On the Status of Binding Out of Nominals

Daniel Plesniak *

- Contents -

1. Introduction
2. Hypotheses about structure and BVA
3. Procedure and predictions
4. Investigation and results
5. Conclusion

1. Introduction

The acceptability of Bound Variable Anaphora (BVA) readings has long been proposed as potential a probe for syntactic structure. These are the sorts of interpretations that are generally available for sentences like (1), wherein “his” is understood as each boy in turn, such that Boy 1 praised Boy 1’s mother, Boy 2 praised Boy 2’s mother, Boy 3 Boy 3’s mother, etc.

(1) Each boy praised his mother.

For convenience, we may term this type of interpretation BVA(X, Y), e.g., BVA(each boy, his), which also emphasizes that it is an instance of a Meaning Relation (MR) between the “binder” (every boy) and the bindee (“his”).[1] It contrasts with a non-BVA interpretation of ‘his’, wherein ‘his’

언어학 제 99 호 (2024. 8. 30: 77-116), 사단법인 한국언어학회
* Seoul National University. Linguistics. Post-doctoral researcher (dhplesniak@gmail.com)

DOI 10.17290/jlsk.2024..99.77

comes to refer to some specific, presumably aforementioned boy, e.g., “John”, such that the sentence is interpreted as meaning “each boy praised John’s mother”. While this latter interpretation is generally available regardless of the construction in question, the BVA reading is more restricted in its acceptability. For example, instances of what is sometimes called “Weak Crossover” (WCO) configurations such as (2), are frequently (though not always, see below) unacceptable with BVA interpretations.[2)]

(2) His mother praised each boy.

On the basis of contrasts like that between (1) and (2), Reinhart (1983) proposed that X must c-command Y for BVA(X, Y) to be available; in cases like (1), X is the subject and Y an element in the object, and thus X c-commands Y. In contrast, in WCO cases like (2), Y is an element in the subject and X is the object, and thus X does not c-command Y; the presence or absence of X c-commanding Y thus matches the typically reported acceptability judgements in each case.

Were Reinhart’s hypothesis accurate, it would provide a powerful way to “observe” syntactic structure, at least with regard to what nominal positions do/can c-command what other nominal positions, simply by introspecting on one’s judgements about the availability of BVA(X, Y), with X and Y in the positions of interest. A number of potential objections and alternatives to this hypothesis were considered by Reinhart, many of which she successfully dismissed. For example, a simple precedence-based hypothesis, e.g., BVA(X, Y) requires X to come “to the left” of Y, (e.g., what Higginbotham 1980 termed Chomsky 1976’s “leftness condition”) can be dismissed, because topicalization of an object does not necessarily render BVA impossible, e.g.,

---

1) These terms and abbreviations are taken from the works of Hoji, e.g., Hoji 2022b.

2) This term is used in an expanded sense from its original phenomenon considered Postal 1971/Wasow 1972, which was restricted to cases of wh-movement, where the moved wh-element was an intended “binder” of an element in the subject; this expanded sense generalizes this to any case wherein an element in the subject is the intended bindee of the object. These definitions can be generalized to configurations involving more positions than just subjects and objects, e.g., the two objects of a ditransitive, but in this paper, we will solely be concerned with the subject-object case.

BVA(each boy, his) is still generally possible in (3).

(3) His mother, each boy praised(, but his father, he didn't).

This result would be unexpected if BVA(X, Y) required X to precede Y, but it is not unexpected under the c-command-based account, as it is possible for 'his mother' to reconstruct to the object position and thus be c-commanded by 'each boy', enabling BVA(each boy, his).[3)]

One potential objection, however, Reinhart was not able to so directly refute, namely instances of "specifier-binding" (spec-binding), which we may more neutrally call "possessor binding", as were observed in Higginbotham 1980, wherein the binder is an element within the subject, which seems to "bind out" of it, as in (4).

(4) Each boy's mother praised his handwriting.

In such cases, the possessor, being contained in the subject, is not typically understood to c-command 'his', an element inside the object, yet BVA(each boy, his) is frequently judged acceptable. Reinhart attempted to subsume such cases under a construction-specific exception, but that was hardly a parsimonious solution. Others have made various attempts in the years since. Perhaps most notably, Kayne (1994) put forth a proposal that, in essence, (a) posited possessors to be adjuncts of the highest phrase of the nominal (for

3) If we "syntacticize" the notion of precedence to include something like "precedence under reconstruction", i.e., "X would precede Y if Y occurred in its cannonical position rather than its scrambled position", as is indeed adopted in works like Barker 2012, then we can maintain a precedence-based account for cases like these. However, (a) such an account fundamentally admits the role of syntactic structure in constraining BVA interpretations, unlike a pure precedence-based account, and (b) depending on ones understanding of the relationship between syntactic structure and linear ordering, there the notion "precedence under reconstruction" may be incoherent, because precedence relations are not established yet at the relevant point in the derivation. Several works try to explore the relevant issues, including the aforementioned Barker 2012 and works cited therein, and also Bruening 2014, which focuses on analogous effects with coreference and presents a phase-based "precede and command" approach.

him, DP), and (b) adopted a view of c-command wherein adjuncts of a phrase c-command everything that phrase c-commands.[4] In the case of subject adjuncts, that would objects and everything within them, rendering "spec-binding" a case of binding under c-command.

While this was an elegant solution to the particular problem of possessor-binding, it was already known that the problem was much larger than simply possessors. For example, May (1985)'s "inverse linking" sentences, e.g., (5) below, which is frequently judged acceptable with a BVA(every city, it) reading, present a case of "binding out" of nominals that cannot be attributed to the unique position of the possessor.

(5) Someone from every city hates it.

In such cases, the binder is inside of a PP modifier; not only are such phrases generally taken to be adjoined to the highest level of the nominal, but the binder is inside them, meaning that it is effectively "doubly" embedded in both the nominal and the PP, making it quite unclear how Kayne's solution would permit BVA acceptance in such cases. Proposals intent on providing a more general solution were indeed made, such as Hornstein 1995's "almost c-command", which allows the structurally highest nominal within a nominal to c-command out of it. As Barker (2012) thoroughly reviews, however, all these attempts seem to undergenerate BVA acceptance, which is in fact widespread in cases where X does not seem to c-command Y, including cases that have nothing to do with embedding of possessors or PP modifiers in nominals, or

4) (a) is achieved by collapsing the distinction between specifiers and adjuncts, and (b) by adopting (i) a theory of "segments", essentially a name for the non-head layers of a given phrasal projection that share the same label, e.g., "DP", (ii) an additional stipulation of the definition of domination based on segments, X dominates Y iff every segment of X dominates Y, (iii) a notion of exclusion (May 1985, Chomsky 1986) also based on segments, X excludes Y if no segment of X dominates Y, and then finally (iv) a definition of c-command which becomes: X dominates Y iff X and Y are categories and X excludes Y and every category that dominates X also dominates Y. Because, as an adjunct to DP, a possessor is both daughter and sister to segments of DP, it is not dominated by it, and thus, if we work through all the relevant calculations, it will c-command everything DP c-commands.

even embedding in nominals at all. He provides such cases as (6)-(8) (among many others), wherein I have underlined the binder and bindee, as well as marked [the phrase] that seems to embed the binder relative to the bindee.

(6) [The amount of wealth that each person had] was added to their overall score.
(7) [In everyone's own mind], they are the most important person in the world.
(8) We will [sell no wine] before its time.

In (6), the binder is inside of a nominal-modifying relative clause, in (7), it is a possessor, but the possessed nominal is not a subject but a PP adjunct, and in (8), the binder is an object with the bindee being itself in a PP adjunct (presumably not c-commanded by the object). We could of course continue to come up with structural hypotheses and/or understandings of c-command that would predict BVA's acceptability in these situations, but as Barker argues, the rationale for maintaining the hypothesized one-to-one link between c-command and the BVA acceptance becomes increasingly unclear the more we have to twist the theory in order to respond to potential counterexamples.

While Barker's proposal in the light of this evidence is to simply reject a link between c-command and BVA acceptance altogether, there are other approaches that allow us to retain c-command as a relevant factor and thus preserve the core of Reinhart's initial insights. In particular, the theory of BVA developed by Ueyama (1998) and expanded by Hoji (2022b) and Plesniak (2023b) holds that BVA(X, Y) can come about due to multiple distinct sources, one of which is indeed reliant on X c-commanding Y. This not being the only source, however, it is expected that BVA(X, Y) will sometimes be acceptable when X does not c-command Y, so long as the conditions for at least one of the other sources has been met. These sources will be laid out in greater depth in Section 2 of this paper, but for now, it is important to note that they include "quirky" sources, which, unlike the c-command-based source, are subject to a great deal of interspeaker judgement variation with regards to when exactly they are available. Thus, as Ueyama observes, WCO BVA like (2), while rejected in most cases by most people,

varies in acceptability based on the particular items used for binder and bindee, various semantic/pragmatic factors about the sentence and its context, and the person making the judgement, with (as Hoji emphasizes) the same individuals frequently providing different judgements at different times.

