

Journal of Cognitive Science, Volume 9.1 (2008)

**An Experimental Syntactic Study of Binding of Multiple Anaphors in Korean:**

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Abstract:

In this paper we investigated the binding behavior of three Korean reflexives—*caki*, *casin*, and *caki-casin*—through a Truth Value Judgment Task with pictures and found that while *caki* and *caki-casin* pattern as claimed in the theoretical literature, as a long-distance and a local anaphor respectively, native Korean speakers differ in how they treat *casin*. While the speakers as a group treat *casin* as an LDA, individual results revealed a bimodal distribution, with one group of speakers consistently treating *casin* as an LDA and another, smaller, group consistently treating it as a local anaphor. This distribution is puzzling in that the grammar of speakers who treat *casin* as a strictly local anaphor appears to violate the cross-linguistic generalization that morphologically simple reflexives are long-distance anaphors. We show that this problem is only apparent, since the bare form *casin* lends itself to two different structural analyses. In addition, we show that the greater percentage of speakers who treat *casin* as an LDA reflects an ongoing change in the grammar of Korean, where *casin* is both increasing in frequency and taking on more long-distance antecedents. This assessment is supported by the sociolinguistic profiles of speakers we tested as well as the frequency and distribution of *casin* in Bible translations.

Keywords:

Anaphors, Binding Theory, long-distance binding, Universal Grammar, Korean

## 1. Introduction\*

While investigation of anaphor binding in Korean has focused almost exclusively on the long-distance (LD) anaphor *caki*, the language possesses other anaphors, such as *casin*, *caki-casin*, and *pronoun-casin*. *Caki* and *caki-casin* have been taken respectively to be a LD and local anaphor. *Casin* has not been investigated to the same degree. B-M Kang (1998), one of the few who studied all three anaphors, reported that *casin* is quite frequent in the corpus he studied but that it seems to be a ‘medium-distance’ anaphor, allowing both LD and local construals, with a preference for the local interpretation. Given the scarcity of studies on *casin*, we wanted first to confirm his claim with additional data in this study, using experimental syntactic methodology. Another reason for our investigation is the following. In the literature on long-distance anaphors (LDAs), it is assumed that they must be monomorphemic (Cole, Hermon, Sung 1990), while local anaphors are complex. Korean is unique in that in addition to complex, local, anaphors (*caki-casin*, *pronoun-casin*), there are two (apparently) monomorphemic anaphors (*caki*, *casin*). We wanted to know if both behave as LDAs, and whether and how speakers differentiate the two.

In order to investigate these questions, we constructed an experiment testing the LD and local binding of *caki*, *casin* and *caki-casin*. 68 Korean speakers were tested with a Truth Value Judgment Task with pictures. The test items were composed of 50 pictures containing bi-clausal sentences representing LD and local binding. 5 tokens of sentences containing embedded action

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\* We would like to first thank Chungmin Lee, editor-in-chief of the Journal of Cognitive Science, for encouragement to submit the paper and for his help to facilitate the review process. Thanks are also due to two anonymous reviewers whose encouragement, comments and suggestions we have found very useful in revising the paper. We have tried to incorporate or otherwise respond to the comments made by the reviewers.

The paper reports on the results of work on the Korean monolingual group used as controls in the experimental study of anaphor binding interpretations in second language learners and heritage speakers. The reason we did a separate study of Korean monolinguals is that as acknowledged in the literature, judgments on binding interpretations are quite varied and unstable. Therefore, to establish a reliable baseline for the L2 study, we first did a study of Korean monolinguals and used a subset of these speakers as controls in the L2 studies. The L2 research was done in collaboration with Silvina Montrul and a preliminary version of the L2 study was presented the Boston University Conference on Language Development in 2004. The work was inspired by the pioneering quantitative study of various Korean reflexives in B-M Kang (1998), which we believe is one of the most important recent works on the distribution and interpretation of Korean reflexives.

verbs (i.e. *hit, burn, sell, shot, draw*) and the verb *say* as the matrix verb were used for each anaphor. Three types of binding (LD, local, wrong) were presented with pictures (total 45 target items). 5 filler items composed of sentences paired with irrelevant pictures were included. Participants were required to judge whether the Korean sentence presented with the picture was a true description of the picture. ‘True’ responses were regarded as accepting the indicated binding, while ‘false’ responses were deemed to have rejected the binding.

Overall, Korean native speakers showed a robust preference for LD binding with *caki* (over 90%) and for local binding with *caki-casin* (over 95%), confirming previous research. As for *casin*, speakers seem to regard it as LDA, showing a 65% acceptance rate for LD binding. The percentage acceptance suggests that *casin* is an LDA without a strong preference for LD over local binding, unlike *caki*. However, individual results with *casin* revealed an interesting pattern. 50% of the tested speakers treated *casin* strictly as an LDA and rejected local construals while 15% treated it as a local anaphor, rejecting LD construals. It is only the remaining 35% who did not show a preference for one type of binding over the other.

The results with *casin* appear problematic for the assumption that morphologically simple anaphors are LDAs, since a subset of speakers treat the form consistently as a local anaphor. What is further puzzling is the split between speakers who regard it as a strictly local anaphor and those who treat it as an LDA. We argue that the results can be understood in light of the fact that the bare form *casin* can be analyzed either as a simple or a complex anaphor. Speakers who adopt the latter analysis can treat it as a local anaphor, while those who adopt the former can treat it as an LDA. As to the proportion of speakers with LD or local preferences for *casin*, we suggest that speakers who treat *casin* as a local anaphor reflect an older grammar, which is rapidly undergoing change in contemporary Korean. This explains why more speakers treat it as

an LDA than as a local anaphor. The path of diachronic change of *casin* is attested most clearly in translations of the Bible. The question then arises as to how speakers differentiate among the three anaphors, if they are not differentiated in terms of binding distance. We suggest some possible ways in which speakers may differentiate the three anaphors and identify directions for future research.

The organization of this paper is as follows. In section 2, we introduce the relevant background on Korean reflexives. We then present the methodology of the experimental study as well as the results of the experiment in Section 3. Finally, in Section 4, we will discuss theoretical implications of the current findings.

## 2. Binding of Korean Anaphors

The anaphor inventory of Korean is quite rich. The anaphor *caki* is by far the most common form, but in addition to *caki*, there are additional anaphors. *Casin* is another anaphor in the inventory. In addition to these two anaphors, there are two anaphors that are morphologically complex—*caki-casin* and *pronoun+casin*.<sup>1</sup> We first discuss their structure and then turn to their function.

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<sup>1</sup> In addition to these reflexives, the honorific second person pronoun *tangsin* can be used as a third-person reflexive (cf. i).

- (i) Sensayngnim-kkeyse      **tangsin**-uy      ceycatul-ul      salangha-si-n-ta  
 Teacher.hon-hon.nom      self.hon-gen      students-acc      love-subj.hon-prs-decl  
 ‘The teacher loves self’s (=his) students very much.’

*Susulo* (‘(on) own’s own’) is an adverbial/adnominal element that has a reflexive interpretation (cf. ii, iii), but can also occur in an argument position, much in the manner of numeral quantifiers (cf. iv).

- (ii) John-un      ku      mwuncey-lul      **susulo**      haykyelhay-ss-ta  
 J-top      that      problem-acc      on.his.own      solve-pst-decl  
 ‘John solved the problem on his own.’

