in that case be greater than –1. Hence, when a hypothesis is *corroborated*, it is never

---

[19] Some might object to (28). Giving up on (28b) however would amount to giving up on our hope of making generative grammar an empirical science. To substantiate this claim, however, would have to involve, among other things, some articulation of how we could determine what counts as data for linguistic science, the significance of preliminary experiments, *repeatability across examples, across occasions* and *across speakers*, and I plan to address those issues in a separate work.

falsified.

4. Assessing a hypothesis independently of a competing hypothesis

In the next subsection, I will illustrate (34).

(34) When a hypothesis H is falsified, it constitutes a sufficient ground for rejecting H, independently of competing hypotheses.

4.1. A 'binder-bindee' pair for BVA in Saito 2003

4.1.1. Saito's (2003) BVA paradigm

Saito (2003) takes the paradigm in (35) and (36) as evidence for (1), repeated below.[20]

(1) Clause-internal scrambling exhibits both A and A'-properties while long-distance scrambling exhibits only A'-properties.

(35) (Saito's (10), with the judgments reported there)

a. ?**sono* tyosya-ga *dono hon-ni-mo* keti-o tuketa
its author-NOM which book-DAT-also complaint-ACC placed

'*its* author applied criticism to *every book*'

b. *dono hon-ni-mo* *sono* tyosya-ga *t* keti-o tuketa
which book-DAT-also its author-NOM complaint-ACC placed

'to *every book*, *its* author applied criticism (to) *ec*'

(36) (Saito's (12), with the judgment reported there)

?**dono hon-ni-mo* [*sono* tyosya-ga
which book-DAT-also its author-NOM

[Hanako-ga *t* keti-o tuketa to] itta]
Hanako-NOM complaint-ACC placed that said

'to *every book*, *its* author said that Hanako had applied criticism (to) *ec*'

The BVA used in Saito 2003 is therefore BVA(*dono hon-ni-mo*, *so(no)*) and it is crucial for Saito's (2003) arguments that BVA(*dono hon-ni-mo*, *so(no)*) must be based on (LF) c-command. As discussed in Hoji 2003: 4.1.2, it is often not straightforward to determine whether a given BVA(A, B) must be based on (LF) c-command. In the next subsection, I will illustrate Ueyama's (1998) theory of anaphoric relations as it relates to the concern in this paper.

4.1.2. Ueyama's (1998) theory of anaphoric relations

Ueyama (1998) demonstrates that there are at least three sources of *BVA(A, B)* (namely, what corresponds to bound variable construal obtaining between a 'dependent term' *B* and 'its antecedent' *A*). She does so, by observing structural relations between *A* and *B*, and the lexical choices for *A* and *B*, that affect the availability of *BVA(A, B)*, making crucial reference to her analysis of the OS (Object Subject V) construction in Japanese. According to Ueyama 1998, only one type of BVA is based on

---

[20] The gloss and the translations for (35) and (36) given in Saito 2003 have been altered to make the relevant structures more transparent. Saito gives 'even' for *mo* and 'gave-criticism' for *keti-o tuketa*. His translations for (35a) and (35b), for example, are (i) and (ii), respectively.

(i) [Its author] criticized every book'

(ii) Every book$_i$, [its author criticized t$_i$]

Dono hon-ni-mo in (36) can be taken as the 'goal argument' under a hypothetical world to be discussed later, which may give rise to an additional complication on top of what will be addressed below, but I will not address it here.

a c-command relation at LF between *B* and (the trace of) *A*, another type shows sensitivity to PF precedence[21], and the availability of the third type, which neither depends crucially upon LF c-command nor is sensitive to PF precedence, is subject to various non-grammatical factors; see section 4.1.4.3 below. In the terms of Ueyama 1998, the first type of BVA(A, B) is based on the formal relation called *FD(t, B)* with the *t* being the QR/CR-trace of *A*, where *FD(α, β)* is possible only if α c-commands β at LF.

Consider (37a) and (37b), which correspond to the schematic structures in (2a) and (2b), respectively.

(37) (Hoji 2003: (33))

a. *Mettu-sae*-ga *so-ko*-no kantoku-o uttaeta (koto)
Mets even-NOM that-place-GEN manager-ACC sued (fact)

'*even the Mets* sued *its* manager'

b. **so-ko*-no kantoku-ga *Mettu-sae*-o uttaeta (koto)
that-place-GEN manager-NOM Mets even-ACC sued (fact)

'*its* manager sued *even the Mets*'

Assuming that the subject asymmetrically c-commands the object in the canonical SO order in Japanese, we can attribute the (un)availability of BVA(*Mettu-sae*, *so-ko*) in (37) to the familiar condition on BVA that the 'dependent term' must be c-commanded (at LF) by (the trace of) 'its antecedent'.[22] We can account for the availability of the BVA in the OS counterpart of (37a), namely (5), repeated here, which corresponds to the schematic structure in (2c) (and other cases that exhibit so-called reconstruction effects) by hypothesizing that the OS construction (e.g., (5)) can be represented at LF on a par with its SO counterpart (i.e., (37a)).

(5) (Hoji 2003: (35a))

so-ko-no kantoku-o *Mettu-sae*-ga uttaeta (koto)
that-place-GEN manager-ACC Mets even-NOM sued (fact)

'*its* manager, *even the Mets* sued'

Consider now (38), where the contrast in (37) is duplicated.

(38) (Hoji 2003: (34))

a. *do-no kyuudan-mo* *so-no kyuudan*-no kantoku-o uttaeta (koto)
which-GEN baseball:club-also that-GEN baseball:club-GEN manager-ACC sued (fact)

'*every (baseball) team* sued *that (baseball) team*'s manager'

b. **so-no kyuudan*-no kantoku-ga *do-no kyuudan(-o)-mo* uttaeta (koto)
that-GEN baseball:club-GEN manager-NOM which-GEN baseball:club(-ACC)-also sued (fact)

'*that (baseball) team*'s manager sued *every (baseball) team*'

One might suspect that the nature of the BVA in (38a) is no different from that in (37a). The examination of reconstruction effects, however, points to a different conclusion; BVA(*do-no kyuudan-mo*, *so-no kyuudan*) is much more difficult to obtain in (39) (the OS counterpart of (38a))

---

[21] One may thus suspect that this type of BVA arises by making reference to a discourse structure. Ueyama (1998) in fact proposes to treat the formal relation that underlies this type of BVA as an instance of the *E-type Link*. Yet, she focuses on the relation in question as it manifests itself intra-sententially, and postulates a syntactic relation that is licensed on the basis of PF precedence. This, however, seems to have some undesirable consequences, which I hope will be addressed in (a) separate work(s).

[22] I am leaving aside so-called Spec-binding cases.

than in (5) (the OS counterpart of (37a)).[23]

(39) (Hoji 2003: (35b))
so-no kyuudan-no kantoku-o *do-no kyuudan-mo* uttaeta (koto)
that-GEN baseball:club-GEN manager-ACC which-GEN baseball:club-also sued (fact)

'*that (baseball) team*'s manager, *every (baseball) team* sued'

According to Ueyama 1998, BVA(*Mettu-sae*, *so-ko*) is based on LF c-command but BVA(*do-no kyuudan-mo*, *so-no kyuudan*) is not. The latter is in effect subject to a PF precedence condition; i.e., it seems that the 'dependent term' must be preceded at PF by 'its antecedent'; see Ueyama 1998: sections 3.2.5 and 3.3 for the details.

Ueyama (1998) further observes that examples like (40) appear to allow the bound variable construal for *so-ko*.

(40) (Ueyama 1998: 213, (80b))
?*So-ko*-no bengosi-ga *subete-no zidoosya-gaisya*-o
that-place-GEN attorney-NOM every-GEN automobile-company-ACC

uttaeteiru (node, zidoosya-gyookai-wa daikonran-ni otiitteiru).
sued because automobile-industry-TOP disorder-DAT be:thrown:into

'(Since) {*its/a retained*} attorney has sued *every automobile company* (, the automobile industry has been thrown into a state of disorder).'

BVA(*subete-no zidoosya-gaisya*, *so-ko*) in (40), whose availability varies a great deal among speakers, cannot be an instance of BVA that is based on LF c-command, given the assumption adopted here (and in fact adopted widely in the field) about the structural relation between the subject and the object. Since *subete-no zidoosya-gaisya* does not precede *so-ko*, the BVA in (40) cannot be the type observed in (38a), either. Ueyama 1998 refers to the BVA of the sort observed in (40) as *quirky binding* and provides descriptive generalizations in regard to its distribution (Ueyama 1998: chap. 4, Appendix D); see below.

4.1.3. The 'binder' issues

Consider again Saito's (2003) paradigm repeated below in support of (1), also repeated here.

(35) (Saito's (10), with the judgments reported there)
a. ?**sono* tyosya-ga *dono hon-ni-mo* keti-o tuketa
its author-NOM which book-DAT-also complaint-ACC placed

'*its* author applied criticism to *every book*'

b. *dono hon-ni-mo sono* tyosya-ga *t* keti-o tuketa
which book-DAT-also its author-NOM complaint-ACC placed

'to *every book*, *its* author applied criticism (to) *ec*'

(36) (Saito's (12), with the judgment reported there)[24]
?**dono hon-ni-mo* [*sono* tyosya-ga
which book-DAT-also its author-NOM

[Hanako-ga *t* keti-o tuketa to] itta]
Hanako-NOM complaint-ACC placed that said

'to *every book*, *its* author said that Hanako had applied criticism (to) *ec*'

---

[23] Ueyama (1998: section 3.4.1 (75) and (76)) discusses what appears to be an analogous contrast in English.

[24] As in the case of (35), the gloss and the translation in Saito 2003 have been altered.

(1) Clause-internal scrambling exhibits both A and A'-properties while long-distance scrambling exhibits only A'-properties.

As noted before, the BVA used in Saito 2003 is BVA(*dono hon-ni-mo*, *so(no)*), and it is crucial for Saito's arguments for (1) that BVA(*dono hon-ni-mo*, *so(no)*) must be based on (LF) c-command; see section 4.1.1 above. If BVA(A, B) must be based on an LF c-command relation, then we have to have the consequences in (41).

(41) a. B of BVA(A, B) cannot be NP^{large} in the terms of Ueyama 1998, i.e., what corresponds to a complex demonstrative with the head N having a relatively large 'semantic content' (e.g., *so-no gengogaku-no hon* 'that linguistics book').[25]

b. BVA(A, B) should not be available if *A* is in the local domain of *B* in the sense relevant to the local disjointness effects of Principle B of the Binding Theory.[26]

Let us first address (41a). As discussed extensively in Ueyama1998: chap. 3 (and also in Hoji 1995) *dono NP-ni-mo* can be the A of BVA(A, *sono NP*). This is illustrated in (42); see also (38).

(42) a. (based on Hoji 2003: (50c))
Do-no kensetugaisya-mo *so-no kensetugaisya*-no sitauke-o suisensita.
which-GEN building:company-also that-GEN building:company- GEN subsidiary-ACC recommended

'*Every construction company* recommended *that construction company's* subsidiaries.'

b. *do-no kensetugaisya-ni-mo* *so-no kensetugaisya*-no sitauke-nituite situmonsita (koto)
which-GEN building:company-also that-GEN building:company- GEN subsidiary-concerning questioned

'(someone) asked *every construction company* about *that construction company's* subsidiaries'

We are thus led to (43).

(43) **Conclusion (I)**:
BVA(*dono NP-(cm)-mo*, B) need not be based on LF c-command.

As extensively discussed in Ueyama 1998, examples like (44) allow the BVA, and this is as expected given the conclusion in Ueyama 1998 that the availability of BVA(*dono NP-(cm)-mo*, B) can be sensitive to PF precedence rather than LF c-command.[27]

(44) a. (Ueyama 1998: chap. 3, (37a))
[Kyonen Toyota-ga *do-no zidoosya-gaisya*-o uttaeta
last:year Toyota-NOM which-GEN automobile-company-ACC sued

koto]-ga *so-ko*-o toosan-ni oiyatta no?
fact-NOM that-place-ACC bankrupt-DAT drove COMP

---

[25] See Hoji et al. 1999: 148 (right after (22)) for more details in regard to what is intended by 'semantic content' in this connection.

[26] See Hoji 1995 and Hoji 2003: sec. 2.2.3 for relevant discussion.

[27] The examples in (44) do not have *-mo* attached (directly) to *dono NP-cm*. In (44b), *-mo* is placed at the end of the concessive clause (see the shaded part). Although some might feel unconvinced by the argument above for (43) because of the absence of *-mo* (directly) on *dono NP-cm*; we will observe clear evidence for (43) when we consider examples of 'long-distance scrambling' in a later section.

'(Lit.) [The fact that Toyota sued *which automobile company* last year] caused *it* to go bankrupt ?'

b. (Hoji 2003: (43))
[ko-no mura-kara *do-no kaisya*-ni haitta hito]-ga *so-no kaisya*-no
this-GEN village- from which-GEN company-to joined person-NOM that-GEN company-GEN

syatyoo-o hihansitemo mondai-ni naru daroo.
president-ACC criticize:if problem-to become perhaps

(Roughly) 'No matter which *x*, *x* = a company, if [someone from this village who has joined *x*] criticizes *x*'s president, a big problem will ensue.'

4.1.4. The 'bindee' issues[#2]

We have seen that the availability of BVA(*dono hon-ni-mo*, *B*), hence that of BVA(*dono hon-ni-mo*, *so(no)*) need not be based on LF c-command. In this subsection, I will argue that BVA(*A*, *so(no)*) not only need not be based on LF c-command but it actually cannot be based on LF c-command.

(45) **Conclusion (II)**:
BVA(*A*, *so(no)*) cannot be based on LF c-command.

The conclusion in (45) goes directly against the thesis that BVA(*dono hon-ni-mo*, *so(no)*) must be based on (LF) c-command, whose validity is crucial for Saito's (2003) arguments for (1).

We first observe that *so(no)* in *sono tyosya* cannot appear in the typical argument position, such as in the subject or the object position. Forms such as those in (46) are thus all unacceptable.

(46) a. *so(no)-ga
that-GEN-NOM
b. *so(no)-o
that-GEN-ACC
c. *so(no)-ni
that-GEN-DAT

The *ko/a* versions of (46), such as (47) are also impossible.