There have been several recent experimental works that provide evidence for multiple, clearly detectable factors at work behind the varying judgements on WCO BVA, including Hoji 2022c, Plesniak 2022a,b, and Plesniak 2023a. Crucially for our purposes, Plesniak 2022a,b additionally examine the case of possessor binding and argue that the results obtained suggest that possessor binding is dependent on exactly the same non-c-command-based sources as WCO BVA. That is, there is nothing particular about the structure of possessives or the nature of c-command that enables BVA(X, Y) in possessor binding configurations, but rather, such instances of BVA are achieved via non-c-command-based sources, which are empirically distinguishable in their acceptability patterns from the c-command-based source.

This paper seeks to confirm and expand on these results, not via the judgements of non-specialist experimental participants as in Plesniak 2022a,b, but by the more traditional method in syntactic theory of introspection by linguists on their own judgement intuitions. The two methods, one expects, should converge, if a given hypothesis is correct and both are performed without some sort of confounding factors. The non-specialist informant method has the advantages of (a) providing data from many different speakers, helping to rule out the possibility that observed results stem from some idiosyncrasies of the particular individuals providing judgements, and (b) reducing the possibility that the judgements received suffer from some sort of theoretically-driven bias, which might affect specialists who know more about the nature of the task they are performing. However, it is also restricted by the fact that experimental participants (a) can answer only a limited number of (normally pre-specified) questions and (b), being unfamiliar with the task of consulting their own linguistics judgements, frequently struggle to reach clear intuitions about more complicated/taxing cases. As such, this paper is able to address the topic in much more depth than was done in Plesniak 2022a,b, investigating not only “binding out” of possessors, but also of PP and relative clause modifiers of nominals, as well as providing a more complete dataset

with regards to the effects of the different sources, which the previous works were unable to do due to their experimental constraints.

The basic result found is that, across the three different individuals, linguist native speakers of English, Korean, and Japanese respectively, the multi-source account perfectly derives the patterns attested.[5] In particular, an initial diagnostic phase determines, for a given individual, with certain choices of lexical elements, which source(s) are available. These potential sources include: (I) a structure-based source, which strictly requires X to c-command Y for BVA(X, Y) to be possible, (II), a precedence-based source, which strictly requires X to precede Y for BVA(X, Y) to be possible, and (III), a "quirky" source, which, being primarily driven by semantic/pragmatic factors, has no relevant constraints on the form/structure of the sentence in question in order for BVA(X, Y) to be available. This diagnostic being performed, we find that, when (III) is an available source, "binding out" is generally possible, when (III) is not an available source but (II) is, "binding out" is possible specifically when the phrase in which X is embedded precedes the phrase in which Y is embedded (as it does in (4)-(8) above), and when (II) and (III) are unavailable but (I) is, "binding out" is never possible. These results add to a growing body of literature suggesting that BVA can indeed be used as a way to "see" syntactic structure, provided a controlled environment is achieved, allowing us to realize Reinhart's initial vision in an empirically robust manner.[6]

---

5) While there is no particular property of this particular trio of languages that makes them required to make the intended demonstration (any set of language might due), they do form a nice "three corners" set in the sense of Emonds (1984)'s "three-cornered comparative syntax", where two of the languages, Japanese and Korean, are typologically similar, and the third, English, is relatively dissimilar. While a greater diversity of languages would need to be checked in order to conclusively demonstrate universality, this three-corner approach provides a convenient template for smaller-scale demonstrations.

6) Space constraints do not allow for a detailed comparison between these results and those of the experimental studies mentioned, due to the fairly different methodologies employed (such as the diagnostic procedure for (I)-(III) and the differing manners of prediction checking between specialists and general experimental participants), which would both need to be articulated in some depth for each experiment in order to fully understand the significance of the results. However, the basic pattern of results described above, e.g., when only (III) is diagnosed available, judgements always adhere to a c-command-based

As a general note, it should be understood that intent of this paper is to argue that, despite variation in judgements that can arise due to differences in languages, speakers, individual lexical items, and other factors, there are nonetheless universally reproducible patterns that can be found. As will be explored further in the following section, the factors that lead to this variation preclude us from establishing a single "correct" judgement on the acceptability of a given sentence with a given interpretation. Speakers of the languages discussed in this paper thus may have different judgements from those reported, and indeed, the works cited above show such differences are common. However, the hypotheses to be discussed lead us to predict universal implicational **patterns** of judgement, which are consistent across all individuals. It is based on these patterns, I argue, that an empirically rigorous yet nevertheless formal theory of grammar can be constructed, in the spirit of the program proposed in Hoji 2022a.

2. Hypotheses about structure and BVA

As mentioned, we will adopt the basic hypotheses of Ueyama 1998 with regards to the potential sources for BVA, and the conditions under which these sources become available, with minor updates and modifications as given in Hoji 2022b and Plesniak 2023b. Ueyama's model contains three distinct sources that can give rise to BVA, which Hoji and Plesniak split into four, dividing her "Quirky" into "Binder Quirky" and "Bindee Quirky".[7] As

---

pattern, and in other cases, they sometimes depart from it, is indeed consistent across all the investigations in question and this one. See Hoji 2022c for a fuller discussion of the ways in which the designs and results of these two types of investigations can be understood in relation to one another.

7) Ueyama 1998 also has a source, Co-D-Indexation, which can lead to coreferential readings, in addition to the other sources mentioned, which can also lead to coreferential readings. Because we are dealing with BVA and not coreference, Co-D-Indexation is not relevant to this study, except to say that if one switches from considering, say, a meaning relationship between 'every boy' and 'his', i.e., BVA, to one between 'John' and 'his', i.e., coreference, the latter may potentially have a wider range of cases in which it is accepted.

summarized in Plesniak 2023b, the sources and their conditions are:

(9) Plesniak's sources of BVA and their conditions[8)]

a. Formal Dependency FD(X, Y)
X must (non-locally) c-command Y.

b. Indexical Dependency ID(X, Y)
X must precede Y within a given sentence or across sentences.

c. Binder Quirky BrQrk(X, Y)
X must not be embedded relative to Y and X must be construable as the topic of the sentence that contains them.

d. Bindee Quirky BeQrk(X, Y)
Y must not be the subject of a sentence and must also be construable as "non-individual-denoting"

As can be seen, only one of these sources, FD, is fundamentally structural in nature. As such, it is most informative for syntactic analysis to examine BVA judgements that are based on FD. However, without tools for distinguishing FD-based BVA from other types of BVA, such analysis cannot reliably be done. This paper thus considers the effects of all relevant sources of BVA and shows both how we can distinguish them from one another via independent tests and what effects each has on BVA in binding out configurations.

A few further points about the sources described above should be noted. First, the quirky sources contain references to how X and Y might or might not be construed. As Ueyama, Hoji, and Plesniak all note, individuals vary in their ability to construe different choices of X and Y in different ways. Further, these restrictions are primarily observational in nature, and may neither be complete nor totally accurate descriptions of the conditions under which binder/bindee quirky is possible.[9)] What is clear is that factors such as

8) It should be stressed again that these are independent sources of BVA, so there is no need to meet the conditions of one in order to achieve BVA by another, e.g., X can either c-command or precede Y (or both), in order for BVA to be available via FD or ID (or both) respectively, assuming all other relevant conditions are met. This is precisely the argument of Ueyama 1998.

9) Because of their complex and poorly understood nature, there is insufficient space here

these are involved in determining when these sources of BVA are available, but other factors seem to be relevant as well; see Hoji 2022b's discussion of the role of different types of context, for example.

Given that we do not know beforehand whether a given individual has the ability to use a specific choice of X or Y for BrQrk and/or BeQrk(X, Y), this will have to be diagnosed empirically. The same is, in fact, true for ID(X, Y) as well; as Plesniak (2023b) notes, it seems to have restrictions similar to BrQrk's topichood restriction, though this is complicated by the potential for cross-sentential ID. Indeed, even for FD(X, Y), not all choices of X and Y are possible, as is clear from the fact that not all choices of X and Y can have BVA readings at all. For example, as demonstrated in Plesniak 2022a, some, but not all individuals can accept BVA with Y as a demonstrative phrase, a type of binding perhaps first observed in Evans 1977:

(10) Every teacher praised that teacher's students
BVA(every teacher, that teacher)

Presumably, far fewer, if any, individuals would accept BVA if we switched 'that teacher' to 'that teacher over there'; this is analogous to changing demonstratives in Japanese from *so-* to *a-* or in Korean from *ku* to *je*, which has the same effect of (generally) blocking BVA, as utilized in Hoji 2015, 2022b and Plesniak 2022a, respectively.

(11) Every teacher praised that teacher over there's students
BVA(every teacher, that teacher over there)

'Every teacher' non-locally c-commands 'that teacher over there' yet the BVA in question is not acceptable (again, at least to most people), and

---

for explaining the details and nature of these "quirky sources". Those interested are referred to Ueyama 1998, Hoji 2022b, and Plesniak 2023b. The key fact to understand for our purposes is simply that they are primarily semantic and/or pragmatic in nature, and as such, are frequently able to bypass syntactic constraints. We can thus understand them essentially as "noise" that we must control in order for the "signal" of other sources to become clear.

further, such results seem to obtain for any sentence we consider where Y is 'that N over there'. As such, it must be the case that 'that N over there' is not an appropriate Y for FD(X, Y). For some, who do not accept BVA in sentences like (10), it may indeed be that 'that teacher' itself is not an appropriate Y for FD(X, Y) (nor any of the other sources of BVA, assuming that there is nothing independently inappropriate about 'every teacher' as X). As such, for each of the possible sources, it is an empirical matter to determine whether a given choice of X and Y (along with any other relevant factors) will be compatible with that source or not.