- (iii) John **susulo**-(ka)      ku      mwuncey-lul      haykyelhay-ss-ta  
 John-on.his.own-(nom)      that      problem-acc      solve-pst-decl

Structure:

Even though both *caki* and *casin* are morphologically simple, when they occur in complex anaphors, they behave differently. *Casin* occupies the rightmost, or head, position of the complex anaphor, while *caki* occupies the initial, or non-head, position, on a par with pronouns in *pronoun+casin* anaphors. Correlated with this difference is the fact that while *casin* can sometimes be modified, *caki* cannot be modified as easily (B-M Kang 1998). In addition, bare *caki* can specify/modify common nouns, while *casin* cannot.<sup>2</sup> This is shown in (1) and (2).<sup>3</sup>

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‘John himself solved the problem.’

- (iv) Kutul-un    **susulo**-lul    nathanay-ki    cohaha-n-ta  
They-top    their.own-acc    show.off-comp    like-prs-decl  
‘They like to show off.’

*Susulo* is strictly local in its interpretation, even when it occurs in an argument position, as shown below:

- (v) John-un [Tongswu-ka    **susulo**-uy    mwunceycem-ul molunta-ko]    malhay-ss-ta  
J-top    T-nom    his.own-gen problems-acc    unaware-comp    say-pst-decl  
‘John said that Tongswu is unaware of his(=T, \*J)’s weaknesses.’

<sup>2</sup> The following is acceptable. However, in (i) *casin*-uy occurs in a Possessor DP, as can be seen by the Genitive marking.

- (i) Cheli-nun    **casin**-uy    sensayngnim-ul    coahanta  
C-top    self-gen    teacher-acc    likes  
‘Cheli likes his teacher.’

<sup>3</sup> A reviewer points out that there are instances of *caki* that can be modified, citing the text below:

- (i) hayngtongha-nun    **caki**-wa    cikhyepo-nun    **caki**-lul    han mom-ey    naycangha-n  
act-adnom    caki-and    watch-adnom    caki-acc    one body-loc    embody-adnom  
yenkukcek    inkan  
theatrical    man  
‘Man, who embodies the self that acts and the self that watches in his theatrical body’  
([http://www.otr.co.kr/column\\_board/view.htm?sid=5036&lsid=17](http://www.otr.co.kr/column_board/view.htm?sid=5036&lsid=17))

Our point in the text was not that *caki* cannot be modified, but that it is harder to modify *caki* than *casin*, as B-M Kang (1998) found in his corpus, and that this difference can be attributed to the category and make-up of the two reflexives. Modification of pronouns (which we assume are normally D’s) is possible in English too (as in *embraceable you*, *poor me*, *lucky him*, etc), though modifying pronouns is harder than modifying common nouns. The reason may be because when they are modified, pronouns are converted into common nouns.

(1) a. pwulssangha-n *casin*

Pitiful-rel self

b. \*?pwulssangha-n *caki*

Pitiful-rel self

(2) a. Cheli-nun *caki* sensayngnim-ul coahanta

C-top self teacher-acc lie

‘Cheli likes his teacher.’

b. \*Cheli-nun *casin* sensayngnim-ul coahanta

C-top self teacher-acc likes

‘Cheli likes his teacher.’

A further difference between the two is that *caki* has an inherent phi-feature (as 3<sup>rd</sup> person), while *casin* does not, as it is compatible with antecedents in all three persons.

(3) a. Cheli/\*ney/\*nay-ka *caki* yakcem-ul molunta-(ko?)

C/you/I-nom self weakness-acc unaware-(did.you.say?)

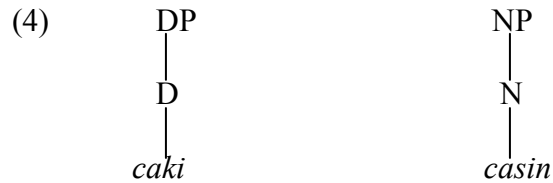
‘(Did you say that) Cheli/you/I is/are/am unaware of his/your/my weaknesses(?)’

b. Cheli/ney/nay-ka *casin-ul* miwwhanta-(ko?)

C/you/I-nom self-acc hate-(did.you.say?)

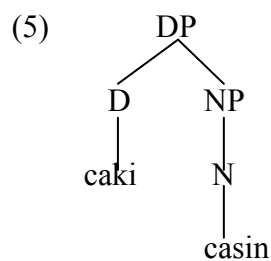
‘(Did you say that) Cheli/you/I hate himself/yourself/myself(?)’

These facts suggest an analysis of *caki* as a D, and *casin* as an N (Katada 1991, Y-S Kim 2000).<sup>4</sup>



The proposed analysis explains the relative positions the two reflexives occupy in a complex anaphor as well as the differences between the two with regard to modification and the ability to co-occur with common nouns. Furthermore, if we make the reasonable assumption that the locus of phi-features is D, the difference with respect to phi-features is also explained.

The anaphor *caki-casin* is made up of *caki* and *casin*. Given what we have proposed, the relative order of the two morphemes in this reflexive is predicted. *Caki* must come before *casin* since it is a D. We posit the following as the structure of *caki-casin*. In our analysis, complex anaphors are phrasal (Katada 1990, Y-S Kim 2000).




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<sup>4</sup> We assume that *caki*, as a D, can occur without its Complement NP. This assumption is routinely made for pronouns, which are assumed to be D's without complements. We are also assuming that *casin*, as NP, can occur without a D. However, we will allow an alternative parse of bare *casin*.

It should be noted that in the 'Bare Phrase Structure' proposal of Chomsky (1994), the anaphors as analyzed above are simultaneously heads and maximal projections. Therefore, under the Head Movement account of LDA's (Cole, Hermon, Sung 1990), these anaphors will be predicted to undergo Head Movement to yield LD binding.



*Pronoun-casin* anaphors, which we did not investigate in this paper, have a structure parallel to *caki-casin*. The order of morphemes in this complex anaphor is as expected. This anaphor provides additional support for taking *caki* to be D, since other instances of D, the pronouns, can occupy the non-head position of complex anaphors.

Function—Long-Distance vs. Local Binding and Antecedent Choice:

Turning to the functions of the different reflexives in Korean, a well-known dimension along which the different reflexives differ is local vs. LD binding. All three reflexives investigated in this study can be bound locally, but they differ with respect to LD binding. They also differ with respect to the restrictions on antecedents. We discuss these two properties in this section.

The reflexive *caki* is a long-distance anaphor. Many researchers have claimed that it prefers long-distance antecedents over local ones (cf. 6b). And antecedents, whether local or long-distance, are third person, as noted earlier (cf. 6a).

- (6) a. John<sub>i</sub>/\*Na<sub>j</sub>-nun [Cheli<sub>k</sub>-ka *caki*<sub>i,\*j,k</sub>-lul koylophinta-ko] malhayssta  
 John/I-top C-nom self-acc harass-comp said  
 ‘John/I said that Cheli is harassing self(=John>Cheli,\*I).’
- b. Bill<sub>i</sub>-un [Cheli<sub>j</sub>-ka *caki*<sub>i>j</sub>-lul koylophinta-ko] sayngkakhanta  
 Bill-top C-nom self-acc harass-comp thinks  
 ‘Bill thinks that Cheli harasses self(=Bill>Cheli).’