(47) a. *ko(no)-ga
this-GEN-NOM
b. *ko(no)-o
this-GEN-ACC
c. *ko(no)-ni
this-GEN-DAT
d. *a(no)-ga
that-GEN-NOM
e. *a(no)-o
that-GEN-ACC
f. *a(no)-ni
that-GEN-DAT

We cannot thus place *so(-no)* in the position of the 'bindee' in the context of (41b), repeated here.

[#2] This subsection contains empirical materials that are fairly involved. Those who wish to understand the main points of the paper may want to go over just the first page or two of this subsection and come back to the subsection after having gone over the rest of the paper. The readers are referred to Hoji et al. 1999 and Hoji et al. 2003, both of which can be downloaded at my HP (http://www.gges.org/hoji/), for the demonstrative paradigms in Japanese.

(41b) BVA(A, B) should not be available if *A* is in the local domain of *B* in the sense relevant to the local disjointness effects of Principle B of the Binding Theory.

The use of *so(-no)* as B of BVA(A, B) thus makes it impossible to conduct one of the two crucial tests for determining whether a given BVA(A, B) is indeed based on LF c-command.

The intended interpretation of *so-no tysosya* in (35) and (36) is 'the author of it/that' rather than 'that author' although *so-no tysosya* can mean the latter. Under the intended interpretation, *so-no tysosya* in (35) and (36) is analogous to *sore-no tysosya*. One might thus assume that *so(-no)* can be a suppletion form of *so(-re-no)* and the semantic type of *so-no* (or *so*, if we regard *no* as a 'genitive case' marker) in *so-no tyosya* is type *e*. In this section, I will maintain (48).

(48) a. The semantic type of *so-no* (or *so*, if we regard *no* as a 'genitive case' marker) in *so-no tyosya* 'its author' under discussion is not *e*.
b. *So-no tyosya* under discussion is not represented at LF as what corresponds to *so-re-no tyosya* 'the author of it'.

The evidence for (48b) is not as conclusive as that for (48a); but it will be made clear that an alternative to (48b) would make the Japanese demonstrative paradigm uncharacteristically non-systematic.

4.1.4.1. The demonstrative paradigms

Although the 'suppletion' analysis of *so-no* in *so-no tyosya* might appear to be reasonable, it does not extend to the other demonstratives, as observed in Horiguchi 1978: 78. Consider (49)-(54), imagining a world in which books talk.[28]

(49) a. *Sono hon*-ga *sono hon*-no tyosya-ni katari kaketa.
'*That book* talked to the author of {*that book/the book/it*}.'

b. *Sono hon*-ga *so-re*-no tyosya-ni katari kaketa.
'*That book* talked to the author of {*that/it*}.'

(50) Sono hon-ga sono tyosya-ni katari kaketa.
'That book talked to {its author/that author}.'

(51) a. *Ano hon*-ga *ano hon*-no tyosya-ni katari kaketa.
'*That book* talked to the author of *that book*.'

b. *Ano hon*-ga *are*-no tyosya-ni katari kaketa.
'*That book* talked to the author of *that*.'

(52) Ano hon-ga ano tyosya-ni katari kaketa.
'That book talked to that author.'

(53) a. *Kono hon*-ga *kono hon*-no tyosya-ni katari kaketa.
'*This book* talked to the author of *this book*.'

b. *Kono hon*-ga *kore*-no tyosya-ni katari kaketa.
'*This book* talked to the author of *this*'

---

[28] The hyphenation on {*so/ko/a*}*-no* and other forms with demonstratives is not consistent in this paper; i.e., both *sono* and *so-no* are used, for example. The two forms should be understood as interchangeable for the purpose of this paper.

(54) Kono hon-ga kono tyosya-ni katari kaketa.
'This book talked to this author.'

(50) can express what is intended by each of (49). By contrast, (52) and (54) cannot seem to express what is intended by (51) or (53), respectively. In other words, although *sono tyosya* can correspond to 'the author of the/that book', *ano/kono tyosya* cannot correspond to 'the author of that/this book. *Ano/Kono tyosya* can only mean something like 'that/this author'.

Sono NP can correspond not only to *so-re-no NP* 'that thing's NP' or 'the NP of that thing' but also to *so-ko-no NP* 'that place's/institution's NP' or 'the NP of that place/institution (although some speakers may find (56) less than perfect).

(55) a. *Sono kaisya*-ga *sono kaisya*-no syatoo-o taizin-saseta.
that company-NOM that company-GEN president-ACC step:down-caused

'*That company* made *{that/the} company*'s president step down.'

b. *Sono kaisya*-ga *so-ko*-no syatyoo-o taizin-saseta.
that company-NOM that place-GEN president-ACC step:down-caused

'*That company* made *{that institution/the institution/it}* 's president step down.'

(56) Sono kaisya-ga so-no syatyoo-o taizin-saseta.
'That company made {that/its} president step down.'

Just as in the case of (52) and (54), *ano/kono-syatyoo* also cannot seem to correspond to 'the president of that/this company', and it can only correspond to 'that/this president'.

(57) a. *Ano kaisya*-ga *a-no kaisya*-no syatyoo-o taizin-saseta.
'*That company* made *that company*'s president step down.'

b. *Ano kaisya*-ga *a-soko*-no syatyoo-o taizin-saseta.
'*That company* made *that institution*'s president step down.'

(58) Ano kaisya-ga ano syatyoo-o taizin-saseta.
'That company made that president step down.'

(59) a. *Kono kaisya*-ga *ko-no kaisya*-no syatyoo-o taizin-saseta.
'*This company* made *this company*'s president step down.'

b. *Kono kaisya*-ga *ko-ko*-no syatyoo-o taizin-saseta.
'*This company* made *this institution*'s president step down.'

(60) Kono kaisya-ga ko-no syatyoo-o taizin-saseta.
'This company made this president step down.'

So-no NP can also correspond to *so-itu-no NP*. Thus, *sono hitori musume* in (62) can correspond to 'the only daughter of the/that man' although the speakers' judgment on (62) may not be very stable or uniform, as in the case of (56).

(61) a. *Sono otoko*-ga *sono otoko*-no hitori musume-o
that man-NOM that man-GEN 1-CL daughter-ACC

Amerika-ni ryuugakus-aseta.
America-to study:abroad-let

'*That man* let *{that/the} man*'s only daughter go to America to study.'

b. *Sono otoko*-ga *soitu*-no hitori musume-o Amerika-ni ryuugakusaseta.
that man-NOM that:guy-GEN 1-CL daughter-ACC America-to study:abroad-let

'*That man* let *{that/the} guy*'s only daughter go to America to study.'

(62) (??)Sono otoko-ga sono hitori musume-o Amerika-ni ryuugakusaseta.
'That man let {that/the} only daughter go to America to study.'

Ano/Kono hitori musume, however, cannot seem to correspond to 'the only daughter of that/this man'.

(63) a. *Ano otoko*-ga *ano otoko*-no hitori musume-o Amerika-ni ryuugakusaseta.
'*That man* let *that man*'s only daughter go to America to study.'
b. *Ano otoko*-ga *aitu*-no hitori musume-o Amerika-ni ryuugakusaseta.
'*That man* let *that guy*'s only daughter go to America to study.'

(64) Ano otoko-ga ano hitori musume-o Amerika-ni ryuugakusaseta.
'That man let that only daughter go to America to study.'

(65) a. *Kono otoko*-ga *kono otoko*-no hitori musume-o Amerika-ni ryuugakusaseta.
'*This man* let *this man*'s only daughter go to America to study.'
b. *Kono otoko*-ga *koitu*-no hitori musume-o Amerika-ni ryuugakusaseta.
'*This man* let *this guy*'s only daughter go to America to study.'

(66) Kono otoko-ga kono hitori musume-o Amerika-ni ryuugakusaseta.
'This man let this only daughter go to America to study.'

Recall that in order for Saito's (2003) argument for (1) to be valid, *so* in *sono NP* must be 'usable' as type *e*. Given the fact that the demonstrative paradigm in Japanese is extremely systematic, one would expect that the 'type *e* use' of the sort under discussion should be possible also with the other demonstratives if it were for the *so*-demonstrative discussed in Saito 2003. As we have just seen, however, such clearly is not the case, i.e., the type *e* use would be possible for *sono* but not for *ano* or *kono*. We are thus faced with the options in (67).

(67) a. None of *so(-no)*, *ko(-no)*, *a(-no)* is type *e*.
b. *So(-no)* is type *e* but *ko(-no)* and *a(-no)* are not.

4.1.4.2. The relevance of relational nouns

Further empirical considerations suggest that the 'type *e* use of *sono*' would have to be regarded as being restricted to cases in which the head N is a relational term.[29] Consider:[#3]

(68) a. Subete-no dansei member-ga soitu-no hitori musume-o hometeita.
every-GEN male member-NOM that:guy-GEN 1-CL daughter-ACC was:praising

'*every male member* was praising *{that/the} guy*'s only daughter'

b. Subete-no dansei member-ga hitori musume-o hometeita.
every-GEN male member-NOM 1-CL daughter-ACC was:praising

'every male member was praising (the) only daughter'

c. Subete-no dansei member-ga sono hitori musume-o hometeita.
every-GEN male member-NOM its 1-CL daughter-ACC was:praising

---

[29] The relevance of the use of an 'unsaturated term' is noted in Kinsui 1999 with regard to the felicitous use of *sono NP* under discussion.

[#3] As pointed out by Phillip Potamites (p.c., March 2006), the elimination of *hitori* in (68) would make a clearer minimal pair out of (68) and (69). The intended contrast remains.

'every male member was praising the only daughter'

(69) a. Subete-no dansei member-ga soitu-no hooseki-o hometeita.
every-GEN male member-NOM that:guy-GEN jewelry-ACC was:praising

'*every male member* was praising *{that/the} guy*'s jewelry'

b. Subete-no dansei member-ga hooseki-o hometeita.
every-GEN male member-NOM jewelry-ACC was:praising

'every male member was praising (the) jewelry'

c. Subete-no dansei member-ga so-no hooseki-o hometeita.
every-GEN male member-NOM that-gen jewelry-ACC was:praising

'every male member was praising {that/the} jewelry'

The crucial difference between (68) and (69) is that the head of the object NP in the former is a relational noun *hitori musume* 'sole daughter' while that in the latter, *hooseki* 'jewerlry' is not. It seems that (69c) does not allow the reading possible in (69a) and patterns with (69b) instead. This would be unaccounted for under the hypothesis that *sono* in *sono hooseki* is type *e*. If *sono* could be type *e*, the BVA should be available in (69c), as in (69a) and also as in the case of (68c).

A similar point is illustrated in (70) and (71).

(70) a. *Sony sae*-ga *so-ko*-no Pikaso-no e-o bizyutukan-ni kihusita
Sony even-NOM that-place-GEN Picasso-GEN painting-ACC museum-to donated

'*even Sony* donated {*that place/the place/it*}'s Picasso to a museum'

b. Sony sae-ga Pikaso-no e-o bizyutukan-ni kihusita
Sony even-NOM Picasso-GEN painting-ACC museum-to donated

'*even Sony* donated ({the/a}) Picasso to a museum'

c. Sony sae-ga so-no Pikaso-no e-o bizyutukan-ni kihusita
Sony even-NOM that-GEN Picasso-GEN painting-ACC museum-to donated

'*even Sony* donated {that/the}Picasso to a museum'

(71) a. *so-ko*-no Pikaso-no e-o *Sony-sae*-ga bizyutukan-ni kihusita
that-place-GEN Picasso-GEN painting-ACC Sony-even-NOM museum-to donated

'*its* Picasso, *even Sony* donated to a museum'

b. Pikaso-no e-o Sony-sae-ga bizyutukan-ni kihusita
Picasso-GEN painting-ACC Sony-even-NOM museum-to donated

'({the/a}} Picasso, *even Sony* donated to a museum'

c. so-no Pikaso-no e-o Sony-sae-ga bizyutukan-ni kihusita
that-GEN Picasso-GEN painting-ACC Sony-even-NOM museum-to donated

'{that/the} Picasso, *even Sony* donated to a museum'

The BVA is available in (71a), very much as in the case of (70a), exhibiting reconstruction effects of BVA; see (5) and the discussion on Ueyama's *Surface OS type*. While it is not clear how totally impossible the BVA is in (70c), the absence of the reconstruction effects of BVA in (71c) seems clear—the status of the BVA in (71c) seems analogous to that of the BVA in (71b) rather than to that of the BVA in (71a). If *so(-no)* in (70c) were type *e*, and were on a par with *so-ko* (as in (70a), we would expect reconstruction effects of BVA in (71c), just as in the case of (71a). The absence of the

expected reconstruction effects thus suggests that the 'BVA' in (70c), if available at all, cannot be based on FD.[30]

4.1.4.3. "Quirky binding"

4.1.4.3.1. *So* vs. *ko/a*

One way to retain the generality of the demonstrative paradigm in Japanese is to hypothesize (72).

(72) *Sono* in *sono NP* in examples like (35b) is non-individual-denoting.

Given that *a*-NPs and *ko*-NPs are D-indexed in the terms of Ueyama 1998, as argued in Ueyama 1998 and Hoji et al. 2003—which has the consequence that they are inherently referential—and given that, as suggested in Ueyama 1998: xx, only non-indexed NPs—0-indexed NPs in the terms of Hoji et al. 1999—can be non-individual-denoting, the difference noted above between the *so*-demonstrative on the one hand and the *a-/ko*-demonstratives on the other is as expected.

(73) is one of the descriptive conditions on *quirky binding* of Ueyama 1998: Appendix D, and we might pursue the possibility that BVA(*A*, *sono*) is an instance of quirky binding, which would make it possible to attribute the difference between the *so(-no)* and the *ko/a(-no)* observed above to an independent difference between the *so*-demonstrative on the other hand and *a-/ko*-demonstratives; cf. Hoji et al. 2003 for relevant discussion.

(73) (Ueyama 1998: 214, (81e))
The *so*-word must be non-individual-denoting.

4.1.4.3.2. 'Salience' affected by the degree of embedding

Among the other conditions on 'quirky binding' described in Ueyama 1998: 214 are:

(74) (Ueyama 1998: 214, (81a) and (81d))
a. The apparent QP must 'refer' to a specific group of individuals.
b. The apparent QP must be in a position which is salient enough to be a 'topic' of a sentence.