Considering our particular area of inquiry, namely cases where X is "embedded" in a larger phrase, either as a possessor, part of a PP, or part of a relative clause, we can also note that the non-embeddedness condition for BrQrk is not met, and as such, BrQrk will mostly not be relevant for the purposes of this study. Further, Y will never be in the subject position in any sentence of interest, so the non-subjecthood condition of BeQrk will always be satisfied. As such, we can simplify the sources in (9) for our purposes:

(12) Conditions on sources of BVA(X, Y)
(In addition to requiring X and Y to be valid choices of X and Y for the particular source for the individual in question)
a. Formal Dependency FD(X, Y)
X must (non-locally) c-command Y.
b. Indexical Dependency ID(X, Y)
X must precede Y within a given sentence or across sentences.
c. Bindee Quirky BeQrk(X, Y)
No overt conditions.

In addition to these conditions on sources, the structural hypotheses to be adopted here are both simple and standard:

(13) X c-commands Y iff either
a. There exists some Z such that Z={X, Y}. (Z is formed by Merge of X and Y, i.e., Y is X's sister.)
b. There exists some Z such that Z={W, Y} and Z is c-commanded by X. (Y

is contained in some element Z that X c-commands)

(14) Subjects of a given clause (which for our purposes are marked with –ga in Japanese, -i/-ka in Korean and are the first nominal preceding the verb in English) are merged with a constituent containing both the verb and the object(s) of that clause (the latter being marked with –o/-ni in Japanese and -lul/-eke in Korean; these are harder to identify in English, but in essence, they are the unembedded non-subject nominals.[10])

From these two hypotheses, it follows that subjects c-command objects in a given clause, and anything inside of those objects, but not vice versa, nor does anything embedded in a subject c-command the objects or anything therein. As perhaps needs no clarification, it is also the case by these hypotheses that elements do not c-command other elements in different sentences, and indeed, do not c-command other elements in different clauses. That is, unless said other clause is an argument of the main verb first, in which case it may occupy a position c-commanded by the subject, analogous to the object. Such cases, at least to the extent we will be dealing with them here, are already covered under the above hypotheses, and any other instances of multiple clauses occurring per sentence can be assumed to be such that no nominal element in one c-commands a nominal element in the other.

The only additional nuance we will need regards reconstruction. In fact, this is already implicit in (14), but to make it clear: if an object is displaced from

10) This is not to claim that such is always the correct way to identify subjects and objects in these languages, simply that it will work for the cases that we will be dealing with. For example, for a fuller discussion of how to systematically identify subjects and objects in Japanese via BVA, in line with the issue of differing sources laid out here, see Hoji 2022b. In this paper, we are essentially dealing with "uncontroversial" cases, where there is little disagreement as to what constitutes subject and object. As a reviewer points out, this is not at all a correct way to define what a subject fundamentally is, which is presumably structural in nature (e.g., the typically accepted "spec-TP" position in generative syntax literature); rather, what is given here are empirical diagnostic criteria, so that we can assess which elements in a string of words are the subjects for the purposes of our predictions. In these cases, which elements constitute the subjects are not particularly controversial, but in more complex cases, they might be, so I include these empirical criteria here in the spirit of "starting out how we mean to go on" for future research.

its usual position to the right of the subject to the front of the sentence, as in (3) (repeated below as (15)), it is still understood as c-commanded by the subject.[11)]

(15) His mother, each boy praised(, but his father, he didn't).

Thus, in English, we have two basic sentence patterns, and two in Korean and Japanese as well:

(16) Sentence patterns in English
  a. Nom1 V Nom2.
  b. Nom1 Nom2 V.
(17) Sentence patterns in Korean/Japanese
  (S/OM=subject/object marker, OM=object marker)
  a. Nom1-SM Nom2-OM V.
  b. Nom1-OM Nom2-SM V.

In each case, in the first sentence pattern, the "canonical" word order, the first nominal (Nom1) asymmetrically c-commands the second nominal (Nom2), and in the second sentence pattern, the "scrambled" word order, the first nominal is asymmetrically c-commanded by the second nominal. Thus, in the first pattern, any element embedded in Nom1 will not c-command Nom2 anything embedded therein, but Nom2 and any element therein will be c-commanded by Nom1 itself. In the second pattern, these relations are precisely reversed, with Nom2 (but not any elements within it) c-commanding Nom1 and elements therein.

11) Or at least, there is such a parse available, regardless of whether it is the only parse; see Ueyama 1998 for much detailed discussion of other potential parses. We need not assume that all languages have the same available parses, only that the languages considered here at least all have a parse wherein the displaced object is still c-commanded by the subject (in whatever the relevant sense of c-commanded, depending on ones theory of movement/displacement and their relationship with BVA, may be.)

3. Procedure and predictions

Suppose that, for a given individual, we have three pairs of X and Y that can participate in BVA(X, Y), which we may label X1-Y1, X2-Y2, and X3-Y3, which differ in which sources of BVA they can participate in, in ways to be described below. Further, suppose we deal with a particular subfamily of the sentences described by the schemata in (16)/(17), wherein (a) the nominal corresponding to the subject is of the form [...X...], that is, for our purposes, where X is embedded within the subject as a possessor, within a modifying PP, or within a modifying RC, and (b) wherein likewise, the nominal corresponding to the object is of the form [...Y...], where Y is embedded in the nominal as its possessor. In other words:

(18) "Binding Out" sentence patterns in English
  a. [...X...] V [...Y...].
  b. [...Y...] [...X...] V.

(19) "Binding Out" sentence patterns in Korean/Japanese
  a. [...X...]-SM [...Y...]-OM V.
  b. [...Y...]-OM [...X...]-SM V.

Let X1-Y1 be a pair of X and Y such that BeQrk(X1, Y1)-based BVA is possible. In that case, BVA may be possible in sentences corresponding to any of the above sentence patterns; BeQrk has no (relevant) structural constraints in such sentences, and is thus in principle always potentially available so long as X1 and Y1 are used. Though we cannot guarantee BVA acceptance in every sentence instantiating such schemata, as there could always be some independent issue which blocks it, we expect that in at least some such sentences, we should find BVA(X1, Y1) available for both the "canonical" ((18a)/(19a)) and "scrambled" ((18b)/(19b)) versions of the sentences. Note that this is true regardless of whether ID(X1, Y1) or FD(X1, Y1) is possible; BeQrk(X1, Y1) will, in principle, permit BVA(X1, Y1) in all cases, so any restrictions from the ability of X1 and Y1 to participate in FD and/or ID will not be robustly observable.

As has been discussed above, the conditions on BeQrk are poorly understood, and further, seem highly related to potentially unobservable aspects of the speaker's cognitive state/representation of the Y element in question. We thus do not know beforehand whether a given X-Y pair might match the properties of the hypothetical X1-Y1 pair, i.e., allow BVA(X, Y) based on BeQrk(X, Y). As will be discussed shortly when we come to the diagnostic tests to be employed, however, we can use the pattern of an individual's BVA(X, Y) judgements for a given X-Y pair in constructions like weak-crossover in order to determine whether BeQrk(X, Y) is possible. Thus, whether a given X-Y pair constitutes an X1-Y1 pair (for a given individual at a given time) is ascertainable via empirical investigation, allowing predictions to be made. The same will be true for the X2-Y2 and X3-Y3 pairs discussed below.

To define these two further hypothetical X-Y pairs, suppose that X2 and Y2 are such that BeQrk(X2, Y2)-based BVA is not possible, but ID(X2, Y2)-based BVA is possible. Then, BVA will be possible only when X2 precedes Y2, as it does in the canonical but not the scrambled cases. Thus, by a similar logic to that presented above, for the canonical cases, we expect to find corresponding sentences for which BVA(X2, Y2) is possible, but for the scrambling sentences, we expect to find that BVA(X2, Y2) should be robustly impossible for all such sentences.[12] Note that, as before, the possibility or impossibility of FD(X2, Y2) does not affect this prediction, as, in these environments, ID is more permissive than FD, so potential FD-based effects would not be robustly visible.