The claim that *caki* prefers LD antecedents receives confirmation from both corpus and processing studies. B-M Kang’s (1998) corpus study of three reflexives in Korean confirmed the

tendency for *caki* to be LD-bound. Specifically, he investigated accusative-marked forms of the three reflexives and found that *caki-acc* (i.e., *caki-lul*) occurs with more LD than local antecedents in his corpus (Korea University Corpus of Korean, Collection-I, 10 million words), as indicated below (B-M Kang 1998:183):

(7) Table 1. Distribution of Acc-marked forms of Reflexives

	<i>caki-acc</i>	<i>casin-acc</i>	<i>caki-casin-acc</i>
Local	151	311	66
Long-distance	165	123	5
Total	316	434	71

However, we need caution in interpreting the above figures, since only Acc-marked forms of the reflexives were examined. This is surprising in view of the fact that many theoretical studies take *caki* to have a strong preference for the LD antecedent over the local antecedent (S-C Moon 1995, Y-S Kim 2000, etc.), but the figures from Kang’s study do not seem to corroborate these claims.

We believe that Kang’s data is not representative of the overall behavior of *caki* and that *caki* does indeed show a strong preference for LD binding. Our evidence comes from K-I Choi and Y-J Kim (2007), who used eye-tracking to investigate the antecedent choice of the reflexives *caki* and *casin*, using bi-clausal sentences where the reflexives occur as objects of the embedded clause and the verb of the embedded clause biases the reflexive interpretation in favor of either the local subject or the matrix subject. They found that sentences where *caki* was bound by the matrix subject had the fastest reading time overall (first-pass and re-reading) and the lowest

regression rate. However, when the sentence was biased by the embedded verb in favor of the local interpretation of the reflexive, speakers lingered significantly longer when they reached the disambiguating region (the embedded verb, which follows *caki-acc*). Choi and Kim (2007) interpret this as evidence supporting the LD preference for *caki*. The fast reading time with LD antecedent indicates that speakers expect *caki* to have a LD antecedent. When it doesn't, they revise their parse and that is why they linger in the disambiguating region.<sup>5</sup>

The anaphor *casin* is also an LDA, in the sense that it allows both local and long-distance antecedents. The vast majority of studies on Korean reflexives have focused on *caki*, so that there are few studies of Korean reflexives that include *casin* in their scope. J-M Yoon (1989), B-M Kang (1998), Y-S Kim (2002), and Choi and Kim (2007) are the notable exceptions.

As noted earlier in (3b), antecedents of *casin* are not restricted to 3<sup>rd</sup> person (cf. 8a,b), and though *casin* is an LDA, speakers seem to have the intuition that it does not have a strong preference for LD antecedents (cf. 8c). B-M Kang's (1998) corpus results with Acc-marked *casin* (cf. Table 1 in (7) above) seem to corroborate this intuition.

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<sup>5</sup>This raises question of how to interpret Kang's (1998) data. A clue to what may be going on is provided by S-C Moon (1999), who investigated differently case-marked forms of reflexives. He found that the most common form in which *caki* is found in his informal search of drama scripts on the PC server Nownuri is the bare form. He found that *caki-acc* occurs only 61 times (out of a total of 641 tokens of *caki*—less than 1%). On the other hand, bare *caki* occurs 402 times (around 63%). By contrast, *casin-acc* (including complex forms that have *casin*, which we notate (x)-*casin*) occurs 583 times (out of 3572 tokens—around 15%). The most common form of (x)-*casin* was (x)-*casin-gen* (1958 tokens).

Thus, the results based on *caki-acc* in Kang's corpus may not reflect the overall LD binding preference of *caki*, as it is based on a form that is not representative of the overall behavior of *caki*. Moon's results also allow us to understand the relative small number of tokens of *caki-acc* compared to *casin-acc* in Kang's corpus.

Unlike Moon, Kang did not include complex *casin* forms (x-*casin*) in his calculation of the token frequency of *casin* and yet ended up with more tokens of *casin* than *caki*. This is surprising in view of the intuitions of native speakers that *caki* is the most common form of the reflexive. However, when we consider that *caki-acc* represents a tiny fraction of the overall frequency of *caki*, we can understand why its token frequency was low.

The higher token frequency of *casin* in the corpus in both Kang's and Moon's corpora may also be due to the fact that *casin* places no restrictions on the phi-features of its antecedent, while *caki* restricts them to third person. The proportion of *casin* with non-third person antecedents might have tilted the overall balance in favor of *casin*.

- (8)a. John<sub>i</sub>/Na<sub>j</sub>-nun *casin*<sub>i,j</sub>-uy mwunceycem-ul cal alko issta  
 John/I-top self-gen problem-acc well know is  
 ‘John is/I am well aware of self’s(=John’s, my) weaknesses.’
- b. Ne<sub>i</sub>-nun *casin*<sub>i</sub>-uy mwunceycem-ul cal alko iss-ni?  
 You-top self-gen problem-acc well know is-Q  
 ‘Are you well aware of self’s(=your) own shortcomings?’  
 ‘Even John himself was unaware of the problems.’
- c. Mary<sub>i</sub>-nun [Susie<sub>j</sub>-ka *casin*<sub>i<j</sub>-ul miwehanta-ko] malhayssta  
 Mary-top Susie-nom self-acc hates-comp said  
 ‘Mary said that Susie hates self(=Mary<Susie).’

Kang’s findings seem to indicate that *casin* actually prefers local antecedents in the same way that *caki* prefers LD antecedents. However, this may not be a legitimate conclusion to draw. One reason is that only the Acc-marked forms of *casin* were examined in his study, so that we are not aware of the overall behavior of *casin* with respect to local vs. LD binding. Another reason is that Choi and Kim (2007) reported that they failed to find a preference for the local interpretation of *casin* in their eye-tracking study. The reflexive *casin* did not display a preference for either the local or LD construal. This was so even when the embedded verbs were biased in favor of one or the other interpretation. Overall, subjects took longer to process *casin* than *caki*, and there was no bias in favor of a local interpretation. *Casin* thus contrasts with *caki*, which displayed a detectable bias in favor of the non-local interpretation.

Finally, the anaphor *caki-casin* also requires a third person antecedent (cf. 9a, b). This is understandable since the phi-features of this reflexive come from *caki*, which is 3<sup>rd</sup> Person.

However, unlike *caki* or *casin*, it is predominantly a local anaphor (cf. 9c). The results of Kang’s (1998) study confirm the local preference for the anaphor (cf. Table 1 in (7)).

- (9) a. John<sub>i</sub>/Na<sub>j</sub>-nun *caki-casin*<sub>i/\*?j</sub> -uy mwunceycem-ul cal alko issta  
 John/I-top self-gen problem-acc well know is  
 ‘John is/I am well aware of self’s(=John<sub>i</sub>, \*?my) weaknesses.’
- b. \*?Ne<sub>i</sub>-nun *caki-casin*<sub>i</sub> -uy mwunceycem-ul cal alko iss-ni?  
 You-top self-gen problem-acc well know is-Q  
 ‘Are you well aware of self’s(=\*your) shortcomings?’
- c. Mary<sub>i</sub>-nun [Susie<sub>j</sub>-ka *caki-casin*<sub>i/\*?j</sub> -ul miwehanta-ko] malhayssta  
 Mary-top Susie-nom self-acc hate-comp said  
 ‘Mary said that Susie hates self(=Mary, \*?Susie).’

## 2.2. Local vs. long-distance binding—theoretical accounts

LDAs have been accounted for in a variety of ways in the literature. For example, Manzini and Wexler (1987), following D-W Yang (1983), take the difference between languages with LDAs and those without to be a matter of the size of the GC. In this approach, the definition of GC for Principle A is parameterized for each language. Languages with LDAs have a larger GC than those with local anaphors under this approach. This approach to LDAs raises a number of questions, an obvious one being why such parameterization is restricted to Principle A (anaphors), but not Principle B (pronouns). Another problem is languages (such as Korean) with more than one anaphor that differ in their local vs. LD binding behavior. A system-wide parameterization of GC will not be able to account for such languages easily.