Under the quirky binding analysis of BVA(A, so(no)), we thus expect that the factors in (74) affect the availability of the BVA with *so(no)*. The examples in (75) seem to confirm the expectation. The 'intended BVA' is indicated by italicizing the *so-no* and its 'intended antecedent'.

(75) a. ?*So-no* tyosya-ga *subete-no sinkansyo*-o urinikita
that-GEN author-NOM every-GEN new:book-ACC came:to-sell
'the author(s) came to sell every book'
Intended as something like 'for every *x*, a new book(*x*), *x*'s author came to sell *x*'

b. ??/?*So-no* tyosya-ga *kono hon to ano hon*-o urini kita
that-GEN author-NOM this book and that book-ACC came:to-sell
'the author(s) came to sell this book and that book'
Intended as something like 'for every *x*, *x* is a member of a set consisting of this book and that book, *x*'s author came to sell *x*'

c. ??/?**So-no* tyosya-ga [*kono hon-sae*]-o urinikita
that-GEN author-NOM this book-even-ACC came:to:sell
'the author(s) came to sell even this book'
Intended as something like 'EVEN *x*, *x* = this book, *x*'s author came to sell *x*'

---

[30] Recall that if BVA(A, B) is based on *FD(t, B)* with the *t* being the QR/CR-trace of *A*, *B* must be c-commanded by the *t* at LF since *FD(α, β)* is possible only if α c-commands β at LF. See section 4.1.2.

d. ?*So-no* tyosya-ga [watasi-ga [*kono hon to ano hon*]-o utteiru tokoro]-ni arawareta
that-GEN author-NOM I-NOM this book and that book-ACC is:selling place-at showed:up

'the author(s) showed up when I was selling this book and that book'
Intended as something like 'for every *x*, *x* is a member of a set consisting of this book and that book, *x*'s author showed up when I was selling x'

Subete-no sinkansyo 'all the newly published books' and *kono hon to ano hon* 'this book and that book' can be used to refer to a specific group of objects and individuals while *kono hon-sae* 'even this book' cannot. The direction of the contrasts as indicated in (75a-c) is consistent with (74a) and the paradigms provided in Ueyama 1998: Appendix D. If we deeply embed *kono hon to ano hon* 'that book and this book', as in (75d), the BVA becomes less readily available than in (75b), again being consistent with (74b) and the paradigms provided in Ueyama 1998: Appendix D.

4.1.4.3.3. 'Salience' affected by lexical choices

We have observed that some instances of BVA(A, so(no)) appear not to be sensitive to either the LF c-command or PF precedence relation between *A* and *so(-no)*. Given that BVA(dono NP, so(no)) is a special instance of BVA(A, so(no)), one can naturally wonder whether BVA(dono NP, so(no)) can also be insensitive to either of these two structural conditions between *dono NP* and *so(-no)*. Consider again (35) and (36), repeated here.

(35) (Saito's (10), with the judgment reported there)
a. ?**sono* tyosya-ga *dono hon-ni-mo* keti-o tuketa
its author-NOM which book-DAT-also complaint-ACC placed

'*its* author applied criticism to *every book*'

b. *dono hon-ni-mo* *sono* tyosya-ga *t* keti-o tuketa
which book-DAT-also its author-NOM complaint-ACC placed

'to *every book*, *its* author applied criticism (to) *ec*'

(36) (Saito's (12), with the judgment reported there)
?**dono hon-ni-mo* [*sono* tyosya-ga
which book-DAT-also its author-NOM

[Hanako-ga *t* keti-o tuketa to] itta]
Hanako-NOM complaint-ACC placed that said

'to *every book*, *its* author said that Hanako had applied criticism (to) *ec*'

In regard to (74b) above, Ueyama 1998: 219 states that "not only the depth of embedding but also the choice of the matrix verb may affect the 'saliency' of the apparent QP, although the acceptability of each sentence is expected to vary still more among the speakers."

(76) (Ueyama 1998: 219: (95))
a. ?*So-ko*-no bengosi-ga *subete-no kaisya*-o uttaeteiru.
that-place-GEN attorney-NOM every-GEN company-ACC sued

'A *retained* attorney has sued *every company*.'

b. ?*So-ko*-no bengosi-ga *subete-no kaisya*-o suisensita.
that-place-GEN attorney-NOM every-GEN company-ACC recommended

'A *retained* attorney has recommended *every company*.'

c. ?*So-ko*-no bengosi-ga *subete-no kaisya*-o tubusita.
that-place-GEN attorney-NOM every-GEN company-ACC bankrupted

'A *retained* attorney has bankrupted *every company*.'

d. ?**So-ko*-no bengosi-ga *subete-no kaisya*-o ooensiteiru.
that-place-GEN attorney-NOM every-GEN company-ACC support

'A *retained* attorney supports *every company*.'

e. ?**So-ko*-no bengosi-ga *subete-no kaisya*-o keibetusiteiru.
that-place-GEN attorney-NOM every-GEN company-ACC despise

'A *retained* attorney despises *every company*.'

f. ?**So-ko*-no bengosi-ga *subete-no kaisya*-ni ayamatta.
that-place-GEN attorney-NOM every-GEN company-DAT apologized

'A *retained* attorney has apologized to *every company*.'

g. ?**So-ko*-no bengosi-ga *subete-no kaisya*-to arasotteiru.
that-place-GEN attorney-NOM every-GEN company-with contend

'A *retained* attorney is contending with *every company*.'

If the 'saliency' is crucial to the availability of the BVA in (35) and (36), we expect to be able to improve the status of (35a) by adjusting the lexical choices. The status of the BVA in examples like (77) seems to confirm the expectation; cf. (75a) and (75b).

(77) a. *So-no* tyosya-ga *dono hon-mo* urikondeita
that author-NOM which book-also was:trying:to:sell

'the authors were trying to sell every book'

b. *So-no* tyosya-ga *dono hon-ni mo* sain-o sita
that author-NOM which book-DAT also autograph-ACC did

'the authors autographed (copies of) every book'

Compare (77) with Saito's (2003) (10), repeated here.

(35a) (Saito's (10), with the judgment reported there)
?**sono* tyosya-ga *dono hon-ni-mo* keti-o tuketa
its author-NOM which book-DAT-also complaint-ACC placed

'*its* author applied criticism to *every book*'

33 informants have participated in an on-line judgment task on examples that include (35a) and (77). The scores on (35) and (77) can be summarized as in (78), taking the score of +1 or +2 in the terms of what is introduced in section 3 as a judgment of accepting a given example under the intended BVA.

(78) The number of informants: 33

	Number of informants who accepted it	Mean Score	Standard Deviation
(35a)	6 out of 33	−0.76	1.39
(77a)	8 out of 33	−0.58	1.56
(77b)	10 out of 33	−0.48	1.60

Given that BVA(*dono hon-ni-mo* , *sono*) is claimed to be unavailable in examples such as (35a) and (77) due to a grammatical reason, the fact that nearly one third of the 33 informants accept (77b) poses a serious problem, to say the least.

When we turn our attention to BVA that must be (or at least tend to have to be) based on FD, on

the other hand, the BVA does not seem to be affected by the lexical choice of the sort just noted and it remains to be unavailable in examples like (80), in contrast to (79) and (81).

(79) a. *ano hon-sae*-ga *so-re*-o kaita hito-ni aisatusita
that book-even-NOM that-thing-ACC wrote person-DAT greeted

'*even that book* greeted a person who had written *it*'

b. *so-re*-o kaita hito-ni *ano hon-sae*-ga aisatusita
that-thing-ACC wrote person-DAT that book-even-NOM greeted

'a person who had written *it*, *even that book* greeted'

(80) a. **so-re*-o kaita hito-ga *ano hon-sae*-o urikondeita
that-thing-ACC wrote person-NOM that book-even-ACC was:trying:to:sell

'a person who had written *it* was trying to sell *even that book*'

b. **so-re*-o kaita hito-ga *ano hon-ni-sae* sain-o sita
that-thing-ACC wrote person-NOM that book-DAT-even autograph-ACC did

'a person who had written *it* autographed (copies of) *even that book*'

(81) a. *ano hon-sae*-o *so-re*-o kaita hito-ga *ec* urikondeita
that book-even-ACC that-thing-ACC wrote person-NOM was:trying:to:sell

'*even that book*, a person who had written *it* was trying to sell *ec'*

b. *ano hon-ni-sae* *so-re*-o kaita hito-ga *ec* sain-o sita
that book-DAT-even that-thing-ACC wrote person-NOM autograph-ACC did

'*even that book*, a person who had written *it* autographed (copies of) *ec*'

55 informants have reported their judgments on the examples in (82) and (83), in a general format schematically illustrated in section 3.

(82) a. [55%-no syuppansya]$_1$-ga so-ko$_1$-no bengosi-o uttaeteiru.
55%-GEN publisher-NOM that-place-GEN attorney-ACC has:sued

'[(each of) 55% of the publishers]$_1$ has sued its$_1$ attorney.'

b. so-ko$_1$-no bengosi-o [55%-no syuppansya]$_1$-ga uttaeteiru.
that-place-GEN attorney-ACC 55%-GEN publisher-NOM has:sued

'[(each of) 55% of the publishers]$_1$ has sued its$_1$ attorney.'

c. *so-ko$_1$-no bengosi-ga [55%-no syuppansya]$_1$-o uttaeteiru.
that-place-GEN attorney-NOM 55%-GEN publisher-ACC has:sued

'Its$_1$ attorney has sued [(each of) 55% of the publishers]$_1$.'

(83) a. [55% izyoo-no robotto]$_1$-ga so-re$_1$-o sekkeisita hito-ni osoikakatta-
55% more:than-GEN robot-NOM that-thing-ACC designed person-DAT attached-

to sita-ra, doonarudesyoo.
if how:become:will

'What would happen if [(each of) more than 55% of the robots]$_1$ attacked its$_1$ designer?'

b. so-re$_1$-o sekkeisita hito-ni [55% izyoo-no robotto]$_1$-ga
that-thing-ACC designed person-DAT 55% more:than-GEN robot-NOM

osoikakatta-to sita-ra, doonarudesyoo.
attached-if how:become:will

'What would happen if its$_1$ designer, [(each of) more than 55% of the robots]$_1$ attacked?'

c. *so-re$_1$-o sekkeisita hito-ga [55% izyoo-no robotto]$_1$-o haikisita-
that-thing-ACC designed person-NOM [55% more:than robot]-ACC abandoned-

tositara, doonarudesyoo.
if how become

'What would happen if its$_1$ designer abandoned [(each of) more than 55% of the robots]$_1$?'

As compared to (35a) and (77), a much more clear 'rejection' is observed in regard to (82c) and (83c) under the intended interpretation, as summarized in (84).

(84)

	Number of informants who accepted it	Mean Score	Standard Deviation
(82c)	5 out of 53	−1.36	1.13
(83c)	6 out of 53	−1.23	1.11

The Eg*s in (82c) and (83c) thus contrast sharply with the corresponding Egs in (82a, b) and (83a, b). The judgments of the 53 speakers on (82) and (83) are summarized in (85), which also includes the figures in (84).

(85)

	Number of informants who accepted it	Mean Score	Standard Deviation
(82a)	49 out of 53	+1.64	0.68
(82b)	30 out of 53	+0.54	1.50
(82c)	5 out of 53	−1.36	1.13
(83a)	53 out of 53	+1.81	0.44
(83b)	25 out of 53	+0.02	1.35
(83c)	6 out of 53	−1.23	1.11

This provides yet further support for the view that BVA(*dono NP(-cm)-mo*, *so(-no)*) is an instance of *quirky binding*.

It is quite suggestive that how the informants who judged (77b) to be acceptable (i.e., who gave it the score of "+1" or "+2") judged (82c) and (83c). As noted in (78), 10 out of 33 speakers accepted (77b); among them, three are generative linguists (two faculty members and one graduate student), two are linguistics students not in the field of generative grammar, and the other five are non-linguists. Seven out of the ten speakers who accepted (77b) rejected (82c) and (83c). Of the three speakers who accepted (82c) and (83c) (as well as (77b)), who are non-linguists, one speaker accepted virtually all the examples on the questionnaire, another speaker strongly preferred the SO order over OS order, regardless of the intended anaphoric relations, and the pattern of the last speaker's reported judgments is rather obscure. This observation is quite consistent with the theoretical characterization of the nature of different types of BVA as presented in Ueyama 1998 and adopted here, and what it implies in regard to the nature of the BVA in examples like (77b) and those like (82c) and (83c). While the difference in the speaker judgments is already significant between examples like (77b) and those like (82c) and (83c), once we introduce the notions of *across-occasion repeatability* and *across-example repeatability* and once we start conducting *preliminary experiments* before the main experiment, an even clearer difference would emerge, I suspect, on the basis of the observation just reported.

4.1.4.4. The LF representation of *so(no)*

Recall that *sono* appears to be able to replace *soitu*, as illustrated in (61) and (62), repeated here.

(61) a. *Sono otoko*-ga *sono otoko*-no hitori musume-o Amerika-ni ryuugakus-aseta.
that man-NOM that man-GEN 1-CL daughter-ACC America-to study:abroad-let

'*That man* let *{that/the} man*'s only daughter go to America to study.'

b. *Sono otoko*-ga *soitu*-no hitori musume-o Amerika-ni ryuugakusaseta.
that man-NOM that:guy-GEN 1-CL daughter-ACC America-to study:abroad-let

'*That man* let *{that/the} guy*'s only daughter go to America to study.'

(62) Sono otoko-ga sono hitori musume-o Amerika-ni ryuugakusaseta.
'That man let {that/the} only daughter go to America to study.'

Given an independent observation (Hoji 1995: note 21, Hoji 2003: note 61) that BVA(A, soitu) cannot (easily) be based on FD, the contrast in (86) is suggestive.

(86) a. *John-sae*-ga *so-itu*-no hitori musume-o Amerika-ni ryuugakus-aseta
John-even-NOM that-guy-GEN 1-CL daughter-ACC America-to study:abroad-let

'*even John* allowed *the guy*'s only daughter to go to America to study'

b. *John-sae*-ga *sono* hitori musume-o Amerika-ni ryuugakusaseta
John-even-NOM its 1-CL daughter-ACC America-to study:abroad-let

'*even John* allowed the only daughter to go to America to study'

Although there seems to be a detectable contrast between (86a) and (86b), it may not be easy to describe the difference. Consider now the OS counterparts of (86), given in (87).