Finally, let X3-Y3 be such that neither BeQrk(X3, Y3) or ID(X3, Y3)-based BVA are possible, but FD(X3, Y3)-based BVA(X3, Y3) is possible. By the hypotheses laid out in the previous section, in neither the canonical nor the scrambled cases does X c-command Y; thus we expect that in all sentences corresponding to either type, BVA(X3, Y3) ought to be robustly impossible. As such, we derive the following predictions about BVA acceptability (which holds regardless of whether X is embedded as a possessor, part of a

12) If such an X2 and Y2 are exchanged in position in schemata, then we expect BVA possibilities to correspondingly reverse.

modifying PP, or part of a modifying RC):

<Table 1> Possibility of BVA(X, Y) under different conditions[13)]

X-Y Pair	Properties			Predictions for Binding Out	
	FD(X, Y)	ID(X, Y)	BeQrk(X, Y)	Canonical	Scrambled
X1-Y1	Yes/No	Yes/No	Yes	BVA Possible	BVA Possible
X2-Y2	Yes/No	Yes	No	BVA Possible	BVA Impossible
X3-Y3	Yes	No	No	BVA Impossible	BVA Impossible

The natural question is how we can tell which (if any) of the three sources a given X-Y pair can participate in to achieve BVA(X, Y). Once we know this, then the table becomes predictive; without it, it simply allows for post-hoc diagnosis. Following the spirit of the methodology provided in Hoji 2022b, however, we can utilize other sentence types in order to pre-diagnose the properties of each X-Y pair. That is, if, e.g., a given X-Y pair is such that BVA(X, Y) can be based on BeQrk(X, Y), then we ought to see signs of that in multiple environments, not just the ones we are primarily investigating; in particular, BeQrk(X, Y) being possible would lead to BVA(X, Y) being acceptable in a number of environments wherein the requirements for FD(X, Y) and ID(X, Y) are not met, such as cases where X neither c-commands nor precedes Y.[14)] We have already seen one such instance, weak crossover, which

13) As a reviewer helpfully points out, there is a subset-superset relationship here, where the binding out domains where BVA is potentially available based on FD (in neither canonical or scrambled cases) are a subset of those where it is available based on ID (only in canonical cases), which is in turn a susbet of those where it is available based on BeQrk (in both canonical and scrambled cases). Thus, even if we accept the predictions as true, and if, e.g., a given X-Y pair allowed BVA(X, Y) in a canonical-ordered binding out construction, we could not immediately determine whether this was due to BeQrk or ID. This is why it is necessary to (a) for sources available in a superset of domains, look at cases where their subsets are not available, and (b) for sources available in a subset of domains, look at X-Y pairs that are independently determine to be unable to participate in the superset sources. This is the motivation for the diagnostic and testing procedure presented below.

14) One slight difference in this work as compared to Hoji 2023a/b is that, in those works,

is yet another instantiation of our general schemata in (16)/(17), this time with X as the object and Y embedded in the subject:

(20) Weak crossover sentence pattern in English
[...Y...] V [X].
(21) Weak crossover sentence pattern in Korean/Japanese
[...Y...]-SM [X]-OM V.

If an individual accepts BVA(X, Y) as an interpretation for such a sentence, this interpretation must have come about via a quirky source, as the conditions on FD and ID are not met. One caveat, however, is that we cannot quite conclude that BeQrk(X, Y) in particular is possible with this choice of X and Y from this evidence alone; recall that, when X is not embedded, BrQrk is also a candidate for a quirky source, so we must rely on the full list in (9) rather than the simplified list in (12). BrQrk will not be relevant for our sentences of interest, but BeQrk will be, so we want to determine specifically whether BeQrk is possible. As such, to ensure we have "the right kind of quirky", we can additionally consider a near-equivalent to the weak crossover sentences, where X is embedded in the object:

(22) Embedded weak crossover sentence pattern in English
[...Y...] V [...X...].
(23) Embedded weak crossover sentence pattern in Korean/Japanese
[...Y...]-SM [...X...]-OM V.

To restate this with a more concrete example, if an individual accepts

---

what are compared are (the analogues of) the sentence types of interest under different types of MR interpretations, such as coreference and distributive readings. Here, the MR interpretation is kept constant (BVA), but different sentence types are used (in a way not dissimilar from Hoji 2003, which explored correlations between BVA judgements on weak crossover, locality-violating, and other constructions). As far as I am aware, the logic behind the diagnostic procedure should be equally valid either way, if not more so for the "same MR case", as different MRs have different types of possible sources (see Plesniak 2023b), which introduces additional considerations when trying to diagnose from one to the other.

BVA(each boy, his) in (24) below (repeated from (2)), then we know that it can be neither due to FD(X, Y) ('each boy' doesn't c-command 'his') nor due to ID(X, Y) ('each boy' doesn't precede 'his'), so it must be due to BrQrk(each boy, his) or BeQrk(each boy, his), implying that at least one such source is possible for instances of BVA(each boy, his). If, additionally, the individual also accepts BVA(each boy, his) in (25), where BrQrk(each boy, his) is not possible due to the embedding of 'each boy', then it must be the case that the BVA in question is due to BeQrk(each boy, his), meaning that 'each boy'-'his' meets the criteria for an X1-Y1 pair in Table 1 for that individual.

(24) His mother praised each boy.
(25) His mother praised each boy's father.

If BVA is not acceptable with sentences of the type exemplified in (25), on the other hand, we have evidence that BeQrk(each boy, his) is not possible for the individual in question. In that case, 'each boy'-'his' is a candidate for being either an X2-Y2 or X3-Y3 pair, as the impossibility of BeQrk(X, Y) is one of the requirements for an X-Y pair being diagnosed as such. Evidence for the impossibility of BeQrk(X, Y) for a given X-Y pair is strengthened if BVA is also not accepted with sentences of the type exemplified in (25), but, due to the BrQrk-related issues discussed above, accepting BVA in such sentences does not necessarily indicate that BeQrk(X, Y) is available; thus, an X-Y pair can in principal be a candidate for X2-Y2 or X3-Y3 status even if BVA(X, Y) is available in (24). (Though, as we will be discussed later in this section, acceptance of BVA in (24) is problematic for diagnosis of X3-Y3 in particular for an independent reason.)

In the case that we have ruled out an X-Y pair being an X1-Y1 pair, we can check the criteria for being X2-Y2 or X3-Y3 by analogous methods to those used above. For X2-Y2, the question is whether ID(X, Y) is possible. Since ID can operate across clauses, we can check for its possibility for a given X-Y pair by considering two sequential clauses, where one clause contains X and the other Y. As stated in the previous section, we are in particular considering cases where there is no direct "argument" relationship

between the two clauses, e.g., when one clause is an “adjunct clause”, such as an adverbial “when”-style clause. We can consider cases when X precedes Y, and when Y precedes X, in order to determine the possibility of ID, e.g., the various permutations of (26) into (27)-(33) below:

(26) When each man arrives, I will praise his tie.
(27) I will praise his tie when each man arrives.
(28) His tie, I will praise when each man arrives.
(29) His tie, when each man arrives, I will praise.
(30) When he arrives, I will praise each man’s tie.
(31) I will praise each man’s tie when he arrives.
(32) Each man’s tie, I will praise when he arrives.
(33) Each man’s tie, when he arrives, I will praise.

Given our hypotheses, in none of these cases does X c-command Y, meaning FD(each man, his) is not a possible source of BVA(each man, his). Further, presuming we have already run the diagnostic for BeQrk given above and gotten a negative result, we can assume that BVA(each man, his) cannot be based on BeQrk(each man, his) either. As such, if is possible here, it must be based on ID(each man, his), which should only be possible in sentences where X precedes Y, e.g., (26), (31), (32), and (33), in contrast with those where it does not, e.g., (27), (28), (29), and (30). Note that some of these sentences may be difficult to accept for independent reasons, such as (29) and (33); these are very unnatural and “difficult” word orders in English, if they are possible at all. The equivalent orders, however, would be the default “scambled” case in Korean/Japanese. One should presumably focus on those word orders that are otherwise unproblematic, forming e.g., a minimal pair between cases like (26) and (27). In that hypothetical case, if the (26) cases are generally acceptable with a BVA reading, and the (27) cases are never acceptable with one, then this diagnoses the possibility of ID-BVA(X, Y), as BVA is potentially acceptable when X precedes Y but not when it does not. Further, if both cases are never acceptable with a BVA reading, then this diagnoses the impossibility of ID(X, Y), as BVA based purely on precedence does not seem to be acceptable for this X-Y pair. Based on these criteria, if

the possibility of ID(X, Y) has been established, the X-Y pair has now been diagnosed as corresponding to X2-Y2 according to Table 1, whereas if the impossibility of ID(X, Y) has been established, the pair is now a candidate for X3-Y3.

If some other result obtains, e.g., both the precedence and precedence-less cases are acceptable with BVA, something has gone wrong; recall that this is a diagnostic procedure, not the prediction-checking procedure, so we are well within our rights to continue to check pairs of X's and Y's until we find one with behavior clear enough that we are confident of its possible BVA sources in order to classify it according to Table 1. We may also find that, on closer examination, a non-conclusive result in the ID diagnostics is a result of not having checked BeQrk diagnostics closely enough, so that the X-Y pair we thought was a candidate for X2-Y2 is in fact X1-Y1.[15] So long as these considerations and revisions are made before the testing of the main predictions regarding "binding out" constructions for a given X-Y pair, the results of those tests will not be circular.

