ATTITUDES DE SE AND LOGOPHORICITY

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ATTITUDES DE SE AND LOGOPHORICITY

A Dissertation Presented

by

YANGSOOK PARK

Submitted to the Graduate School of the University of Massachusetts Amherst in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2018

Linguistics
ATTITUDES \textit{de se} AND LOGOPHORICITY

A Dissertation Presented

By

YANGSOOK PARK

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 And finally, to Patryk, for everything.
This dissertation investigates two related notions that represent attitudes and perspectives, *de se* attitudes and the notion of logophoricity, based on the case study of the long-distance reflexive *caki* in Korean, which specifically encodes attitudes towards oneself in attitude reports and co-refers with individuals whose point of view or perspective is represented in a sentence.

The main claim of this thesis is that there are distinct but related semantic/syntactic mechanisms for the obligatory *de se* interpretation of the long-distance reflexive *caki* on the one hand, and the long-distance binding of *caki* on the other. Specifically, for the semantics of the *de se*, I provide a unified account of the obligatory *de se* interpretation of the long-distance reflexive *caki* and (null and overt) controlled subjects, based upon Lewis (1979) and Chierchia (1989). For the long-distance binding of *caki* in both attitude
and non-attitude environments, I take a local logophoric binding approach (Koopman and Sportiche 1989, Adesola 2005, Anand 2006, Nishigauchi and Kishida 2008, Sundaresan 2012, Nishigauchi 2014, Charnavel and Zlogar 2016, a.o.). Based on the idea that caki is uniformly bound by a local logophoric binder in both attitude and non-attitude environments, I further propose the link between \textit{de se} and logophoric binding mechanisms. Our two-layered system of \textit{de se} and logophoric binding ensures that the antecedent of caki must be the perspective holder of a clause containing caki, while caki denotes the \textit{de se} counterpart of its antecedent under attitude verbs.
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CHAPTER 1

INTRODUCTION

1.1 Two main interests: de se ascription and logophoricity

The main goal of this dissertation is to study how attitudes and perspectives are represented in grammar. Under this broad interest, this thesis investigates two specific topics: 1) the semantics of attitude reports with linguistic expressions that encode attitudes towards oneself (i.e., de se attitudes) and 2) the notion of logophoricity, which denotes individuals whose speech, thought, or point of view is represented in a sentence.

1.1.1 Attitude reports

Since the 1960–1970’s, the special properties of de se attitudes have received much attention in the philosophical literature (Castañeda 1966, Lewis 1979). In the linguistic literature, the issue of de se ascriptions has become a focus of the debate on de se. An attitude report with a pronoun can felicitously report one’s de se or de re attitude. Consider the two contexts in (1). In S1, John has an attitude about himself in the first-person way, as noted by the first person pronoun used in his direct speech, and thus, he has a de se attitude. On the other hand, in S2, John has an attitude about the guy on TV who happens to be himself, but he is not aware that the guy he has attitude toward is him himself. In this case, John has a de re (but not de se) attitude. In either context, John’s attitude can be reported by the same sentence in (1) containing the third person pronoun in the embedded clause.
(1) **Attitude reports with the third person pronoun**

S1: John says, "I should be elected."  \((de \ se)\)

S2: John is so drunk that he has forgotten that he is a candidate in the election. He watches someone on TV and finds that that person is a terrific candidate, who should definitely be elected. Unbeknownst to John, the candidate he is watching on TV is John himself. \((de \ re)\)

John hopes that he will be elected. \(\checkmark S1, \checkmark S2\)

How can a sentence like (1) be true under both S1 and S2? One possible view is that attitude reports like (1) have coarse truth-conditions derived from one LF (a \(de \ re\) LF) that are true in both contexts (Kaplan 1989). Under this view, we do not need a special LF for the reports of one’s first-personal attitudes. Instead, just one and the same LF may be enough to derive the meaning of the sentence like (1) that is true in either \(de \ se\) or \(de \ re\) context. Let’s say a \(de \ re\) attitude is such that an attitude holder ascribes some property to an entity that the attitude holder bears some particular relation to, and the entity has that property in every possible world that is compatible with what the attitude holder believes in the actual world. Given this, let us consider some rough truth-conditions of the sentence in (1) that can be derived from a \(de \ re\) LF as following.