(87) a. *soitu*-no hitori musume-o *John-sae*-ga Amerika-ni ryuugakusaseta
'*the guy*'s only daughter, *even John* allowed *ec* to go to America to study'

b. *sono* hitori musume-o *John-sae*-ga Amerika-ni ryuugakusaseta
'the only daughter, *even John* allowed *ec* to go to America to study'

Those speakers who readily accept BVA(John-sae, soitu) find the BVA more readily acceptable in (86a) and (87a) than in (86b) and (87b), respectively. Those who have difficulty accepting BVA(John-sae, soitu), on the other hand, seem to find the BVA to be less readily available in (86a) and (87a) than in (86b) and (87b), respectively. In either case, *sono* clearly does not pattern the same way as *soitu*, suggesting that *so(no)* is not represented at LF as corresponding to *soitu*, and that is consistent with the conclusion reached above that *so(-no)* is not type *e*.

4.1.4.5. On the possibility of BVA(*A, sono*) being based on *co-I-indexation* of Ueyama 1998

Consider the examples in (88).

(88) a. (Hoji 2003: (43))
[ko-no mura-kara *do-no* *kaisya*-ni haitta hito]-ga
this-GEN village-from which-GEN company-to joined person-NOM

so-no kaisya-no syatyoo-o hihansitemo mondai-ni naru daroo.
that-GEN company-GEN president-ACC criticize:if problem-to become perhaps

(Roughly) 'No matter which *x*, company(*x*), if [someone from this village who has joined *x*] criticizes *x*'s president, a big problem will ensue.'

b. (Hoji 2000: (44))
**so-no kaisya*-no syatyoo-o [ko-no mura-kara
that-GEN company-GEN president-ACC this-GEN village-from

do-no kaisya-ni haitta hito]-ga
which-GEN company-to joined person-NOM

hihansisitemo mondai-ni naru daroo.
criticize:if problem-to become perhaps

(Roughly) 'No matter which *x*, company(*x*), if [someone from this village who has joined *x*] criticizes *x*'s president, a big problem will ensue.'

(88b) is the OS counterpart of (88a), restricting out attention to the concessive clause. It is concluded in Hoji 2000 that the BVA in (88a) is the kind that is sensitive to PF precedence, which, in the terms of Ueyama 1998, is based on *co-I-indexation*. The absence of 'reconstruction effects of BVA' in (88b) is thus as expected.

If *so(-no)* cannot be type *e*, as the preceding discussion suggests, BVA(A, so(no)) based on co-I-indexation should not be possible, given the assumption that only an element of type *e* can have an index. As suggested by the status of (89) with the BVA in question, such indeed seems to be the case.

(89) a. ??[ko-no mura-kara *do-no kaisya*-ni haitta hito]-ga *so-no*
this-GEN village-from which-GEN company-to joined person-NOM that-GEN

syatyoo-o hihansitemo mondai-ni naru daroo.
president-ACC criticize:if problem-to become perhaps

b. ??*so-no* syatyoo-o [ko-no mura-kara *do-no kaisya*-ni
that-GEN president-ACC this-GEN village-from which-GEN company-to

haitta hito]-ga hihansisitemo mondai-ni naru daroo.
joined person-NOM criticize:if problem-to become perhaps

(Roughly) 'No matter which *x*, company(*x*), if [someone from this village who has joined *x*] criticizes *x*'s president, a big problem will ensue.'

As indicated, the BVA in (89a) seems marginal; I in fact do not have a particularly clear judgment on it. If the BVA in (89a) were based on co-I-indexation, this would be unexpected; the BVA should be as acceptable in (89a) as it is in (88a). Furthermore, the status of its OS counterpart in (89b) would also be unexpected, since the BVA based on co-I-indexation should be as impossible in (89b) as it is in (88b), given the impossibility of co-I-indexation-based BVA in the reconstruction context. Notice that *so(-no*) would not be c-commanded by (the trace of) *do-no kaisya* even under the Surface OS analysis of (89b), independently precluding the possibility of the reconstruction effects of BVA in (89b).

4.2. Otagai

41 Japanese examples are provided in Saito 2003 (including the footnotes), and 18 of those 41 examples are arguably directly related to (1), repeated here.

(1) Clause-internal scrambling exhibits both A and A'-properties while long-distance scrambling exhibits only A'-properties.

Among those 18, 11 are examples with *otagai*, 4 are those with *zibunzisin* and the remaining 3 are those having to do with BVA. The three BVA-related examples are given in (35) and (36) (Saito's (10) and (12), respectively) discussed above, and we have seen in the preceding discussion that the alleged generalization intended by (35) and (36) is not valid, as long as we use the 'binder-bindee' pair used in Saito 2003, making his BVA-based argument for (1) invalid. In this and the subsequent subsections, I will illustrate that the hypotheses in (90) and (91) below are clearly falsified, making the other two arguments in Saito 2003 in support of (1) invalid.

(90) The Standard Hypothesis (I):

Otagai is a local anaphor.

(91) The Standard Hypothesis (II):
Zibunzisin is a local anaphor.

As demonstrated in Hoji (1997 (reproduced in this volume), 2003), the hypothesis in (90) that *otagai* is a local anaphor has been falsified rather remarkably. Consider first the examples in (92).

(92) (=Hoji 1997, this volume: (7))

a. [John to Bill]$_1$-wa [$_{CP}$ Mary-ga otagai-ni horeteiru to] omoikonde-i-ta
[John and Bill]-TOP [Mary-NOM otagai-DAT is:in:love that] believed

'[each of John and Bill] believed that Mary was in love with the other.'
'[each of John and Bill]$_1$ believed that Mary was in love with him$_1$.'

b. [John to Bill]$_1$-wa [Chomsky-ga naze otagai-o suisensita no ka]
[John and Bill]-TOP [Chomsky-NOM why otagai-ACC recommended Q]

wakaranakatta
did not understand

'[each of John and Bill] did not understand why Chomsky had recommended the other.'
'[each of John and Bill]$_1$ had no idea why Chomsky had recommended him$_1$.'
'[John and Bill]$_1$ had no idea why Chomsky has recommended them$_1$'

Given (90), the examples in (92) are predicted to be unacceptable. Yet, they are judged acceptable almost uniformly among the 10 informants I have checked with.

The examples in (93) are given in Saito 2003 with the "*?" or "*" markings.

(93) a. (=Saito 2003: (8b), which is marked as "*?", with the addition of *-ga mondai nandesu* here)
Otagai-no sensei-ga *karera*-o hihansita koto-ga mondai nandesu.
otagai-GEN teacher-NOM they-ACC criticized fact-NOM problem copula

'The problem is the fact that [each other's teachers] criticized them.'

b. (=Saito 2003: (11a), which is marked as "*.")
Otagai-no sensei-ga [Tanaka-ga *karera*-o hihansita to] itta (koto)
otagai-GEN teacher-NOM Tanaka-NOM they--ACC criticized that said fact

'[Each other's teachers] said that Tanaka criticized them.'

c. (=Saito 2003: (11b), which is marked as "*.")
Karera-o *otagai*-no sensei-ga [Tanaka-ga hihansita to] itta (koto)
they-ACC otagai-GEN teacher-NOM Tanaka-NOM criticized that said fact

'Them$_i$, [each other's teachers] said that Tanaka criticized t_i.'

These examples are also judged fairly to perfectly acceptable by the 10 informants. Minor adjustment as in (94) seems to improve the examples even more readily acceptable.

(94) a. *Otagai*-no koibito-ga *John to Bill*-ni iiyotta koto-ga konkai-no ziken-no kikkake desu.
otagai-GEN lover-NOM John and Bill-DAT tried:to:seduce fact-NOM this:time-GEN affair-GEN trigger copula

'The trigger of the affair this time is the fact that [each other's lovers] tried to seduce John and Bill.'

b. *Otagai*-no sensei-ga [Chomsky-ga *karera*-o hometeiru to] omoikonde ita n desu.
otagai-GEN teacher-NOM Chomsky-NOM they-ACC is:praising that believed colula

'[Each other's teacher] believed that Chomsky was praising them.'

c. *Karera*-o *otagai*-no sensei-ga [Chomsky-ga hometeiru to] omoikonde ita n desu.
they-ACC otagai-GEN teacher-NOM Chomsky-NOM is:praising that believed copula

"Them$_i$, [each other's teachers] believed that Chomsky was praising t_i.'

Finally, examples such as (95) are judged acceptable by every one of the 10 informants, except that one informant judged (95a) to be unacceptable.

(95) a. Haru-no atatakana kaze-ga *otagai*-o totemo siawase-na kimoti-ni sita.
Spring-GEN warm wind-NOM otagai-ACC very happy feeling-DAT made

'The warm spring wind made *otagai* (=them) feel very happy.'

b. *Otagai*-ga manzoku nara, boku-wa monku-o iwanai tumorida.
otagai-NOM satisfied if I-TOP complaint-ACC say:not plan copula

'If *otagai* (=both of them) are satisfied, I will not raise issues.'

The judgments on the examples above by the 10 informants are summarized in (96).

(96)

	Number of informants who accepted it	Mean Score	Standard Deviation
(92a)	9 out of 10	+1.50	0.67
(92b)	8 out of 10	+1.20	1.25
(93a)	7 out of 10	+1.10	1.04
(93b)	5 out of 10	+0.20	1.17
(93c)	7 out of 10	+1.20	0.87
(94a)	9 out of 10	+1.70	0.64
(94b)	7 out of 19	+0.90	0.94
(94c)	10 out of 10	+1.80	0.40
(95a)	9 out of 10	+1.60	1.20
(95b)	10 out of 10	+1.90	0.30

The results thus clearly falsify (90). As discussed in some depth in Hoji (1997, this volume), when some locality-like property is detected in certain examples with *otagai*, similar effects are also detected in regard to what appears to be the relationship between the empty possessor of a kinship term and 'its antecedent', and furthermore, such effects can be made to disappear to a large extent or totally by pragmatic adjustment (which can be induced by the choice of lexical items) without altering the structural properties.

4.3. Zibunzisin

The four examples with *zibunzisin* provided in Saito 2003 are reproduced below.

(97) (=Saito 2003: (14))
[$_{TP}$ Zibunzisin-o$_i$ [Taroo-ga t_i semeta]] (koto)
self-ACC -NOM blamed fact

'Himself$_i$, Taro blamed t_i'

(98) (=Saito 2003: (77), attributed to Dejima 1999, with the judgments reported in Saito 2003)
a. Taroo-ga$_i$ [$_{CP}$ Hanako-ga$_j$ [$_{CP}$ Ziroo-ga$_k$ zibunzisin-o$_{*i,*j,k}$ hihansita to]
-NOM -NOM -NOM self -ACC criticized that

itta to] omotteiru (koto)
said that think fact

'Taroo$_i$ thinks [that Hanako$_j$ said [that Ziroo$_k$ criticized self$_{*i,*j,k}$]]'

b. Taroo-ga$_i$ [$_{CP}$ Hanako-ga$_j$ [$_{CP}$ zibunzisin-o$_{*i,j,k}$ Ziroo-ga$_k$ t hihansita to]
-NOM -NOM self -ACC -NOM criticized that

itta to] omotteiru (koto)
said that think fact

'Taroo$_i$ thinks [that Hanako$_j$ said [that self$_{*i,j,k}$ Ziroo$_k$ criticized *t*]]'

c. Taroo-ga$_i$ [$_{CP}$ zibunzisin-o$_{i,j,k}$ Hanako-ga$_j$ [$_{CP}$ Ziroo-ga$_k$ *t* hihansita to]
-NOM self -ACC -NOM -NOM criticized that

itta to] omotteiru (koto)
said that think fact

'Taroo$_i$ thinks [that self$_{i,j,k}$ Hanako$_j$ said [that Ziroo$_k$ criticized *t*]]'

As noted above, Saito adopts the hypothesis in (91).

(91) The Standard Hypothesis (II):
Zibunzisin is a local anaphor.

Examination of the negative predictions made under (91), however, reveals that (91) is falsified, just as in the case of (90), repeated here.

(90) The Standard Hypothesis (I):
Otagai is a local anaphor.

Consider the examples below.

(99) a. *John*-wa Mary-ga *zibun-zisin*-ni horete iru to omoikonde ita.
John-TOP Mary-NOM zibun-zisin-DAT is:in:love that believed

'*John* believed that Mary liked *self*.'

b. *John*-wa Mary-ga *zibun-zisin*-o suisensita to bakari omotteita.
John-TOP Mary-NOM zibun-zisin-ACC recommended that only thought

'*John* did nothing but think that Mary recommended *self*.'

(100) Chomsky-ga *zibun-zisin*-o suisensuru to omoikonde ita *John*-wa,
Chomsky-NOM zibun-zisin-ACC will:recommend that believed John-TOP

Chomsky-ga Bill-o suisensita to sitte gakuzen-to-sita
Chomsky-NOM Bill-ACC recommended that know be:shocked

'*John*, who had firmly believed that Chomksy would recommend *self*, was shocked to death when he found out that Chomsky had recommended Bill instead.'

(101) a. **John* thinks Mary loves *himself*.
b. **John* thought that Mary had recommended *himself*.

(102) **Mary*, *who* had firmly believed that Chomsky would recommend *herself*, was shocked to death when she found out that Chomsky recommended Bill instead.

The English examples in (101) and (102) have been reported to be unacceptable. Given (91), according to which *zibunzisin* is on a par with *himself* in English, we would make the negative prediction that the examples in (99) and (100) are as hopeless as their English counterparts in (101) and (102).

The results of the informant check are quite striking. While the English examples in (101) and

(102) are judged unacceptable fairly uniformly, the judgments on the Japanese examples in (99) and (100) vary considerably and, furthermore, they are judged more or less acceptable. The judgments of the informants are summarized below.