In part to address problems such as this, a different approach takes LDAs to be locally bound, but at the level of LF, after undergoing covert anaphor movement (Chomsky 1986, Cole, Hermon and Sung 1990). In this approach, having an LDA does not necessarily entail parameterization of GCs. Instead, what differs across languages (or across different anaphors in the same language) is the level at which Principle A is checked. The problem facing this approach is the opposite of the previous one. Under this theory, we must have an account of why certain anaphors cannot avail themselves of the covert/LF movement option and be licensed as LDAs. The answer provided in this line of investigation is that covert anaphor movement is restricted to (successive-cyclic) Head Movement (Cole, Hermon, Sung 1990). Thus, only those anaphors that are Heads can be licensed as LDAs. Complex, or phrasal, anaphors cannot, by contrast. That is, the analysis seeks to capture the cross-linguistically attested **form-function correlation** in local vs. LD binding of anaphors, according to which (genuine) LDAs are simple anaphors while local anaphors are complex.<sup>6</sup> In addition to capturing the form-function correlation, the theory tries to tie two other properties of LDAs—their (putative) subject orientation and sensitivity to intervening material (*aka* ‘Blocking Effect’)<sup>7</sup>—to the way in which covert anaphor movement works.

As such, the theory offered an attractive unification of certain recurring properties of LDAs. However, it suffered from empirical and technical difficulties. For instance, since LF phrasal movement can be long-distance, it is not clear what, short of a stipulation, can prevent a complex, phrasal, anaphor from undergoing long phrasal movement at LF to be licensed as an LDA. For

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<sup>6</sup> Being a simple anaphor is a necessary but not sufficient condition for LDAs. For example, the German reflexive *zich* is morphologically simple but does not allow LD-binding. However, all genuine LDAs (bound anaphor type LDA, in the typology of Cole, Hermon, Huang 2001, 2006) are simple.

<sup>7</sup> The Blocking Effect refers to the observation that LD binding can be interrupted by certain types of intervening elements. For example, the Mandarin Chinese LDA *ziji* has been claimed not to be able to be bound by a long-distance third person antecedent if there is an intervening (closer) first or second person NP that is a potential antecedent.

another, LDAs can be located within islands and be bound by antecedents outside the island. Since covert anaphor movement must be successive-cyclic (in order to account for the Blocking Effect), it is predicted that if there are islands in the path between the antecedent and the LDA, binding should fail, contrary to fact.<sup>8</sup>

Yet another approach to local vs. LD anaphors adopts a fine-grained typology of LDAs (Cole, Hermon, Huang 2001). In this approach not all LDAs are created equal. Some are genuine anaphors bound in a larger GC than local anaphors (and these are typically morphologically simple anaphors), but others are logophors (or exempt anaphors) that are not subject to Principle A of the Binding Theory. Logophors that can be bound LD can be phrasal anaphors, as is the case in English. The syntactic Binding Theory applies to core (or grammatical) anaphors only—local or LD (Cole, Hermon and Huang 2001, Huang and Liu 2001). If an LDA is a logophor, its LD binding does not fall under the purview of syntactic principles, but pragmatic conditions. Huang and Liu (2001) argue that this is the right way to view certain types of LD-bound (and discourse-bound) *ziji* in Mandarin Chinese.

For the purposes of this paper, we do not need to adopt an explicit theory of local vs. LD binding. Nonetheless, a theory of LD-binding should be able to explain why genuine (bound anaphor type) LDAs are simple, or monomorphemic, and why complex, or phrasal, anaphors cannot behave as genuine LDAs (though they may behave as LD-bound logophors). In other words, we assume that the correct theory of LDAs should be able to capture the generalization we dub the form-function correlation.<sup>9</sup>

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<sup>8</sup> And if assumptions are made to allow LF Head Movement out of islands, it is also predicted that other elements typically subject to locality, such as adjunct Wh in-situ, should also be possible in such domains, contrary to fact.

<sup>9</sup> It is important to stress what the form-function correlation does not predict. It does not predict that an LDA will **prefer** LD to local binding, since relative frequency of two types of binding cannot be predicted from the make-up of the reflexives. Therefore, the fact that of the LDAs in Korean, *caki* prefers LD-binding whereas *casin* fails to show a preference, is not something that is predicted by the form-function correlation, i.e., UG.

In the next section we present the research questions and the hypotheses and predictions of the present study. Then, we will present the methodology of the present study and results of the experiment.

### 3. The Experiment

The experiment tested local and long distance (LD) binding of three reflexives, *caki*, *casin* and *caki-casin*. While all three reflexives can be locally bound, the degree to which they can be bound long-distance differs: *Caki* is predominantly a LD anaphor, while *caki-casin* is restricted to local binding. The anaphor *casin* can be LD-bound, but unlike *caki*, it has been claimed not to display a preference for LD-binding (B-M Kang 1998), though we pointed out that Kang's figures must be interpreted with care, in view of the fact that the eye-tracking evidence of Choi and Kim (2007) did not offer support for such a preference.

The research questions that motivated the present study are the following:

- 1) Is the form-function correlation confirmed in the binding behavior of the three reflexives in the grammars of Korean monolinguals?
- 2) Do Korean speakers discriminate the three reflexives in terms of the degree of long-distance binding?

To answer the above questions, we postulate the following hypotheses. The first hypothesis regards the form and function correlation, while the second focuses on whether speakers discriminate the three anaphors in terms of the degree of preference for LD binding (conversely, local binding).



### Hypothesis 1:

If the form-function correlation regarding local vs. LD binding is universal, Korean monolinguals will regard anaphors *caki* and *casin* as LDAs and *caki-casin*, a complex anaphor, as a local anaphor.

### Hypothesis 2:<sup>10</sup>

Korean speakers will show a preference for LD binding for *caki* and local binding for *caki-casin*. For *casin*, speakers will regard this anaphor as LDA, but will not show a preference for local or LD binding.

In order to test these hypotheses, we constructed an experiment testing the LD and local binding of *caki*, *casin* and *caki-casin*.

### *Method*

Participants in this experiment were 68 Korean speakers residing around Seoul, Korea (Mean age: 45, Range: 27-59). These speakers were monolingually raised and had not resided for longer than a month in a foreign country.

The main task used in this experiment was a Truth Value Judgment Task (Crain and Thornton 1998) with pictures. There were 50 pictures (30 target items and 20 filler items). To test the difference between local and long-distance binding, we constructed the items so that all

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<sup>10</sup> A reviewer asks whether Hypothesis 2 is entailed by Hypothesis 1. It is not. Being an LDA does not imply that the anaphor will prefer LD over local antecedents. That is, it could be that while both *caki* and *casin* are LDAs (in which case the prediction of Hypothesis 1 would be supported) neither displays a **preference** for LD over local binding. Hypothesis 2 seeks to find out if in fact the two are distinguished in terms of such a preference.

of the target items consisted of bi-clausal sentences, 10 for each type of reflexive (*caki*, *casin*, *caki-casin*). The matrix verb used was *malhata* ‘say’ while direct action verbs such as *ttaylita* ‘hit’, *ssota* ‘shoot’, *kulita* ‘draw’, *phalta* ‘sell’ and *thaywuta* ‘burn’ were used as embedded verbs. The embedded verbs were chosen so that their lexical properties did not bias the interpretation of the reflexive in favor of either the local or the LD interpretation.

An example of the target sentence and accompanying picture is shown in (10).