Finally, we can test for the X-Y pair's potential status as an X3-Y3 pair, assuming it has been diagnosed negative for ID(X, Y) and BeQrk(X, Y). In some sense, by process of elimination, if the individual in question accepts a simple "subject into object" SVO/SOV BVA(X, Y), as below in (34)/(35), then FD(X, Y) is the only possible source remaining, and thus FD(X, Y) is possible.

(34) SVO BVA sentence pattern in English
[X] V [...Y...].

15) Note that "not having checked BeQrk diagnostics closely enough" may not simply be a matter of BeQrk being marginally available for a few unusual sentences that were not considered; individuals, including experienced judgement checkers like this author, sometimes initially get clear results to the effect that BeQrk(X, Y) is not available for a given X-Y pair, only to find shortly thereafter that judgements have shifted such that the diagnostic cases judged impossible are now possible. It is necessary, therefore, to check thoroughly enough that the experimenter is certain that judgements are in a "steady state" with regards to a given X-Y pair. For some, this does not seem to require much checking, whereas others may need to run through the entire diagnostic procedure multiple times to feel confident in that status of a given pair.

(35) SOV BVA sentence pattern in Korean/Japanese
[X]-SM [...Y...]-OM V.

Before we can be confident that the conclusion that the X-Y pair in question constitute an X3-Y3 pair, we must take steps to rule out a couple alternative possibilities. The first is that, because X is not embedded in these sentences, BrQrk(X, Y) becomes a potential source, unless we have independently ruled it out. If we have previously ensured that regular weak crossover BVA (i.e., as in (20)/(21) above) is impossible for this individual with this particular choice of X and Y, then we can rule out the possibility of BrQrk(X, Y) here; thus, even though such sentences do not clearly pinpoint the availability BeQrk(X, Y) the way that their X-embedded counterparts (i.e., as in (22)/(23)) do, such sentences still play a crucial role in the diagnostic procedure, at least if the X-Y pair is a candidate for X3-Y3 status. (Otherwise, for X1-Y1 or X2-Y2 status, consideration of such sentences is indeed unnecessary).

The second reason for concern about over-interpreting this "process of elimination" involves the limitations of our previous diagnostic tests. At this point, for example, to be a candidate for X3-Y3 status, the individual in question will have to have rejected a number of sentence types (at least four, in fact), with the BVA(X, Y) reading; in each of these cases BeQrk(X, Y) was potentially possible, and so the fact that none of these were accepted is strong evidence that BeQrk(X, Y) is not possible for this X-Y pair. (This is yet another good reason to utilize both types of "weak crossover" sentences.) On the other hand, only one sentence type had to be rejected for ID(X, Y) to be diagnosed impossible. What if that diagnostic was faulty, and ID the source of acceptance in (34)/(35)? It is thus ideal to check for the possibility of FD in a sentence type where X does not precede Y, such as the scrambled version of (34)/(35):

(36) OSV BVA sentence pattern in English
[...Y...] [X] V.
(37) OSV BVA sentence pattern in Korean/Japanese
[...Y...]-OM [X]-SM V.

If BVA(X, Y) is possible in such sentences, then we have a much clearer demonstration of the possibility of FD(X, Y), as there is no possible "misdiagnosed ID(X, Y)" explanation, as X does not precede Y in such sentences. In that case, X-Y can be considered to instantiate an X3-Y3 pair.[16] If BVA(X, Y) is not acceptable here, but it is in the non-scrambled equivalents, then it suggests that perhaps something has gone wrong in the diagnostic procedure. If even the non-scrambled equivalents are not acceptable with BVA(X, Y), then perhaps BVA(X, Y) is simply not possible for that X-Y pair for the individual in question; in either of these two latter cases, we must either re-perform earlier tests to gain clarity on the situation or simply set aside this X-Y pair for the purposes of testing our predictions in this case.

Substituting in the diagnostic procedures outlined above in (20) for the properties they diagnose, we derive the following:

---

16) One may still fairly ask: what if the initial test for ID(X, Y) was faulty, and what we have here is a case where both ID(X, Y) and FD(X, Y) are possible? The best answer that can be given is that this possibility should encourage us to be very thorough in performing the initial ID diagnostic, checking a variety of sentences like presented above in (26)-(33). One may say that such thorough checking negates the need to checking the scrambling cases for FD, as the "elimination" method is now licensed. This may be so, but it seems to me generally ideal to diagnose a given BVA source by as specific a test as possible; acceptance of "canonical" SVO/SOV is a fairly common, and thus does not strongly implicate FD. Acceptance of the reconstruction cases is far from given, and many individuals reject them in a number of circumstances. Thus, an individual accepting them is a highly specific occurrence, giving us greater confidence in the possibility of FD(X, Y), and thus increasing our confidence in the correctness of the results of our diagnostic tests. After all, perhaps we are simply wrong in some way about the potential sources of BVA, e.g., maybe there is another source which we have overlooked, which happens to enable BVA in the "canonical" sentences. If BVA is accepted specifically in the reconstruction cases, that makes such a possibility look less likely for the particular X and Y in question, strongly implicating specifically FD(X, Y). Of course, this is not certain, but we can never be certain; our goal is to maximize the testability of our hypotheses by making the clearest diagnosis of the potential sources of BVA(X, Y) we can, which helps us to be as sure as possible as to the way in which a given judgements has bearing on the predictions in question. The use of reconstruction sentences clearly helps to achieve this, by increasing our confidence as to the possibility of FD(X, Y), whether or not they are strictly necessary (or even sufficient) for this determination.

<Table 2> Predicted possibility of "binding out" BVA(X, Y) under different diagnosed conditions

X-Y Pair	Diagnostics						Predictions for Binding Out	
	(20)/ (21)	(22)/ (23)	Sentences like (26), (31)-(33)	Sentences like (27)-(30)	(34)/ (35)	(36)/ (37)	Canon- ical	Scram -bled
X1-Y1	(Yes)	Yes	-	-	-	-	Yes	Yes
X2-Y2	(No)	No	Yes	No	-	-	Yes	No
X3-Y3	No	No	No	No	(Yes)	Yes	No	No

In the above table, sentences types are marked as to whether they ought to be at least sometimes acceptable with a BVA interpretation, "Yes", or never acceptable with one "No", either in the diagnostic phase, where the intention is to determine the status of a given X-Y pair for a given individual, or in the prediction phase, where it is checked whether the behavior on "binding out" sentence types is as expected by our hypotheses. In some cases, a diagnostic sentence is either irrelevant, "-", or is relevant but not strictly necessary, "(Yes)" or "(No)".[17] The predictions of the table in (20), and thus

17) "Yes" and "No" here are to be understood as shorthands for, respectively, "possible to at least some extent" and "not at all possible". Thus, they do not represent extreme values on the scale of acceptability, e.g., "clearly possible", "clearly impossible", but, in fact, cover the entire range of possible "degrees" of acceptability. Of course, sometimes, a person's judgements are unclear to the extent that they cannot assess whether BVA is or is not possible, in which case, the relevant predictions cannot be checked, at least until (a) the person in question's judgements become clearer, or (b) a new sentence instantiating the relevant schema is found such that the person in question has clear enough judgements on it.

Further, it is important to note that predicting "Yes" to a particular sentence type under a particular condition does not mean that BVA will be accepted by the individual in question in all sentences of that type. Indeed, in the experimental works mentioned in a previous section, there were participants who diagnosed positive for a particular source of BVA(X, Y) (e.g., BeQrk(X, Y)) but at least sometimes had judgements consistent with c-command or precedence restrictions, that is, rejected cases where it was in principle possible that they might accept. "Yes" is thus a relatively weak prediction, namely that it

the hypotheses of the previous section, are now directly testable.[18)]

4. Investigation and results

In order to test the predictions laid out in Table 2, three linguists with familiarity with the relevant hypotheses and predictions, including myself, found candidates for X1-Y1, X2-Y2, and X3-Y3 pairs in our own languages, and then used those pairs to test the relevant predictions about "binding out" sentence types, involving all three of X as (a) possessor, (b) part of a modifying PP, and (c) part of a modifying RC, in either canonical or scrambled configurations as discussed in the previous sections. These linguists were Hajime Hoji, a native speaker of Japanese, Yoona Yee, a native speaker

---

might be possible that the individual accepts BVA in a given sentence of the type in question to some extent; if we find an instance they do accept, that is useful corroboratory evidence for our hypotheses, but the failure to find such an instance is merely a null result. Predicting "No" on the other hand, is very strong; it says that the individual will not accept BVA at all in any relevant sentence. Finding BVA acceptable when "No" was predicted is direct disconfirmatory evidence against the hypotheses in question. (While failing to find such a case is consistent with the hypotheses, at least weakly corroborating them.) The two types of prediction are thus most useful together, allowing for both disconfirmation and confirmation of the overall hypothesis set. This is discussed at some length under the heading of "predicted schematic asymmetries" in Hoji 2015.