(103)

	Number of informants who accepted it[31]	Mean Score	Standard Deviation
(99a)	15 out of 23	+0.61	1.21
(99b)	13 out of 23	+0.26	1.33
(100)	21 out of 24	+0.96	1.24
(101a)	0 out of 13	−1.92	0.27
(101b)	1 out of 13	−1.46	0.93
(102)	0 out of 13	−1.31	0.82

4.4. Falsifiability and the attitude of refuting a hypothesis

We have observed that the crucial Eg*s under the hypotheses (such as (90) and (91)) adopted in Saito 2003 are judged acceptable by many, if not most, of the informants who participated in the on-line questionnaire. We have taken this result as indicating that the hypotheses that predict Eg*s as such, i.e.—i.e., those that predict (92) to (95), (99) and (100) to be unacceptable (for a grammatical reason)— have been falsified, which in turn invalidates Saito's (2003) arguments for (1) on the basis of (90) and (91).

One might argue, however, that what is crucial is the (alleged) contrast among the relevant examples, and that the validity of (90) and (91) can be maintained as long as there are pairs of examples that show the predicted contrast (for some speakers). In regard to (98), repeated below, Saito (2003: 508-509) in facts states, "The status of *zibunzisin* 'self' as a local anaphor is controversial since the required locality is not always clear-cut. But the judgments in [(98)] are reasonably clear on contrastive basis. As indicated, the possible antecedents for *zibunzisin* increase as the anaphor is preposed further."

(98) (=Saito 2003: (77), attributed to Dejima 1999, with the judgments reported in Saito 2003)

a. Taroo-ga$_i$ [$_{CP}$ Hanako-ga$_j$ [$_{CP}$ Ziroo-ga$_k$ zibunzisin-o$_{*i,*j,k}$ hihansita to]
-NOM -NOM -NOM self -ACC criticized that

itta to] omotteiru (koto)
said that think fact

'Taroo$_i$ thinks [that Hanako$_j$ said [that Ziroo$_k$ criticized self$_{*i,*j,k}$]]'

b. Taroo-ga$_i$ [$_{CP}$ Hanako-ga$_j$ [$_{CP}$ zibunzisin-o$_{*i,j,k}$ Ziroo-ga$_k$ *t* hihansita to]
-NOM -NOM self -ACC -NOM criticized that

itta to] omotteiru (koto)
said that think fact

'Taroo$_i$ thinks [that Hanako$_j$ said [that self$_{*i,j,k}$ Ziroo$_k$ criticized *t*]]'

c. Taroo-ga$_i$ [$_{CP}$ zibunzisin-o$_{i,j,k}$ Hanako-ga$_j$ [$_{CP}$ Ziroo-ga$_k$ *t* hihansita to]
-NOM self -ACC -NOM -NOM criticized that

itta to] omotteiru (koto)
said that think fact

'Taroo$_i$ thinks [that self$_{i,j,k}$ Hanako$_j$ said [that Ziroo$_k$ criticized *t*]]'

Likewise, Saito (2003: 509) states, "… it is controversial whether *otagai* is a local anaphor, but the contrast is clear. [(104b)] shows that when the anaphor is scrambled to the sentence-initial

---

[31] As before, the score of "+1" or "+2" is taken in the context of this particular exposition as the example being judged to be acceptable.

position of the second clause, the matrix subject qualifies as the antecedent."

(104) (=Saito 2003: (78), attributed to Dejima 1999, with the judgments reported in Saito 2003)

a. *Karera-ga [$_{CP}$ Hanako-ga [$_{CP}$ Ziroo-ga otagai-o
they-NOM -NOM -NOM each other -ACC

sonkeisiteiru to] itta to] omotteiru (koto)
respect that said that think fact

'They think [that Hanako said [that Ziroo respect each other]]'

b. Karera-ga [$_{CP}$ otagai-o Hanako-ga [$_{CP}$ Ziroo-ga *t* sonkeisiteiru
they -NOM each other-ACC -NOM -NOM respect

to] itta to] omotteiru (koto)
that said that think fact

'They think [that each other, Hanako said [that Ziroo respect t]]'

Let us consider (104). We have already seen in section 4.2 that *otagai* can appear in what is generally taken to be an argument position, i.e., it can appear as an *o*-marked 'direct object' NP or as a *ga*-marked subject NP (hence not a position for 'exempt anaphors' in the terms of Pollard and Sag 1992); see (92) and (95) above. We have also seen that *otagai* need not have 'its antecedent' in its local domain or is it necessary for *otagai* to be c-commanded by 'its antecedent'; see (92)-(95). Given these observations, it is clear that the hypothesis in (90), repeated here, cannot be maintained.

(90) The Standard Hypothesis (I):
Otagai is a local anaphor.

Of relevance here are the remarks at the end of Hoji 2000: sec. 4, which I reproduce here, adapting its exposition slightly.[32] "Popper (1959) warns that "it is always deceptively easy to find *verifications* of a theory. What is predicted by [(105), which is the same as (90)] is not [(107a)] but [(107b)]."

(105) (Hoji 2000: (121) [=(90) in this paper, HH])
Standard Assumption/Hypothesis:
Otagai is a local anaphor.

(106) (Hoji 2000: (121))
Predictions made by [(105)]:
a. *Otagai* requires a linguistic antecedent.
b. *Otagai* must be c-commanded by its antecedent.
c. *Otagai* must be c-commanded by its antecedent in its local domain.
d. Split antecedence is not possible for *otagai*.

(107) (Hoji 2000: (135))

---

[32] Kitagawa (2005) addresses island effects in *wh*-questions in Japanese and makes the same point, in fact more strongly than here. The last few sentences of section 5 of Kitagawa 2005 are quoted in (i).

(i) (Kitagawa 2005: sec. 5)
It must be kept in mind, however, that extra-grammatical factors like pragmatics are subject to individual differences in memory capacity, world view/knowledge, personal taste, and so on. The control of such factors therefore may not necessarily improve the acceptability judgment of all sentences equally well among speakers. If we can construct even a few clearly acceptable examples for any speaker, however, that will be good enough to let us call the alleged ungrammaticality into question. If, in fact, variability among speakers arises or even a single speaker's judgment on a single example is unstable, we should perhaps suspect that some extra-grammatical factors might be interfering with our grammaticality judgment.

a. There are empirical materials that are consistent with [(106)].
b. There are no empirical materials that are not consistent with [(106)].

"The intent of Popper's remark that "we have to adopt a *highly critical* attitude towards our theories if we do not wish to argue in circles: the attitude of trying to *refute* them" seems to be precisely this—in the context of the present discussion."[33]

The contrast in (104), which shows (107a), does not have much significance since it has been amply demonstrated that (107b) is not a valid proposition, thereby falsifying (105). Given the conclusion reached above and given the discussion in Hoji (1997, this volume), we are thus led to conclude that the unacceptability of (104a) would have to be due to something that is independent of the structural condition that local anaphors are subject to. This in turn leads us to expect two things, at least. First, it is perhaps possible to construct examples of the same structural properties as (104a) that are much more acceptable than (104a). Quick deliberation yields an example like (108).

(108) (Cf. (104a).)
Bush to Clinton-ga [$_{CP}$ T. Kennedy-ga [$_{CP}$ (W. Post denaku) N.Y. Times-ga otagai-o
Bush and Clinton-NOM T. Kennedy-NOM (W. Post not) N.Y. Times- NOM each other -ACC

hihansuru-bekida to] syutyoositeiru to] omoikondeita (koto)
criticize-should that has:been:insisting that believed:firmly fact

'*Bush and Clinton* firmly believed [that T. Kennedy has been insisting [that the N.Y. Times (rather than the Washington Post) should criticize *each other*]]'

While I do find (104a) not particularly commendable, I find much improvement in (108). The structural relation between *otagai* and 'its antecedent' remain the same in (108) as in (104b). If the status of (104a) were indeed due to (90), which actually cannot be the case since, as we have observed above, (90) has been falsified, such improvement would be quite unexpected.

Second, given the discussion in Hoji (1997, this volume), one may also expect to find a similar contrast in examples with a kinship term as that between (104a) and (108). Indeed, I find the kinship term version of (108) more acceptable than that of (104a), as indicated in (109), under the 'intended interpretation'.

(109) a. (Cf. (104a).)
#John-ga [$_{CP}$ Hanako-ga [$_{CP}$ Ziroo-ga titioya-o
John-NOM Hanako-NOM Ziro-NOM father -ACC

sonkeisiteiru to] itta to] omotteiru (koto)
respect that said that think fact

Intended as: '*John* think [that Hanako said [that Ziroo respect *his* father]]'

b. (Cf. (108).)
(??)Bush/John-ga [$_{CP}$ T. Kennedy-ga [$_{CP}$ (W. Post denaku) N.Y. Times-ga titioya-o
John-NOM T. Kennedy-NOM (W. Post not) N.Y. Times- NOM father-ACC

hihansuru-bekida to] syutyoositeiru to] omoikondeita (koto)
criticize-should that has:been:insisting that believed:firmly fact

Intended as: '*Bish/John* firmly believed [that T. Kennedy has been insisting [that the N.Y. Times (rather than the Washington Post) should criticize *his* father]]'

---

[33] The relevant passage is given in (i).

(i) [O]bservations, and even more so observation statements and statements of experimental results, are always *interpretations* of the facts observed; that they are *interpretations in the light of theories*. This is one of the main reasons why it is always deceptively easy to find *verifications* of a theory, and why we have to adopt a *highly critical* attitude towards our theories if we do not wish to argue in circles: the attitude of trying to *refute* them. (Popper 1959: 107, footnote *3)

While it seems difficult to interpret (109a) as indicated, it seems significantly easier to interpret (109b) as indicated.

Turning to (98), it seems that we can also improve the status of examples like (104a). It seems much easier in (110) (as compared to (98a)) to take the matrix subject as the 'antecedent of *zibunzisin*'.

(110) Bush-ga [$_{CP}$ T. Kennedy-ga [$_{CP}$ (W. Post denaku) N.Y. Times-ga *zibunzisin*-o
Bush-NOM T. Kennedy-NOM (W. Post not) N.Y. Times- NOM father-ACC

hihansuru-bekida to] syutyoositeiru to] omoikondeita (koto)
criticize-should that has:been:insisting that believed:firmly fact

Intended as: '*Bish* firmly believed [that T. Kennedy has been insisting [that the N.Y. Times (rather than the Washington Post) should criticize *himself*/*him*]]'

It must be emphasized (again) that it is not necessary to provide acceptable examples like (110) for the purpose of showing that the (alleged) contrast and in particular the (alleged) impossibility of a particular anaphoric relation in (98) is not due to (91). That has already been demonstrated independently; see the discussion in the preceding subsection. That examples like (110), and no doubt other more acceptable examples under the intended interpretation, can be constructed or can be found is just what we are led to expect. When our hypotheses predict that something is impossible for a grammatical reason, we do not expect it to become possible by some pragmatic/lexical adjustment, and that is what is meant by making a negative claim and holding one's claim falsifiable.[34] Denying this and maintaining the view that the existence of some relative contrast (found in some selected pairs of examples) can be an empirical basis for one's theoretical claim would have a very grave consequence if one wishes to be engaged in an empirical science with progress in mind.

Similar considerations apply to the (alleged) contrast(s) in (35) and (36), repeated here, which, as discussed before, are the only BVA-related examples provided in Saito 2003 in support of (1), also repeated here.

(1) Clause-internal scrambling exhibits both A and A'-properties while long-distance scrambling exhibits only A'-properties.

(35) (Saito's (10), with the judgments reported there)

a. ?**sono* tyosya-ga *dono hon-ni-mo* keti-o tuketa
its author-NOM which book-DAT-also complaint-ACC placed

'*its* author applied criticism to *every book*'

b. *dono hon-ni-mo* *sono* tyosya-ga *t* keti-o tuketa
which book-DAT-also its author-NOM complaint-ACC placed

'to *every book*, *its* author applied criticism (to) *ec*'

(36) (Saito's (12), with the judgment reported there)

?**dono hon-ni-mo* [*sono* tyosya-ga
which book-DAT-also its author-NOM

---

[34] There is an additional problem with (104b). As noted, Saito (2003: 509) states that "[(104b)] shows that when the anaphor is scrambled to the sentence-initial position of the second clause, the matrix subject qualifies as the antecedent." What is tacitly claimed is that *otagai-o* originates in the object position of the most deeply embedded clause in (104b). Given the Major Object analysis of Hoji 1991 (suggested originally in Saito 1983, and further defended as the Prolepsis analysis in Takano 2003), however, it is possible for the *otagai-o* in (104b) to have originated in the matrix clause. Given that possibility, what is compared in (104) can actually be on a par with (i) and (ii).

(i) NP1-ga [NP2-ga [NP3-ga otagai-o V to] V to] V

(ii) NP1-ga otagai-o V

[Hanako-ga *t* keti-o tuketa to] itta]
Hanako-NOM complaint-ACC placed that said

'to *every book*, *its* author said that Hanako had applied criticism (to) *ec*'

The contrast between (35a) and (35b) does seem to be felt clearly among speakers, as indicated in (111).

(111)

	Number of informants who accepted it	Mean Score	Standard Deviation
(35a)	6 out of 33	−0.76	1.39
(35b)	32 out of 33	+1.79	0.59

One might maintain, just by looking at (111) and noting the difference in the mean scores between (35a) and (35b), that (35a) qualifies as an instance of *Weak Crossover* (*WCO*) (although the mean score on (35a) is not as low as "−1.") However, we have concluded that BVA(*dono hon-ni-mo*, *so(-no)*) is not, and in fact cannot, be based on LF c-command, hence (35a) cannot be an instance of *WCO*. We have two bases for this conclusion. One comes from Ueyama's (1998) theory of anaphoric relations, which is supported by a great deal of empirical considerations, according to which *dono hon-ni-mo* cannot be reliably used as an intended 'binder' if one wishes to probe into structural properties in relation to anaphoric dependency based on LF c-command, and that is the relation that is in question here. It is also possible to surmise from the discussion in Ueyama 1998: Appendix D that the use of *so(-no)* as the 'dependent term' might well result in the possibility of *quirky binding*, which is something we must control as noise in an experiment that is intended to examine LF c-command-based properties. The other basis is the observation that we can actually construct examples of the same structural properties as (35a) that are significantly more acceptable; see (78), and also remarks at the end of section 4.1.4.3. Recall that what is argued in Saito 2003 is that the BVA is not available in (35a) *due to a structural reason* (in fact, due to the failure of the 'dependent term' to be c-commanded by 'its antecedent' at any stage of derivation). The reading that is predicted to be impossible therefore should remain unavailable even with various lexical or pragmatic adjustments. As we have observed, the (slight) adjustment makes the BVA in question much more readily available. The argument that the (alleged) unavailability of the BVA in (35a) is due to a structural reason thus cannot be maintained, as we have seen.

