

An Experimental Syntactic Study of Binding: A Case Study of Korean Long-Distance Anaphor *caki* *

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Abstract. This study investigates the binding behavior of the Korean anaphor ‘caki’, which has been regarded thus far as a long-distance anaphor (LDA). However, given that even local anaphors can be bound long-distance when they function as exempt anaphors in certain languages (Pollard and Sag 1992; Kim and Yoon 2009), we investigated the binding behavior of LD-bound ‘caki’, in order to determine whether LD-bound ‘caki’ differs from LD-bound ‘caki-casin’. In the experiment, subjects were required to rate the acceptability of Korean sentences representing various types of LD binding of ‘caki’ and to determine whether the sloppy or the strict reading was more prominent in elliptical VPs containing the anaphor. The results are discussed with respect to the typology of LDAs proposed by Cole, Hermon and Huang (2001).

Keywords: long-distance (LD) binding, Korean binding, anaphor binding, binding of ‘caki’, strict vs. sloppy reading, VP ellipsis, logophoricity, exempt binding

1 Introduction

Pollard and Sag (1992) and Reinhart and Reuland (1993) argued that local anaphors can be LD-bound or be unbound in certain contexts as shown in (1). In sentences shown below, the English local anaphor *himself* is bound outside the minimal GC (cf. 1a, 1b) or unbound (cf. 1c) and yet the sentences are acceptable.

- (1) a. Bill remembered that [the Times had printed [a picture of *himself*] in its Sunday edition].
b. John thinks that [an article written by *himself*] caused the uproar.
c. [Physicist like *yourself*] are a godsend.
d. [Incriminating pictures of *himself*] worry Bill.

The above researchers posit a distinction between *core* or *grammatical* binding on the one hand and *exempt* or *logophoric* binding on the other to explicate how local anaphors can sometimes occur in structures where the core constraints on anaphor binding—locality and c-command—are seemingly violated. The proposal that these researchers make is that not all anaphors are licensed grammar-internally. Anaphors that are licensed grammar-internally are called *core/grammatical anaphors*, while anaphors licensed by extra-grammatical mechanisms

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are categorized as *exempt anaphors/logophors*. In the theory of Pollard & Sag (1992), an anaphor is exempt when it does not have a more prominent co-argument in its argument structure. However, in the presence of such a co-argument, the anaphor must be bound grammar-internally as a core anaphor. The bracketed NPs within which anaphors occur in (1)a-d above do not contain a more prominent co-argument (i.e., the Possessor), and hence, the anaphor is licensed as an exempt anaphor, freed from the constraints on core binding.

More generally, exempt anaphors display a cluster of properties that distinguish them from core anaphors, which include the following:

- (2) a. Exempt anaphors may be unbound or discourse-bound (cf. 1c).
- b. Exempt anaphors do not need c-commanding antecedents (cf. 1d).
- c. Exempt anaphors may take antecedents outside the local domain (the Governing Category) for local binding (cf. 1a,b).
- d. Exempt anaphors allow strict readings in VP ellipsis contexts.

The sloppy-strict ambiguity (cf. 2d) was employed as another diagnostic of the core-exempt distinction in Huang & Liu (2001).¹ This is predicated on the observation that elliptical VPs² containing core anaphors are predominantly interpreted sloppily, whereas those containing exempt anaphors allow strict readings. For example, in (3a), the anaphor *himself* is a core anaphor since it is bound within the local GC. The elliptical VP ‘did so, too’ is interpreted sloppily (i.e. as meaning ‘Bill defended Bill’). The strict reading is highly marginal, if available at all. On the other hand, in case of exempt binding shown in (3b), the strict reading (i.e. Bill thinks that an article written by John...) is much easier to obtain for the elliptical VP, and may indeed be more prominent than the sloppy reading.

- (3) a. John defended *himself* against the committee’s accusations.
 Bill did so, too (=Bill defended **Bill** >?*John...).
- b. John thinks that an article written by *himself* caused the uproar.
 Bill does so, too (= Bill thinks that an article written by **John** >Bill...).

While exempt anaphors can escape the strictures of syntactic conditions that constrain core anaphors, their licensing is nevertheless subject to discourse-pragmatic conditions known as *logophoricity* (Sells 1987, Huang and Liu 2001). Antecedents of exempt anaphors are optimal if they can be associated with a logophoric role. In Sells (1987), three logophoric roles are introduced--Source, Self, and Pivot--with the following characterizations.

