



**PROJECT MUSE<sup>®</sup>**

# SEMANTIC BINDING OF LONG-DISTANCE ANAPHOR *CAKI* IN KOREAN

CHUNG-HYE HAN

DENNIS RYAN STOROSHENKO

*Simon Fraser University*

*Yale University*

In this article, we consider the binding-theoretic status of the Korean long-distance anaphor *caki*. While *caki* has been called a long-distance anaphor, in reality its antecedent can be found locally as well as at a distance. It can also have a non-c-commanding antecedent, and an antecedent from a previous sentence. Though there are many different approaches to *caki*, what is apparent is the generalization that *caki* must be coindexed with an NP/DP if there is a possible antecedent in the syntax. We take this one step further and show that *caki* must be bound if there is a possible binder in the semantics, using examples where *caki* is bound by implicit arguments coming from reportative evidentials and generics/modals. We argue that this generalization is best captured if *caki* is seen as a bound variable requiring a semantic binder, and demonstrate how this bound-variable analysis can provide a unified account for local, long-distance, and discourse-bound instances of *caki*, as well as instances of *caki* with a non-c-commanding antecedent and those bound by an implicit argument. The residual cases where *caki* has no possible semantic binder are treated as instances of exempt anaphora, free variables, the felicity of which are subject to discourse conditions.\*

*Keywords:* long-distance anaphor, bound variable, semantic binding, *caki*, Korean

**1. INTRODUCTION.** In this article, we consider the binding-theoretic status of the Korean long-distance anaphor *caki*. Going back to Faltz 1977 and Pica 1987, one of the core defining features of long-distance anaphors (LDAs) is that they are monomorphemic, demonstrable both in the Germanic LDAs *zich* (Dutch) and *seg* (Norwegian) and in the East Asian *ziji* (Chinese) and *zibun* (Japanese). However, while *caki* fits among these other anaphors in terms of its morphological character, there are also some fundamental differences. For example, Reinhart and Reuland (1993) note that in monoclausal coargument contexts, with predicates that are not intrinsically reflexive, *zich* and *seg* are ungrammatical without an accompanying reflexivizing anaphor. This is illustrated by the contrasting grammaticality judgments between 1 and 2.

- (1) a. Dutch  
       \*Max<sub>1</sub> haat **zich**<sub>1</sub>.  
       Max hates self (Reinhart & Reuland 1993:665)
- b. Norwegian  
       \*Jon<sub>1</sub> foraktet **seg**<sub>1</sub>.  
       Jon despised self (Hellan 1988:104)
- (2) Dutch  
       Henk<sub>1</sub> wees zichzelf<sub>1</sub> aan **zich**<sub>1</sub> toe.  
       Henk assigned himself to self  
       ‘Henk assigned himself to self.’ (Reinhart & Reuland 1993:668)

*Caki*, however, allows for local antecedents in monoclausal sentences with no additional support, as in 3.<sup>1</sup>

\* We are extremely indebted to the two anonymous referees and the editor of *Language*, Greg Carlson, for their insightful comments that were crucial in improving this article. We also thank the audiences at the 19th Japanese/Korean Linguistics conference at the University of Hawai‘i at Manoa and the 2010 meeting of the North East Syntax Society of Great Britain (NESS) at the University of York for helpful questions on previous versions of this article. This work was partially supported by SSHRC 410-2007-2169 to Han.

<sup>1</sup> Abbreviations used in the glosses are as follows: ACC: accusative, ADN: adnominal, AUX: auxiliary, COMP: complementizer, COP: copula, DAT: dative, DECL: declarative, FUT: future, GEN: genitive, HON: honorific, INT: interrogative, NOM: nominative, PL: plural, PRS: present, PST: past, REP: reportative, TOP: topic.

- (3) John
- <sub>1</sub>
- i
- caki**
- <sub>1</sub>
- lul piphanha-yess-ta.

John-NOM self-ACC criticize-PST-DECL

'John criticized self.'

(O'Grady 1987:253)

Differences emerge yet again in that although *zich* and *seg* generally cannot be bound by coarguments, they must be bound within the minimal tensed domain (Hellan 1988, Buring 2005). This is illustrated for Norwegian *seg* in 4a,b.

- (4) a. Jon
- <sub>1</sub>
- bad oss förske å få deg til å snakke pent om
- seg**
- <sub>1</sub>
- .

Jon asked us try to get you toward to talk nicely about self

'Jon asked us to try to get you to talk nicely about self.' (Hellan 1988:73)

- b. \*Jon
- <sub>1</sub>
- var ikke klar over at [vi hadde snakket om
- seg**
- <sub>1</sub>
- ].

Jon was not aware over that we had talked about self

'Jon was not aware that we had talked about self.' (Hellan 1988:73)

In 5 below, however, *caki* may take any c-commanding nominal as its antecedent, even beyond the lowest finite clause. As *caki* allows for these long-distance antecedents, the possibility of ambiguity arises. In 5, the antecedent of *caki* can be the embedded subject *Mary* or the matrix subject *John* (O'Grady 1987, Yoon 1989, Cho 1994, Gill 1999, Kim 2000, Kang 2001, Sohng 2004, Kim et al. 2009).

- (5) John
- <sub>1</sub>
- i [Mary
- <sub>2</sub>
- ka
- caki**
- <sub>1/2</sub>
- lul salangha-n-tako] sanygakha-n-ta.

John-NOM Mary-NOM self-ACC love-PRS-COMP think-PRS-DECL

'John thinks that Mary loves self.'

(Yoon 1989:480)

Another property noted by Pica (1987) and other researchers (Cole et al. 1990, Hermon 1992, Cole & Sung 1994, Cole et al. 2001) is that LDAs across languages are subject-oriented in that they can only take subject antecedents. In contrast, a nonsubject can be an antecedent of *caki* (Park 1986, Yoon 1989, Cho 1994, Sohng 2004). In 6a, the antecedent of *caki* can be the object *Tom*, and in 6b, it can be the matrix indirect object *Mary*.<sup>2</sup>

- (6) a. John
- <sub>1</sub>
- un Tom
- <sub>2</sub>
- ul
- caki**
- <sub>1/2</sub>
- uy cip-ulo ponay-ss-ta.

John-TOP Tom-ACC self-GEN house-to send-PST-DECL

'John sent Tom to self's house.'

(Park 1986)

- b. John
- <sub>1</sub>
- i Mary
- <sub>2</sub>
- lopwute [
- caki**
- <sub>1/2</sub>
- ka am-i-lako] tul-ess-ta.

John-NOM Mary-from self-NOM cancer-be-COMP hear-PST-DECL

'John heard from Mary that self has cancer.'

(Yoon 1989:482)

In coming to his foundational definition of an anaphor, Pica also makes the claim that anaphors must be c-commanded by an appropriate antecedent in a given domain and that this relationship cannot obtain across sentence boundaries. Again setting it apart from other LDAs, *caki* can have a non-c-commanding antecedent (O'Grady 1987, Kim 2000), as in 7, and it can even be discourse-bound (Yang 1982, Park 1986, Gill 1999, Kim 2000), with its antecedent in the previous sentence, as in 8.

- (7) [Suni
- <sub>1</sub>
- uy sinpal-un]
- caki**
- <sub>1</sub>
- uy pal-pota hwelssin ku-ta.

Suni-GEN shoes-TOP self-GEN foot-than a.lot big-DECL

'Suni's shoes are a lot bigger than self's feet.'

(Kim 2000:316)

<sup>2</sup> A referee notes that a direct object or an indirect object can be considered to be a subject under the vP/VP shell analysis. The same referee also notes that *ponay*- 'send' is a causative verb and as such its surface object is interpreted as a secondary agent with consciousness within early GENERATIVE SEMANTICS and Jackendoff's (1996) CONCEPTUAL GRAMMAR. S/he points out that this fits in with Lee's (1973, 2001) proposal that the antecedent of *caki* is constrained to be the agent of consciousness, a notion that, we think, is similar to Sells's (1987) SELF. We thank the referee for bringing to our attention this dimension of viewing the data.

(8) A: John<sub>1</sub>-i salam-ul ponay-ss-ni?

John-NOM man-ACC send-PST-INT

‘Did John send a man?’

B: Ani, **caki**<sub>1</sub>-ka cikcep o-ass-e.

no self-NOM in.person come-PST-DECL

‘No, self came in person.’

(Yang 1982)

In addition to these characteristics that set *caki* apart from LDAs in Germanic, there are distinctions between *caki* and other East Asian LDAs, most notably the blocking effect that is commonly associated with the Chinese *ziji*. We discuss how *caki* differs from *ziji* in more detail in §2.

From these observed facts, we see that while *caki* fits the definition of an LDA in that it is a monomorphemic form allowing for long-distance antecedents, it is not subject to the locality constraints and subject orientation familiar from studies of comparable Germanic forms. We further see below that it is equivalently not subject to the blocking effect familiar from East Asian anaphora, and, challenging the core notion of what it means to be an anaphor, *caki* can take non-c-commanding and extrasentential antecedents.

A common thread in the literature on *caki* is concerned with how the nonlocal relationship between *caki* and its antecedent is established in the syntax. Though there are many different approaches, what is apparent is the generalization that *caki* must be coindexed with an NP/DP if there is a possible antecedent in the syntax. These syntactic efforts are challenged in that in some cases, the syntactic antecedent of *caki* can be absent. Examples 9 and 10 from the Sejong Colloquial Corpus illustrate this point.<sup>3</sup> Example 9 is a reportative sentence, with a reportative marker *-tay* on the matrix verb. The antecedent of *caki* in 9 is not syntactically present, but it is understood to be the contextually salient reporter of the reported proposition, which is *Swuyen*, according to the discourse context in the original source. Example 10 is a generic/modal sentence, again with no syntactic antecedent for *caki*. In this case, it is impossible to identify a specific antecedent from the discourse context; instead, *caki* seems to function as an impersonal pronoun similar to English *one*.

(9) **Caki**-nun PD-ka toy-ko sip-tay-yo.

self-TOP producer-NOM become-AUX want-REP-HON

‘(Swuyen said) self wants to become a producer.’ (Sejong Colloquial Corpus)

(10) **Caki** swukcey-nun **caki**-ka ha-nun ke-ya.

self homework-TOP self-NOM do-ADN FUT-DECL

‘In general, self should do self’s homework.’ (Sejong Colloquial Corpus)

We propose that a unified treatment of *caki* in examples such as in 3 and 5–8 as well as in 9–10 can be given with a novel generalization that *caki* must be bound in the semantics if there is a possible semantic binder. It is shown that in 9 and 10, though binders of *caki* are not present in the syntax, *caki* is still bound by implicit arguments coming from the semantics of reportatives and generics/modals. In examples with a syntactic antecedent, as in 3 and 5–7, the semantic binder trivially corresponds to the syntactic antecedent. The instances of discourse binding, as in 8, can also be shown to reduce to sentence-local semantic binding, along the lines of Park 1986 and Gill 1999, which are discussed in more detail later in the article. We argue that this generalization

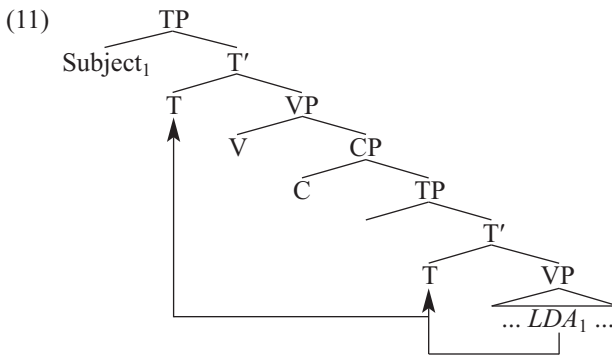
<sup>3</sup> The Sejong Colloquial Corpus is published by the National Korean Language Institute and the Department of Tourism and Culture in Korea ([www.sejong.or.kr](http://www.sejong.or.kr)). The corpus is a collection of transcribed recordings of radio/TV interviews, plays, soap operas, news, and talk shows.

about *caki* binding leads naturally to the conclusion that *caki* should be seen as a bound variable requiring a semantic binder.<sup>4</sup>

The rest of the article is organized as follows. We first sort through what has been said about *caki*, classifying the numerous publications on *caki* into three main approaches: the approach where the restrictions on *caki*-interpretation are reduced to something like condition A or B, the approach where these restrictions take the form of an antecedent hierarchy, and the approach where they are subject to conditions of logophoricity. We then present our proposed analysis of *caki* as a bound variable. After a discussion of supporting data for viewing *caki* as a bound variable, we demonstrate how this bound-variable analysis can provide a unified account for local, long-distance, and discourse-bound instances of *caki* as well as instances of *caki* with a non-c-commanding antecedent and those bound by an implicit argument. Finally, we deal with the residual cases where *caki* has no possible semantic binder. These are treated as instances of exempt anaphora, free variables, the felicity of which are subject to discourse conditions. We situate these free-variable uses within a larger crosslinguistic context of bound and exempt forms, leading into a discussion of the implications for the grammatical status of LDAs within and between languages. We conclude with a brief discussion of the place of *caki* in the larger typology of LDAs.