(2) \([[(1)]]=T\ i f f \) There is a relation \(R\) that John bears some unique relation to himself in the actual world, and in every possible world that is compatible with what John hopes in the actual world, the person who John bears the relation to will be elected.

The truth-conditions in (2) do indeed hold in both ‘S1’ and ‘S2’ in (1), because there is a unique relation that John bears to himself (first-personal vs. the guy he saw on TV and found terrific) and he ascribes the property of winning the election to the guy he bears each unique relation to. Under this kind approach, the third person pronoun happens to be interpreted \(de \ se\) when the attitude holder bears the first-personal relation to himself.
Another possible view is to have distinct LFs for the same sentence in (2) for each case (de re vs. de se). If there is a dedicated LF only for de se, we would expect some cases where an element only gets a de se but not de re interpretation. In fact, given that the third person pronoun in English can receive a de se or a (non-de se) de re interpretation in attitude reports, it has been controversially discussed whether the de se interpretation of the third person pronoun is derived by a dedicated machinery or it is a special case of de re (Chierchia 1989, Schlenker 1999, Percus and Sauerland 2003, Anand 2006, Maier 2011, among many others).

In contrast to the third person pronoun, however, a number of elements in various languages are unambiguously interpreted as those whom an attitude holder identifies as himself/herself in attitude reports, such as obligatory control PRO, logophoric pronouns, long-distance reflexives, shifted indexicals, etc. (Chierchia 1989, Schlenker 1999, Huang and Liu 2001, Schlenker 2003, Anand and Nevins 2004, Anand 2006, a.o.). For example, obligatory control PRO, the long-distance reflexive zijí in Chinese, and the logophor oun in Yoruba can be used in attitude reports only when the content of subordinate clauses containing these expressions are expressed by the attitude holder using the first person pronoun, as shown in (3)—(5).

(3) **Obligatory control PRO in English**

S1: John says, "I should be elected."

S2: John is so drunk that he has forgotten that he is a candidate in the election. He watches someone on TV and finds that that person is a terrific candidate, who should definitely be elected. Unbeknownst to John, the candidate he is watching on TV is John himself.

John hopes PRO to be elected [✓S1, #S2] (Schlenker 2003)
(4) **The Chinese long-distance reflexive ziji**

S1: Zhangsan says, "That thief stole my purse!"

S2: Zhangsan says, "That thief stole that purse!" Unbeknownst to Zhangsan, it is his purse.

Zhangsan shuo pashou tou-le ziji-de pibao.
Zhangsan say pickpocket steal-Perf ziji-DE purse

'Zhangsan said that the pickpocket stole his purse.' [✓S1, #S2]

(Huang and Liu 2001)

(5) **The Yoruba logophoric pronoun own**

S1: He says, "I saw John."

S2: He says, "That guy saw John." (Unbeknownst to him, that guy is him himself.)

ói so pé own, rí John.
o say that own see John

'He said that he saw John.' [✓S1, #S2]

(Anand 2006)

Assuming the sentences in (3)–(5) have similar truth-conditions as shown in (2), then we would expect that these sentences would be true in both contexts. However, given that these sentences can only be true under the scenario where the attitude holder has a first-personal belief, some specific LF for *de se* seems to be necessary.

Regarding the *de se* attitude reports with these particular elements, most of the debate in the semantics literature has centered around (i) whether we need any dedicated semantic representations for obligatory *de se* attitude reports (e.g., Chierchia 1989, Percus and Sauerland 2003), and (ii) if so, how many different mechanisms are needed (e.g., Anand 2006, Maier 2011). As first discussed by Chierchia (1989), an unpronounced subject in the control infinitives, namely PRO, has been analyzed as a *de se* expression, given the fact that it is unambiguously interpreted *de se*. In fact, the semantics of *de se* attitude reports has been largely developed based on the silent element PRO. However, PRO is
subject to stringent positional restrictions: that is, (i) it can only appear as the subject of an infinitival clause, (ii) a multiple occurrence of PRO in the same clause is impossible, and (iii) it must be locally bound. Although significant insights into the semantics of *de se* attitude reports have accumulated over the years, there are some important questions that have not been fully addressed, mainly due to the lack of empirical evidence. Those are listed below.