(4) Logophoric roles (Sells 1987):

SOURCE: the agent communicating the propositional content

SELF: one whose mental state or attitude the content of the proposition describes

PIVOT: one with respect to whose (space-time) location the content of the proposition is evaluated

Researchers investigating logophoricity have furthermore argued that there is canonical hierarchy of logophoric roles. SOURCE is more canonical than the other two roles, while PIVOT is less canonical than SELF or SOURCE (Sells 1987, Huang & Liu 2001). This is reflected in the ease with which antecedents of logophoric anaphors can be licensed. For example, exempt anaphors are more easily licensed by SOURCE antecedents than by PIVOTS.

¹ Runner et al. (2002) verified this diagnostic in their empirical experimental study.

² We do not distinguish between VPs that are elliptical and those that contain pro-forms, referring to both as ‘elliptical’, somewhat misleadingly. In Korean, there is no VP-ellipsis per se, but there is a VP pro-form. The strict-sloppy ambiguity is observed in both ellipsis and pro-forms, as is well-known.

Since exempt binding has been investigated mostly for English, a language that does not have genuine LDAs, questions such as whether a language like Korean, which possesses multiple anaphors (i.e., the long-distance anaphor ‘caki’ as well as local anaphors such as ‘caki-casin’ – Kang 1998), still allows local anaphors to be licensed as exempt anaphors naturally arise. Kim & Yoon (2006, 2009) investigated this question with the Korean local anaphor ‘caki-casin’ and found that native speakers of Korean allow the local anaphor ‘caki-casin’ to be LD-bound in contexts known to license exempt anaphors in English. When LD bound, ‘caki-casin’ showed a strong preference for the strict reading in VP-ellipsis contexts, implying that the speakers treated LD-bound ‘caki-casin’ as an exempt anaphor. Finally, the degree of well-formedness of the exempt binding reflected the Sells (1987)’s canonical hierarchy of logophoric roles, in that binding of ‘caki-casin’ by a logophoric SOURCE got the highest acceptability rating, while that by a PIVOT antecedent got a much lower rating.

The results of Kim and Yoon (2009) invite further questions. If the local anaphor ‘caki-casin’ can be bound as LD an exempt anaphor, satisfying logophoric conditions, what are the properties of genuine LDAs (such as ‘caki’) when they are LD bound? Do the anaphors which have been treated as LDA’s behave differently from the local anaphor ‘caki-casin’ when the latter is LD-bound? Are genuine LDAs also sensitive to logophoric factors when they are bound by LD antecedents?

The present study seeks to investigate whether the interpretations that speakers assign to this anaphor differs systematically from those that native speakers assign to ‘caki-casin’ when it is bound LD as an exempt anaphor.³ The specific research questions addressed in the present study are the following:

- 1) Does LD-bound ‘caki’ behave differently from LD-bound exempt anaphor ‘caki-casin’?
- 2) Does LD-bound ‘caki’ show sensitivity to logophoric factors?

2 The Study

2.1 Hypothesis and Predictions

Before presenting the empirical study, we need to discuss the theoretical background of the paper. The most refined typology of LDAs to date that also incorporates the core-exempt distinction is Cole, Hermon and Huang (2001, 2006). Therefore, we will attempt to interpret the results of the empirical study in light of the proposal made by these researchers.

Cole et al. propose a three-way typology of LDAs. The first type of LDA, or Type I LDA, is a core anaphor that is bound in a larger domain than a local anaphor.⁴ They claim that LDAs in languages like Kannada and Hindi-Urdu are of this type. Type I LDA is characterized by the following properties: 1) The antecedent must c-command the LDA; 2) The antecedent must be clause-internal; 3) Sloppy readings are required and/or preferred in VP ellipsis contexts. That is, except for being bound in a larger domain than local (core) anaphors, these LDAs must be bound grammar-internally. Their status as core anaphor is verified by the predominance of sloppy interpretation in VP ellipsis.

Type II LDAs are anaphoric expressions that represent a form neutral between anaphor and pronoun. This class of anaphors is found in Malay and Turkish and shows the following characteristics: 1) The anaphor need not have a c-commanding antecedent; 2) The LDA can have a discourse antecedent; 3) Both sloppy and strict readings are allowed in VP ellipsis. Crucially, these properties characterize Type II LDAs in both local and LD binding.