The contrast in (35) is due in part to the status of (35b), which is accepted by nearly all the informants. One may recall that *dono hon-ni-mo* is the type of 'binder' that can serve as A of BVA(A, B) that is sensitive to PF precedence; see section 4.1.4.5. One can therefore suggest, just by looking at (35), that what is responsible for the contrast between (35a) and (35b) is PF precedence; the 'binder' precedes the 'dependent term' in (35b) but not in (35a). Now, under that suggestion, one might expect that (36), which Saito (2003) presents as his crucial example (Eg* in the terms of the present discussion) in support of (1), is not so clearly unacceptable. In fact, 21 out of 31 informants accepted (36), giving it "+1" or "+2."

(112)

	Number of informants who accepted it	Mean Score	Standard Deviation
(35a)	6 out of 33	−0.76	1.39
(35b)	32 out of 33	+1.79	0.59
(36)	21 out of 31	+0.71	1.49

Saito's (2003) claim is that that the necessary condition for BVA(*dono hon-ni-mo*, *so(-no)*) fails to be satisfied not only in (35a) but also in (36), hence under Saito 2003 they are both predicted to be unacceptable, with the BVA in question. The fact that (36) is accepted by many speakers while (35a) is found to be much less acceptable is thus quite unexpected under Saito 2003. These results cease to be so puzzling if one of the major factors affecting the speaker judgments on these examples is PF

precedence, which is quite consistent with the theory of anaphoric relations defended in Ueyama 1998 and the empirical generalizations discussed there.

4.5. Summary

In summary, Saito (2003) provides the three types of empirical 'evidence' in support of (1), based on the following hypotheses.

(113) Auxiliary hypotheses adopted in Saito 2003 (whether or not they are made explicit in Saito 2003)

a. (=(90) in this paper; see section 4.2.)
Otagai is a local anaphor

b. (=(91) in this paper; see section 4.3.)
Zibunzisin is a local anaphor

c. (See section 4.1.)
BVA(dono NP-(cm)-mo, B) is available only if *dono NP(-cm)-mo* c-commands *B* at some stage of derivation.

We have seen that the negative prediction made by each of the hypotheses in (113) has been disconfirmed, and hence the hypotheses in (113) have all been falsified.

We have also seen that the hypothesis in (114) below, which must be assumed in Saito 2003, could be maintained only at the expense of compromising what seems to be an otherwise (close to) perfect system of demonstratives in Japanese.

(114) The semantic type of *so(no)* in *sono NP* is *e*.[35]

It must be noted that even if (114) could be maintained, that would not save Saito's (2003) argument for (1) based on the BVA paradigm because (113c) has been falsified.[36] The falsification in question is thus independent of any competing hypotheses.

Suppose that we abandon all of (113) (and (114)). Suppose further that we adopt Ueyama's (1998) theory of anaphoric relations and her characterization of how we can identify BVA(A, B) that is crucially based on a c-command relation at LF. If we do not do that, as in Saito 2003, we cannot even attain much repeatability in regard to the predicted judgments on the basic BVA paradigm, to begin with, quite apart from the issues having to do with the claim in (1). By adopting the Ueyama proposal, not only can we attain a sufficiently high degree of repeatability in regard to the basic BVA paradigm, but we can also actually come close to obtaining corroboration for the theory that has (1) as its empirical consequence.

The analyses of the OS construction in Japanese offered in Ueyama 1998: chap. 2 and 2003 and Saito 2003 are quite different. But the empirical consequences under the two proposals can become quite similar, if not identical, once we have raised the level of empirical rigor in Saito 2003 to that of Ueyama 2003, i.e., if we combine Saito's (2003) hypothesis about the OS construction in Japanese with Ueyama's (1998) theory of anaphoric relations as they pertain to Japanese and if we abandon the falsified hypotheses in (90) and (91). Once we have introduced such modification of the overall theory to Saito 2003, can we then conclude that the two theoretical characterizations of the OS construction are notational variants? If the two approaches indeed had the same empirical

---

[35] It must also be assumed in Saito 2003 that BVA(dono NP, B) is available only if *dono NP* c-commands *B* at some stage of derivation.

[36] The other two empirical issues addressed in Saito 2003 are (i) Condition D effects and (ii) Proper Binding condition violation effects. Saito (2003) presents the alleged presence and absence of Condition D effects as evidence for (i), and rephrases the Proper Binding Condition without making reference to S-structure.

(i) Clause-internal VP (or vP)-external 'scrambling' need not have, long-distance 'scrambling' cannot have, and VP (or vP)-internal 'scrambling' must have, A'-properties.

Since they are not relevant to the main concern of the present paper, they are not addressed here. See Ueyama 1998: Appendix C for relevant discussion on Condition D effects.

consequences, the answer would be in the affirmative. In the next section, I will address how the two approaches actually differ in terms of their empirical consequences, even with the modifications on Saito 2003 just noted, and what experiment can be conducted for determining which approach is to be preferred.[37]

5. Assessing a hypothesis in relation to a competing hypothesis

In section 4, I have illustrated how disconfirmation of a negative prediction leads to falsification of a hypothesis. The falsification of a hypothesis is independent of, hence can be done without making reference to, a competing hypothesis. In this section, we will consider how we can assess two competing theories when neither is falsified. What I wish to suggest is that in such cases a theory that makes a negative prediction that does not get disconfirmed is to be preferred over the one that does not, and especially if the latter allows what the former predicts to be impossible.

5.1. A Crucial difference between Ueyama 1998 and Saito 2003

The most crucial difference between Ueyama 1998 and Saito 2003 in terms of their empirical consequences can be summarized as in (115).[38]

(115) Ueyama 1998 deduces the impossibility of one DL (='dislocated' element, i.e., the 'scrambled' phrase; see (9) and (10) above and the remarks thereabout) simultaneously functioning 'as being in an A-position' and 'as being in an A'-position', while Saito 2003 does not. In fact, Saito's (2003) theory of the OS construction in Japanese allows the possibility for a given DL to exhibit both A-properties and A'-properties since the formal relation that underlies A-properties and the one that underlies A'-properties can be licensed derivationally; see section 2.3 above.

The crucial prediction made under Ueyama 1998 is thus (116).

(116) The crucial prediction under Ueyama 1998 (I):
The two BVAs as indicated in (117) cannot obtain simultaneously, as long as both BVAs are based on LF c-command.

(117) $[_{\alpha}$ … β …$]_1$-o [… γ …]-ga ω-ni ec_1 V
BVA(α, γ)
BVA(ω, β)

Under Ueyama's theory of the OS construction in Japanese, BVA(α, γ) and BVA(ω, β) in (117) would have to be based on the Deep OS type and the Surface OS type, respectively; see (9) and (10). I.e., the former must correspond to the PF-LF pair schematized in (118) and the latter to the one schematized in (119).

(118) PF: $[_{\alpha}$ … β …]-o [… γ …]-ga ω-ni V
LF: $[_{\alpha}$ … β …$]_1$-o $[_{IP}$ ec_1 $[_{IP}$ [… γ …]-ga ω-ni t_1 V]]

---

[37] Suppose, for the sake of discussion, that the two approaches did have exactly the same empirical consequences. We should still not forget all the 'innovations' we had to introduce in order to 'save' the proposal in Saito 2003. Those 'innovations' have to do with the auxiliary hypotheses. In other words, with its auxiliary hypotheses being falsified independently, Saito 2003 does not offer reliable means to test the empirical consequences of its theory of the OS construction in Japanese, and this sharply contrasts with Ueyama 1998: chap. 2, 2003, even if it turned out that the two hypotheses yielded the same empirical consequences once we modified the overall theory of Saito 2003, as indicated above.

[38] According to Ueyama 1998: 119, footnote 117, "Mahajan 1990 provides unacceptable examples which are meant to involve at the same time (i) the 'absence of the WCO effects' and (ii) the 'reconstruction effects."

(119) PF: [$_{\alpha}$ … β …]-o ... [… γ …]-ga ω-ni V
LF: [[… γ …]-ga [ω-ni [[$_{\alpha}$ … β …]-o V]]]

With α serving as the Subject of the Predication in the LF of (118), BVA(α, γ) in (118) can be based on FD(*t*, γ), where the *t* is the QR/CR trace of α. In (119), α remains in its theta position throughout the derivation and hence BVA(ω, β) can be based on FD(*t*, β), where the *t* is the QR/CR trace of ω. (118) and (119) can be phonetically identical; but they must be based on distinct Numerations—most notably the empty category that serves as a null operator is in the Numeration for the derivation for (118) but not for (119)—and hence distinct derivations and representations. Ueyama's theory of the OS construction in Japanese, therefore, predicts that two BVA's in (117) cannot obtain simultaneously, as recorded in (116). Since this is a negative prediction, its disconfirmation would lead to the falsification of Ueyama's theory; cf. the discussion in section 3 above.

According to Saito's theory, the necessary relation for BVA(ω, β) can be licensed while α is in its theta position, prior to its movement to the sentence-initial position—ω can retain its D-feature since it is selected—, and the necessary relation for BVA(α, γ) can be licensed after α has been adjoined to the IP, before α loses its D-feature. Saito's (2003) theory of the OS construction in Japanese thus allows the two BVAs in (117) simultaneously. Notice that no negative prediction is made here. Since the acceptability of a sentence (under a specified interpretation) depends in part upon non-grammatical factors (see section 3 above), the mere fact or observation that two BVAs in (117) cannot obtain simultaneously should not be taken as falsifying Saito's theory.

5.2. The crucial experiment

It is crucial that the two BVAs intended in (116) should both be based on c-command.[39] Following what is suggested in Hoji 2003: 4.1.2, we might consider examples like (120).

(120) *[**so-ko$_1$**-o hihansita kaikeisi-toka dareka-toka]$_2$-o so-itu$_2$-no
that-place-ACC criticized accountant-or someone-or-ACC that-person-GEN

koukou-no sensei-ga **55 % izyoo-no kaisya$_1$**-ni
high:school-GEN teacher-NOM 55 % or:more-GEN company-DAT

suisensiteita-ra ...
had:recommended-if

'If his$_2$ high school teacher had recommended [some accountant or others who criticized it$_1$]$_2$ to [(each of) 55 % or more companies]$_1$, ...'

This seems clearly unacceptable with the double BVA. The intended interpretation of the double BVA for (120) is as in (121).

(121) **55% izyoo-no kaisya$_1$**-ga [**so-ko$_1$**-o hihansita kaikeisi-toka
55% or-more-GEN company-NOM that-place-ACC criticized accountant-or

dareka-toka]$_2$-o so-itu$_2$-no kookoo-no sensei-ni
someone-or-ACC that-person-GEN high:school-GEN teacher-DAT

suisensareteita-ra ...
had:been:recommended-if

'If [(each of) 55 % or more companies]$_1$ had been recommended [some accountant or other who had criticized it$_1$]$_2$ by his$_2$ high school teacher, ...'

Given that (120) is the crucial Eg*, we need corresponding Egs. Let us consider the examples

---

[39] For Ueyama 2003, LF c-command is crucial; and for Saito 2003 what is crucial is a c-command relation at some stage of derivation.

in (122) and (123) as possible Egs corresponding to (120).

(122) a. Only one BVA, in the Deep OS type:
[Koizumi-seiken-o hihansita kaikeisi-toka dareka-toka]$_1$-o
Koizumi-administration-ACC criticized accountant-or someone-or-ACC

so-itu$_1$-no kookoo-no sensei-ga 55% izyoo-no kaisya-ni
that-person-GEN high:school-GEN teacher-NOM 55 % or:more-GEN company-DAT

suisensiteita-tositara ...
had:been:recommended-if

'If [some accountant or other who criticized the Koizumi administration]$_1$ is such that his$_1$ high school teacher had recommended *ec*$_1$ to [(each of) 55 % or more companies], ...'

b. Only one BVA, in the Surface OS type:
so-ko$_1$-o hihansita kaikeisi-o ko-no keiri senmon
that-place-ACC criticized acountant-ACC this-place-GEN accounting technical

gakkoo-ga **55 % izyoo-no kaisya$_1$**-ni suisens-iteita-tositara ...
college-nom 55 % or:more-GEN company-DAT recommend-had:been-if

'If this accounting school had recommended to [(each of) 55 % or more companies]$_1$ [an accountant who criticized it$_1$], ...'

(123) Two BVAs:
[**so-ko$_1$**-o hihansita dono kaikeisi]$_2$-o so-itu$_2$-no kookoo-no
that-place-ACC criticized which-accountant-ACC that-person-GEN high:school- GEN

sensei-ga **55 % izyoo-no kaisya**$_1$-ni suisens-iteita-tositemo ...
teacher-NOM 55 % or:more-GEN company-DAT recommend-had:been-even:if

'No matter [which accountant who had criticized it$_1$]$_2$ his$_2$ high school teacher might have recommended *ec*$_2$ to [(each of) 55 % or more companies]$_1$, ...'[40]

There is only one BVA in each of (122a) and (122b), BVA(Koizumi-seiken-o hihansita kaikeisi-toka dareka-toka, so-itu) in the former and BVA(55 % izyoo-no kaisya, so-ko) in the latter, both of which are among the BVAs that must be based on LF c-command; see Hoji 2003: section 4.1.2. (122a) is an instance of the Deep OS type and (122b) the Surface OS type in the terms of Ueyama 1998. The judgments on (122a) and (122b) seem to be fairly clear.[41]

The judgment on (123), on the other hand, is less clear; but that is perhaps the most crucial Eg corresponding to (120). The two BVAs intended in (123) are as in (124).

(124) a. BVA(55 % izyoo-no kaisya, so-ko)
b. BVA(so-ko-o hihansita dono kaikeisi, so-itu)

According to Ueyama 1998 and Hoji 2003, it is safe to assume that the BVA in (124a) must be based on LF c-command. When its availability is tested in the paradigm in (2), the judgments we obtain are in line with what we predict (in the case of (2b)) and what we expect (in the case of (2a, c, d)).