**2. WHAT HAS BEEN SAID ABOUT *caki*.** The background literature on *caki* is extensive, and often contradictory. It is not uncommon to see nearly identical structures given opposing judgments by two different authors. In this section, we attempt to sort through these conflicts, identifying three major threads of discussion with regard to the interpretation of *caki*.

**2.1. *Caki*-INTERPRETATION IS SUBJECT TO SOMETHING LIKE CONDITION A OR B.** One of the most influential approaches to LDAs in East Asian languages is the cyclic head movement approach developed in Cole et al. 1990 and Cole & Sung 1994. In this approach, LDAs undergo a cyclic head movement to the matrix Infl at LF (logical form), as illustrated in 11. There, the LDA enters into a local Spec-head agreement relation with the matrix subject, its syntactic antecedent. Restrictions on interpreting LDAs thus reduce to something very much like Chomsky's (1981) CONDITION A: an LDA is required to be c-commanded by its antecedent within a local domain.



<sup>4</sup> *Caki* can have a second-person reference, also called an inherent reference. Second-person *caki* does not require an antecedent, as shown in (i), and it generally has the function of intimate address, with its use more prevalent among younger generations.

(i) **Caki**-ka chakha-ta.  
 you-NOM good-DECL  
 'You are good.'

(Sohng 2004)

The cyclic head movement analysis consequently predicts that only a subject can be the antecedent of an LDA (subject orientation). Example 12, taken from Cole & Sung 1994, illustrates the subject orientation of Chinese *ziji*. Here, the embedded subject or the matrix subject, but not the indirect object, can be the antecedent of *ziji*.

- (12) Wangwu<sub>1</sub> shuo [Zhangsan<sub>2</sub> zengsong gei Lisi<sub>3</sub> yipian guanyu **ziji**<sub>1/2/\*3</sub> de  
Wangwu say Zhangsan give to Lisi one about self DE  
wenzhang].  
article

‘Wangwu says that Zhangsan gave an article about self to Lisi.’

(Cole & Sung 1994:360)

Cole et al. 1990 and Cole & Sung 1994 also predict that in languages like Chinese and Korean with no verbal agreement, a blocking effect is evident in a configuration as in 13, such that subject<sub>1</sub> cannot be the antecedent of the LDA if subject<sub>1</sub> and subject<sub>2</sub> are different in person. This blocking effect is illustrated in 14 for Chinese. Here, the presence of a first-person subject in a clause intervening between the LDA and the higher subject (*Zhangsan*) blocks long-distance anaphora.

- (13) [subject<sub>1</sub> ... [subject<sub>2</sub> ... LDA ...]]  
(14) Zhangsan<sub>1</sub> renwei [wo<sub>2</sub> zhidao [Wangwu<sub>3</sub> xihuan **ziji**<sub>\*1/\*2/3</sub>]].  
Zhangsan think I know Wangwu like self

‘Zhangsan thinks that I know that Wangwu likes self.’ (Cole et al. 1990:15)

But *caki* is not strictly subject-oriented, and it is not subject to the blocking effect. Examples in 6 showed that a subject, a direct object, or an indirect object can serve as an antecedent of *caki*. Example 15 shows that the matrix third-person subject *Chelswu* can be the antecedent of *caki* even though there is an intervening first-person subject.

- (15) Chelswu<sub>1</sub>-nun [nay-ka **caki**<sub>1</sub>-lul salangha-n-tako] sayngkakha-n-ta.  
Chelswu-TOP I-NOM self-ACC love-PRS-COMP think-PRS-DECL

‘Chelswu thinks I love self.’

(Cole et al. 1990:19)

The examples in 6 are fairly representative of the instances of nonsubject antecedents for *caki* that are seen in the literature. Particularly in the case of 6b, it is worth noting that the matrix verb is *tut-* ‘hear’, for which a matrix indirect object antecedent of *caki* is often reported. Parallel examples using *malha-* ‘say’ are more frequent in the literature (Cho 1994, Sohng 2004), though the judgments are less consistent, with some authors rejecting nonsubject antecedents for *caki* in such environments.<sup>5</sup> Han & Storoshenko 2013 addresses this issue, showing that there are indeed differences depending on the associated predicates. Specifically, nonsubject antecedents are more frequently accepted with *tut-* ‘hear’ over *malha-* ‘say’.

Aware that *caki* is not subject to the blocking effect and can allow nonsubject antecedents, Cole and colleagues do not classify *caki* as an LDA. Instead, providing the

Following Lee 1973, we regard such usage of *caki* as exceptional, and simply observe that second-person *caki* is a deictic element that is not subject to binding.

<sup>5</sup> A referee likens the indirect object interpretation of *caki* in examples such as (i), where *caki* is replaceable by a second-person pronoun in a corresponding direct speech, to the use of *caki* as a form of second-person address (see n. 4), observing that both uses of *caki* are more popular among younger generations.

(i) John<sub>1</sub>-un Mary<sub>2</sub>-eykey [**caki**<sub>2</sub>-ka iky-ess-tako] malha-yess-ta.  
John-TOP Mary-to self-NOM win-PST-COMP say-PST-DECL  
‘John said to Mary that self won.’  
‘John said to Mary “You won.”’

Conflicting views in the literature on such examples could therefore also be an artifact of generational differences.

example in 16, they classify *caki* as a pronoun that is subject to condition B. Other linguists, however, do not share their judgment on such examples (O'Grady 1987, Cho 1994, Gill 1999, Kim 2000, Kang 2001, Sohng 2004, Kim et al. 2009). O'Grady (1987), for example, reports that 17 (repeated from 3) is perfectly acceptable, though it should be noted that Cole and colleagues do not judge 16 to be ungrammatical, but merely degraded.

- (16) ??John<sub>1</sub>-un **caki**<sub>1</sub>-lul miweha-n-ta.  
 John-TOP self-ACC hate-PRS-DECL  
 'John hates self.' (Cole et al. 1990:19)
- (17) John<sub>1</sub>-i **caki**<sub>1</sub>-lul piphanha-yess-ta.  
 John-NOM self-ACC criticize-PST-DECL  
 'John criticized self.' (O'Grady 1987:253)

The only difference between the two examples (aside from the fact that the subject is topic-marked in 16 and nominative case-marked in 17) is the type of verbal predicate used. According to Lee (1988), *miweha-* in 16 is a physical predicate and literally means 'do the behavior of hating or show signs of hating', and *piphanha-* in 17 is a mental predicate and literally means 'be critical'. Lee observes that between the two types of predicate, the mental predicate type more readily allows coargument use of *caki*, as reflected in the reported judgments in 16 and 17. Clearly, as shown by Lee, there is a subtle interaction between the lexical properties of predicates and the acceptability of *caki* with a local antecedent. This is not surprising, though, as we have already seen with examples such as 6b that it appears that the predicate plays some role in the interpretation of *caki* in nonlocal contexts as well. Moreover, Kang (2001) reports that in examining accusative-marked forms of *caki* in the KOREA-1 Corpus (Korea University Corpus of Korean, collection 1), he found just as many instances of *caki* with a local antecedent (151 tokens) as with a nonlocal antecedent (165 tokens). It is thus safe to say that *caki* can have a local antecedent, and so it should not be classified as a pronoun that is subject to condition B.

This issue is taken up again in Sohng 2004, where it is argued that *caki* is an LDA and that it can be made compatible with the cyclic head movement analysis. First, Sohng argues that Korean *caki* has inherent  $\phi$ -features (third person), but Chinese *ziji* does not. This follows from Lee's (1973) observation that the antecedent of *caki* is constrained to be third person, while there is no such constraint on the antecedent of *ziji*. Sohng then proposes a modified version of the head movement analysis, incorporating this difference in  $\phi$ -features to account for the difference in subject orientation and blocking effect between *caki* and *ziji*. He proposes that because Korean *caki* has inherent third-person  $\phi$ -features, there is no need for feature checking through Spec-head agreement at LF. In Chinese, *ziji* lacks inherent  $\phi$ -features, and so must be checked through Spec-head agreement with each Infl node passed through at LF. This will lead to feature clash if a lower subject is different in person from the higher subject, resulting in the observed blocking effect. As for the lack of subject orientation, Sohng proposes a mechanism of chain binding, whereby a nonsubject NP/DP would locally c-command a link in the movement chain of *caki* as it moves up to the matrix Infl. He argues that a c-commanding nonsubject NP/DP can serve as an antecedent of an LDA iff all the members of that LDA's chain have  $\phi$ -features. Chinese *ziji* does not have inherent  $\phi$ -features, so there will always be a member of the *ziji* chain that lacks  $\phi$ -features and thus a nonsubject DP cannot be an antecedent. Conversely, Korean *caki* has inherent  $\phi$ -features, so a nonsubject DP can be an antecedent.

Though Sohng's analysis brings *caki* in line with the head movement analysis of other LDAs, it remains unclear why there should be this correlation between the subject



orientation and the  $\phi$ -feature property of the LDA. Furthermore, this analysis still treats *caki* as requiring a c-commanding syntactic antecedent. But, as we have seen in the introduction, an antecedent of *caki* need not c-command it, and is even retrievable from the prior discourse. Also, there are cases in which *caki*'s understood antecedent can be an implicit argument that is present in the semantics but not in the syntax.

**2.2. *Caki*-INTERPRETATION IS SUBJECT TO AN ANTECEDENT HIERARCHY.** An approach to *caki*-interpretation that does not require the antecedent to c-command *caki* can be found in those works adopting the view that *caki*-interpretation is subject to principles that make use of an antecedent hierarchy. O'Grady (1987) and Kim (2000) each develop a system using an antecedent hierarchy based on grammatical functions. O'Grady's system is summarized in 18 and Kim's in 19.<sup>6</sup>

(18) O'Grady 1987

- a. Preference hierarchy: subject > direct object, indirect object > other NPs
- b. The priority principle: *Caki* takes as antecedent the highest eligible NP in the hierarchy, where an eligible NP is third person with a human referent.

(19) Kim 2000

- a. Prominence hierarchy: topic > subject > object of verb > object of postposition > genitive NP > object of comparative
- b. Prominence principle for anaphors in Korean: *Caki* must be coreferential with a potential antecedent (PA) only if there is a PA, where a PA for *caki* is a third-person NP that is more prominent than *caki*.
- c. Interpretation rule for anaphors in Korean: When there is more than one competing interpretation of *caki*, the larger the gap between an antecedent and *caki* in the prominence hierarchy, the more preferred the interpretation.

Both systems predict that a genitive can serve as an antecedent of *caki*, as in 7, repeated here as 20. According to O'Grady, the genitive *Suni* is the only eligible NP and so it is the highest NP in the preference hierarchy. It therefore can be an antecedent of *caki* even though it does not c-command it. According to Kim, since *Suni* is a genitive and *caki* is the complement of a comparative, *Suni* is higher in the hierarchy than *caki*. This makes *Suni* more prominent than *caki*, and so *Suni* can be the antecedent of *caki*.