³ The subjects tested for the present study are different from those who took part in Kim and Yoon (2006, 2009).

⁴ That is, if we take the TSC and SSC to be operative in defining the GC for local anaphors, the GC for Type I LDA might involve the suspension of TSC and/or SSC.

Type III LDAs are primarily local anaphors, but which can be converted to a pronoun-like (exempt/logophoric) usage in specific syntactic or discourse contexts. Anaphors like Icelandic LDA in subjunctive complements, LD-bound Chinese ‘ziji’ (according to Huang and Liu 2001, though not Pollard and Xue 2001) and English exempt anaphors fall into this category and show the following properties: 1) The LDA need not have c-commanding antecedent; 2) The LDAs have an antecedent outside the sentence; 3) Both sloppy and strict readings are allowed in VP ellipsis when the anaphor is LD-bound. However, unlike Type II anaphors, Type III anaphors behave like a core anaphor in a local domain.

Kim and Yoon (2009) argued that ‘caki-casin’ is a Type III anaphor, by showing that the anaphor allows LD-binding in contexts known to license exempt anaphors. LD-bound ‘caki-casin’ was also shown to be sensitive to logophoric factors and to admit strict readings in VP ellipsis.

The question that we are addressing now is the status of ‘caki’ within the typology set forth by Cole et al. The following hypotheses suggest themselves:

Hypothesis A: ‘Caki’ is a Type I LDA. In other words, it is a core anaphor with a larger GC than ‘caki-casin’ (i.e., neither the TSC nor the SSC defines its GC). If so, it is predicted to behave in the following way: i) ‘caki’ will require a c-commanding clause-internal antecedent while disallowing discourse antecedents; ii) ‘caki’ will show a preference for sloppy readings in VP-ellipsis contexts; iii) ‘caki’ may not be sensitive to logophoric conditions on the antecedent even in LD-binding, since it is core anaphor.⁵ These properties are predicted to hold of ‘caki’ in both local and LD-binding.

Hypothesis B: ‘Caki’ is a Type II LDA, a form that is neutral between pronouns and anaphors. If so, i) ‘caki’ will not require c-commanding antecedents and allow discourse antecedents; ii) ‘caki’ will not show a preference for either the strict or the sloppy reading in VP-ellipsis contexts; iii) ‘caki’ may not be sensitive to logophoricity. As with Hypothesis A, these properties are predicted to hold of ‘caki’ regardless of whether it is LD-bound or locally bound.

Hypothesis C: ‘Caki’ is a Type III anaphor like ‘caki-casin’, but with a larger core GC than ‘caki-casin’ (i.e. it can violate SSC and TSC, *qua* a core anaphor). If so, i) ‘caki’ will allow discourse or non-c-commanding antecedents when there is no (potential) c-commanding antecedent; ii) ‘caki’ will yield dominant sloppy readings in VP ellipsis when its antecedent c-commands it, but not when the antecedent does not; iii) ‘caki’ may not be sensitive to logophoricity when it is bound by a c-commanding antecedent, but may show logophoricity effects when its antecedent does not c-command it.⁶

⁵ Cole et al. do not rule out the possibility that there may be pragmatic conditions on core anaphors with a larger GC (Type I LDAs). If that is the case, the applicability of pragmatic conditions on LD-bound ‘caki’ will not be decisive in determining which hypothesis is valid.

⁶ However, see previous note on the relevance of logophoricity to the determination of the core-exempt distinction. In addition to the three hypotheses given here, there is another possibility—namely, that ‘caki’ is just like ‘caki-casin’. It is primarily a local anaphor with the same core GC as ‘caki-casin’ (defined by SSC, but not TSC, since all anaphors in Korean violate TSC), and is turned into an exempt anaphor only when it is LD-bound (that is, when it violates SSC). This is essentially the position that Huang and Liu (2001) take with respect to the Mandarin Chinese LDA ‘ziji’.

While we cannot discount this possibility, it is well-known that while LD-binding of ‘caki-casin’ is rare, ‘caki’ occurs quite freely with LD antecedents (Kang 1998). If the two are identical in terms of their categorization, this difference is hard to account for. Despite this difficulty, without a direct comparison of the two anaphors in the same contexts and structures, we cannot rule out this scenario. Indeed, the results of our study, when considered together with that of Kim and Yoon (2006, 2009) seem to suggest no essential difference between ‘caki’ and ‘caki-casin’. We shall revisit this issue in section 3.