18) Technically, we fall slightly short of making a complete prediction because we have not specified exactly how many instances of each sentence type, or necessary range of potentially meaningful "subtypes", will need to be examined before determining that the individual can be counted as being "Yes" or "No" for a given category. Since the data in this paper comes from researchers who can more or less "check things for as long as it takes to feel sure", glossing over this distinction is not particularly likely to prove problematic. On the other hand, for a future deployment of this experiment to non-specialist participants, such issues would be critical, as the number of sentences examinable will not be indefinitely large, nor will the average participant necessarily be able to accurately gauge how "confident" they ought to be in their judgements. Hoji (2015 and elsewhere) has discussion on how to set such thresholds, including particular consideration of the asymmetry between "Yes" type predictions and "No" type ones (which he calls "ok" and "*").

of Korean, and myself, a native speaker of English, who I will abbreviate as [HH], [YY], and [DP] respectively.

Below, I present summary tables corresponding to Table 2, with choices of X-Y pairs filled in for each individual, and actual rather than predicted judgements reported, along with an example sentence corresponding to each of the sentence types judged. These samples feature the (underlined) X3-Y3 pair for that individual; sample sentences for the other pairs can usually be obtained by direct substitution. As can be seen from the summary tables, results are precisely in line with predictions. Taking each individual in turn and providing brief remarks regarding noteworthy aspects of their pattern of judgement, the results are as follows:

<Table 3> HH's BVA(X, Y) judgements

X-Y Pair	Diagnostics						Binding Out	
	(21)	(23)	Sent. like (26), (31)-(33)	Sent. like (27)-(30)	(35)	(37)	Canon.	Scram.
ano rikisi-igai - *soitu* 'others than that sumo wrestler' - 'that guy'	Yes	Yes	-	-	-	-	Yes	Yes
subete no mon -goruzin rikisi - *sono mongoruzin rikisi* 'every Mongolia-n sumo wrestler' - 'that Mongolia-n sumo wrestler'	Yes	No	Yes	No	-	-	Yes	No
ano rikisi-igai - *kare* 'others than that sumo wrestler' - 'he'	No	No	No	No	Yes	Yes	No	No

(38) HH (21) example:

kare-no	robotto-ga	ano	rikisi-igai-o
he-GEN	robot-NOM	that	sumo.wrestler-others.than-ACC

suisensita.
recommended
'Their robot recommended ones other than that sumo wrestler.'

(39) HH (23) example:
kare-no robotto-ga ano rikisi-igai-no
he-GEN robot-NOM that sumo.wrestler-others.than-GEN
konpyuutaa-o suisensita.
computer-ACC recommended
'Their robot recommended the computer of ones other than that sumo wrestler.'

(40) HH (26)-type example:
mosi ano rikisi-igai-ga kita-ra, kare-no
if that sumo.wrestler-others.than-NOM come-if he-GEN
denwa.bangoo-o kii.te.oi.te kudasai.
phone.number-ACC to.hear please
'If ones other than that sumo wrestler come, please get their phone number.'

(41) HH (29)-type example:
kare-no denwa.bangoo-o mosi ano
he-GEN phone.number-ACC if that
rikisi-igai-ga kita-ra, kii.te.oi.te kudasai.
sumo.wrestler-others.than-NOM come-if to.hear please
'Their phone number, if ones other than that sumo wrestler come, please get.'

(42) HH (35) example:
ano rikisi-igai-ga kare-no robotto-o
that sumo.wrestler-others.than-NOM he-GEN robot-ACC
suisensita.
recommended
'Ones other than that sumo wrestler recommended their robot.'

(43) HH (37) example:
kare-no robotto-o ano rikisi-igai-ga
he-GEN robot-ACC that sumo.wrestler-others.than-NOM
suisensita.
recommended

'Their robot, ones other than that sumo wrestler recommended.'

(44) HH binding out (possessor, canonical) example:

ano rikisi-igai-no konpyuutaa-ga kare-no
that sumo.wrestler-others.than-GEN computer-NOM he-GEN
robotto-o suisensita.
robot-ACC recommended
'The computers of ones other than that sumo wrestler recommended their robot.'

(45) HH binding out (possessor, scrambled) example:

kare-no robotto-o ano rikisi-igai-no
he-GEN robot-ACC that sumo.wrestler-others.than-GEN
konpyuutaa-ga suisensita.
computer-NOM recommended
'Their robot, the computers of ones other than that sumo wrestler recommended.'

(46) HH binding out (PP, canonical) example:

ano rikisi-igai kara-no tegami-ga
that sumo.wrestler-others.than from-GEN letters-NOM
kare-no robotto-o suisensita.
he-GEN robot-ACC recommended
'Letters from ones other than that sumo wrestler recommended their robot.'

(47) HH binding out (PP, scrambled) example:

kare-no robotto-o ano rikisi-igai
he-GEN robot-ACC that sumo.wrestler-others.than
kara-no tegami-ga suisensita.
from-GEN letters-NOM recommended
'Their robot, letters from ones other than that sumo wrestler recommended.'

(48) HH binding out (RC, canonical) example:

kyonen ano rikisi-igai-ga tukutta
last.year that sumo.wrestler-others.than-NOM made
konpyuutaa-ga kare-no robotto-o kotosi suisensita.
computer-NOM he-GEN robot-ACC this.year recommended
'Computers that ones other than that sumo wrestler made last year recommended their robot this year.'

(49) HH binding out (RC, scrambled) example:

kare-no robotto-o kyonen ano
he-GEN robot-ACC last.year that
rikisi-igai-ga tukutta konpyuutaa-ga
sumo.wrestler-others.than-NOM made computer-NOM
kotosi suisensita.
this.year recommended
'Their robot, computers that ones other than that sumo wrestler made last year recommended this year.'

HH's case is fairly straightforward: *ano rikisi-igai* is unable, by itself, to enable any quirky-based BVA or precedence-based BVA. If Y is chosen to be *soitu*, BeQrk BVA is possible, and all the binding-out cases are acceptable, and if it is chosen to be *kare*, such BVA is impossible, leading to rejection of all the binding-out cases.[19)20)] To elicit a precedence-based case, HH uses a different choice of X, *subete-no mongoruzin rikisi*, as well as a corresponding

19) See the subsequent footnote on Korean ku for a bit more discussion of kare; suffice it to say for now that HH differs from many, perhaps most, other Japanese speakers, in the sense that HH can accept BVA with kare while many other Japanese speakers report being unable to do so. Note that this difference in "bindability" is perfectly dealt with by the correlational diagnostic approach adopted here; if kare is or is not able to participate in BVA for the speaker in question, this will be caught in the diagnostic sentences, and thus will cause no problems when we turn to the main sentence types under investigation. A similar comment may be made about any other factor (be it related to choice of X/Y, other aspects of the sentences, or aspects of the judgement task) which might perturb what a given individual finds (un)acceptable. So long as this factor is consistent across diagnostic and main sentence types, it should be automatically factored into our predictions. If actual results do not bear this out, i.e., they do show a divergence from predictions particularly when some additional factor is present, then our set of hypotheses is wrong/incomplete as stated, and, at minimum, must be amended in order to accommodate the factor in question.

20) For HH (and for all of us, in fact), obtaining acceptance of the RC binding out cases was more difficult than the other cases; the relevant patterns are not yet clear, though there seem to be restrictions based on what the predicates expressed in the RC are. In any case, with the particular predicates provided in the sample sentences, such RC binding out BVA's were indeed acceptable with the relevant X-Y pairs, so the intended point that such acceptances are possible is made.

"N-head-matched" Y, *sono mongoruzin rikisi*, which, HH notes, helps facilitate BrQrk and ID-based BVA. That both are indeed facilitated can be seen by HH's acceptance of the weak-crossover case with this X-Y pair, the one instance where X is not embedded and thus BrQrk is not blocked. Recall though that it is not essential to reject such cases in order to find a precedence-based pattern, so long as the corresponding "embedded weak crossover" case is rejected. Indeed, it is often hard to find an X-Y pair for which ID-BVA is possible but BrQrk-BVA is not; as mentioned in Section 2, Plesniak 2023b notes the two seem to be linked in some way. Regardless, BrQrk is blocked in the binding-out cases due to embedding, and as predicted, BVA with this X-Y pair does indeed follow a precedence-based pattern, being available with the default order and made unavailable by scrambling.

Turning to YY's Korean judgements, despite very different lexical items used, the pattern of judgements that emerges is largely identical:

<Table 4> YY's BVA(X, Y) judgements

X-Y Pair	Diagnostics						Binding Out	
	(21)	(23)	Sent. like (26), (31)-(33)	Sent. like (27)-(30)	(35)	(37)	Canon.	Scram.
USC wa UCLA - keki 'USC and UCLA' - 'there'	Yes	Yes	-	-	-	-	Yes	Yes
motun cakka - ku 'every author' - 'he'	No	No	Yes	No	-	-	Yes	No
motun cakka - casin 'every author' - 'self'	No	No	No	No	Yes	Yes	No	No

(50) YY (21) example:

casin-uy chinkwu-ka motun cakka-lul chingchan
self-GEN friend-NOM every author-ACC praise
hayssta.
did
'Self's friend praised every author.'

(51) YY (23) example:

casin-uy chinkwu-ka motun cakka-uy cakphwum-ul
self-GEN friend-NOM every author-GEN work-ACC chingchan
hayssta.
praise did
'Self's friend praised every author's work.'