- (10) a. Cheli<sub>i</sub>-nun [Minswu<sub>j</sub>-ka *caki*<sub>ij</sub>-lul kuli-ess-ta-ko] malhay-ss-ta.  
 Cheli-top Minswu-nom self-acc draw-past-decl.-comp said  
 ‘Cheli said that Minswu drew (him)self’

Long distance binding

Local binding



In half of the sentences (5 for each anaphor), the picture used represented the locally bound interpretation for the reflexive, while for the other half, the picture represented a long-distance interpretation. There were 20 filler items: 15 were sentences with three different anaphors (5 sentences for each) which did not match the pictures. The remaining 5 fillers were sentences with pictures unrelated to binding. All the sentences were grammatical. The subjects were asked to judge whether each sentence was a true description of the picture.

### *Results*

Results were analyzed in the following way. If a participant chose a “True” response, s/he was considered as accepting the binding relation in the sentence exemplified by the story. A “False” response was taken to mean the rejection of the binding relation in the sentence. A score of 1 was assigned to ‘True’ responses, while a score of ‘0’ was assigned to ‘False’ responses. The subjects’ responses were then averaged and a mean percentage score was calculated for each subject. Repeated measures ANOVA and one-way ANOVA were conducted to determine the statistical significance among groups and among anaphor types. The overall results are shown in Table 2.

Table 2. Percentage Acceptability of Long-distance and Local binding by Reflexive

R-type		<i>Caki</i>		<i>Caki-casin</i>		<i>Casin</i>	
Distance		<i>LD</i>	<i>Local</i>	<i>LD</i>	<i>local</i>	<i>LD</i>	<i>local</i>
Subjects	<i>mean</i>	0.91	0.27	0.18	0.95	0.68	0.49
(n = 68)	<i>sd</i>	(0.11)	(0.23)	(0.25)	(0.14)	(0.33)	(0.29)

A repeated measures ANOVA showed no significant main effect by reflexive type (*caki*, *casin*, *caki-casin*), or by binding distance (local, LD), but showed a significant main effect by reflexive type by distance interaction [ $F(2,49) = 139.108, p < .0001$ ]. Interactions were further analyzed with Paired Sample T-tests.

Figure 1 illustrates the mean acceptability judgments for the three reflexives.

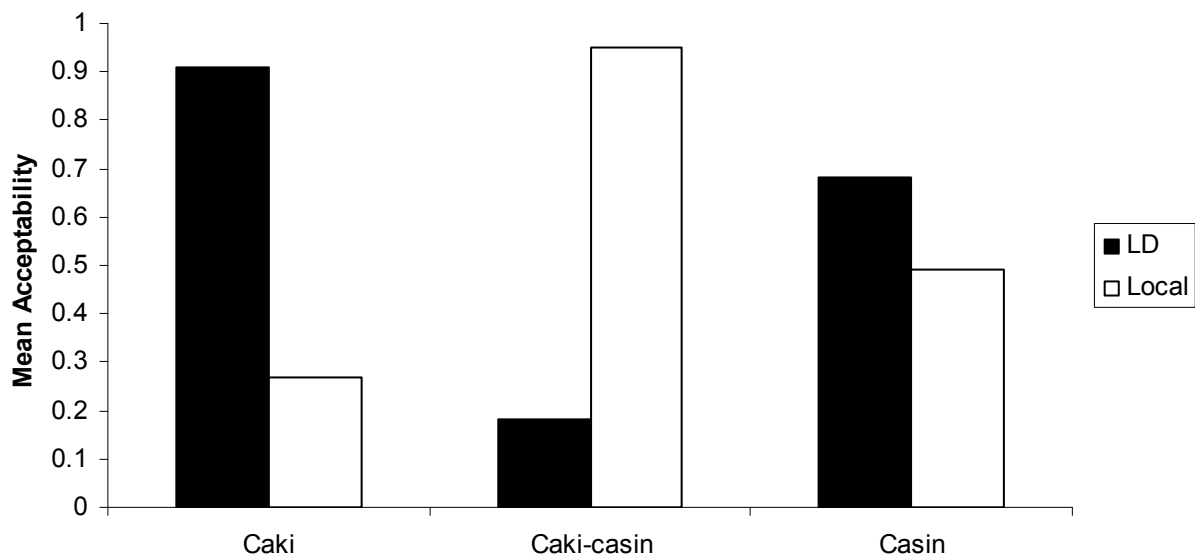


Figure 1. Mean Acceptability Judgment for Different Reflexives

As shown in Figure 1, Korean native speakers accepted the LD binding of *caki* very robustly (Mean = .91) while accepting the local binding of *caki* at a significantly lower rate (Mean = .27). Paired-sample t-test showed that the mean difference between LD and locally bound *caki* was significant [ $t(67) = 20.270, p < .0001$ ]. The results with *caki-casin* were the opposite, as expected. The local binding of this reflexive is highly acceptable to native speakers (Mean = .95), while LD binding is not acceptable (Mean = .18). Paired-sample t-test showed that the difference between LD and local binding of *caki-casin* was also significant [ $t(67) = -20.532, p < .0001$ ].

Finally, the results with *casin* showed that speakers accepted the LD binding of this reflexive more frequently than that of *caki-casin*, but not as frequently as *caki* (*casin*: Mean = .68). The difference between LD and local binding of *casin*, demonstrated by Paired-sample t-test, was also significant [ $t(67) = 2.816, p < .006$ ].

The group results with the three reflexives appear to support Hypothesis 1, since the subjects accepted LD binding with *caki* and *casin* robustly, and rejected LD binding interpretations with the complex anaphor *caki-casin*. Though the degree of LD binding acceptability with *casin* is not as high as that of *caki*, we can still say that *casin* is regarded by speakers as an LDA: It is important to note again that being an LDA is different from showing a robust preference for LD over local binding. For example, in our study, if a subject accepts all instances of LD binding and rejects all instances of local binding for the same reflexive, we can say that the subject has an almost categorical preference for LD binding for the reflexive. However, if a subject accepts only about half cases of LD binding for one reflexive and rejects the remaining instances of LD binding, we can still say that the subject regards the reflexive as a possible LDA.

Though Hypothesis 1 can be evaluated by mean acceptability of LD vs. local binding of three reflexives, mean acceptability is insufficient to evaluate Hypothesis 2. Also, the group results with *casin* mask some interesting patterns among speakers in that there were different groups of speakers regarding how *casin* was treated. Therefore, to see whether three anaphors are distinguished by different degrees of LD binding preference, as well as to ascertain the validity of the form-function correlation (Hypothesis 1) in depth, we examined the individual results.

### Computing LD Preference

A long distance preference ratio (LD preference ratio) was calculated for each subject in the following manner. Acceptance of long distance interpretations (regardless of context) was coded as 1 and acceptance of local interpretations was coded as 0 (likewise, the rejection of LD interpretation was coded as 0 and rejection of local interpretations as 1). We then calculated the LD preference ratio for each anaphor for the 10 sentences for each anaphor. A subject who has a strictly local interpretation for a given anaphor will get a score of 0, and a subject who has a strictly long distance interpretation for the anaphor receives a score of 10. Subjects with no preference receive a middle score, i.e., 5. Thus, all subjects obtained overall rates ranging from 0 to 10 for each anaphor.<sup>11</sup>

The pattern of the individual results in terms of the preference ratio with three reflexives is shown in Figure 2.