2.2 The Experiment

2.2.1. Method

Participants

Thirty native speakers of Korean residing in and around Seoul, South Korea (age: 20-50) participated in the experiment.

Task and Materials

The main task was an Acceptability Rating Task using the 5-point Likert scale, coupled with a Preferential Sentence Interpretation Task. Both tests were employed in Kim & Yoon (2006, 2009). Each task contained two parts, the first of which asked the participants to rate the degree of acceptability of a given sentence where ‘caki’ occurs with a long-distance antecedent, while the second asked them to choose the most salient interpretation (from among sloppy, strict and neither) of a sentence containing VP-ellipsis that immediately follows the sentence they just rated.

The test materials were composed of 54 Korean sentences (39 target items and 15 non-target items) illustrating various types of sentences containing LD-bound ‘caki’. Specifically, the target items included sentences with LD-bound ‘caki’ that involved only TSC violations, those with both SSC and TSC violations, sentences where the LD antecedents differed in terms of their logophoric role (SOURCE, SELF, PIVOT and Less Logophoric antecedent), sentences instantiating different grammatical relations and structural relationships of antecedents vis-à-vis the anaphor (i.e. c-commanding vs. non-c-commanding antecedent, etc).

The sample sentences exemplifying the different logophoric roles of antecedents of LD-bound ‘caki’ are shown in (5).

In (5a), the only possible antecedent of the anaphor *caki* is the matrix subject *Inphyo*, since the intervening subject ‘the police agency’ is not a possible antecedent since it is inanimate but *caki* requires animate antecedents. The LD antecedent *Inphyo* is logophoric SOURCE, since he is the speaker of the embedded proposition. The matrix subject *Sangho* in (5b) and *Chelswu* in (5c) serve as antecedents of *caki*, and has the role of SELF in the event described, and by being the one whose point of view is described in the proposition (i.e. PIVOT), respectively.

(5) a. LD antecedent: SOURCE

Inphyo-nun [kyengchalcheng-i *caki-ka* swumki-n cungkemwul-ul chacanay-
Inphyo-top the police.agency-nom self-nom hide-rel exhibit-acc find-
ess-ta]-ko malhay-ss-ta
past-decl comp say-past-decl

‘Inphyo said that the Police found out the exhibit he (self) had hidden.’

b. LD antecedent: SELF

Sangho-nun [tongchanghoy meympe-tul-i *caki-uy* kyelhon nalcca-lul imi
Sangho-top alumni.assoc members-nom self-gen wedding date-acc already
palphyohaypeli-ess-ta]-ko mit-ko iss-ta.
announced-comp believe-decl

‘Sangho believes that the alumni association already announced his (self’s) wedding date.’

c. LD antecedent: PIVOT

[*Chelswu-ka caki-lul* chaca o-ass-ul ttay], *Yenghi-nun* (pro -ul) maywu
Chelswu-nom self-acc seek-come-rel when Yenghi-top (Chelswu-acc) very
pankapkey mac-a cwu-ess-ta.
gladly greet-pst-decl.

‘When Chelswu came to see her (= self, Yenghi), Yenghi greeted (Chelswu) very gladly.’

d. LD antecedent: less logophoric

[Chelswu-ka *caki-lul* chaca ka-ss-ul ttay], *Yenghi-nun* (*pro* -ul) maywu
 Chelswu-nom self-acc seek-went-rel when Yenghi-top (Chelswu-acc) very
 pankapkey mac-a cwu-ess-ta.
 gladly greet-pst-decl.

‘When Chelswu went to see her (= self, Yenghi), Yenghi greeted (Chelswu) very gladly.’

Examples in (5c) and (5d) need further clarification. Sentences containing PIVOT antecedents were constructed following Sells (1987), who used directional auxiliaries *o-ta* ‘come’ and *ka-ta* ‘go’ to identify PIVOTS. (5c) is an example of the sentences containing PIVOT antecedent, as explained earlier. (5c) has more than one third-person NP. However, the directional auxiliary *o-ta* ‘come’ in the adjunct clause implies that the matrix subject *Yenghi* is the deictic center, as *Chelswu* is described as coming toward her. Thus, *Yenghi* is the PIVOT of the sentence.