---

[40] It is assumed here that, in their 'base positions', the *ni*-marked NP c-commands the *o*-marked NP, but that is not reflected in the English translation. The relevant *structural relation* assumed in (123) can be made more transparent in the English example in (i) although (i) no longer means the same as (123).

(i) No matter [which accountant who had criticized it$_1$]$_2$ his$_2$ high school teacher might have recommended [(each of) 55 % or more companies]$_1$ to *ec*$_2$, …

[41] The BVA is less readily available in (122a) and (122b) than the analogous BVA in their SO counterparts, i.e., independently of the availability of the double BVA.

(2) a. A-NOM [… B …]-*cm* Verb
BVA(A, B)
b. [… B …]-NOM A-*cm* Verb
*BVA(A, B)
c. [… B …]-*cm* A- NOM Verb
BVA(A, B)
d. A-*cm* [… B …]- NOM Verb
BVA(A, B)

The informants' judgments on the examples in (125), with BVA(55% izyoo-no suupaa, so-ko) are summarized in (126), which provides confirmation that BVA(55% izyoo-no NP, so-ko) must be based on LF c-command.[42]

(125) a. [55% izyoo-no suupaa]$_1$-ga so-ko$_1$-no torihikisaki-o
55% more:than-GEN supermarket-NOM that-place-GEN business:associates-ACC

uttaeru-tositara, komatta koto-ni narune.
sued-if problematic fact-DAT become

'It would be a problem if [(each of) more than 55% of the supermarkets]$_1$ sued its$_1$ business associate.'

b. So-ko$_1$-no torihikisaki-ga [55% izyoo-no suupaa]$_1$-o uttaeru-
that-place business:associates-NOM 55% more:than-GEN supermarket-ACC sued-

tositara, komatta koto-ni narune.
if problem the fact-DAT become

'It would be a problem if [its$_1$ business associates] sued [(each of) more than 55% of the supermarket]$_1$.'

c. So-ko$_1$-no torihikisaki-o [55% izyoo-no suupaa]$_1$-ga
that-place-GEN business:associates-ACC 55% more-than-GEN supermarket-NOM

uttaeru-tositara komatta koto-ni narune.
sued-if problematic fact-DAT become

'It would be a problem if [its$_1$ business associates], [(each of) more than 55% of the supermarket] $_1$ sued.'

d. [55% izyoo-no suupaa]$_1$-o so-ko$_1$-no torihikisaki-ga
55% more-than-GEN supermarket-ACC that-place-GEN business:associates-NOM

uttaeru-tositara, komatta koto-ni narune.
sued-if problematic fact-DAT become

'It would be a problem if [(each of) more than 55% of the supermarket] $_1$, its$_1$ business associates sued.'

(126)

---

[42] What is reported in (126) only makes reference to *across-speaker repeatability* and does not take into consideration *across-example repeatability* or *across-occasion repeatability* within the same speaker. We should be concerned with obtaining *across-example repeatability* or *across-occasion repeatability* within the same speaker in order to obtain more reliable results, and that is why preliminary experiments become relevant and crucial. As a matter of fact, given the view of falsification pursued here, obtaining *across-example repeatability* and *across-occasion repeatability* within a single speaker is a prerequisite for assigning significance to *across-speaker repeatability*, and that seems to distinguish our approach from other approaches such as the magnitude estimation approach discussed in Cowart 1997 and pursued in subsequent works, including Sorace et al. 2005.

	Number of informants who accepted it	Mean Score	Standard Deviation
(125a)	50 out of 52	+1.70	0.68
(125b)	4 out of 54	−1.37	1.08
(125c)	33 out of 53	+0.49	1.42
(125d)	43 out of 52	+1.25	1.09

The BVA in (124b), on the other hand, need not be based on FD(*t*, so-itu) with the *t* being the trace of *so-ko-o hihansita dono kaikeisi* 'which accountant who criticized it', as indicated by the acceptability of examples like (44), repeated here.[43]

(44) a. (Ueyama 1998: chap. 3, (37a))
[Kyonen Toyota-ga *do-no zidoosya-gaisya*-o uttaeta
last:year Toyota-NOM which-GEN automobile-company-ACC sued

koto]-ga *so-ko*-o toosan-ni oiyatta no?
fact-NOM that-place-ACC bankrupt-DAT drove COMP

'(Lit.) [The fact that Toyota sued *which automobile company* last year] caused *it* to go bankrupt ?'

b. (Hoji 2003: (43))
[ko-no mura-kara *do-no kaisya*-ni haitta hito]-ga *so-no kaisya*-no
this-GEN village- from which-GEN company-to joined person-NOM that-GEN company-GEN

syatyoo-o hihansitemo mondai-ni naru daroo.
president-ACC criticize:if problem-to become perhaps

(Roughly) 'No matter which *x*, *x* = a company, if [someone from this village who has joined *x*] criticizes *x*'s president, a big problem will ensue.'

As argued in Ueyama 1998, and also discussed above, BVA(dono NP, B) can be sensitive to PF precedence. Ueyama's theory therefore does not predict the impossibility of double BVA in (123), thereby qualifying (123) to be an Eg corresponding to (120).

Recall that BVA(A, sono NP) cannot be based on FD(*t*, sono NP) with the *t* being the QR/CR trace of A, insofar as the 'semantic content' of the *sono NP* is understood to be not 'small enough'; see Hoji et al 1999: sections 3 and 4. Now consider (127).

(127) [**so-ko$_1$**-o hihansita dono koonin kaikeisi]$_2$-o [so-no
that-place-ACC criticized which certified:public accountant-ACC that-GEN

koonin kaikeisi]$_2$-no kookoo-no sensei-ga **55 % izyoo-no**
certified:public accountant-GEN high:school-GEN teacher-NOM 55 % or:more-DAT

kaisya$_1$-ni suisens-iteita-tositemo ...
company-DAT recommend-had:been-even:if

'No matter [which certified public accountant who had criticized it$_1$]$_2$ that certified public accountant's$_2$ high school teacher might have recommended *ec*$_2$ to [(each of) 55 % or more companies]$_1$, ...'

The two BVAs intended in (127) are as in (128).

(128) a. BVA(55 % izyoo-no kaisya, so-ko)
b. BVA(so-ko-o hihansita dono koonin kaikeisi, so-no koonin kaikeisi)

---

[43] Ueyama 1998: sections 3.2.3.3 and 3.4.3.1 provides some examples of BVA(dono NP, so-itu).

With the B of BVA(A, B) as 'large' as *sono koonin kaikeisi* 'that certified public accountant', the BVA in (128b), if available at all, most likely must be one that is sensitive to PF precedence. The intended interpretation for (127) is as in (129).

(129) **55 % izyoo-no kaisya$_1$**-ga [**so-ko$_1$**-o hihansita dono koonin kaikeisi]$_2$-o
55 % or:more-GEN company-NOM that-place-ACC criticized which certified:public accountant-ACC

[so-no koonin kaikeisi]$_2$-no kookoo-no sensei-ni suisens-are-teita-tositemo ...
that-GEN certified:public accountant-GEN high:school-GEN teacher-DAT recommend-passive-had:been-even:if

'no matter [which certified public accountant who criticized it$_1$]$_2$ [(each of) 55 % or more companies]$_1$ had had [that certified public accountant's]$_2$ high school teacher recommend *ec*$_2$ (to it$_1$), ...'

What we have been concerned with is whether the double BVA interpretation as indicated in (129) is available in (127), to some extent, in contrast to (120).

Under Ueyama's theory, the double BVA is predicted to be impossible in the Eg* in (120), but not in the Egs in (123) and (127). In other words, according to Ueyama 1998, 2003, the double BVA is predicted to be impossible for the OS construction in (120), but the double BVA is not predicted to be impossible for the OS construction in (123) and (127). When we compare the availability of the relevant double BVA in the OS constructions with that in their corresponding SO construction, the contrast between (120) and (123)/(127) is clear to me. While the double BVA reading is clearly impossible in (120)—thus confirming the negative prediction under Ueyama 1998—it is not impossible in (123)/(127). Because of the complexity of the examples, we cannot however expect the mean score on (123)/(127) to be particularly high. The 7 speakers who judged examples including (120), (122) and (123) all accepted (122a) and (122b) and all rejected (120), providing *corroboration* for Ueyama's theory, at least to some extent. None of the 7 speakers, however, accepted (123), and the mean score on (123) is "−1.29." They accept the BVA in (122b); hence their rejection of (123) cannot be attributed to difficulty associated with taking (123) to be an instance of the Surface OS type.

If we turn to (127), however, three out of the seven speakers accepted them with the intended double BVA. The intended BVAs for (123) and (127) are repeated here for comparison.

(124) [The intended BVAs for (123):]
a. BVA(55 % izyoo-no kaisya, so-ko)
b. BVA(so-ko-o hihansita dono kaikeisi, so-itu)

(128) [Intended BVAs for (127):]
a. BVA(55 % izyoo-no kaisya, so-ko)
b. BVA(so-ko-o hihansita dono koonin kaikeisi, so-no koonin kaikeisi)

The difference has to do with the B of BVA(A, B) in (124b) and (128b). With *so-itu* 'that guy' as the dependent term, it is possible (for many speakers) for (124b) to be based on LF c-command. With *so-no koonin kaikeisi* 'that certified public accountant', (128b), however, cannot be based on LF c-command. Since the *quirky binding* is not a possibility with such a 'large NP' as the 'dependent term', (128b) must be an instance of BVA that is sensitive to PF precedence, if it is available. The improved status of (127) over (123) for the three speakers in question can thus be attributed to (128b) clearly being a BVA that *must* be sensitive to PF precedence and *cannot* be based on LF c-command, as compared to (124b), which *can* be an instance of a BVA that is based on LF c-command.

What I would take to be crucial here is that even those speakers who gave (127) a score higher than +1 rateed (120) as "−2," and I would like to maintain that Ueyama's (1998, 2003) hypothesis will receive support in that way, although that would not *corroborate* it, according to the 'criteria' that we are adopting for now; see (33).[44]

---

[44] See the remarks in footnote 42 for what is suppressed in this exposition.

To summarize, the double BVA paradigm allows us to test the negative prediction made under Ueyama 1998. The prediction has been confirmed. Since the unacceptability judgments on the relevant examples might be due to the mere complexity of the examples in question, however, it is crucial that there are some speakers who accept the double BVA examples if we make one of the two BVA not arising on the basis of LF c-command, and that is precisely what we have seen. Saito's (2003) theory of the OS construction, on the other hand, allows the simultaneous occurrences of two BVA that are based on (LF) c-command. To the extent that the negative prediction made under Ueyama 1998 has been clearly confirmed, it provides support for Ueyama 1998 over Saito 2003 although it does not falsify the latter.

6. Some remaining issues

The paradigms in the preceding subsection involve a ditransitive predicate. The use of ditransitive verbs has been known to give rise to some complications as to the c-command relation between the two objects. One might therefore try to avoid such complications by using a causative predicate, and consider (130).

(130) The crucial prediction under Ueyama 1998 (II):
The two BVAs as indicated in (131) cannot obtain simultaneously, as long as both BVAs are based on LF c-command.

(131) $[_{\alpha}$ … β …$]_1$-o [… γ …]-ga ω-ni ec_1 V-sase-INFL
BVA(α, γ) (*sase*: the causative verbal affix)
BVA(ω, β)

I have indeed found my own judgments clearer with the use of the causative predicate. My judgments, however, have not been shared by other speakers; the crucial Egs with double BVA in examples of the form in (131) are found by others to be less acceptable than (127). This might be due to independent complications induced by the use of the causative predicate.

At any rate, preliminary experiments need to be conducted in regard to the auxiliary hypothesis that *NP-dat* asymmetrically c-commands *NP-acc* in their 'base positions' in the ditransitive construction. Similarly, in regard to the crucial experiment on (130), we must make sure by conducting a preliminary experiment that, whatever the precise analysis of the causative construction might be, it must have the consequence that (i) (132b) is the unmarked order among *A*, *B*, and *C*, and (ii) *A* asymmetrically c-commands *B*, and *B* asymmetrically c-commands *C*.

(132) a. B-ga C-o V 'B Verb C'
b. A-ga B-ni C-o V-sase 'A make B Verb C'

The crucial difference between Ueyama's (1998) and Saito's (2003) theories of the OS construction in Japanese discussed above has to do with the fact that the former proposes a representational account of a relation that underlies the LF-c-command-based BVA while the latter a derivational account. This has resulted in the different empirical consequences in regard to the double BVA, as discussed in the preceding section. Ueyama 1998 and Saito 2003 also differ from each other in terms of how they derive the so-called A-properties of the 'clause-internally scrambled' object. For Saito (2003) the relevant properties arise because it is possible for the relation needed for (c-command-based) BVA to be licensed before the D-feature on the 'scrambled NP' gets deleted. Hence, under Saito 2003, it should in principle be possible for both *NP1* and *NP2* in (133) to serve as A of BVA(A, B) that is based on (LF) c-command.

(133) a. NP1-DAT NP2-ACC NP-NOM V
b. NP1-ACC NP2-DAT NP-NOM V

In addressing this aspect of Saito 1992, Ueyama 1998 argues that it is not possible for both *NP1* and *NP2* in (133) to serve as A of BVA(A, B) that is based on LF c-command. Ueyama 1998: sections

2.4.2 and 3.2.3.3 in fact argues and observes that in (133), only *NP1* can serve as A of BVA(A, B) that is based on LF c-command. This restriction on the multiple OS construction is quite unexpected under Saito 1992, as pointed out in Ueyama 1998, and it remains to be so under Saito 2003.

For Ueyama (1998), on the other hand, the A-properties of the *DL* (the scrambled element) are related crucially to the DL's being the Subject of Predication. Ueyama 1998 suggests that the restriction under discussion can be accounted for if we assume that there can in principle be only one Subject in one Predication relation. Ueyama (1998) also discusses how 'clause types' affect the availability of the BVA in the *Deep OS* type, and suggests that the restrictions can also be accounted for by making reference to the properties of Predication as it relates to something akin to the distinction between the categorical and thetic judgments. The details of Ueyama's suggested account of these restrictions have yet to be made precise. But, the restrictions under discussion, whose surface manifestations seem to be affected by various non-grammatical factors, are perhaps impossible to account for under Saito 2003 in a principled manner; see Ueyama 1998: section 2.4.2, and Ueyama 2003: section 4.2. One would most likely have to stipulate that various non-grammatical factors affect what governs the deletion of the D-feature, not a particularly desirable move to make, to say the least.