(52) YY (26)-type example:[21]

motun cakka-ka tochak hal dday na-nun casin-uy
every author-NOM arrive will.do time I-TOP self-GEN
cakphwum-ul chingchan hal kes ita.
work-ACC praise will.do thing be
'When each author arrives, I will praise self's work.'

(53) YY (29)-type example:

casin-uy cakphwum-ul motun cakka-ka tochak hal
self-GEN work-ACC every author-NOM arrive will.do
dday na-nun chingchan hal kes ita.
time I-TOP praise will.do thing be
'Self's work, when each author arrives, I will praise.'

(54) YY (35) example:

motun cakka-ka casin-uy cakphwum-ul chingchan hanta.
every author-NOM self-GEN work-ACC praise does
'Every author praises self's work.'

---

21) Relevant adjustments must be made to this and other sample sentences if X1-Y1 is to be substituted in; schools cannot (usually) arrive or have work, but they can, say, be discussed and have professors.

(55) YY (37) example:

casin-uy cakphwum-ul motun cakka-ka chingchan hanta.
self-GEN work-ACC every author-NOM praise does.
'Self's work, every author praises.'

(56) YY binding out (possessor, canonical) example:

motun cakka-uy chinkwu-ka casin-uy cakphwum-ul
every author-GEN friend-NOM self-GEN work-ACC
chingchan hayssta.
praise did
'Every author's friend praised self's work.'

(57) YY binding out (possessor, scrambled) example:

casin-uy cakphwum-ul motun cakka-uy chinkwu-ka
self-GEN work-ACC every author-GEN friend-NOM
chingchan hayssta.
praise did
'Self's work, every author's friend praised.'

(58) YY binding out (PP, canonical) example:

motun cakka yep-uy salam-i casin-uy
every author side-GEN person-NOM self-GEN
cakphwum-ul chingchan hayssta.
work-ACC praise did
'A person next to every author praised self's work.'

(59) YY binding out (PP, scrambled) example:

casin-uy cakphwum-ul motun cakka yep-uy salam-i
self-GEN work-ACC every author side-GEN person-NOM
chingchan hayssta.
praise did
'Self's work, a person next to every author praised.'

(60) YY binding out (RC, canonical) example:

motun cakka yep-ey iss-nun salam-i casin-uy
every author side-at be-MOD person-NOM self-GEN
cakphwum-ul chingchan hayssta.
work-ACC praise did
'A person who was next to every author praised self's work.'

(61) YY binding out (RC, scrambled) example:

casin-uy cakphwum-ul motun cakka yep-ey iss-nun
self-GEN work-ACC every author side-at be-MOD
salam-i chingchan hayssta.
person-NOM praise did
'Self's work, a person who was next to every author praised.'

To achieve BeQrk-BVA, YY utilizes *USC wa UCLA* and *keki*; this follows a suggestions from Hoji (p.c. Spring 2023) that both (a) coordinated nouns as X, and (b) having X/Y refer to places rather than people help facilitate Quirky-BVA, which helped YY, who otherwise finds Quirky-BVA hard to accept, achieve a clear quirky-based pattern. For the ID-based case, YY utilizes *motun cakka* and *ku*; departing from HH's judgements, this does not seem to enable BrQrk, as the weak crossover case is rejected, but again, while of independent interest, that case does not have direct bearing on the diagnostic of ID-based BVA potential. The use of *ku* may be controversial for some; as discussed in Plesniak 2022a, Korean speakers vary in terms of whether they allow ku to serve as Y of BVA(X, Y), and what kind of BVA it can be.[22] For YY, however, it was consistently ID-based, and BVA with *ku* was never acceptable when X does not precede Y, even, it may be added, when X c-commanded Y, as in the reconstruction cases; this is not necessary for the demonstration at hand, but emphasizes just how clear the ID-based BVA pattern was for YY. In contrast, if Y is switched to *casin*, YY's pattern

22) For further discussion of the variable status of *ku*, readers can consult Han et al 2020 and the works cited therein. Impressionistically, older Korean speakers seem to be far more conservative, rarely or never allowing BVA with *ku*, while younger speakers are freer in doing so. This perhaps represents an assimilation of the use of "bare *ku*"(/*kunye* 'her') to indicate a third person, given its origins as a somewhat stilted transliterary adaptation of a demonstrative in order to provide equivalents for European third person pronouns, analogous to the Japanese *kare*(/*kanozyo* 'her'). With time and increasingly widespread exposure to languages like English, younger speakers may have "assimilated" this use of *ku* more deeply into their grammar, facilitating its use in BVA, though it remains far from the standard way of referring to a third person in spoken or written speech. An analogous transformation does not appear to have occurred with kare; as Hoji (2022b, pp 189) notes, accepting "non-referential" kare, as HH reports doing here, is, for most Japanese speakers, either difficult or impossible.

becomes completely FD-based, leading to the rejection of all binding out cases.[23)]

23) This should not be taken to mean that elements like *casin* or its near-relative *cagi* always depend on c-command for their interpretation, as is sometimes claimed in the literature. For example, as Han and Storoshenko (2012) note, sentences with *cagi* can be acceptable even if there is no antecedent in the sentence at all, such as in the following exchange (their example (49)):

A: John-i salam-ul ponay-ss-ni?
John-NOM man-ACC send-PST-INT
'Did John send a man?'
B: Ani, caki-ka cikep o-ass-e.
no self-NOM in.person come-PST-DECL
'No, he came in person.'

Two points can be noted here: first, in cases such as these, the antecedent is usually a non-quantificational element like a name. This renders the interpretation one of coreference, which has additional sources (as discussed in footnote 7 earlier in this paper); when the element is quantificational, e.g., if we replace *John* with *motun cakka* 'every author' in the above, the acceptance of such cases falls dramatically. Even so, and this is the second point, there may nevertheless be some who still accept the resulting BVA reading. These individuals, however, should show a correspondingly broad acceptance of BVA in the diagnostic tests used in this investigation, and thus have their X-*caki* pair diagnosed as able to achieve BVA via something other than FD(X, *caki*). Such individuals thus present no counterexample to the analysis laid out in this paper, unless their judgements on binding out cases with X-*caki* do not match the predictions of the X-Y class to which X-*caki* is assigned to them by the diagnostics.

Relatedly a reviewer has also pointed out the potential status of elements like *casin* are known to behave as exempt anaphors, in particular when in positions like that of the possessor. One may understand the argument of this paper to be that "exempt anaphor" status may be analyzed in part as anaphors that can participate in non-FD sources, and are thus subject to diagnosis and subsequent prediction via the methods laid out here.

<Table 5> DP's BVA(X, Y) judgements

X-Y Pair	Diagnostics						Binding Out	
	(20)	(22)	Sent. like (26), (31)-(33)	Sent. like (27)-(30)	(34)	(36)	Canon.	Scram.
'each alien' - 'it	Yes	Yes	-	-	-	-	Yes	Yes
'each alien' - 'that one'	Yes	No	Yes	No	-	-	Yes	No
'no alien' - 'that one'	No	No	No	No	Yes	Yes	No	No

(62) DP (20) example:

That one's spaceship contacted no alien.

(63) DP (22) example:

That one's spaceship contacted no alien's homeworld.

(64) DP (26)-type example:

When no alien arrives, I will contact that one's homeworld.

(65) DP (27)-type example:

I will contact that one's homeworld when no alien arrives.

(66) DP (34) example:

No alien contacted that one's spaceship.

(67) DP (36) example:

That one's spaceship, no alien contacted.

(68) DP binding out (possessor, canonical) example:

No alien's homeworld contacted that one's spaceship.

(69) DP binding out (possessor, scrambled) example:

That one's spaceship, no alien's homeworld contacted.

(70) DP binding out (PP, canonical) example:

A person near no alien contacted that one's spaceship.

(71) DP binding out (PP, scrambled) example:

That one's spaceship, a person near no alien contacted.

(72) DP binding out (RC, canonical) example:

A person who knew no alien contacted that one's spaceship.

(73) DP binding out (RC, scrambled) example:
That one's spaceship, a person who knew no alien contacted.

For me (DP), using 'each alien' as X enables ID-BVA(X, Y) (and, like HH, BrQrk-BVA; note the consistent weak crossover acceptance), and is at least compatible with BeQrk, which is enabled by the use of 'it'. Switching 'it' for 'that one' blocks BeQrk, at least sometimes; much like Hoji (2022b) reports, I find my judgements vary according to discrete 'stages'. At some, 'that one' allows BeQrk-BVA, while at others, it does not, and at still others, BVA with 'that one' is impossible altogether. I suspect many English speakers initially fall into this last category, though I find that use of something "uncouth" like monsters or aliens (at least assuming they are "gross and weird" aliens) helps to facilitate it, hence the choice of such words in the sample sentences. When I am in the "middle stage", however, where BVA with 'that one' is possible, but not BeQrk BVA, then the judgements are as reported; HH notes the same thing regarding *kare,* and YY experiences analogous shifts in judgement as well. Such shifts are not problematic so long as the diagnostic procedure is run consistently and thoroughly; at a given time, once judgements are thoroughly checked, a consistent pattern tends to emerge, even if it is not the same pattern.