(6) **Empirical and theoretical questions of *de se* attitude reports**

a. How do multiple (same or different kinds of) *de se* expressions behave and interact with each other in one language?

b. As widely assumed, can a *de se* interpretation of any element be freely derived via a *de re* LF?

c. What are the relationships between *de se* ascriptions and other notions that reflect perspective in grammar?

1.1.2 **The notion of logophoricity**

Another focus of this thesis is on the notion of logophoricity, which reflects both attitudes and perspectives. This notion was originally introduced by Hagège (1974) and Clements (1975) for logophoric pronouns in some African languages. Logophoric pronouns are elements that appear in indirect discourse and must be co-referential with the one "whose speech, thoughts, feelings, or general state of consciousness are reported" (Clements 1975, p.141). Based on the later attempts to account for LD reflexives in other languages with logophoricity (e.g. Maling 1984), Sells (1987) defines the notion of logophoricity with three primitive notions shown in (7). Under his analysis, when an element such as a logophoric pronoun or a LD reflexive is sensitive to logophoricity, the referent of the element should be understood as at least one of these three following primitive notions.
The three primitive notions of logophoricity

**Source:** one who is the intentional agent of the communication

**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

(Sells 1987, p.457)

The term "logophor" has also been used for anaphors that are exempt from Condition A of the binding theory (Chomsky 1981). It has been well-known that anaphors in English can be exempt from syntactic constraints on binding in certain environments, e.g. picture-noun reflexives (Postal 1971, Kuno 1972b, Pollard and Sag 1992, Reinhart and Reuland 1993, a.o.). Pollard and Sag (1992) argue that such exempt anaphors often find an "individual whose viewpoint or perspective is somehow being represented" (Pollard and Sag 1992, p.274) as their antecedents, which resembles the notion of logophoricity.

In a series of work (Reinhart and Reuland 1991, 1993), Reinhart and Reuland also distinguish "logophors" from anaphors in that the former is not governed by Condition A but discourse-oriented. Under their account, an anaphor can be used as a logophor only when it is not subject to grammatical constraints, that is, the c-command relationship and locality condition.

Although the same term "logophor" has been used for long-distance reflexives, logophoric pronouns, and exempt anaphors in various languages, there exist a number of differences among these elements. For instance, an attitude holder can always be understood as the one whose (mental) perspective is being represented, and thus, a subject of speech or attitude verbs perfectly qualifies as an antecedent of a logophoric pronoun or long-distance reflexive. However, an individual whose physical perspective is taken in a sentence can serve as an antecedent of some LD reflexives but not of logophoric pronouns. Moreover, when an anaphor appears in an embedded object position of an attitude verb, it cannot be used as a logophor and find the matrix subject as its antecedent in English.
(8a), although it can sometimes be exempt from Condition A and find an attitude holder as its long-distance antecedent, as in (8b).¹

(8)  
   a. *John\textsubscript{i} thinks Mary likes himself\textsubscript{i}.
   b. Max\textsubscript{i} boasted that the queen invited Lucie and himself\textsubscript{i} for a drink.

1.1.3 The link between de se attitude reports and logophoricity

Given our brief discussion on de se attitude reports and the notion of logophoricity, one may have noticed that there appears to be a close relationship between the two notions. A number of elements that are known to be subject to the notion of logophoricity receive an obligatory de se expressions in attitude environments, such as the Chinese LD reflexive ziji (Huang and Liu 2001), the Japanese LD reflexive zibun (Oshima 2004), exempt anaphors in English and French (Charnavel and Zlogar 2016, Charnavel 2017), the Tamil LD reflexive ta(a)n (Sundaresan 2012), etc. Anand (2006) explores distinct mechanisms for de se ascriptions and proposes three different ways, as shown in (9). According to him, context-overwriting is responsible for shifted indexicals², while some de se pronouns need to be bound by a syntactic operator, such as a logophoric operator.