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<sup>11</sup> Note that the LD preference ratio is not the same as the number of actual T (or F) responses a subject gives for a given anaphor. It shows the **relative preference** that a speaker has for LD binding of a given anaphor. For example, a subject who accepts all 5 instances of LD binding while at the same time rejecting 3 instances of local binding (and accept 2 instances of local binding) will have a LD preference rate of 8, which means that the subject has a strong preference for LD binding. On the other hand, a subject who accepts 5 instances each of LD and local binding ( i.e. accept 2 LD/reject 3 LD + reject 3 local/accept 2 local) for an anaphor will have a LD preference rate of 5, meaning the subject has no preference for LD over local binding.

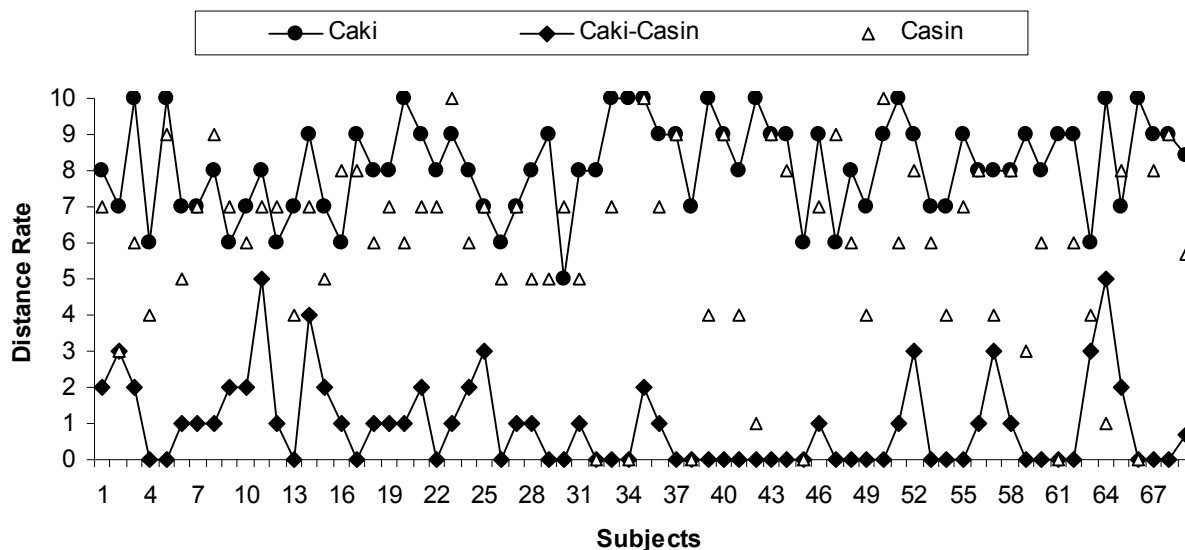


Figure 2. Korean speakers' LD preference ratio by anaphor (0 = local/10 = LD)

To calculate how individual subjects behaved with respect to the preference ratio, we then split the scale into 3 possible values as follows: Scores 7-10 = long-distance preference, Scores 4-6 = no preference, Scores 0-3 = local preference.

Overall individual results were as follows: A large number of subjects showed a strong LD binding preference for *caki* (87%), while no individual showed a preference for locally bound *caki*. A minority of subjects (13%) showed no preference between LD and local binding, by accepting both LD and local bound *caki* to a similar degree. On the other hand, with *caki-casin*, the majority showed a strong preference towards local binding (97%), while no one showed a preference for long-distance binding. 3 out of 68 (4%) subjects showed no preference between LD and local binding of *caki-casin*, by consistently accepting some instances of LD binding for *caki-casin*. As for *casin*, about half of the subjects (50%) displayed a LD preference, while the rest were split into those with a local binding preference (15%) or with no preference (35%). Figure 3 presents the LD preference ratio for the different reflexives.

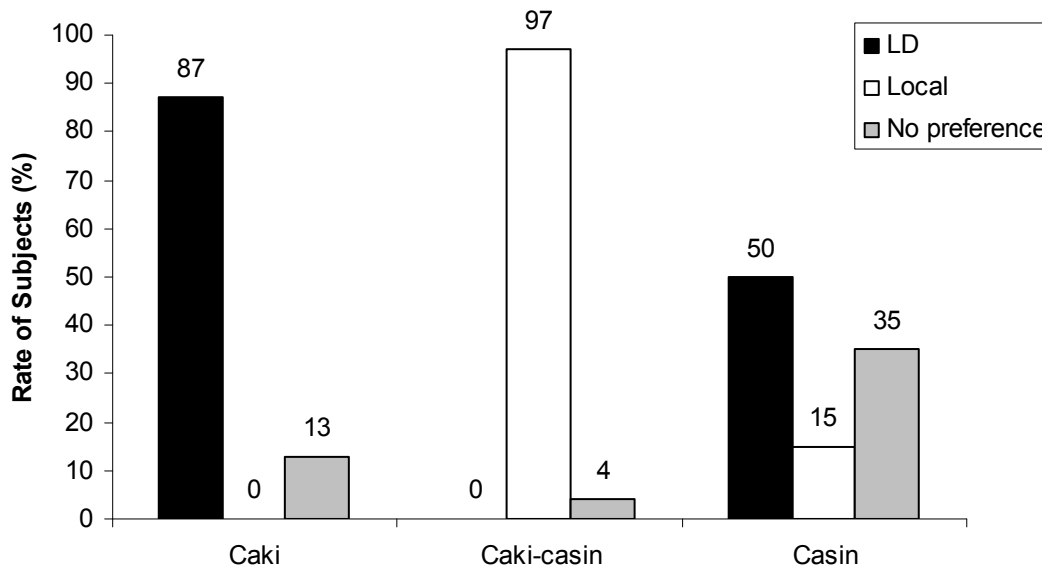


Figure 3. Mean LD preference ratio for each reflexive (10 = LD/0 = local)

While there was not much individual variability with respect to *caki* and *caki-casin*, the individual results were different for *casin*. There are two groups of Korean with respect to *casin*—one group (21 out of 68 - 31%) keeps the three anaphors distinct in terms of LD preference. These speakers treat *caki* as an LDA with strong LD preference, *casin* as an LDA with no LD preference, and *caki-casin* as an anaphor with a strong local preference. The speakers in the second group do not differentiate *casin* and *caki* (38 out of 68 – 56%) or *casin* and *caki-casin* (9 out of 68 – 13%) in terms of LD preference.<sup>12</sup>

From the group results as well as the individual results for the three anaphors, we can draw conclusions for the two hypotheses we formulated. As for Hypothesis 1 regarding the form-function correlation, it seems that it is supported by group results, since the speakers as a group

<sup>12</sup> We did a binary comparison of anaphors and counted individuals who have less than 1 point difference in LD preference between two anaphors as not distinguishing the two anaphors in terms of LD preference.



regard *caki* and *casin* as LDAs, but *caki-casin* as a local reflexive. However, the individual results with *casin* revealed that there are speakers who consistently treat *casin* as a local anaphor. Therefore, we cannot say that Hypothesis 1 is supported when both group and individual results are taken into consideration.

Hypothesis 2 regarding the discrimination of the three reflexives by LD preference seems to be supported at the group level, but when individual results are considered, we find that *casin* is again the culprit. Though about 31% of the subjects maintain a distinction among three reflexives in terms of the degree of LD binding preference, a majority of the subjects treats *casin* either as an LDA (56%), on a par with *caki* or as a local anaphor (13%), on a par with *caki-casin*.