(20) [Suni<sub>1</sub>-uy sinpal-un] **caki**<sub>1</sub>-uy pal-pota hwelssin ku-ta.

Suni-GEN shoes-TOP self-GEN foot-than a.lot big-DECL

'Suni's shoes are a lot bigger than self's feet.'

(Kim 2000:316)

However, these analyses also predict that an NP in an island can be an antecedent of *caki*, as in 21. In O'Grady's system, *John* in the relative clause is the only eligible NP and so it is the highest NP in the preference hierarchy. Thus, it can be an antecedent of *caki*. In Kim's system, the only potential antecedent, *John*, is a subject and so it is higher in the hierarchy than *caki*, which is an object of a postposition. This also results in the prediction that *John* should be a possible antecedent for *caki*.

(21) Nay-ka [John<sub>1</sub>-i wenha-yess-ten chayk-ul] **caki**<sub>1</sub>-eykey cwu-ess-ta.

I-NOM John-NOM want-PST-ADN book-ACC self-to give-PST-DECL

'I gave the book that John wanted to self.'

(O'Grady 1987:254)

In reporting these data, O'Grady himself notes that speakers sometimes do not accept examples such as 21 initially, and it is worth noting that no similar examples of *caki*

<sup>6</sup> A referee points out that Kim's (2000) antecedent hierarchy is similar to Lee's (1973) topicalization hierarchy and Keenan and Comrie's (1977) relativization hierarchy.



with such an embedded antecedent were found in our study of the Sejong Colloquial Corpus. Moreover, different judgments on similar examples can be found in the literature. Lee (1973), for example, reports that an NP in a subject clause cannot be an antecedent of *caki*, as in 22. What emerges from these conflicting discussions is that while examples such as 20 are readily acceptable to native speakers, examples such as 21 and 22 are degraded. This contrast in grammaticality judgments is not expected under antecedent hierarchy approaches.

- (22) \*[Sue-ka Joe<sub>1</sub>-lul palapo-nun kes-i] **caki**<sub>1</sub>-eykey culkep-ess-ta.  
 Sue-NOM Joe-ACC look.at-ADN fact-NOM self-DAT pleasant-PST-DECL  
 'The fact that Sue is looking at Joe was pleasing to self.' (Lee 1973)

Another incorrect prediction the two systems make can be seen with 23. Here, they both predict that only the matrix subject can be the antecedent of *caki*. For O'Grady, the matrix subject *Cheli* is higher in the hierarchy than the indirect object *Yengi*, and so only *Cheli* can be the antecedent. For Kim, while the topic *Cheli* can be an antecedent of *caki*, the indirect object *Yengi* cannot, because *caki*, since it is a subject, is higher in the hierarchy than *Yengi*, but lower in the hierarchy than *Cheli*.

- (23) Cheli<sub>1</sub>-nun Yengi<sub>2</sub>-eykey [**caki**<sub>1/\*2</sub>-ka iky-ess-tako] malha-yess-ta.  
 Cheli-TOP Yengi-to self-NOM win-PST-COMP say-PST-DECL  
 'Cheli said to Yengi that self had won.' (Kim 2000:322)

Again, there is conflict in the literature. Sohng (2004), in giving examples parallel to 23, indicates a preference to interpret *caki* with *Cheli* (in this case) as the antecedent, but would still maintain that the interpretation in which *Yengi* is the antecedent is also readily available. The availability of this interpretation is consistent with the judgments reported for 6b in the literature: that the indirect object *Mary* can be an antecedent for the subject *caki*.

The antecedent hierarchy-based accounts are flexible enough to account for examples where *caki* takes a non-c-commanding antecedent. But they are too inclusive in that they readily allow an NP/DP in an island to be an antecedent, and at the same time they are too exclusive in that they rule out interpretations that are readily acceptable to native speakers, apparently ruling out the possibility that *caki* can be ambiguous. These hierarchies most likely play a role in the formation of violable pragmatic principles, rather than grammatical constraints, predicting preferred interpretations when there is more than one possible antecedent.

**2.3. *Caki*-INTERPRETATION IS SUBJECT TO CONDITIONS OF LOGOPHORICITY.** Another prevalent approach to *caki* is that it is a logophor whose antecedent must be a logophoric center. Adopting the tests used in Sells 1987 on the logophoric status of Japanese *zibun*, Yoon (1989) attempts to make a case that *caki*'s antecedent must be the pivot, the person from whose point of view the report is made. However, the judgments Yoon reports in building her case either do not fully support the logophoric approach or have been called into question.

Yoon reports that in 24, only *John* can be the antecedent of *caki*, since he is the source of the report and hence the pivot. In 5, however, a sentence similar to 24, Yoon reports that the matrix subject, the source of the thought, is not the only possible antecedent of *caki*. Moreover, Yoon reports that in 6b, both *John* and *Mary* can serve as an antecedent of *caki*. In that sentence, *Mary* is the pivot, so it should be the only possible antecedent.

- (24) John<sub>1</sub>-i Mary<sub>2</sub>-eykey [**caki**<sub>1/\*2</sub>-ka am-i-lako] malha-yess-ta.  
 John-NOM Mary-DAT self-NOM cancer-COP-COMP say-PST-DECL  
 'John told Mary that self has cancer.' (Yoon 1989:485)

Yoon also reports a contrast in grammaticality judgments between 25a and 25b. According to Yoon, the source of this contrast is the embedded-clause verbs, one with *o-* ‘come’ and the other with *ka-* ‘go’. Yoon claims that *o-* requires speaker empathy with the goal/destination, in this case *John*, making *John* the pivot in 25a, and thus dictating that only he can be the antecedent for *caki*. Conversely, *ka-* requires agent empathy, making *Tom* the pivot, and thus blocking *caki* from taking the matrix subject as the antecedent in 25b. Though the interpretation in which *John* is the antecedent of *caki* may be awkward, it is not completely ruled out, as Yoon herself acknowledges. This interpretation could be possible in a scenario where Tom has gone to a place John can reasonably be expected to be found, but John is not actually there at the time of utterance. Moreover, following Yoon’s reasoning, the pivot *Tom* should be the only possible antecedent for *caki* in 25b. But this reading is not available, as it is not sensible to say that Tom went somewhere to visit himself.

- (25) a. John<sub>1</sub>-i Mary<sub>2</sub>-eykey [Tom<sub>3</sub>-i **caki**<sub>1</sub>-lul pole-o-ass-tako]  
 John-NOM Mary-DAT Tom-NOM self-ACC see-come-PST-COMP  
 malha-yess-ta.  
 say-PST-DECL  
 ‘John told Mary that Tom came to see/visit self.’ (Yoon 1989:486)
- b. \*John<sub>1</sub>-i Mary<sub>2</sub>-eykey [Tom<sub>3</sub>-i **caki**<sub>1</sub>-lul pole-ka-ass-tako]  
 John-NOM Mary-DAT Tom-NOM self-ACC see-go-PST-COMP  
 malha-yess-ta.  
 say-PST-DECL  
 ‘John told Mary that Tom went to see/visit self.’ (Yoon 1989:486)

It should also be noted that different judgments have been reported on similar or identical sentences by different authors. For instance, Park (1986) reports ambiguity for the sentences in 26. Though these examples were originally used by Park as part of an argument against the subject orientation of *caki*, they have interesting implications for the current discussion on the logophoricity of *caki*. In 26a, the indirect object is ordered into motion, and in 26b, the direct object is made to undergo motion. These should be pivots according to Yoon, yet the subject remains a possible antecedent in both cases.

- (26) a. John<sub>1</sub>-un Mary<sub>2</sub>-eykey [**caki**<sub>1/2</sub>-uy cip-ulo ka-lako]  
 John-TOP Mary-DAT self-GEN home-to go-COMP  
 myenglyengha-yess-ta.  
 order-PST-DECL  
 ‘John ordered Mary to go to self’s house.’ (Park 1986)
- b. John<sub>1</sub>-un Tom<sub>2</sub>-ul **caki**<sub>1/2</sub>-uy cip-ulo ponay-ess-ta.  
 John-TOP Tom-ACC self-GEN home-to send-PST-DECL  
 ‘John sent Tom to self’s house.’ (Park 1986)

It is thus doubtful that *caki* should be characterized as a logophor. Logophoricity may still play a role, though, in choosing an antecedent when there is more than one possibility in a given context. But again, as with antecedent hierarchies, the role it plays should be cast in terms of violable pragmatic principles, and not as rigid grammatical constraints.

In sum, we still need a grammatical account of *caki* that includes c-commanding arguments (subject, direct object, and indirect object) as well as non-c-commanding genitives in the set of possible antecedents. This account should also allow for both local and nonlocal antecedents as well as binding by implicit arguments, as illustrated in 9–10, and instances of discourse binding, as illustrated in 8. At the same time, it should

have an explanation as to why there is a contrast in acceptability between examples with a genitive antecedent, as in 20, and those with an antecedent in an island, as in 21. In §3, we argue that all of these follow if we treat *caki* as a bound variable, recognizing that ambiguous cases may be subject to further pragmatic considerations.

**3. *Caki* AS A BOUND VARIABLE REQUIRING A SEMANTIC BINDER.** In §3.1, we present arguments for the bound-variable status of *caki*. In §3.2, we present apparent counterexamples discussed in the literature that seem to support the view that *caki* should be interpreted through coreference with its antecedent, not variable binding. We argue that these too can be brought in line with the bound-variable treatment of *caki*. The exact mechanism for how *caki* is bound in the semantics is presented in §3.3.

**3.1. THE CASE FOR THE BOUND-VARIABLE STATUS OF *caki*.**

VP-ELLIPSIS. In sentences such as 27 and 28, *caki* must be bound by the quantifier *motwu* ‘every’. In 27, *caki* is bound locally, and in 28, it is bound at a distance. In either case, it cannot be construed as a free variable referring to some contextually salient person.

(27) *Motwu*<sub>1</sub>-ka ***caki***<sub>1</sub>-lul salangha-n-ta.  
 everyone-NOM self-ACC love-PRS-DECL  
 ‘Everyone loves self.’

(28) *Motwu*<sub>1</sub>-ka [John<sub>2</sub>-i ***caki***<sub>1</sub>-lul salangha-n-tako] sayngkakha-n-ta.  
 everyone-NOM John-NOM self-ACC love-PRS-COMP think-PRS-DECL  
 ‘Everyone thinks that John loves self.’ (Moon 1995)

Support for the view that *caki* is also a bound variable when its antecedent is a proper noun comes from VP-ellipsis. In English, sentences containing quantifiers, pronouns, and VP-ellipsis, as in 29, are ambiguous between a strict reading and a sloppy reading.

(29) Every woman in Culver City hates her neighbor, but no woman in Los Feliz does. (Büring 2005:114)

Under the strict reading, *her* in the overt VP is a free variable and obtains its meaning by referring to some contextually salient female, and the corresponding pronoun in the elided VP is also a free variable and corefers with the same female. So, under this reading, there is a particular female whose neighbor all Culver City women hate, but not Los Feliz women. Under the sloppy reading, *her* in the overt VP and the corresponding pronoun in the elided VP are bound variables, and are bound by *every woman* and *no woman* respectively. So, under this reading, every woman in Culver City hates her own neighbor, but no Los Feliz woman hates the people that she herself lives near.

Sentences with proper nouns and VP-ellipsis in English show similar ambiguity, as in 30. Under the strict reading, as a free variable, *his* can corefer with *Felix* or refer to some other contextually salient male, and the sentence means that Felix and Max both hate that male’s neighbor. Under the sloppy reading, *his* is bound by *Felix*, and the sentence means that Felix hates Felix’s neighbor, and Max hates Max’s neighbor, the elided pronoun being bound by *Max*.

(30) Felix hates his neighbor, and Max does, too. (Büring 2005:114)

In contrast, only the sloppy reading is available to similar VP-ellipsis examples in Korean. For instance, 31 can only be interpreted as John trusted John too much and Mary trusted Mary too much. This indicates that *caki* should be interpreted through variable binding, and not through coreference with its antecedent. If *caki* were merely coreferential, then the strict reading where Mary overtrusted John should also be available.