Finally, it has been observed in Hayashishita 1997, and further discussed in Ueyama 1998, Hoji 2003, Kataoka to appear, that it is possible for an overt element to occur in the theta position of the DL, as in (134).

(134) NP1-*cm* NP-NOM *so-ko-cm* V

It has further been observed that such an overt element (which has been called 'resumption' in the works just cited) makes BVA(A, B) impossible in (135); i.e., 'resumption' is possible in the Deep OS type but not in the Surface OS type in the terms of Ueyama 1998.

(135) *[$_{NP1}$ … B …]-cm* A-NOM *so-ko-cm* V
*BVA(A, B)

The impossibility of BVA(A, B) in (135) is precisely what is predicted under Ueyama's theory of the OS construction in Japanese; but it is not clear how it can be expressed under Saito 2003; see Hoji and Ueyama 2003 for discussion of 'resumption' in Japanese.

7. Concluding remarks

This paper was concerned with *falsification* and *corroboration* as crucial notions in assessing various theories and hypotheses in generative grammar. In an attempt to illustrate these notions, I have made concrete reference to the so-called scrambling construction in Japanese and two competing hypotheses, i.e., Ueyama 1998 and Saito 2003. We have first observed that the crucial auxiliary hypotheses adopted in Saito 2003 (see (113)) have been falsified, on the basis of the disconfirmation of the negative predictions made under the hypotheses. Falsification of a theory is independent of any competing theories. We have then considered what empirical differences there would be between Ueyama 1998 and Saito 2003 once we abandoned (113) in Saito 2003 and adopted instead Ueyama's theory of anaphoric relations under Saito 2003. It has turned out that the two theories of the OS constructions in Japanese do have different empirical consequences. Crucially, Ueyama 1998 does but Saito 2003 does not make a negative prediction that 'double BVA' is impossible if both BVAs are based on LF c-command. I have maintained that to the extent that the negative prediction has been confirmed, Ueyama 1998 is to be regarded as being superior to Saito 2003, even with the 'innovations' introduced for Saito 2003.

In the preceding discussion, Saito 2003 is taken as claiming that the licensing of the formal relation underlying 'anaphor binding' and BVA can take place at any stage of derivation. On the basis of this, along with his hypothesis that the licensing in question can take place before the D-feature gets deleted at the TP-adjoined position, I concluded that 'double binding' is in principle possible under Saito 2003, unlike under Ueyama 2003, which predicts 'double binding' to be impossible. Curiously, however, there are no reconstruction examples in Saito 2003 having to do

with anaphor binding or BVA. The only exception to this is his (14), given above as (97). But he discusses it only in relation to the absence of Condition C/D effects. Given the fact that the reconstruction effects of 'binding' are among the immediate consequences of the proposed analysis in Saito 2003 and the accepted generalizations therein, the absence of the relevant examples and their discussion is rather striking. Be that as it may, his 'anywhere condition' remarks about 'anaphor binding' and his remarks about BVA being analogous to 'anaphor binding' well justifies the interpretation of his proposal given in the preceding discussion, as noted earlier; see Saito 2003: note 5, reproduced in (12) above.

A more complete presentation of the relevant materials would demand a great deal more emphasis and elaboration than in the preceding discussion on the significance of a *negative prediction* and its function, not only in relation to the *falsification* of a hypothesis in generative grammar but also in relation to identifying what counts as data for linguistic science. It would also have to address how the method of gathering sentence judgments introduced above is to be compared with other methods discussed in the literature; see note 42. Not offering discussion that such issues deserve, this paper should be considered a preliminary work toward the goals that have prompted it. The use of 'gradient judgments' in generative grammar has been a concern among (some) practitioners in the field over the years and especially in recent years (e.g., several papers in *Lingua* for the past few years, and a few papers in a recent issue of *Language*, and the references there), raising a question as to in what sense we can claim generative grammar to be an empirical science with progress in mind. This paper then is meant to be a step toward responding to the concerns just alluded to and toward providing an answer to the question just noted.

References

Chomsky, N. 1977. "On Wh-movement." In P. Culicover, T. Wasow, & A. Akmajian (eds.), *Formal Syntax*, pp. 71-132. New York: Academic Press.

Chomsky, N. 1993. "A minimalist program for linguistic theory." In K. Hale & S. J. Keyser (eds.), *The veiw from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*. Cambridge, MA: MIT Press.

Cowart, W. 1997. *Experimental Syntax: Applying Objective Methods to Sentence Judgments*. Thousand Oaks, CA: Sage Publications.

Dejima, M. 1999. *A Study on Remnant-Scrambled Sentences in Japanese and their LF Representations*. MA thesis. Tokyo: Nanzan University.

Fukaya, T. 2003. "Island (In)sensitivity in Japanese Sluicing and Stripping and Some Implications." *WCCFL* 22, pp. 179-192.

Hayashishita, J. -R. 1997. "On the Scope Ambiguity in the Scrambling Construction in Japanese." Ms. Los Angeles: University of Southern California.

Hoji, H. 1991. "Raising-to-Object, ECM and the Major Object in Japanese." A talk presented to Rochester Workshop on Japanese Linguistics, Universal Grammar, and Their Implications to Language Pedagogy and Human Cognition, 5/10/91, University of Rochester.

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

Hoji, H. (reproduced in this volume) 1997 . *Otagai*. Ms. Los Angeles: University of Southern California. [Presented at WCCFL 16, University of Washington, March 1997.]

Hoji, H. 1998. *Bound Variable Anaphora*. ms. Los Angeles: University of Southern California.

Hoji, H. 2003. "Falsifiability and Repeatability in Generative Grammar: A Case Study of Anaphora and Scope Dependency in Japanese." *Lingua* 113/4-6, pp. 377-446.

Hoji, H. and A. Ueyama 2003. "A Resumption in Japanese: Preliminary Study." A talk presented to WECOL Sep. 26-28, 2006, University of Arizona. (http://www.lit.kyushu-u.ac.jp/~ueyama/ggesdocu/GGEShandouts-final/WECOL-handout-3.pdf)).

Hoji, H., S. Kinsui, Y. Takubo, and A. Ueyama 1999. "Demonstratives, Bound Variables, and Reconstruction Effects." *Proceedings of the Nanzan GLOW*, The Second GLOW Meeting in Asia, September 19-22, 1999. pp. 141-158.

Hoji, H., S. Kinsui, Y. Takubo, and A. Ueyama 2003. "Demonstratives in Modern Japanese." In: A. Li, and A. Simpson (eds.), *Functional Structure(s), Form and Interpretation: Perspectives from East Asian Languages.* London: Curzon.

Horiguchi, W. 1978. "Sizisi-no hyoogensei (The expressiveness of demonstraives)." In *Nihongo/Nihonbunka (Japanese language/ Japanese culture)*. Osaka University of Foreign Studies. (Reproduced in Kinsui and Takubo 1992, 74-90. The page reference is to the 1992 reproduction.)
Kataoka, K. 2004. *Nihongo Hiteibun-no Koozoo: Kakimaze-bun to Hiteekoohyoogen (Syntactic Structure of Japanese Negative Sentences: Scrambling Construction and Negation-sensitive Elements).* Doctoral dissertation. Fukuoka, Japan: Kyushu University. (A slightly revised version will be published from Kurosio Publishers, Tokyo.)
Kataoka, K. to appear. 'Neg-sensitive' Elements, Neg-c-command and Scrambling in Japanese." *Japanese/Korean Linguistics 14*.
Kinsui, S. 1999. "Kodai nihongo-ni okeru bunmyaku syoooo-no zittai—*Ise Monogatari*-o tyuusin-ni (Discourse anaphora in Old Japanese: focusing on *The Tale of Ise*)." *Osaka Daigaku Bungakubu Kokugo Kokubungakkai*. Osaka: Osaka University. (Januray, 1999)
Kinsui, S., and Y. Takubo., 1992. *Sizisi (Demonstratives)*. Tokyo: Hituzi Syobo.
Kitagawa, Y. 2005. "Prosody, Syntax and Pragmatics of Wh-Questions in Japanese." *English Linguistics* 22.2, pp. 302-346.
Lasnik, H. & T. Stowell. 1991. "Weakest crossover." *Linguistic Inquiry* 22, pp. 687-720.
Mahajan, A. 1990. *The A/A-bar Distinction and Movement Theory*. Doctoral dissertation. MIT.
Pollard, C. and I. S. Sag. 1992. "Anaphors in English and the Scope of Binding Theory." *Linguistic Inquiry* 23, pp.261-303.
Popper, K. 1959. *The Logic of Scientific Discovery.* London and New York: Routledge. (This is a translation of *Logic der Forschung* 1934.)
Saito, M. 1983. "Comments on the Papers on Generative Syntax," in Y. Otsu, et al. eds., *Studies in Generative Grammar and Language Acquisition,* ICU, Tokyo.
Saito, M. 1989. "Scrambling as Semantically Vacuous A'-movement." In M. R. Baltin, and A. S. Kroch (eds.), *Alternative Conceptions of Phrase Structure*, pp.182-200. Chicago: The University of Chicago Press.
Saito, M. 1992. "Long Distance Scrambling in Japanese." *Journal of East Asian Linguistics* 1-1, pp. 69-118.
Saito, M. 2003. "A Derivational Approach to the Interpretation of Scrambling Chains." *Lingua* 113/4-6, pp.481-518.
Sorace, A. and F. Keller. 2005. "Gradience in linguistic data," *Lingua* 115, pp. 1497-1527.
Tada, H. 1990. *Scrambling(s)*. ms. MA: MIT.
Takano, Y. 2003. "Nominative objects in Japanese complex predicate constructions: a prolepsis analysis." *Natural Language and Linguistic Theory* 21, pp. 779-834.
Ueyama, A. 1998. *Two Types of Dependency*. Doctoral dissertation. Los Angeles: University of Southern California. Distributed by GSIL publications. Los Angeles: University of Southern California.
Ueyama, A. 2003. "Two Types of Scrambling Constructions in Japanese." In: A. Barss & T. Langendoen (eds.), *Anaphora: A Reference Guide*. Cambridge: Blackwell.
Ueyama, A. 2006. "Generative Grammar as an Empirical Science—Grammaticality and Acceptability—." *Kyushu University Papers in Linguistics*, vol. 25/26.

8. Appendix A: Avoiding *so-re* in an BVA-related syntactic experiment

There are reasons why *so-re* has not been used in the discussion in Ueyama 1998, 2003 or in Hoji 2003. For one thing, the possible thematic roles are more limited for the inanimate noun *so-re* than those for *so-ko* since *so-ko* can be used an 'institution' or in some sense 'as (an) individual(s) representing an institution'. This imposes an additional restriction as to what syntactic positions *so-re* can be used in.

Furthermore and more importantly, it is not entirely clear that *so-re*, *ko-re*, and *a-re* must be singular denoting, unlike *so-ko*. At least, it is not straightforward to demonstrate the singular-denoting property of *so-re*, as opposed to that of *so-ko*. Consider (136) and (137), for example.

(136) [Looking at some books]

A/so/ko-re-wa donna hito-ga yomu no?
that/{that/the}/this-thing-TOP what:kind person-NOM read Q

Lit. 'What kind of people read {that/ this} thing?'
'What kind of people read {those/them/these}?'

(137) [Looking at some buildings]
#Aso/so/ko-ko-de-wa donna hito-ga hataraiteiru no?
that/{that/the}/this-place-in-TOP what:kind person-NOM is:working Q

Lit. 'What kind of people are working in that/{that/the}/this-place'
'What kind of people are working at those places?'

It seems that *a/so/ko-re* can be used to refer to the group of books under discussion. It is not clear, however, {*aso/so/ko*}*-ko* can be used to refer to the group of companies under discussion. Thus, the 'singular-denoting nature' of *so-re* does not seem as clear as, or as clearly detectable as, that of *so-ko*.

Now, consider the split 'antecedence' example in (138).

(138) (Hoji 1998: (84), with the judgment reported there)
*?John-ga IBM PC_1-ni Mac SE_2-o
John-NOM IBM PC-to Mac SE-ACC

[so-re_{1+2}-ga tukaiyasuku naru] yoo-ni tikazuketa (koto)
it-NOM easy:to:use become so:tha t made:near

'John put the Mac SE_2 near the IBM PC_1 to make it easier to use $them_{1+2}$'

On the basis of an observation like this, one can argue, as in Hoji 1998, that *so-re* is 'singular-denoting', just like *so-ko*. It should be noted, however, that in Hoji 1998 (138) is marked with "*?" while the examples in (139) are marked with "*."

(139) (Hoji 1998: (83))
a. *$Toyota_1$-ga $Nissan_2$-ni [$_{CP}$ zeimusyo-ga soko$_{1+2}$-o
Toyota-NOM Nissan-DAT tax:office-NOM it-ACC

sirabeteiru to] tugeta
is:investigating that told

'$Toyota_1$ told $Nissan_2$ that the tax office was investigating $them_{1+2}$'

b. *oyota$_1$-wa Nissan$_2$-ni soko$_{1+2}$-no goodoo paatii-no kaizyoo-ni tuite kiita
'Toyota$_1$ asked Nissan$_2$ about the place for their$_{1+2}$ joint party.'

If *so-re* need not be singular-denoting while *so-ko* must, the examples in (138) and (139) should form a minimal pair. The fact that we fail to obtain a clear minimal pair makes one wonder about the distinction between the two. It might actually turn out that what is responsible for the difference in question between *so-re* and *so-ko* is non-grammatical and non-formal in nature. Even so, we may still be better off sticking to *so-ko* instead of *so-re* insofar as the felicitous use of the former is more restricted than that of the latter due to its 'singular-denoting property'.

9. Appendix B: Ueyama's (2006) diagram, slightly revised

The updated diagram by A. Ueyama (p. c. March 2006) is given in the following page.[#4]

[#4] The diagram is not included in this document itself (i.e., in its soft copy). If you only have access to a soft copy of this document and would like to obtain a document containing the updated diagram, please email me at hoji@usc.edu.