#### **4. Discussion and Conclusion**

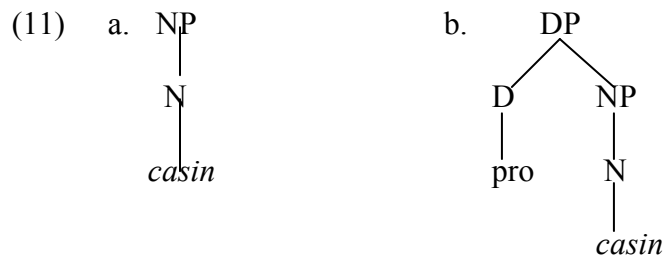
What we see so far is that while both group and individual results with *caki* and *caki-casin* support the predictions of the two hypotheses, individual results with *casin* appear to counter-exemplify both hypotheses. We therefore need to investigate the possible reasons why *casin* is behaving the way it does and, more importantly, whether the results with *casin* are truly counterexamples to the predictions of the two hypotheses.

What is especially puzzling, if the form-function correlation is true, is why certain speakers are treating *casin* as a strictly local anaphor, on a par with *caki-casin*. How is this possible, if the form-function correlation is a UG property? And why are other speakers treating *casin* as an LDA, sometimes with a strong LD-binding preference (like *caki*)?

We shall argue that the pattern of observed behavior with *casin* is not surprising given that there are two ways consistent with the grammar of Korean in which the bare form *casin* can be

analyzed. It is this structural ambiguity that offers the answer as to how certain speakers treat *casin* as a local anaphor while others treat it as a LDA.

The form *casin* can be analyzed as either a simple anaphor or a complex anaphor. The reason is the following. The analysis of *casin* as a simple anaphor is straightforward (cf. 11a). The possibility of analyzing it as phrasal anaphor arises as a consequence of the fact that Korean is a pro-drop language. Given that *casin* in a complex anaphor occupies the rightmost, head position, a phrasal analysis of *casin* is also possible, as shown in (11b):



Under the first analysis, *casin* will behave as an LDA, by the form-function correlation. However, under the second, it is predicted to behave as a local anaphor. Speakers who are treating *casin* as a local anaphor are taking the phrasal analysis of *casin* (as *pro-casin*), while the speakers who analyze it as LDA are presumably taking the former, non-phrasal analysis.<sup>13</sup>

If we make this plausible assumption, we are able to understand the diametrically opposite ways in which *casin* is analyzed by Korean speakers. What we can also conclude from this structural ambiguity of *casin* is that speakers are actually abiding by the form-function correlation, despite appearance to the contrary.

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<sup>13</sup> This is our theoretical interpretation. Strictly speaking, we do not have independent evidence for the interpretation, though the interpretation is a plausible one. It is difficult to imagine what other properties, besides local vs. LD binding, could differentiate the two structures.

In the individual results, we saw that the local-only speakers are in the minority and a larger number of speakers treat *casin* as an LDA (with or without a LD binding preference). We have reasons to believe that speakers who treat *casin* as a local anaphor represent an older grammar and also that in contemporary Korean *casin* is rapidly increasing in usage. Along with the increased usage of *casin* comes the ability for it to be used in more contexts of LD-binding, an area previously reserved for *caki*.

We make this claim on the basis of the following. *Caki* as a reflexive pronoun is much older than *casin*. It is reported that *caki* began to be attested in written records in late 16<sup>th</sup> century (M-H Kim 2001). The diachronic development of *casin* has not been investigated systematically, to the best of our knowledge, but there is a source that allows us to determine the late development of *casin* (and its derivatives, such as *caki-casin*, etc.) and the expanding use of *casin* in contemporary Korean. The source in question is Bible translations.

The oldest translation of the Bible in Korean still in use is the Revised Korean Translation (*Kay-yek Hangul*). The translation is dated 1956/1961 (the translation was completed in 1956 and published in 1961), but the text on which the revision was based was the first complete translation of the Bible of 1911, which in turn underwent revision in subsequent decades until the revision was published in 1938. The 1956/1961 revision consisted mostly in updating the spelling of the 1938 edition (Y-J Min 1984). As such, the language in the version reflects Korean as used in the early part of the twentieth and late 19<sup>th</sup> centuries.

The text search of the Revised Korean Translation for the reflexive *caki* yielded 1504 verses, while the search for *casin* yielded only 35 verses.<sup>14</sup> The search for *caki-casin* yielded no verses.

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<sup>14</sup> The search reported below was done using the search engine for different on-line versions of the Korean Bible at <http://www.holybible.or.kr>.

Of the 35 verses containing *casin*, only 10 had simple *casin*. The rest were *pronoun+casin* or *noun+casin* (emphatic usage) forms. And all forms of *casin* occurred with local antecedents.

Subsequent translations of the Bible reveal that while the citation numbers for verses containing *caki* remain stable and are slightly on the rise, there is a significant increase in the usage of *casin* and its derivative forms (including *caki-casin*). This can be ascertained from the following table. For example, while *caki* was used about 50 times more frequently than *casin* in the Revised Korean Translation of 1956/61, it is used only about 4 times as frequently as *casin* in the latest translation (Our Language Bible).

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Note that the number of verses cannot be identified with the tokens of these forms, since some verses contain more than one token of the searched form. However, the discrepancy between the two is minor, since most verses have one token of the cited form.

Table 3. Number of verses containing *caki* and *casin* in Bible translations

Version	<i>Caki/Casin</i>	Date of publication
Revised Korean Translation ( <i>Kay-yek Hangul</i> )	1504/35	1956/1961 (updating the 1911-1938 translations)
Common Translation ( <i>Kongtong Pen-yek</i> )	1604/229	1977
Standard New Translation ( <i>Phyocwun Say-pen-yek</i> )	1844/195	1993 (updating the 1967 New Translation)
Revised Amended Translation ( <i>Kay-yek Kayceng</i> )	1658/101	1998
Easy Bible ( <i>Swiwun Sengkyeng</i> )	1939/392	2002
Our Language Bible ( <i>Wulimal Sengkyeng</i> )	2101/514	2004

What we also see is that when the original date of translation is considered, there is a steady increase in the use of *casin* in each subsequent translation of the Bible, with the exception of the Revised Amended Translation. The Standard New Translation is dated after the Common Translation. However, it is a revision of the New Translation, which was published before the Common Translation. The lower figure of *casin* in the Revised Amended Translation, published in 1998, can be understood similarly. This edition is the minimally edited modification of the Revised Korean Translation of 1956/1961, where archaisms and older grammatical structures were modified. It is within the context of this self-imposed constraint that we should understand

the lower number of *casin* tokens in this version. And yet, what is significant is that there are about three times as many tokens of *casin* in this version when compared to the 1956/1961 original.

When we compare the verses (1504 verses in all) in the Revised Korean Translation containing *caki*, the Revised Amended Translation sometimes replaces *caki* with *casin*. However, the opposite is not found: none of the 35 verses containing *casin* in the Revised Korean Translation is translated with *caki* in the Revised Amended Translation. This again indicates that the use of *casin* is increasing in contemporary Korean. Examples of verses with *casin* replacing *caki* are shown below:

(12) nehi-lo pangcong-khey ha-nun *caki*-uy maum-kwa...  
You-inst prostitute-caus.comp do-rel self-gen heart-and...  
“your heart, which leads you to prostitute yourself” (Numbers 15:39)

(13) kakca anay salanghaki-lul *caki*-kathi ha-ko...  
Each wife love.nml-acc self-like do-conj  
‘Each (of you) should love your wife as yourself.’ (Ephesians 5:33)

These two passages from the Revised Korean Translations are kept intact in the Revised Amended Translation except for the change of *caki* to *casin*. In addition to replacing *caki* sometimes, *casin* in the Revised Amended Translation often replaces the adverbial/adnominal *susulo* (‘one’s own’) in several passages. The rate of *caki* being replaced by *casin* seems to be even higher in the later translations, especially in the latest translation, Our Language Bible

(published in 2004), though we have not done a systematic investigation. In this version of the Bible, one can easily spot instances of *casin* occurring with long-distance antecedents.