- (31) John<sub>1</sub>-i **caki**<sub>1</sub>-lul kwasinhay-ss-ko, Mary-to kule-ha-yess-ta.  
 John-NOM self-ACC overtrust-PST-and Mary-also so-do-PST-DECL  
 ‘John overtrusted self, and Mary did too.’ (Cho 1996:631)  
 = Mary overtrusted Mary. (✓ Sloppy)  
 ≠ Mary overtrusted John. (\* Strict)

The same facts obtain when the antecedent of *caki* is in a higher clause. In 32, only the sloppy reading is available in which Tongswu thought Tongswu was a genius, indicating that *caki* is a bound variable here too.

- (32) Cheli<sub>1</sub>-nun [**caki**<sub>1</sub>-ka chencay-lako] sayngkakha-yess-ta. Tongswu-to  
 Cheli-TOP self-NOM genius-COMP think-PST-DECL Tongswu-also  
 kule-ha-yess-ta.  
 so-do-PST-DECL  
 ‘Cheli thought that self was a genius. Tongswu did so too.’  
 (Kim & Yoon 2009:748)  
 = Tongswu thought Tongswu was a genius. (✓ Sloppy)  
 ≠ Tongswu thought Cheli was a genius. (\* Strict)

‘ONLY’ NP/DPs. The interpretation of sentences with ‘only’ NP/DPs, another test of bound-variable readings, also support the bound-variable status of *caki*. In English, sentences containing *only* and a pronoun are ambiguous, as in 33, depending on how the pronoun is interpreted.

- (33) I only said that TATJANA should stay in her room. (Büring 2005:107)

If interpreted as a free variable, *her* can corefer with Tatjana or refer to some other contextually salient female, and the sentence implies that the speaker did not say anyone other than Tatjana should stay in Tatjana’s (or some other contextually salient female’s) room. If interpreted as a bound variable, *her* is bound by Tatjana, and the sentence implies that the speaker did not say anyone other than Tatjana should stay in his/her own room.

Similar examples in Korean are not ambiguous, however, and have the bound-variable reading only. For instance, 34 means that John is the only one that trusts himself too much and other people do not trust themselves too much. Example 35 means that Cheli is the only one that thought he was a genius and other people do not think that they are geniuses. Crucially, 34 is true if other people trusted John too much and 35 is still true if other people thought that Cheli was a genius; under a coreferential reading of *caki*, these examples should be judged false in such contexts.

- (34) John<sub>1</sub>-man-i **caki**<sub>1</sub>-lul kwasinhay-ss-ta.  
 John-only-NOM self-ACC overtrust-PST-DECL  
 ‘Only John overtrusted self.’  
 (35) Cheli<sub>1</sub>-man-i [**caki**<sub>1</sub>-ka chencay-lako] sayngkakha-yess-ta.  
 Cheli-only-NOM self-NOM genius-COMP think-PST-DECL  
 ‘Only Cheli thought that self was a genius.’

ABSENCE OF SUBJECT ORIENTATION. A binder of a bound variable need not be a subject. In 36, a bound variable in English is bound by an indirect object quantifier.

- (36) a. John told every student<sub>1</sub> that Tom likes **him**<sub>1</sub>.  
 b.  $\forall x$ [ $x$  is a student][John told  $x$  that Tom likes  $x$ ]

The fact that *caki* can be bound by a nonsubject NP/DP is then consistent with the view that it is a bound variable. We saw examples where *caki* is bound by a nonsubject proper noun in 6, and 37 shows that *caki* can be bound by a nonsubject quantifier.

- (37) John-i motun haksayng<sub>1</sub>-ulopwute [Tom-i **caki**<sub>1</sub>-lul cohaha-n-tako]  
 John-NOM every student-from Tom-NOM self-ACC like-PRS-COMP  
 tul-ess-ta.  
 hear-PST-DECL  
 ‘John heard from every student that Tom likes self.’

BINDING FROM THE GENITIVE. In English, a genitive quantifier can bind a variable even though it does not c-command it, as in 38.

- (38) a. [Every senator<sub>1</sub>'s portrait] was on **his**<sub>1</sub> desk. (Büring 2005:175)  
 b.  $\forall x$ [ $x$  is a senator][ $x$ 's portrait was on  $x$ 's desk]

Example 39 shows that *caki* can be bound by a genitive quantifier as well.

- (39) [Motwu<sub>1</sub>-uy sinpal-un] **caki**<sub>1</sub>-uy pal-pota hwelssin ku-ta.  
 everyone-GEN shoes-TOP self-GEN foot-than a.lot big-DECL  
 ‘Everyone’s shoes are a lot bigger than self’s feet.’

The mechanism that is responsible for variable binding in 38 and 39 can thus also account for the binding of *caki* by a genitive proper noun in 20.

CONTROL STRUCTURES. Control structures provide an additional test for bound-variable environments. In her enumeration of bound-variable pronouns, Kratzer (2009) defines PRO as a bound variable whose form is dictated by the particular syntactic environment. Thus, a controlled embedded-clause subject can be regarded as a bound variable, subject to construction-specific constraints. This is relevant to the discussion at hand in that, according to Madigan (2006), *caki* may be used as an alternative to PRO in obligatory control structures. In 40, the subjects of the most deeply embedded clauses can be realized either as a covert PRO or as overt *caki* without any appreciable change in meaning.

- (40) a. Cwuhi<sub>1</sub>-ka [Inho<sub>2</sub>-ka [PRO<sub>\*1/2</sub> ttena-keyss-tako] yaksokha-yess-tako]  
 Cwuhi-NOM Inho-NOM leave-FUT-COMP promise-PST-COMP  
 sayngkakha-yess-ta.  
 think-PST-DECL  
 ‘Cwuhi thought that Inho promised to leave.’  
 b. Cwuhi<sub>1</sub>-ka [Inho<sub>2</sub>-ka [**caki**<sub>\*1/2</sub>-ka ttena-keyss-tako] yaksokha-yess-tako]  
 Cwuhi-NOM Inho-NOM self-NOM leave-FUT-COMP promise-PST-COMP  
 sayngkakha-yess-ta.  
 think-PST-DECL  
 ‘Cwuhi thought that Inho promised SELF to leave.’ (Madigan 2006)

Furthermore, Madigan provides evidence from VP-ellipsis tests similar to those in §3.1 showing that both PRO and *caki* can only have sloppy readings in ellipsis contexts. The examples in 41 not only verify the bound-variable nature of PRO in this context, but also show that this is shared by *caki*.<sup>7</sup>

<sup>7</sup> A referee correctly notes that although the referential function of PRO and *caki* may be the same in control contexts, *caki* has a contrastive-focus effect, which PRO lacks. We think this is part of a larger phenomenon attested across languages where overt and covert pronominals that have the same truth-conditional meaning differ in discourse functions.

- (41) a. Cwuhi<sub>1</sub>-ka Inho-eykey [PRO<sub>1</sub> ttena-keyss-tako] yaksokha-yess-ta.  
 Cwuhi-NOM Inho-DAT leave-FUT-COMP promise-PST-DECL  
 Bill-to kuli-ha-yess-ta.  
 Bill-also same-do-PST-DECL  
 ‘Cwuhi promised Inho that she would leave. Bill did so too.’  
 (Madigan 2006)  
 = Cwuhi promised Inho that she (Cwuhi) would leave and Bill promised  
 Inho that he (Bill) would leave. (✓ Sloppy)  
 ≠ Cwuhi promised Inho that she (Cwuhi) would leave and Bill promised  
 Inho that she (Cwuhi) would leave. (\* Strict)
- b. Cwuhi<sub>1</sub>-ka Inho-eykey [**caki**<sub>1</sub>-ka ttena-keyss-tako] yaksokha-yess-ta.  
 Cwuhi-NOM Inho-DAT self-NOM leave-FUT-COMP promise-PST-DECL  
 Bill-to kuli-ha-yess-ta.  
 Bill-also same-do-PST-DECL  
 ‘Cwuhi promised Inho that self would leave. Bill did so too.’  
 (Madigan 2006)  
 = Cwuhi promised Inho that self (Cwuhi) would leave and Bill promised  
 Inho that self (Bill) would leave. (✓ Sloppy)  
 ≠ Cwuhi promised Inho that self (Cwuhi) would leave and Bill promised  
 Inho that self (Cwuhi) would leave. (\* Strict)

An apparent challenge to using the replaceability of PRO with *caki* in control contexts as a supporting argument to the variable-binding analysis for *caki* is that there is an unexpected restriction on the antecedent: *caki* can only take the subject of the controlling predicate as its antecedent in 40 and 41. Another unexpected restriction appears in 42.

- (42) a. Cwuhi<sub>1</sub>-ka [PRO<sub>1/\*arb</sub> ttena-keyss-tako] yaksokha-yess-ta.  
 Cwuhi-NOM leave-FUT-COMP promise-PST-DECL  
 ‘Cwuhi promised (Cwuhi only) to leave.’
- b. Cwuhi<sub>1</sub>-ka [**caki**<sub>1/\*arb</sub>-ka ttena-keyss-tako] yaksokha-yess-ta.  
 Cwuhi-NOM self-NOM leave-FUT-COMP promise-PST-DECL  
 ‘Cwuhi promised (Cwuhi only) to leave.’ (Madigan 2006)

In 42, neither PRO nor *caki* can have an arbitrary reading; both are obligatorily bound by the subject. This is again unexpected for *caki*, since it has been shown to possibly have a generic/arbitrary reading, as in 10. For all of these cases, it is crucial to note that the very same restrictions are present on PRO as are seen for *caki*. Throughout Madigan’s discussion, it is clear that whatever conditions are placed upon the interpretation of PRO, those same conditions are present when *caki* stands in the place of PRO in these types of control structures. What this means is that the restrictions are a function of the particular control construction, and do not constitute any far-reaching restrictions on the use of *caki*.

In sum, while it is not the case that all instances of *caki* should be taken as PRO, these data illustrate that PRO, a known bound variable, is replaceable with *caki*, further supporting our position that *caki* is restricted to a bound-variable interpretation when there is a possible binder in the sentence.

### 3.2. APPARENT COUNTEREXAMPLES.

SPLIT ANTECEDENTS. Plural *caki-tul* can take two singular antecedents, as in 43. Huang (2000) uses this example as evidence that *caki* can have split antecedents. That is, *caki-tul* finds its reference from a composite of the matrix subject and the indirect



object. A split-antecedent reading of this type is difficult to reconcile with a bound-variable treatment, and can generally be considered a diagnostic for a coreferential pronominal element, rather than a bound variable.

- (43) John<sub>1</sub>-un Mary<sub>2</sub>-eykey [**caki**-tul<sub>1+2</sub>-i iki-lke-lako] malha-yess-ta.  
 John-TOP Mary-DAT self-PL-NOM win-FUT-COMP say-PST-DECL  
 ‘John told Mary that selves would win.’ (Huang 2000:99)

In Madigan & Yamada 2006, however, it is noted that when *caki-tul* has a singular antecedent, inclusive reference results, as in 44. Here, *caki-tul* refers to *John*, plus some other contextually salient group.

- (44) John<sub>1</sub>-i **caki**-tul<sub>1+α</sub>-ul sokayha-yess-ta.  
 John-NOM self-PL-ACC introduce-PST-DECL  
 ‘John introduced selves.’

Moreover, in 43, the split-antecedent reading is not the only possible reading. It can also have the inclusive-reference reading, as in 45, wherein *caki-tul* refers to *John* and some other contextually defined group. For some native speakers, it is possible to get a reading where *Mary* is a part of that group, but this is not obligatory, and for other speakers this reading is not possible at all.

- (45) John<sub>1</sub>-un Mary<sub>2</sub>-eykey [**caki**-tul<sub>1+α</sub>-i iki-lke-lako] malha-yess-ta.  
 John-TOP Mary-DAT self-PL-NOM win-FUT-COMP say-PST-DECL  
 ‘John told Mary that selves would win.’