With 'each alien' and 'that one', a precedence-based pattern emerges due to ID. Compared to HH and YY, I had difficulty in finding a choice of X for which ID was not possible, but following an observation in Ueyama 1998's Chapter 5 (itself drawn from observations in Evans 1980), ID(X, Y) with X as a negative element like 'no' seems to be either impossible, or at the very least, restricted; thus, with 'no alien', ID-BVA (and, given the lack of weak crossover, BrQrk-BVA) is disabled, and when combined with BeQrk-blocking 'that one', only FD-BVA remains as a possibility, which results in the expected rejection of all attempts at binding out.

5. Conclusion

In summary, this paper has argued that, while it is indeed possible to "bind

out" of an element embedded in a subject, the significance of this possibility must be assessed with caution. In particular, there are two ways to achieve it: one is via Bindee Quirky, which shows a coincident signature of weak crossover violations, and the other is via Indexical Dependency, which does not show the weak-crossover signature but does show precedence-sensitivity, such that if the object is scrambled to be before the subject, "binding out" of the subject becomes impossible. If no weak-crossover violation is observed, and independent tests show no precedence-sensitivity, then, as shown by the judgements of myself and others, binding out is never possible, even when other types of binding such as binding under reconstruction are possible. The contrasting judgements on (43) and (44) (HH's Japanese), (55) and (56) (YY's Korean), and (67) and (68) (DP's(=my) English) are cases in point.

While the complexity and potentially multi-faceted nature of the judgements regarding binding out cases has been known for decades, I know of no work that has systematically teased apart the contributions of the three different factors considered here and provided a unified account across the different subtypes of binding out configurations. These results, taken in combination with past findings, strongly suggest that "binding out" is not conditioned on structure. As such, that it is sometimes possible does not mean that we must revise our understanding of c-command or the structure of nominals, nor does it mean that structure is irrelevant to BVA readings. Indeed, under the right conditions, namely when only Formal Dependancy-based BVA is possible, c-command strictly constrains BVA acceptance, and it is precisely in those cases that we see that nominals serving as possessors or in modifying prepositional phrases or relative clauses cannot be understood as c-commanding outside of the nominals that contain them.

Though this investigation has been narrow in scope, its implications are broad. While they certainly occur, attempts to systematically assess the "source(s)" of a given interpretation are not standard operating procedure in theoretical syntactic literature, with the default assumption frequently being that patterns of (un)acceptability derive from the syntactic structure of the utterances at hand. This is not a safe assumption. As such, the conclusions of a vast number of works will need to be reassessed. This does not mean that they will need to be thrown out, or even that they are wrong. So long as

judgements are checked thoroughly and reported accurately, they must derive from some source or set of sources, and will thus be informative with respect to telling us whether the conditions for said source(s) were met or not. Thus, no sufficiently vetted generalization will be overturned by such a reassessment; it simply may not (or may) turn out to be informative about syntactic structure itself.

The diagnostic procedure and sample sentences provided should be seen as part of a more general process of identifying, for a given individual at a given time, what factors reliably give rise to readings that strictly reflect a given type of constraint, and in particular, to readings which strictly reflect whether one element has a certain structural relationship with another (e.g., c-commanding it). The particular procedures here can be understood as reflecting a general procedure of throughly checking a number of "control" cases, where the c-command status of the relevant positions is, to the researcher's satisfaction, uncontroversial, and then proceeding to the main sentences of interest only when it has been throughly established that the interpretation in question arises only when the relevant c-command reading obtains. That is, acceptance or rejection of some MR(X, Y) like BVA(X, Y) gains significance as an indication of the presence or absence of c-command only when it follows a long string of consistent acceptances or rejections under conditions that are otherwise identical save for the crucial factors under investigation. This, I take to be the heart of Hoji's (2015) "Language Faculty Science" program. Whether one wants to adopt that label or not, we will all do well to respect the need for the kind of careful noise-control procedures that are indeed inherent in any scientific endeavor.

References

Barker, Chris (2012), Quantificational binding does not require c-command, *Linguistic Inquiry* 43(4), 614-633.

Bruening, Benjamin (2014), Precede and command revisited, *Language* 90, 342-388.

Chomsky, Noam (1976), Conditions on rules of grammar, *Linguistic Analysis* 2,

303-351.

Chomsky, Noam (1986b), *Barriers*, Cambridge, MA: MIT Press.

Emonds, Joseph (1984), The necessity of three-corned comparative syntax, in Larry King and Catherine Maley (eds.) *Selected Papers from the 13th Linguistic Symposium on Romance Languages Chapel Hill, N.C., 24–26 March 1983,* John Benjamins.

Evans, Gareth (1977), Pronouns, quantifiers and relative clauses (I), *Canadian Journal of Philosophy* 7(3).

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

Han, Chung-hye, Kim Kyeong-min, Keir Koulton, and Jeffery Lidz (2020), Null objects in Korean: Experimental evidence for the argument ellipsis analysis, *Linguistic Inquiry* 51, 319-340.

Han, Chung-hye, and Dennis Ryan Storoshenko (2012), Semantic binding of long-distance anaphor caki in Korean. *Language* 88, 764-790.

Higginbotham, James (1980), Anaphora and GB: Some preliminary remarks, In J. Jensen (ed.), *Proceedings of NELS 10*, Ottawa: Cahiers Linguistiques d'Ottawa, University of Ottawa, 223-236.

Hoji, Hajime (2003), Falsifiability and repeatability in Generative Grammar: A case study of anaphora and scope dependency in Japanese, *Lingua* 113, 377-446.

Hoji, Hajime (2015), *Language Faculty Science*, Cambridge, UK: Cambridge University Press.

Hoji, Hajime (2022a), The key tenets of Language Faculty Science, in Hajime Hoji, Daniel Plesniak, and Yukinori Takubo (eds.) *The Theory and Practice of Language Faculty Science*, Berlin: Mouton de Gruyter.

Hoji, Hajime (2022b), Detection of c-command effects, in Hajime Hoji, Daniel Plesniak, and Yukinori Takubo (eds.) *The Theory and Practice of Language Faculty Science*, Berlin: Mouton de Gruyter.

Hoji, Hajime (2022c), Predicted correlations of judgements in Japanese, in Hajime Hoji, Daniel Plesniak, and Yukinori Takubo (eds.) *The Theory and Practice of Language Faculty Science*, Berlin: Mouton de Gruyter.

Hornstein, Norbert (1995), *Logical Form: From GB to Minimalism*, Oxford: Blackwell.

Kayne, Richard (1994), *The Antisymmetry of Syntax*, Cambridge. MA: MIT Press.

May, Robert (1985), *Logical Form: Its structure and derivation*, Cambridge, MA: MIT Press.

Plesniak, Daniel (2022a), *Towards a Correlational Law of Language: Three Factors Constraining Judgement Variation,* PhD Dissertation, University of Southern California.

Plesniak, Daniel. (2022b), Predicted correlations of judgements in English, in Hajime Hoji, Daniel Plesniak, and Yukinori Takubo (eds.) *The Theory and Practice of Language Faculty Science,* Berlin: Mouton de Gruyter.

Plesniak, Daniel (2023a), Possibility-Seeking Experiments: Testing Syntactic Hypotheses on the Level of the Individual, *Studies in Generative Grammar* (생성문법연구) 33, 1-47.

Plesniak, Daniel (2023b), C-command and Beyond: The Emerging Universe of Formal and Non-Formal Relations, *The Korean Journal of Linguistics* (언어) 48, 315-366.

Postal, Paul (1971), *Cross-Over Phenomena*, New York: Holt, Rinehart and Winston.

Reinhart, Tanya (1983), *Anaphora and Semantic Interpretation*, Chicago: University of Chicago Press.

Wasow, Thomas (1972), *Anaphoric Relations in English*, PhD Dissertation. MIT.

Ueyama, Ayumi (1998), *Two Types of Dependency*, PhD Dissertation. University of Southern California.

<Abstract>

On the Status of Binding Out of Nominals

Daniel Plesniak

A persistent challenge for c-command-based accounts of bound variable anaphora has been that elements within nominals sometimes seem to “bind out” of them, as in the case of “possessor binding” (a.k.a. “spec-binding”). While these phenomena are much discussed in the literature, certain details about them have rarely been noted, most crucially that the acceptability of bound variable readings in such cases are subject to a great deal of variation, which is conditioned on the individual in question, the particular lexical items involved, and more. Recent work suggests that this variation is not random, but implicates the effects of multiple distinct “sources” of interpretation, ranging in nature from structural to linear precedence-based to semantic/pragmatic, each of which has its own clearly detectable signature. In this paper, using the judgements of myself and two other researchers, the effects of these sources are teased apart and the implications thereof considered. The results show c-command does indeed play a role, but as one of many factors that determine bound variable reading acceptability. Crucially, binding out is unavailable when binding is based purely on c-command, but is available when based on other sources.

Key words: c-command, bound variable anaphora, spec-binding, possessors, prepositional phrase modifiers, relative clauses, quirky-binding

논문 접수: 2024.06.05
논문 수정: 2024.08.16
게재 결정: 2024.08.21