A final fact of interest about *casin* is that of the 35 occurrences in the Revised Korean Translation of 1956/1961, only two tokens are from the Old Testament.<sup>15</sup> This is not proportional to the size of the Old and New Testaments, but something that is understandable if we consider the history of the translation. As noted in our earlier discussion, the Revised Korean Translation is based on the 1911 translation that was revised through the second and third decades of the twentieth century and published in 1938. What is noteworthy is that the Old Testament of the 1911 version began to be revised in 1911, while the New Testament revision began in 1926 (Y-J Min 1984). Therefore, the Old Testament material reflects an older language and that may be why there are fewer *casin* forms. The usage of *casin* must have slowly begun to increase through the second and third decades of the twentieth century.

Overall, then, we can conclude that *casin* is increasing in frequency in contemporary Korean, and with it, its use as an LDA is also being expanded. This change must be a relatively recent one, if the results from the Bible translations are indicative. This explains the greater proportion of speakers who treat *casin* as an LDA, compared to those who treat it strictly as a local anaphor.

When we examined the profiles of speakers who treat *casin* as a local anaphor or those who treat it as an LDA but without a strong LD binding preference, we found that the majority were in their 40's and 50's. On the other hand, younger speakers were common among those who treat *casin* as an LDA with a strong LD binding preference, though we also had older speakers in this group. The relative distribution of speakers in terms of age seems consistent with our conjecture

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<sup>15</sup> Search result from <http://www.holybible.or.kr>.

that the LD binding of *casin* is an innovation, and is also consistent with the evidence from the Bible translations.<sup>16</sup>

Nevertheless, an interesting question arises about speakers who fail to distinguish *caki* and *casin*, at least in terms of their preference for LD-binding. Do these speakers distinguish the two LDAs at all, and if so, how? Many possibilities suggest themselves, but we cannot answer this question on the basis of the experimental results in this paper. One possibility is that the two LDAs are distinguished in terms of non-syntactic factors. For example, Oshima (2006) has argued that the category of LDAs previously taken to represent logophors should be distinguished further. In particular, he argues that the Japanese LDA *zibun*, taken in some approaches (Sells 1987, Reinhart and Reuland 1993) to be a logophor, should be properly characterized as a POV-o-phor (Point-of-View anaphor) in some cases.<sup>17</sup> Therefore, one way in which two anaphors with similar LD preferences can be distinguished is if one functions as a POV-o-phor while the other functions as a logophor. Or it may be that both are logophors, but are sensitive to different aspects, or components, of logophoricity (Sells 1987). For example,

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<sup>16</sup> A reviewer suggests that the profiles of speakers should be controlled in further experiments to verify this trend. This is a suggestion that we agree with. The reviewer also expresses skepticism at what the results obtained from groups with different sociolinguistic profiles could indicate about the grammar (=competence, as s/he calls it) of reflexives. S/he goes on to question the overall validity of results obtained from a study such as this since the result is based on ‘performance data’ which do not bear directly on ‘competence’, which is what UG constrains.

The point raised is intriguing to say the least. Even in research based on introspective judgments, the primary data is always performance data. We make inferences from such data as to what the underlying grammar (competence) may be like, assuming that performance data reflects and is constrained by competence. In the case at hand, since individual judgments about anaphor binding are notoriously murky and contradictory (see B-M Kang 1998 on this point), a more carefully structured method of collecting ‘performance data’ has been employed in order to get at the underlying grammar (‘competence’). And we have been able to not only verify results based on intuition (i.e., that *caki* is a LDA and that *caki-casin* is a local anaphor) but also uncover interesting variations in the grammars of individuals (regarding *casin*).

The reviewer also seems to question the relationship between results obtained from groups (and corpora) and individual grammars. Unlike a corpus study, where information about individuals cannot be ascertained, in our experimental study, we have access to both group and individual data, and we have made use of both types of data to draw conclusions about the individual grammars and to explain the bimodal distribution of *casin* among speakers.

<sup>17</sup> According to Oshima (2006), it is not the case that Japanese *zibun* functions as POV-o-phor only – *zibun* can occur as a local anaphor, logophor or POV-o-phor. It is the same form that we see, but its function should be distinguished.



*caki* might be a SOURCE logophor, while *casin* might be a SELF logophor. These and other possibilities need to be investigated with further experimental studies.<sup>18</sup>

In sum, we found that the grammar of Korean speakers conforms to the form-function correlation, which we assume to be property that is rooted in UG.<sup>19</sup> The behavior of *casin* is an apparent counterexample to the correlation, but a closer investigation of individual results, coupled with the structural ambiguity of *casin*, has allowed us to reanalyze the pattern of behavior in a manner that is consistent with the correlation. We also noted that the grammar of *casin* seems to be in the midst of an ongoing change, so that in the grammars of many speakers, it has become indistinguishable from *caki* at least with respect to the preference for LD binding. The split in the population between speakers with a strict local interpretation of *casin*, and those with LD interpretations, among which a majority shows a LD binding preference for *casin*, reflects the existence of competing grammars in the population and is indicative of the general direction of the ongoing change.

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<sup>18</sup> Also needing explanation is the behavior of speakers who seem to differentiate *caki* and *casin* in terms of preference for LD binding. This pattern of behavior is likely to be consequence of some other factor (or factors) that differentiates the two anaphors. We do not believe that distance of an antecedent in itself is something that speakers use to differentiate the anaphors.

<sup>19</sup> A reviewer asks how we can maintain that UG is upheld when Korean reflexives such as *caki* can occur in contexts where putative UG constraints (such as c-command) are violated. The objection seems to be that since there are clear cases where Korean reflexives are in violation of putative UG principles, the fact that the form-function correlation is observed cannot lead us to make a more general conclusion that UG constrains the Korean reflexive system overall.

We naturally disagree with this assessment. For example, the Mandarin Chinese reflexive *ziji* can also be unbound or take a non-commanding antecedent. This does not imply that it is not subject to UG. Cole, Hermon, Huang (2001, 2006) and Huang and Liu (2001) argue that when c-commanding antecedents are available, *ziji* must be bound as a core/grammatical anaphor (with the additional twist that when it is LD-bound, it needs to satisfy pragmatic conditions in addition to syntactic conditions, at least for certain dialects/speakers of Mandarin). When antecedents that satisfy grammatical conditions are unavailable, *ziji* is licensed by extra-grammatical principles as an exempt anaphor. Importantly, core and exempt binding are in complementary distribution. That is, *ziji* that can be licensed as a core/grammatical anaphor must be so licensed. Therefore, the fact that certain instances of *ziji* are not constrained by syntactic binding principles does not imply that UG fails to constrain it. If UG were irrelevant, there would be no reason why grammatical/core binding and exempt binding should be in complementary distribution. A similar line of investigation could be extended to unbound/un-commanded reflexives in Korean.

While questions remain, we believe that our results are significant in a number of respects. First of all, the results obtained in this study could have been obtained only through a carefully designed experimental syntactic methodology. As such, it supports the validity of the emerging experimental syntactic methodology. Second, it has provided confirming evidence for the robustness of the form-function correlation. While it appears to be contradicted, a deeper investigation reveals that it is not. Thirdly, we discovered an interesting pattern about variability among speakers regarding the grammar of *casin*. We take these to be encouraging first steps that demand further exploration.

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