Putting these facts together, purported split-antecedent readings are therefore merely cases of inclusive reference where there is accidental overlap of another argument from the sentence in the contextually salient group (Cho 1996, Storoshenko 2008).

DISCOURSE BINDING. Perhaps the most difficult piece of data to reconcile with the view that *caki* is a bound variable is the one where *caki* is discourse-bound, with its antecedent in the previous sentence, as in 8, repeated here as 46. Examples such as these seem to suggest that *caki* should be interpreted through coreference, and not through variable binding.

- (46) A: John<sub>1</sub>-i salam-ul ponay-ss-ni?  
 John-NOM man-ACC send-PST-INT  
 ‘Did John send a man?’  
 B: Ani, **caki**<sub>1</sub>-ka cikcep o-ass-e.  
 no self-NOM in.person come-PST-DECL  
 ‘No, self came in person.’ (Yang 1982)

An argument can be made, however, that even the discourse-bound instance of *caki* has a sentence-internal binder. Park (1986) observes that *caki* can be bound by the topic of the sentence. For example, in a double subject construction, where the first subject is a topic, as in 47, *caki* is bound by the topic.

- (47) John<sub>1</sub>-un **caki**<sub>1</sub>-ka cikcep o-ass-e.  
 John-TOP self-NOM in.person come-PST-DECL  
 ‘As for John, self came in person.’

The possibility of a topic binding *caki* is also noted by Lee (1973, 1988), who discusses examples such as 48, in which a topicalized object binds the sentence subject *caki*.

- (48) Tom<sub>1</sub>-un **caki**<sub>1</sub>-ka mangchi-ess-ta.  
 Tom-TOP self-NOM ruin-PST-DECL  
 ‘As for Tom, self ruined him.’



Park then argues that examples with a discourse-bound *caki* are actually topic constructions with covert topics. This covert topic, represented as *e* in 49B, is itself coreferential, getting its reference from prior discourse, but it will serve as a sentence-internal binder of *caki*.<sup>8</sup>

- (49) A: John<sub>1</sub>-i salam-ul ponay-ss-ni?  
 John-NOM man-ACC send-PST-INT  
 ‘Did John send a man?’  
 B: Ani, [*e*<sub>1</sub>]<sub>Topic</sub> **caki**<sub>1</sub>-ka cikcep o-ass-e.  
 no self-NOM in.person come-PST-DECL  
 ‘No, as for John, self came in person.’ (Park 1986)

Park motivates this by pointing out that topic marking *caki* in speaker B’s response in 49 renders it unacceptable, as in 50. He argues that 50 is unacceptable as a response to 49A because the topic-marked *caki* would be occupying the position that should be left open for the covert topic element to serve as the antecedent for *caki*. Gill (1999) later reproduces this same analysis for similar examples.<sup>9</sup>

- (50) #Ani, **caki**<sub>1</sub>-nun cikcep o-ass-e.  
 no self-TOP in.person come-PST-DECL  
 ‘No, self came in person.’ (Park 1986)

An additional argument for the postulation of a covert topic in examples such as 49B comes from relative clauses. In Korean, it has been shown that a relative clause can be formed from a double nominative clause, where the first nominative functions as the sentence topic, as in 51a, by relativizing the first nominative, as in 51b. Han and Kim (2004) argue that the derivation of the relative clause in 51b involves movement of a covert operator from the first nominative position to [Spec,CP].

- (51) a. Ku ai-nun kangaci-ka cwuk-ess-ta.  
 that kid-TOP puppy-NOM die-PST-DECL  
 ‘As for that kid, his puppy died.’  
 b. [Op<sub>i</sub> [<sub>t<sub>i</sub></sub> kangaci-ka cwuk-un] ai  
 puppy-NOM die-ADN kid  
 ‘the kid whose puppy died’

Similarly, 49B can be turned into a relative clause, as in 52. Following Han and Kim, this is possible because 49B is a double nominative clause, with the first nominative in the sentence-topic position. This element, which is covert, moves to [Spec,CP] to form a relative clause.

<sup>8</sup> A referee points out that the nominative case marker on *caki* in 49B is also responsible for a contrastive-focus effect, generating the implicature that John came in person instead of sending somebody else (Lee 2003).

<sup>9</sup> Parallel to these efforts, Lee (1988, 2001) develops an analysis that topicality, along with an optimality scale, is at the core of *caki* binding. Though we agree that topics may be construed as possible semantic binders, we maintain that topicality alone cannot predict the antecedent for *caki*. Our view is supported by Han et al. 2011, which demonstrates that discourse-salient entities are not always selected for the antecedent of an ambiguous *caki* in matrix-clause *malha-* ‘say’ sentences. Also, we have already seen in cases such as 6 that with certain predicates, a nontopic object can be the antecedent of *caki*, and as noted in §2.1, Han & Storoshenko 2013 shows that nontopic antecedents of *caki* are possible when embedded under *tut-* ‘hear’ in the matrix clause. In sum, topicality alone cannot be the determining factor. A referee suggests that perhaps the determining factor is not topicality but rather topicalizability: that is, a nominal can be an antecedent of *caki* if it is topicalizable, though it may not be the topic itself in the sentence at hand.

- (52) [Op<sub>i</sub> [t<sub>i</sub> [**caki**-ka cikcep o-n] namca  
 self-NOM in.person come-ADN man  
 ‘the man who came in person (not the man who sent someone else on his behalf)’

The covert topic analysis thus predicts that discourse binding of *caki* is possible if examples with such *caki* can be turned into a topic construction with an overt topic that can serve as its binder. Examples supporting this prediction may be found in the Sejong Colloquial Corpus. For instance, in 53, *caki* occurs in a stage direction to the character named *Won-ssi* ‘Won-Mr.’ and refers to that character. As shown in 54, this sentence can be turned into a double subject construction, with *Won-ssi-nun* ‘Won-Mr.-TOP’ as the topic. We can thus postulate that though this topic is covert in the syntax in 53, it is available to bind *caki* in the semantics.

- (53) [Context: stage direction for a character named Mr. Won]  
 Wonssi: **Caki**-to mek-ko.  
 Mr. Won: self-also eat-and  
 ‘Mr. Won: Self also eats.’ (Sejong Colloquial Corpus)
- (54) Won-ssi-nun **caki**-to mek-nun-ta.  
 Won-Mr.-TOP self-also eat-PRS-DECL  
 ‘As for Mr. Won, he also eats.’

In 55B, *caki* refers to *Park Tongsil sensayng* ‘Park Tongsil teacher’, mentioned in the previous discourse. And as can be seen in 56, 55B can be turned into a topic construction where the topic is *Park Tongsil sensayng-un* ‘Park Tongsil teacher-TOP’, which originates as a genitive on the elliptical object *Yelsaka-lul* ‘Yelsaka-ACC’. The possibility of a genitive topicalization has been observed in Lee 1988. Again, we can then postulate that the topic is available in the semantics in 55B to create the necessary variable-binding configuration.

- (55) A: Park Tongsil sensayng Yelsaka-nun nwuka ... ?  
 Park Tongsil teacher Yelsaka-TOP who  
 ‘Who (composed) the teacher Park Tongsil’s [song] Yelsaka?’  
 (Sejong Colloquial Corpus)
- B: **Caki**-ka mantul-ess-ciyo.  
 self-NOM make-PST-DECL  
 ‘Self made it.’ (Sejong Colloquial Corpus)
- (56) Park Tongsil sensayng-un **caki**-ka Yelsaka-lul mantul-ess-ta.  
 Park Tongsil teacher-TOP self-NOM Yelsaka-ACC make-PST-DECL  
 ‘As for the teacher Park Tongsil, self made [the song] Yelsaka.’

### 3.3. SEMANTIC BINDING.

OVERT BINDER IN THE SYNTAX. We follow the mechanism of quantification and variable binding in Heim & Kratzer 1998, assuming that quantified DPs undergo QUANTIFIER RAISING (QR). It is not necessary to use QR to interpret quantified sentences compositionally. As an example of an approach without QR, Büring’s (2005) BINDER INDEX EVALUATION RULE works just as well, but under such an approach, quantified objects would have to undergo type-shifting. To avoid this complication, we have opted to adopt QR in our implementation of the analysis. We also assume that *caki* bears an index that is matched by a binder index on the semantic binder. This is necessary to guarantee that *caki* is interpreted as a bound variable. At LF, the binder index adjoins right below the semantic binder. The LF for 27, for example, can thus be represented as in 57.

- (57) [Motwu-ka [1 [t<sub>1</sub> **caki**<sub>1</sub>-lul salangha-n-ta]]].  
 everyone-NOM self-ACC love-PRS-DECL  
 ‘Everyone loves self.’

We adopt Heim and Kratzer’s (1998) PREDICATE ABSTRACTION RULE in 58 to interpret the binder index and its sister constituent. In a nutshell, the semantic function of the binder index is to turn the sentence it is attached to into a predicate, which can then be composed with a generalized quantifier-type constituent.<sup>10</sup>

- (58) Predicate abstraction rule: Let  $\alpha$  be a branching node with daughters  $\beta$  and  $\gamma$ , where  $\beta$  dominates only a numerical index  $i$ . Then, for any variable assignment  $g$ ,  $\llbracket \alpha \rrbracket^g = \lambda x. \llbracket \gamma \rrbracket^{g[x/i]}$ .

Applying the rule in 58 to 57, an instance of local binding,  $\beta$  is the binder index 1,  $\gamma$  is the constituent comprised of t<sub>1</sub> *caki*<sub>1</sub>-lul *salangha-n-ta* ‘t<sub>1</sub> loves self<sub>1</sub>’, and  $\alpha$  dominates both  $\beta$  and  $\gamma$ , as sketched in the left side of 59. In interpreting this structure, the binder index can be seen to contribute a  $\lambda$ -operator that binds  $x$ , and all constituents indexed with 1, the trace and *caki*, map onto  $x$ , and thus are bound by the  $\lambda$ -operator. This returns the  $\lambda$ -expression on the right side of 59.

$$(59) \left[ \begin{array}{c} \text{TP } (\alpha) \\ \swarrow \quad \searrow \\ 1 \text{ } (\beta) \quad \text{TP } (\gamma) \\ \quad \quad \quad \swarrow \quad \searrow \\ \quad \quad \quad t_1 \text{ loves self}_1 \end{array} \right] = \lambda x. x \text{ loves } x$$

Using the generalized quantifier semantics for DPs, the meaning of *motwu-ka* ‘everyone’ and the meaning of the rest of the structure can compose, giving us the expected bound-variable reading in 60.

$$(60) \left[ \begin{array}{c} \text{TP} \\ \swarrow \quad \searrow \\ \text{DP} \quad \text{TP } (\alpha) \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ \text{everyone} \quad 1 \text{ } (\beta) \quad \text{TP } (\gamma) \\ \quad \quad \quad \swarrow \quad \searrow \\ \quad \quad \quad t_1 \text{ loves self}_1 \end{array} \right] = \lambda P. \forall y [y \text{ is a person}] [P(y)] (\lambda x. x \text{ loves } x) \\ = \forall y [y \text{ is a person}] [y \text{ loves } y]$$

This mechanism works equally well for local and long-distance cases. The LF for 28, an instance of long-distance binding, can be represented as in 61a, with the compositional semantics in 61b, again producing the expected bound-variable reading.

- (61) a. [Motwu-ka [1 [t<sub>1</sub> [John<sub>2</sub>-i **caki**<sub>1</sub>-lul salangha-n-tako] everyone-NOM John-NOM self-ACC love-PRS-COMP sayngkakha-n-ta]]].  
 think-PRS-DECL  
 ‘Everyone thinks that John loves self.’ (Moon 1995)
- b.  $\lambda P. \forall y [y \text{ is a person}] [P(y)] (\lambda x. x \text{ thinks that John loves } x)$   
 $= \forall y [y \text{ is a person}] [y \text{ thinks John loves } y]$

If other nominals, such as proper nouns, are treated as generalized quantifiers that undergo QR when they are functioning as semantic binders, then they can bind *caki* in

<sup>10</sup> A referee points out that Keenan (2007) also provides a system of anaphoric interpretation that relates to generalized quantifiers, treating the anaphors themselves as valence-reducing functions on predicates. Keenan’s work is restricted to object (accusative) anaphors, however, and it is not immediately clear how applicable this will be to *caki*, which we have seen numerous times in (embedded) subject positions.

the same manner as in 27 and 28. The LF and the corresponding semantic forms for local binding in 17 and long-distance binding in 6b are given in 62 and 63 respectively.