On the other hand, (5d) contrasts with (5c) with respect to the use of auxiliary verbs. While in (5c) auxiliary *o-ta* ‘come’ is used, in (5d), the auxiliary *ka-ta* ‘go’ is used in the adjunct clause, which indicates that the POV is that of the referent of the subject of the adjunct clause, *Chelswu*. However, *Chelswu* cannot be construed pragmatically as the antecedent of the anaphor in the overall context of this sentence. Hence, when the matrix clause is parsed and the subject *Yenghi* is encountered, the POV has to shift to that of *Yenghi* from *Chelswu* in order for it to serve as the antecedent of the exempt anaphor contained in the adjunct clause.

Since in parsing this sentence a shift in POV between the adjunct and the main clauses is necessitated in order to obtain the requisite binding interpretation, we can imagine that the binding relation in this type of sentence will be more difficult to obtain compared to sentences that do not require a POV shift. For this reason, sentences such as (5d) are categorized as Less Logophoric, or lower in the degree of logophoricity, rather than as non-logophoric. We expect this type of sentence to be judged less acceptable (but not completely out, with the indicated binding interpretation) than sentences containing clearly identifiable logophoric centers.

A target test item is shown in (6).

(6) Mary-nun [nay-ka *caki-casin-uy* kihoy-lul kalochayssta-ko] malhayssta
 Mary-top I-nom self-gen chance-acc took-comp said
 ‘Mary said that I robbed her of her (= self’s) opportunity.’

| | |
|---------------|-------------|
| Ungrammatical | Grammatical |
| 1 | 2 |
| 3 | 4 |
| | 5 |

Laura-to kulekeymalhayssta.

Laura-too so said.

‘Laura said so too.’

Interpretation:

A. Laura-nun [nay-ka Laura-uy kihoy-lul kalochayssta-ko] malhayssta.

(= Laura said that I robbed **Laura** of Laura’s opportunity.)

B. Laura-nun [nay-ka Mary-uy kihoy-lul kalochayssta-ko] malhayssta.

(= Laura said that I robbed **Mary** of Mary’s opportunity.)

C. Neither of the above is a possible interpretation.

Analysis

Mean responses for the different sentence types in the Grammaticality Judgment Task were compared by repeated measures ANOVAs (Sentence 12, Alpha-level = .05) and Paired-Sample T-Tests. Also, data analysis among tasks to investigate different linguistic variables (i.e. core vs. exempt anaphor, logophoric role of the antecedent, structural conditions of the antecedent, strict vs. sloppy reading, etc.) was performed.

2.2.2. Results

The overall results are as follows.

i) The participants' overall responses showed that they rated TSC-violating 'caki' as more acceptable (mean = 4.27) than sentences where LD-bound 'caki' violated both TSC and SSC (mean = 3.46).⁷

ii) As for the result with VP-ellipsis, LD bound 'caki' yielded both sloppy and strict readings in the case of sentences violating only the TSC (sloppy: 25%, strict: 53%), as well as in sentences where both TSC and SSC were violated (sloppy: 19%, strict: 35%). In both cases, strict reading was chosen dominantly as preferred reading.⁸

The choice between sloppy vs. strict reading as the preferred interpretation in contexts of VP ellipsis is shown in Figure 1⁹.

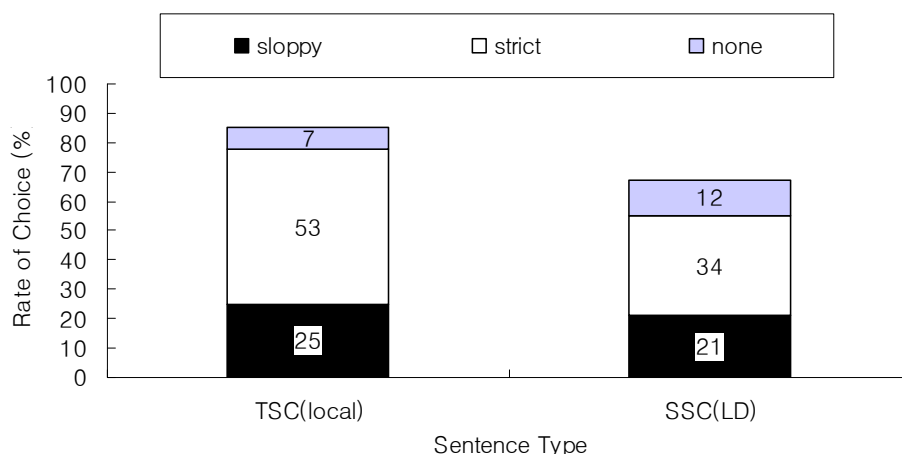


Figure 1: Sloppy vs. strict reading in VP-ellipsis

iii) LD-bound 'caki' as categorized by the logophoric roles of antecedents did not respect Sells' (1987) hierarchy of logophoric roles (SOURCE>SELF>PIVOT), in that the sentences with logophoric SELF got the highest grammaticality score (mean = 3.84), followed by SOURCE