¹The example in (8b) is from Zribi-Hertz (1989).
²Shifted indexicals refer to indexical expressions appearing in an embedded clause of a speech/attitude verb that are interpreted relative to the context of reported speech instead of the utterance context. For example, the first person pronoun in Zazaki can not only refer to the speaker of the utterance but also the speaker of the reported utterance, which is the matrix subject of the sentence, as shown in (i). It has been reported in the literature that shifted indexicals in languages like Amharic, Zazaki, etc. receive obligatory de se readings (Schlenker 1999, 2003, Anand 2006, among others).

(i) Hessen\textsubscript{i} — (mi\textsubscript{k}-ra) va ke ez\textsubscript{j/k} dwletia  
Hessen\_OBL (OBL-to) said that I — rich\_be-PRES  
‘Hensen said that [I am, Hesen is] rich.’ (Anand and Nevins 2004)
(9)  

a. Default (*de re* ascription): pronouns  
b. Semantic (context-overwriting): shifted indexicals, Mandarin1 *ziji*, Malayalam *taan*  
c. Syntactic (binding by operator): Yoruba *oun*, English dream-selves, Icelandic *sig*, Japanese *zibun*, Mandarin2 *ziji*  

(Anand 2006, p.11)

Note that the third type of *de se* ascriptions under Anand’s system includes the elements that are closely related to logophoricity: the logophor *oun* in Yoruba, the logophoric LD reflexives *sig* in Icelandic, *zibun* in Japanese, and *ziji* in Chinese. In other words, one and the same machinery is responsible for both logophoricity and *de se* ascription for these elements under Anand’s system. However, although it is (mostly) true that logophors or LD reflexives in many languages must be interpreted *de se* under an attitude verb, they can also occur in non-attitude environments, which are not attitude reports (therefore, no *de se* ascription). For instance, in (10), the LD reflexive *zibun* in Japanese is co-referent with the matrix subject *Takasi*, an individual from whose point of view the report is made by the speaker (Sells 1987). We can understand that *zibun*, coreferring with a perspective holder, is still subject to logophoricity in this case, but it has nothing to do with a *de se* interpretation since this sentence is not an attitude report.

(10) **The Japanese zibun in a non-attitude environment**

Takasi-wa [Yosiko-ga mizu-o *zibun*-no ue-ni kobosita-node]  
Takasi-top [Yosiko-NOM water-ACC self-GEN on-LOC spilled-because]  
nurete-simatta.  
wet-got  
‘Takasi, got wet because Yosiko spilled water on him.’  

(Sells 1987)

Since *zibun* does not receive a *de se* interpretation in (10), the so-called "syntactic *de se* route" proposed by Anand (2006) cannot be adopted to the cases like this.

Given this fact, we can summarize the behavior of these logophoric elements (i.e.,
elements that are subject to the notion of logophoricity in coreference resolution) in terms of the two notions: they must receive a *de se* interpretation when they appear in attitude environments, while they can also appear in non-attitude environments with no relevant *de se* interpretations. Figure 1.1 illustrates the relationship of *de se* attitudes and logophoricity.  

![Figure 1.1: The relationship between de se and logophoricity](image)

In the semantics literature, the semantics of the obligatory *de se* interpretation of these elements has received focused attention, while little attention has been paid to the fact that the same elements can also appear in non-attitude environments. In the syntax literature, on the other hand, most attention has been given to syntactic mechanisms for long-distance binding with or without adopting the notion of logophoricity. Although the long-distance dependency between certain logophoric elements and their antecedents in both attitude and non-attitude environments may be accounted for under the syntactic approaches, the obligatory *de se* interpretation of these elements in attitude reports cannot be. In light of this, this dissertation aims to provide a syntactico-semantic mechanism that can account for (i) the long-distance dependency in both attitude and non-attitude environments and (ii) the relationship between the logophoric elements and their obligatory *de se* interpretations only in attitude environments.