- (62) a. [John-i [1 [t<sub>1</sub> **caki**<sub>1</sub>-lul piphanha-yess-ta]]].  
 John-NOM self-ACC criticize-PST-DECL  
 ‘John criticized self.’  
 b.  $\lambda P.P(j)$  ( $\lambda x.x$  criticized  $x$ )  
 =  $j$  criticized  $j$
- (63) a. [Mary-lopwhthe [2 [John<sub>1</sub>-i t<sub>2</sub> [**caki**<sub>2</sub>-ka am-i-lako] tul-ess-ta]]].  
 Mary-from John-NOM self-NOM cancer-COP-COMP hear-PST-DECL  
 ‘John heard from Mary that self has cancer.’  
 b.  $\lambda P.P(m)$  ( $\lambda x.x$  John heard from  $x$  that  $x$  has cancer)  
 = John heard from  $m$  that  $m$  has cancer

As for the genitive binding case, we have seen that a quantified genitive DP can scope out of the containing DP in both English (38) and Korean (39). We take this to mean that a genitive quantified DP can QR out of the containing DP. This yields the LF representation in 64a and the semantic interpretation in 64b for 39.<sup>11</sup>

- (64) a. [Motwu-uy [1 [t<sub>1</sub> sinpal-un] **caki**<sub>1</sub>-uy pal-pota hwelssin ku-ta]].  
 everyone-GEN shoes-TOP self-GEN foot-than a.lot big-DECL  
 ‘Everyone’s shoes are a lot bigger than self’s feet.’  
 b.  $\lambda P.\forall y[y$  is a person][ $P(y)$ ] ( $\lambda x.x$ ’s shoes are a lot bigger than  $x$ ’s feet)  
 =  $\forall y[y$  is a person][ $y$ ’s shoes are a lot bigger than  $y$ ’s feet]

Similarly, *caki* can be bound by a proper noun genitive, as in 20, by QRing the genitive and treating it as a generalized quantifier. The LF representation and semantic interpretation for 20 are given in 65a and 65b.<sup>12</sup>

<sup>11</sup> Contrary to the treatment given here for the genitive binding in Korean, Buring (2004, 2005) takes the pronoun in 38 to be an E-type pronoun, and not a bound variable. The E-type pronoun analysis is not viable for Korean *caki*. In Korean, examples corresponding to Evans’s (1980) *congressmen*-sentence and Jacobson’s (2000) *paycheck*-sentence must contain *pro*, *ku* ‘he’, or *kunye* ‘she’, and not *caki*.

- (i) Soswu-uy kwukhoyuywon-un Kennedy-lul conkyengha-n-ta. Ku-tul-un/\*Caki-tul-un  
 small.number-GEN congressman-TOP Kennedy-ACC admire-PRS-DECL he-PL-TOP/\*self-PL-TOP  
 acwu celm-ta.  
 very young-DECL  
 ‘Few congressmen admire Kennedy. They (= the congressmen that admire Kennedy) are very young.’
- (ii) Phathne-lul teliko o-n motun salam-tul-un *pro*/ku-lul/\*caki-lul sacang-eykey  
 partner-ACC with come-ADN every person-PL-TOP *pro*/he-ACC/\*self-ACC boss-to  
 sokayha-yess-ta.  
 introduce-PST-DECL  
 ‘Everyone, who came with a partner introduced him (= the partner he, brought) to the boss.’

Pronouns in such examples cannot possibly be analyzed as bound variables but as E-type pronouns (Jacobson 2000, Elbourne 2001). Thus, the fact that *caki* cannot occur in such a context is highly suggestive that it cannot be an E-type pronoun generally, and the bound meaning in examples such as 39 must obtain through a mechanism other than the E-type strategy.

<sup>12</sup> A referee notes that the genitive possessive facts have been analyzed previously in the literature as an instance of subcommand in the syntax (Tang 1989, Sung 1990, Cole et al. 2001). For example, Tang (1989) proposes that the Chinese anaphor *ziji* can have a subcommander as its antecedent, where a subcommanding antecedent is defined as a nominal that is contained in an NP that c-commands the anaphor. This definition of subcommand can apply to the Korean genitive binding examples in 20 and 39. Even so, we still need a mechanism to interpret the bound variable *caki* in the semantics. This can be done by QRing the genitive antecedent and treating it as a generalized quantifier, as we have done here, or by type-shifting the genitive antecedent so that it can compose with a possessed nominal in situ.

- (65) a. [Suni-uy [1 [t<sub>1</sub> sinpal-un] **caki**<sub>1</sub>-uy pal-pota hwelssin ku-ta]].  
 Suni-GEN shoes-TOP self-GEN foot-than a.lot big-DECL  
 ‘Suni’s shoes are a lot bigger than self’s feet.’  
 b.  $\lambda P.P(s)$  ( $\lambda x.x$ ’s shoes are a lot bigger than  $x$ ’s feet)  
 =  $s$ ’s shoes are a lot bigger than  $s$ ’s feet

COVERT BINDER IN THE SYNTAX. The examples in which *caki* is bound by a topic, whether covert or overt, can be handled as well. We assume that a topic phrase is in an A’ position in the left periphery, either through movement or base-generation, a position similar to that occupied by a quantified DP after QR. For instance, the LF of 47, an example where *caki* is bound by an overt topic, can be represented as in 66.

- (66) [John-un [1 [**caki**<sub>1</sub>-ka cikcep o-ass-e]]].  
 John-TOP self-NOM in.person come-PST-DECL  
 ‘As for John, self came in person.’

We further assume that from this A’ position, the topic will compose with the rest of the structure in a similar fashion to the way a quantified DP composes with the rest of the structure. In particular, we propose that a topic phrase has a similar semantics to a generalized quantifier, but with an extra predicate explicitly stating that it is the topic of the sentence. We thus assign the semantics in 67a to the topic phrase *John-un* ‘John-TOP’ in 66. This phrase composes with the rest of the structure, yielding the reading in which it binds *caki*, as in 67b.<sup>13</sup>

- (67) a.  $\lambda P.Topic(j) \wedge P(j)$   
 b.  $\lambda P.Topic(j) \wedge P(j)$  ( $\lambda x.x$  came in person)  
 =  $Topic(j) \wedge j$  came in person

A covert topic can bind *caki* in the exact same manner, except that in this instance, the covert topic itself is a free variable whose reference is determined by the discourse context. Using an assignment function  $g$  to interpret free variables, the LF of 49B in 68a can be given a semantic interpretation as in 68b. The topic  $g(1)$  refers to *John* in this context.

- (68) a. [ $e$  [1 [**caki**<sub>1</sub>-ka cikcep o-ass-e]]].  
 self-NOM in.person come-PST-DECL  
 ‘As for John, self came in person.’  
 b.  $\lambda P.Topic(g(1)) \wedge P(g(1))$  ( $\lambda x.x$  came in person)  
 =  $Topic(g(1)) \wedge g(1)$  came in person

IMPLICIT ARGUMENT BINDER IN THE SEMANTICS. In all of the cases we have discussed so far, an antecedent of *caki* is explicitly present in the syntax, corresponding to the semantic binder of *caki*. We now turn to cases where the antecedent of *caki* is not syntactically present: reportatives and generic/modal sentences, as in 9 and 10. For these examples, we cannot simply postulate covert topics in the syntax that can function as a binder, since both of them already contain topic-marked phrases: *caki-nun* ‘self-TOP’ in 9, and *caki swukcey-nun* ‘self homework-TOP’ in 10. Instead, we argue that in each case, the binder is introduced as an implicit argument in the semantics.

<sup>13</sup> Another possibility is to treat the topic phrase *John-un* ‘John-TOP’ as a typical proper name, assigning the  $\lambda$ -expression in (i), in the semantics.

(i)  $\lambda P.P(j)$

Under this treatment, its function as the topic of the sentence can follow from the principles of information structure in pragmatics.

We propose that the reportative sentence in 9 has the LF in 69. We postulate that the reportative particle introduces an implicit argument (Bhatt & Pancheva 2006) that refers to the reporter of the proposition, the exact reference of which is determined by the discourse context. We implement this idea by adopting the expression in 70a as the meaning of *-tay-* ‘REP’. Here,  $(g(1))$  represents the reporter, the exact reference of which is determined by context. The representation in 70a is composed with the meaning component of the rest of the sentence in 70b, yielding the meaning in 70c, which can be paraphrased as in 70d. This gives us the desired effect of *caki* being bound by the reporter, whoever that may be. According to the discourse context in the Sejong Colloquial Corpus, the reporter of the reported proposition is *Swuyen*.

- (69) [[1 [**Caki**<sub>1</sub>-nun PD-ka toy-ko sip]]-tay-yo].  
 self-TOP producer-NOM become-AUX want-REP-HON  
 ‘(Swuyen said) self wants to become a producer.’ (Sejong Colloquial Corpus)
- (70) a.  $\lambda Q. \forall w' \in \text{Report}_{g(1)}(w)[Q(g(1))(w')]$   
 b.  $\lambda x \lambda w. x$  wants to become a producer in  $w$   
 c.  $\forall w' \in \text{Report}_{g(1)}(w)[g(1)$  wants to become a producer in  $w'$ ]  
 d. ‘In all possible worlds  $w'$  compatible with  $g(1)$ ’s reports in the world of evaluation  $w$ ,  $g(1)$  wants to become a producer in  $w'$ .’

As for the generic/modal sentence in 10, we adopt the LF structure in 71, and postulate that the modal expression *ke* has the meaning in 72a. As with the reportative, the semantics of the modal expression provides an implicit argument that corresponds to ‘everyone’, which in turn binds *caki* in the semantics. The composition of 72a with the meaning component of the rest of the structure in 72b yields 72c. As can be seen in the paraphrase in 72d, *caki* is appropriately bound.

- (71) [[1 [**Caki**<sub>1</sub> swukcey-nun **caki**-ka ha-nun]] ke-ya].  
 self homework-TOP self-NOM do-ADN FUT-DECL  
 ‘In general, self should do self’s homework.’ (Sejong Colloquial Corpus)
- (72) a.  $\lambda Q. \forall w' \in \text{normative}(w)[\forall y[\text{person}(y) \text{ in } w']][Q(y)(w')]$   
 b.  $\lambda x \lambda w. x$  does  $x$ ’s homework in  $w$   
 c.  $\forall w' \in \text{normative}(w)[\forall y[\text{person}(y) \text{ in } w']][y$  does  $y$ ’s homework in  $w'$ ]  
 d. ‘In all possible worlds  $w'$  that adhere to all the normatives in the world of evaluation  $w$ , everyone does his own homework in  $w'$ .’

IMPOSSIBLE BINDERS. At this point, it is worth noting that while our approach allows for *caki* to be bound by many different types of nominals, including local, nonlocal, nonsubject, topic, genitive, and implicit arguments, it also predicts that certain types of nominals cannot be possible binders. First, it predicts that *caki* should not be bound by a nominal that is within a subject-clause island, as QR is typically clause-bound. As shown in 73, the prediction is borne out, since neither *Tom* nor *Mary* can bind *caki*. Under our analysis, 21 and 22 are also ruled out for the same reason.<sup>14</sup>

<sup>14</sup> Although QR itself is a local phenomenon, a quantifier can bind a variable nonlocally as long as it scopes over the variable after it has undergone QR. This happens when QR takes place in the matrix clause and the bound variable is in an embedded clause. The long-distance interpretation of *caki*, as in 5, 15, and 28, is thus possible. In contrast, in 73, QR is restricted to the embedded clause. In this configuration, *caki*, which is in the matrix clause, cannot be in the scope of a quantifier and so cannot be bound.