⁷ This pattern of results seems to show that 'caki' is better accepted when it was bound as core anaphor than as exempt anaphor, which seems to support Hypothesis A. However, since the sentences containing TSC only violation were not the pure case of local binding (i.e. clause-mate binding), we need more care to interpret this results in light of different hypotheses.

⁸ This pattern of results seems to rule out hypothesis A, which does not allow strict reading in any case of VP-ellipsis. This will be discussed in the section 3 in more detail.

⁹ A portion of the bar graph marked as 'none' indicates responses in which the subjects did not choose either the strict or the sloppy reading as the preferred interpretation. We take these responses to reject long-distance construal of the anaphor as presented in the VP-ellipsis.

(mean = 3.56) and PIVOT (mean = 3.45). The sentences with Less Logophoric antecedents obtained an even lower score (mean = 3.26).¹⁰

iv) The acceptability of the sentences with ‘caki’ was not much influenced by grammatical-structural factors. That is, ‘caki’ bound by a c-commanding antecedent and by a non-c-commanding antecedent did not differ from each other in their acceptability (c-commanding antecedent: mean = 3.37, non-c-commanding antecedent: mean = 3.32; [$t(29) = .628, p < .535$, not significant]).

The overall pattern of the results with different sentence types is shown in Table 1.

Table 1: Acceptability ratings of various sentence types representing binding of ‘caki’

| Sentence types | Subjects (n = 30) Mean (S.D.) |
|--|----------------------------------|
| TSC-only violation | 4.27 (.35) |
| SSC+TSC violation | 3.45 (.45) |
| Logophoric SOURCE | 3.56 (.53) |
| Logophoric SELF | 3.84 (.52) |
| Logophoric PIVOT | 3.45 (.61) |
| Less logophoric antecedent | 3.26 (.51) |
| Distractors (Ungrammatical sentences) | 3.21 (.36) |

3 Discussion and Conclusion

The present study attempted to investigate the binding behavior of ‘caki’, focusing on subjects’ choices between the strict and sloppy readings in VP-ellipsis and their judgments regarding the different logophoric roles of the antecedent, which were also the two test instruments employed in Kim and Yoon (2006, 2009) with the anaphor ‘caki-casin’. However, given the discussion on the three hypotheses and their predictions in this section, the two instruments do not suffice to pick a unique hypothesis from among the three possibilities. Nevertheless, the results may still allow us to eliminate some options. The summary of the results and how they might bear on the different hypotheses given earlier are given below.

i) Hypothesis A says that ‘caki’ is only a core anaphor—with a larger GC than ‘caki-casin’ (i.e., both TSC and SSC are ineffective in defining the GC for this anaphor). This predicts ‘caki’ will require c-commanding antecedents even when LD-bound. This is falsified, since the sentences with non-c-commanded ‘caki’ were not treated differently from those with c-commanded ‘caki’. It is also predicted that sloppy readings should be dominant with ‘caki’ in all cases (i.e. local and LD binding)—as long as an antecedent is there which c-commands it, which is also falsified through the results of the experiment. Therefore, Hypothesis A is rejected.

As for logophoricity, it is hard to tell what the relevance of logophoricity is to the core-exempt distinction since Cole et al. presume that even core (LD) anaphors might be subject to these conditions. The result with ‘caki’ seems to show that logophoricity is not irrelevant, but that the Sells’ hierarchy is not supported. On the other hand, the sentences with less logophoric

¹⁰ A series of Paired Sample T-Tests revealed that the mean difference between less logophoric antecedent and other logophoric antecedents was significant (SOURCE vs. less logophoric ($p < .0141$); SELF vs. less logophoric ($p < .0001$); PIVOT vs. less logophoric ($p < .0561$)). This means that even though the canonical hierarchy was not supported, logophoric antecedents as a class scored higher than less logophoric ones.