- (73) [Tom<sub>1</sub>-i Mary<sub>2</sub>-lul salangha-n-ta-nun] sasil-i **caki**<sub>\*1/\*2</sub>-lul  
 Tom-NOM Mary-ACC love-PRS-DECL-ADN fact-NOM self-ACC  
 nolaykh-yess-ta.  
 surprise-PST-DECL  
 ‘The fact that Tom loves Mary surprised self.’

It also predicts that a nominal that is structurally located below *caki* cannot be a possible binder. This is because the nominal would have to QR across *caki* to bind it, resulting in a crossover configuration. This is illustrated in 74.

- (74) \***Caki**<sub>1</sub>-uy emma-ka Mary<sub>1</sub>-lul pipanha-yess-ta.  
 self-GEN mother-NOM Mary-ACC criticize-PST-DECL  
 ‘Self’s mother criticized Mary.’

One exception to this restriction is found in examples with psych predicates, as in 75a and 75b. In both examples, *caki* is in a clause embedded in the subject of the sentence. Nevertheless, it can be bound by the object of the sentence, which appears to be structurally located lower than the subject.

- (75) a. [Sue<sub>1</sub>-ka **caki**<sub>2</sub>-lul palapo-nun] kes-i Joe<sub>2</sub>-eykey culkep-ess-ta.  
 Sue-NOM self-ACC look.at-ADN fact-NOM Joe-DAT pleasant-PST-DECL  
 ‘Sue’s looking at self was pleasing to Joe.’ (Lee 1973)  
 b. [**Caki**<sub>1</sub>-ka ssu-n chayk-i] John<sub>1</sub>-ul kippukeyha-yess-ta.  
 self-NOM write-ADN book-NOM John-ACC please-PST-DECL  
 ‘The book that self wrote pleased John.’ (O’Grady 1987:254)

These examples actually fall out from the syntax of psych predicates. Belletti and Rizzi (1988) argue that the surface subject of a psych predicate originates from a position c-commanded by the surface object in Italian and English. If we adopt this approach to psych predicates in Korean, then it follows that the subjects in 75a and 75b are placed in a position c-commanded by the object at some point in the derivation, making available the LF where *caki* is appropriately bound.<sup>15</sup>

4. SUMMARY AND CONSEQUENCES. We have argued that *caki* is restricted to a bound-variable reading in the presence of a possible semantic binder. We have shown how this semantic approach to *caki* binding accounts for the fact that it can be bound by a local or nonlocal antecedent, as well as a non-c-commanding genitive, overt/covert topic, or implicit argument.

A question arises at this point about the status of those instances of *caki* that do not have a possible semantic binder. We found two cases in the literature. In the first case, *caki* is referring to a nominal in the same sentence, but the nominal cannot be its semantic binder. An example that belongs to this case was already given in 21, repeated below as 76. Here, there is no possible semantic binder for *caki* because *nay-ka* ‘I-NOM’ is first person, and *John-i* ‘John-NOM’ is in a relative clause to which QR is restricted.

- (76) Nay-ka [John<sub>1</sub>-i wenha-yess-ten chayk-ul] **caki**<sub>1</sub>-eykey cwu-ess-ta.  
 I-NOM John-NOM want-PST-ADN book-ACC self-to give-PST-DECL  
 ‘I gave the book that John wanted to self.’ (O’Grady 1987:254)

<sup>15</sup> Lee’s (1973) analysis of 75a relies on the fact that it contains a psych predicate, though the syntax of psych predicates that Lee assumes is not the same as that proposed by Belletti and Rizzi (1988). Lee argues that 75a is derived from an underlying form in which *Joe* originates as a sentence-initial topic. The observed word order is a result of a transformational operation available for psych predicates that allows the dative-marked topic to be moved rightward, across the subordinate clause. O’Grady does not make a connection to the syntax of psych predicates in his analysis of 75b. For him, 75b is grammatical because it adheres to his preference hierarchy and the priority principle.



In the second case, *caki* is referring to a nominal in a previous sentence in the discourse. An example can be found in Kim 2000. In 77, a covert topic binder for *caki* cannot be postulated because there is already a topic in the sentence, *ku chayk-un* 'that book-TOP'.

- (77) Na-nun Suni<sub>1</sub>-eykey chayk-ul pillye cwu-ess-ta. Kulendey sasil ku  
 I-TOP Suni-DAT book-ACC lend give-PST-DECL and.yet in.fact that  
 chayk-un **caki**<sub>1</sub> oppa-ka ceney nay-key pillye cwun kes ita.  
 book-TOP self elder.brother-NOM before me-DAT lend give thing be  
 'I lent a book to Suni. But the fact is that self's brother had lent it to me  
 before.'  
 (Kim 2000:316)

Under our analysis, such instances of *caki* are predicted to be exempt anaphors, free variables, the felicity of which are subject to discourse conditions. O'Grady reports that examples such as 76 are accepted by his consultants only after some thought. This suggests that *caki* requires a lot of discourse context to be felicitous as an exempt anaphor, and when the appropriate discourse context is not provided, speakers need to accommodate such a context to make *caki* felicitous.

A referee suggests that empathy, in the sense of Kuno 1987, may play a role in the interpretation of *caki*. As described by Kuno, empathy refers to the speaker's variable degree of identification with a person (potential antecedent) participating in the event or state described by the sentence. Sells (1987) treats this empathy more literally in his concept of pivot, placing the speaker literally in the shoes of the pivot individual. We agree inasmuch as it could be the case that empathy is the key to describing these exempt cases; the discourse context required to make *caki* acceptable in these marginal cases would be exactly those cases where the speaker has a high degree of empathy with the intended antecedent. For 76, the referee correctly notes that *caki* can be replaced with the pronoun *ku* 'he'. When the pronoun is used, there is a sense of detached reference to John, whereas using *caki* gives a sense of the speaker adopting the antecedent's point of view.<sup>16</sup> The choice of predicate in 76 can also play a role, since the relative clause uses a psych predicate, which is known to play a role in the resolution of *caki* binding (Lee 1988, 2001). Connecting to empathy, the use of a psych predicate in this case brings the antecedent's mental state more clearly to the forefront than a nonpsych predicate would. That the lexical context provided by a predicate can influence the resolution of an exempt instance of *caki* lacking a semantic binder echoes the view that the lexical semantics of predicates can have an impact on the resolution of ambiguous *caki* with multiple possible antecedents in a sentence. This consideration of empathy may be why examples such as 76 and 77 are rejected by native speakers initially, and yet some speakers accept them after some thought. It is not so much an exercise in reevaluating the structure of the sentence as it is an effort to interpret these anomalous cases from just the right point of view so that they can be seen as acceptable.

We also found comparable examples from the Sejong Colloquial Corpus that seem highly compatible with empathy-based accounts. Read out of context, the sentences in 78 and 79 are quite degraded because *caki* has no sentence-internal binder. However, these sentences are part of a narrative. Example 78 is uttered by a speaker who is describing the content of a letter he received from a student, and 79 is uttered by a speaker who is telling a story about a friend of his who volunteered to follow a girl he (the speaker) liked. In 78, *caki* refers to the student, and in 79, it refers to the friend. Both sentences are thus reports of thoughts or desires of individuals from whose point of view the reports are made, and these individuals are serving as antecedents of *caki*.

<sup>16</sup> The same observation can be made with respect to 77.

- (78) [Context: The speaker is talking about a letter he received from a student.]  
**Caki-nun** yeksa sikan-i cham silh-ess-ta.  
 self-TOP history time-NOM very dislike-PST-DECL  
 ‘(The student said) self disliked history class very much.’  
 (Sejong Colloquial Corpus)
- (79) [Context: The speaker is talking about a friend of his who volunteered to follow a girl he (the speaker) liked.]  
**Caki-ka** ttalaka cwu-keyss-ta.  
 self-NOM follow give-FUT-DECL  
 ‘(My friend said) self will follow (her).’  
 (Sejong Colloquial Corpus)

Across languages, a bound variable being used as an exempt anaphor is well attested. For instance, as observed in Pollard & Sag 1992 and Reinhart & Reuland 1993, *self*-anaphors in English, quintessential bound variables, can be used as exempt anaphors when there is no coargument that can serve as a possible binder. So, it is not surprising to find exempt usage of *caki* in Korean as a bound variable. The interaction between exemptness and empathy or point of view is also not surprising, as Zribi-Hertz (1989) calls upon the same concepts to account for condition A violations in English reflexives. The connection here is so close, in fact, that Zribi-Hertz herself makes the direct link between her English data and O’Grady’s *caki* data with non-c-commanding antecedents. Often in her examples, an individual whose mental state, thoughts, or desires are being reported in a narrative emerges as the antecedent for a *self*-anaphor that has no condition-A-compliant antecedent. In these cases, just as in 78–79, the narrator is reporting from the point of view of the relevant character, a clear example of Sells’s pivot, and Kuno’s empathy.

One fact about *caki* worth noting is that though *caki* can be bound by a nonsubject, when there is more than one possible binder, native speakers prefer the interpretation where *caki* is bound by the subject of the sentence. This intuition has been noted again and again in the literature (Lee 1973, Lee 1976, Chang 1977, Moon 1995) and confirmed in an experimental setting. In Han et al. 2011, evidence from both eye-tracking and forced-choice testing is reported, showing that when given sentences such as 80, speakers predominantly chose the subject *Congwu* over the indirect object *Yuli* as the antecedent of *caki*.

- (80) Congwu-ka Yuli-eykey chilphan yeph-eyse [**caki-ka** sihem-ul cal  
 Congwu-NOM Yuli-DAT blackboard beside-at self-NOM test-ACC well  
 chi-ess-tako] malha-n-ta.  
 take-PST-COMP tell-PRS-DECL  
 ‘Congwu tells Yuli beside the blackboard that self did well on the test.’

This subject preference of *caki* is something seen with bound variables in other languages as well. Cole and Sung (1994), for example, report on Read and Chou Hare (1979), who have found that in English there is a preference for subject antecedents for reflexives in ditransitives in an experimental setting. It may be that when the sentence contains more than one possible binder for *caki*, extragrammatical principles conspire with the grammatical status of *caki* as a bound variable to most readily generate a reading where *caki* is bound by the subject. We have already noted that the lexical semantics of neighboring predicates may also play a role here, and empathy can be added to this list of extragrammatical influences on *caki* as well. The notion that *caki* is sensitive to adjacent predicates is further shored up by Madigan’s (2006) observations on the behavior of *caki* in control environments. In a sense, the varying degrees of empathy that impact the interpretation of *caki* could be seen as originating in the choice of predicates.

It is in the extragrammatical principles influencing *caki* that the lines of research that propose antecedent hierarchies and logophoric approaches find their footing. The proposals by O'Grady (1987) and Kim (2000) provide an important piece of the overall picture with respect to *caki* in that they bring to the forefront the idea that there are factors beyond strictly the syntax or the semantics that can have an impact on the interpretation of *caki*. What we take from this is that while the grammar makes available multiple potential interpretations for a given instance of *caki*, ranging from overt antecedents to covert ones, or even possibly exempt uses, the interaction between grammar and pragmatic principles determines the final interpretation of *caki*. We believe that it is a failure to acknowledge this interaction that leads to much of the contradiction that can be found in the literature with respect to *caki*. Variations in judgments between speakers (or indeed between linguists) are to be expected in a system that layers these subtle context-dependent pragmatic effects on top of a more formal semantic-binding foundation.