antecedent got significantly lower scores than those with logophoric antecedents, which implies that relevance of logophoricity in the binding of LDA ‘caki’.

ii) Hypothesis B says that ‘caki’ will not require c-commanding antecedents and that it will allow both strict and sloppy interpretations, even when it is locally bound (that is, clause-mate binding). Since we did not have experimental data that tests real cases of clause-mate binding, it is difficult to tell whether this is the case. For the LD-cases, the results are compatible with Hypothesis B, since strict readings were dominant in the ellipsis conditions.

iii) Hypothesis C agrees with Hypothesis A that ‘caki’ is a core anaphor with a larger GC (no SSC or TSC), but differs from it in that it allow ‘caki’ to be exempt—when it is unbound or un-c-commanded. That is, it predicts that ‘caki’ can be unbound/un-c-commanded. The relevant result is that the sentences with non-c-commanded ‘caki’ were not treated differently from those with c-commanded ‘caki’, which seems to go with Hypothesis C or with B.

From the pattern of the results compared to the proposed hypotheses, it seems clear that LDA ‘caki’ is not Type I anaphor, since it does not require a clause-internal c-commanding antecedent and allows both ‘sloppy’ and ‘strict’ interpretations under VP-ellipsis. Then what can decide whether ‘caki’ is more like Type II anaphor or Type III anaphor?

If ‘caki’ is Type II anaphor, it should behave like pronouns, which need not be bound by an antecedent or bound by a discourse antecedent. The experimental results do not contain data supporting or rejecting this prediction. However, the example in (7) shows that ‘caki’ cannot be bound by the discourse antecedent ‘Yenghi’, if there is a potential antecedent within the sentence. Also, the strict reading in the VP-ellipsis seems hardly possible.

- (7) Yenghi-ka tuleo-ass-ta. Na-nun **caki-lul** kitali-ko iss-ess-ta.
 Yenghi-nom entered I-top self-acc wait-and-be-past.
 ‘Yenghi entered. I was waiting for self (*Yenghi).’
 Dongswu-to kulayss-ta.
 Dong-swu-too do so (past)
 ‘So did Dong-swu (= Dongswu was waiting for self (Dong-swu; *Yenghi))’

On the other hand, if ‘caki’ is a Type III anaphor as in the case of ‘caki-casin’ in Kim and Yoon (2009), but is bound within a GC larger than ‘caki-casin’, we should decide the GC size for ‘caki’ and ‘caki-casin’ respectively. Kim and Yoon (2009) suggest that TSC-violating ‘caki-casin’ may be bound as exempt anaphor, since strict reading was available and even preferred in VP-ellipsis/pro-form. Then, is ‘caki’ bound as core anaphor in the sentences with TSC-violation, showing dominant sloppy reading in VP-ellipsis as a case of core binding? The result from the present study does not support this idea, since TSC-violating ‘caki’ also allowed both sloppy and strict readings in VP-ellipsis. This is because we did not have appropriate data representing pure case of local binding (i.e. clause-mate binding). Though we did not have the data, we can still think of the sentence with ‘caki’ bound by clause-mate antecedent as shown in (8). The strict reading in the proform/ellipsis condition do not seem to allow strict reading, unless special discourse information is given.

- (8) Yenghi-ka **caki-lul** mence sokayhay-ss-ta. Tongswu-to kulay-ss-ta
 Yenghi-nom self-acc earlier introduced Tongswu-too did so
 ‘Yenghi introduced herself earlier. So did Tongswu (= Tongswu introduced Tongswu>Yenghi)’

Though data presented in (7) and (8) seem to provide some implications, they cannot be used for the crucial determination of one hypothesis out of three, since such data were not tested in the experimental study. Therefore, it is difficult to conclude which hypothesis is right for the present study with the range of data we have attained from the experimental study. This study calls for more carefully designed follow-up study with additional test items.

Finally, the subjects in the present study were younger than the monolinguals tested in Kim and Yoon (2009) and presented so much individual variations. Therefore, it was not easy to stick to the group results only. Furthermore, many of them showed indeterminate judgment in rating grammaticality of the different types of sentences or rated overall sentences in the similar way. It is unfortunate that the present experimental study cannot make a conclusion to define the type of anaphor category to which ‘caki’ belongs, compared to ‘caki-casin’, which belongs to Type III anaphor. Future study has to deal with the problems of the absent target items as well as individual variations.

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