Finally, our proposal that *caki* is a bound variable has more wide-reaching implications for the grammatical status of long-distance anaphors in East Asian languages as a whole, particularly *ziji* in Chinese and *zibun* in Japanese. Though there are many similarities between the three anaphors, each has its own unique characteristics. The distinction between syntactic binding versus semantic binding is most relevant when comparing *caki* with *ziji*. As noted by Cole and colleagues (1990), *ziji* shows a blocking effect, which is not present for *caki*. This blocking effect can be seen as an indication that *ziji* requires a syntactic binder, that is, that *ziji* requires a locally c-commanding antecedent, exactly as described in the original Cole et al. analysis. For *caki*, the requirement is only that there be a semantic binder, which explains the greater flexibility in antecedents. It is worth noting that we are not proposing that the syntactic versus semantic binding dichotomy applies between LANGUAGES, but rather between individual ANAPHORS. Our claim is not that Chinese lacks semantic binding while Korean lacks syntactic binding, but rather that *ziji* requires a coindexed c-commanding antecedent in the syntax while *caki* requires a lambda-binder in the semantics, which may or may not also happen to fit the criteria of a syntactic binder. Likewise, we are not using *caki* as the basis of an argument, along the lines of Hornstein 2006, that conditions A and B (essentially syntactic binding) should be discarded completely. Rather, we propose that different anaphors within and between languages will make use of one or the other mechanism.

Our conclusion is thus that *caki* is correctly NOT given the same analysis as *ziji* in Cole et al. 1990, but we also do not treat *caki* as a pronoun, which has generally been taken to be the only alternative to an LDA analysis. Turning to Japanese *zibun*, here it seems to be the case that pragmatic effects, which have been argued to play a role in the interpretation of *caki*, apply even more strongly to *zibun*. The logophoric effects that Sells reports to be quite strong for *zibun* are present, but in a weakened form, for *caki*. It could be that the variation between Korean *caki* and Japanese *zibun* is best accounted for by postulating different ways in which extragrammatical principles interact with the unified grammar of LDAs. Determining exactly how the interaction can be modeled remains as our future research.

**5. CONCLUSION.** After summarizing the existing literature and sorting through decades of apparently contradictory data, we have arrived at the conclusion that Korean *caki* is a variable whose binding conditions are met in the semantics rather than the syntax. Adopting this view allows us to account for some instances of *caki* binding that are not readily captured under a standard syntactic definition of anaphora in terms of a c-commanding

antecedent. In so doing, we account for the distinctions between *caki* and those LDAs of Germanic and other East Asian languages that share core morphological properties with *caki*, but are more dependent upon syntax for their final interpretations. Liberated, in a sense, from syntax, *caki* becomes more subject to extragrammatical factors, such as lexical semantics of the adjacent predicates and considerations such as empathy. For those exempt cases of *caki*, where it functions as a free variable lacking any semantic binder, these extragrammatical factors take over. The context-dependence of these factors in both exempt and ambiguous cases, we have argued, is the source of some apparent contradictions in the reported data. Having arrived at a formal analysis of the core cases, we leave for future work more investigation into the interactions between various other influences on *caki* binding.

## REFERENCES

- BELLETTI, ADRIANA, and LUIGI RIZZI. 1988. Psych-verbs and  $\theta$ -theory. *Natural Language and Linguistic Theory* 6.291–352.
- BHATT, RAJESH, and ROUMI PANCHEVA. 2006. Implicit arguments. *The Blackwell companion to syntax*, ed. by Martin Everaert and Henk van Riemsdijk, 554–84. Malden: Blackwell.
- BÜRING, DANIEL. 2004. Crossover situations. *Natural Language Semantics* 12.23–62.
- BÜRING, DANIEL. 2005. *Binding theory*. Cambridge: Cambridge University Press.
- CHANG, SUN. 1977. Korean reflexive pronoun *caki* and its referent NP's point of view. *Language Research* 13.35–48.
- CHO, DONG-IN. 1996. Anaphor or pronominal. *Language Research* 32.621–36.
- CHO, MI-HUI. 1994. On the orientation problem in Korean 'caki' binding and the typology of X reflexive binding. *Kansas Working Papers in Linguistics* 19.165–83.
- CHOMSKY, NOAM. 1981. *Lectures on government and binding*. Dordrecht: Foris.
- COLE, PETER; GABRIELLA HERMON; and C.-T. JAMES HUANG. 2001. Long-distance reflexives: The state of the art. *Syntax and semantics, vol. 33: Long-distance reflexives*, ed. by Peter Cole, Gabriella Hermon, and C.-T. James Huang, xiii–xlvii. New York: Academic Press.
- COLE, PETER; GABRIELLA HERMON; and LI-MAY SUNG. 1990. Principles and parameters of long-distance reflexives. *Linguistic Inquiry* 21.1–22.
- COLE, PETER, and LI-MAY SUNG. 1994. Head movement and long-distance reflexives. *Linguistic Inquiry* 25.355–406.
- ELBOURNE, PAUL. 2001. E-type anaphora as NP-deletion. *Natural Language Semantics* 9.241–88.
- EVANS, GARETH. 1980. Pronouns. *Linguistic Inquiry* 11.337–62.
- FALTZ, LEONARD M. 1977. *Reflexivization: A study in universal syntax*. Berkeley: University of California, Berkeley dissertation.
- GILL, KOOK-HEE. 1999. The long-distance anaphora conspiracy: The case of Korean. *University of Pennsylvania Working Papers in Linguistics (Proceedings of the 23rd annual Penn Linguistics Colloquium)* 6.1.171–83.
- HAN, CHUNG-HYE, and JONG-BOK KIM. 2004. Are there 'double relative clauses' in Korean? *Linguistic Inquiry* 35.315–37.
- HAN, CHUNG-HYE, and DENNIS RYAN STOROSHENKO. 2013. Non-subject antecedent potential of *caki* in Korean. *Japanese/Korean linguistics 21*, ed. by Seungho Nam, Heejeong Ko, and Jongho Jun. Stanford, CA: CSLI Publications, to appear.
- HAN, CHUNG-HYE; DENNIS RYAN STOROSHENKO; and R. CALEN WALSH. 2011. An experimental study of the grammatical status of *caki* in Korean. *Japanese/Korean linguistics 19*, ed. by Ho-min Sohn, Haruko Cook, William O'Grady, Leon A. Serafim, and Sang Yee Cheon, 81–94. Stanford, CA: CSLI Publications.
- HEIM, IRENE, and ANGELIKA KRATZER. 1998. *Semantics in generative grammar*. Oxford: Blackwell.
- HELLAN, LARS. 1988. *Anaphora in Norwegian and the theory of grammar*. Dordrecht: Foris.
- HERMON, GABRIELLA. 1992. Binding theory and parameter setting. *The Linguistic Review* 9.145–81.

- HORNSTEIN, NORBERT. 2006. Pronouns in a minimalist setting. *University of Maryland Working Papers in Linguistics* 14.47–80.
- HUANG, YAN. 2000. *Anaphora*. Oxford: Oxford University Press.
- JACKENDOFF, RAY. 1996. *The architecture of the language faculty*. Cambridge, MA: MIT Press.
- JACOBSON, PAULINE. 2000. Paycheck pronouns, Bach-Peters sentences, and variable-free semantics. *Natural Language Semantics* 8.77–155.
- KANG, BEOM-MO. 2001. The grammar and use of Korean reflexives. *International Journal of Corpus Linguistics* 6.134–50.
- KEENAN, EDWARD L. 2007. On the denotations of anaphors. *Research on Language and Computation* 5.5–17.
- KEENAN, EDWARD L., and BERNARD COMRIE. 1977. Noun phrase accessibility and universal grammar. *Linguistic Inquiry* 8.63–99.
- KIM, JI-HYE; SILVINA MONTRUL; and JAMES YOON. 2009. Binding interpretations of anaphors by Korean heritage speakers. *Language Acquisition* 16.3–35.
- KIM, JI-HYE, and JAMES H. YOON. 2009. Long-distance bound local anaphors in Korean—An empirical study of the Korean anaphor *caki-casin*. *Lingua* 119.733–55.
- KIM, SOO-YEON. 2000. Acceptability and preference in the interpretation of anaphors. *Linguistics* 38.315–53.
- KRATZER, ANGELIKA. 2009. Making a pronoun: Fake indexicals as windows into the properties of pronouns. *Linguistic Inquiry* 40.187–237.
- KUNO, SUSUMU. 1987. *Functional syntax: Anaphora, discourse, and empathy*. Chicago: University of Chicago Press.
- LEE, CHUNGMIN. 1973. *Abstract syntax and Korean with reference to English*. Bloomington: University of Indiana dissertation.
- LEE, CHUNGMIN. 1988. Issues in Korean anaphora. *Papers from the Sixth International Conference on Korean Linguistics*, ed. by Eung-Jin Baek, 339–58. Toronto: International Circle of Korean Linguistics and Department of East Asian Studies, University of Toronto.
- LEE, CHUNGMIN. 2001. Long-distance binding in psych-predicates. *Journal of Cognitive Science* 2.145–69.
- LEE, CHUNGMIN. 2003. Contrastive topic and/or contrastive focus. *Japanese/Korean linguistics 12*, ed. by William McClure, 352–64. Stanford, CA: CSLI Publications.
- LEE, HONG-BAE. 1976. Notes on pronouns, reflexives, and pronominalization. *Language Research* 12.253–63.
- MADIGAN, SEAN. 2006. Exhaustive and partial control in Korean: Long-distance *caki* as an overt form of PRO. *Harvard Studies in Korean Linguistics* 11.642–55.
- MADIGAN, SEAN, and MASAHIRO YAMADA. 2006. Asymmetry in anaphoric dependencies: A cross-linguistic study of inclusive reference. *University of Pennsylvania Working Papers in Linguistics (Proceedings of the 30th annual Penn Linguistics Colloquium)* 13.1.183–96.
- MOON, SEUNG-CHUL. 1995. *An optimality theory approach to long distance anaphors*. Seattle: University of Washington dissertation.
- O'GRADY, WILLIAM. 1987. The interpretation of Korean anaphora: The role and representation of grammatical relations. *Language* 63.251–77.
- PARK, SUNG-HYUK. 1986. Parametrizing the theory of binding: The implications of *caki* in Korean. *Language Research* 22.229–53.
- PICA, PIERRE. 1987. On the nature of the reflexivization cycle. *North East Linguistic Society (NELS)* 17.2.483–99.
- POLLARD, CARL, and IVAN SAG. 1992. Anaphors in English and the scope of binding theory. *Linguistic Inquiry* 23.261–303.
- READ, CHARLES, and VICTORIA CHOU HARE. 1979. Children's interpretation of reflexive pronouns in English. *Studies in first and second language acquisition*, ed. by Fred R. Eckman and Ashley J. Hastings, 98–116. Rowley: Newbury House.
- REINHART, TANYA, and ERIC REULAND. 1993. Reflexivity. *Linguistic Inquiry* 24.657–720.
- SELLS, PETER. 1987. Aspects of logophoricity. *Linguistic Inquiry* 18.445–79.
- SOHNG, HONG-KI. 2004. A minimalist analysis of X<sup>0</sup> reflexivization in Chinese and Korean. *Studies in Generative Grammar* 14.375–96.

- STOROSHENKO, DENNIS RYAN. 2008. A bound variable account of the Korean reflexive *caki*. *West Coast Conference on Formal Linguistics (WCCFL)* 26.438–44.
- SUNG, LI-MAY. 1990. *Universals of reflexives*. Urbana-Champaign: University of Illinois at Urbana-Champaign dissertation.
- TANG, CHIH-CHEN JANE. 1989. Chinese reflexives. *Natural Language and Linguistic Theory* 7.93–121.
- YANG, DONG-WHEE. 1982. Control and binding in Korean. *Linguistic Journal of Korea* 7.257–83.
- YOON, JEONG-ME. 1989. Long-distance anaphors in Korean and their cross-linguistic implications. *Chicago Linguistic Society* 25.479–95.
- ZRIBI-HERTZ, ANNE. 1989. Anaphor binding and narrative point of view: English reflexive pronouns in sentence and discourse. *Language* 65.695–727.

Han  
Department of Linguistics  
Simon Fraser University  
8888 University Drive  
Burnaby, BC V5A 1S6, Canada  
[chunghye@sfu.ca]

[Received 13 December 2010;  
revision invited 13 April 2011;  
revision received 2 September 2011;  
accepted 14 May 2012]

Storoshenko  
Department of Linguistics  
Yale University  
370 Temple St., Room 204  
New Haven, CT 06520-8366  
[dennis.storoshenko@yale.edu]