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3This representation may not be suitable for a logophoric element if it does not receive an obligatory *de se* interpretation in attitude environments. One example would be the logophor ye in Ewe, which also allows a *de re* reading under attitude verbs, according to Pearson (2015). In such cases, we need to understand *de se* and logophoricity as distinct but overlapping notions.
In order to investigate the semantics of obligatory *de se* expressions and the relationship between *de se* attitudes and the notion of logophoricity, this dissertation provides a case study of the long-distance reflexive *caki* in Korean. The Korea LD reflexive *caki* is an element that must get a *de se* interpretation in attitude reports, while it can also appear in non-attitudinal environments such as relative clauses and adjunct clauses, in which *de se* interpretations are irrelevant. We will also examine the interactions between the LD reflexive *caki* and other elements that can or must be interpreted *de se* in attitude reports, such as the third person pronoun and obligatory control PRO. An extensive work on the LD reflexive and their relationships with other *de se* elements will play a major role in developing the semantic mechanism underlying *de se* attitude reports and the syntactico-semantic analysis of long-distance anaphor binding in terms of the notion of logophoricity.

1.2 A case study of the Korean long-distance reflexive *caki*

1.2.1 Novel observations

Long-distance (henceforth LD) reflexives in many languages have often been reported to require *de se* readings in attitude environments, similar to obligatory control PRO (Kuno 1972b, Chierchia 1989, Pan 1997, Huang and Liu 2001). In contrast to PRO, however, LD reflexives usually appear in a much wider range of environments, and multiple reflexives can co-occur in the same clause. In addition, LD reflexives can also co-occur with other *de se* elements, including PRO and shifted indexicals. Moreover, some languages like Korean allow LD anaphors in the subject position of obligatory control constructions. Owing to these properties, an extensive work on LD reflexives and their relationships with other *de se* elements can shed important light on the semantics of *de se* ascriptions, especially with respect to the questions listed in (6), which is repeated below.
Empirical and theoretical questions of de se attitude reports

a. How do multiple (same or different kinds of) de se expressions behave and interact with each other in one language?

b. As widely assumed, can a de se interpretation of any element be freely derived via a de re LF?

c. What are the relationships between de se ascriptions and other notions that reflect perspective in grammar?


The Korean long-distance reflexive caki

S1: John says, "Bill stole my wallet!"

S2: John says, "Bill stole that wallet!" Unbeknownst to John, it is his own wallet.

John-NOM Bill-NOM self-GEN wallet-ACC stole-COMP said

‘John, said that Bill stole his purse.’ [✓ S1, #S2]

Based on this quite well-known fact about the LD reflexives in East Asian languages, this dissertation presents a number of novel properties of caki that will be crucial to address the questions in (12). First, the reflexive caki can interact with other elements that can or must be interpreted de se in attitude environments. For example, the null subject PRO in an obligatory control construction unambiguously gets a de se interpretation in Korean as well and can appear with caki in the same clause. One of the interesting interactions between a null obligatory control subject and the reflexive caki is that they do not need to find the same reference within the same embedded clause, while multiple caki’s need to. That is, while both PRO and caki in the example (13) must be interpreted de se with respect
to its reference, the relationships between multiple caki’s and between the reflexive and PRO appear to be different.

(13) **Obligatory coreference between multiple clausemate LD caki’s**

think-COMP said

a. ‘Johni said that Billj thought that hisj mother liked hisj wife.’
b. ‘Johni said that Billj thought that hisj mother liked hisj wife.’
c. ‘Johni said that Billj thought that hisi mother liked hisj wife.’
d. ‘Johni said that Billj thought that hisj mother liked hisi wife.’

(14) **Disjoint reference possible between PRO and LD caki**

promised-COMP thought

Lit. ‘Johni thought that Billj promised to go to hisi/j house.’

While the obligatory control subject must be controlled by the subject in the immediately embedding clause, LD caki in the same embedded clause can refer to either the matrix or intermediate subject. These data raise a question about the *de se* mechanism for at least two different *de se* elements in one language: do we need the same or different ways to derive the unambiguous *de se* interpretations of controlled subjects and LD caki? We will discuss the interactions between the LD reflexive caki and controlled subjects in obligatory control constructions in detail in Chapter 4.

Second, caki appearing in a relative clause behaves differently from the reflexive directly embedded under an attitude verb: it does not have to receive an obligatory *de se* reading under an attitude verb.
(15) **Caki in a relative clause**

S1: John thinks, “That woman who hit me is actually kind.”  

S2: John thinks that a girl he has newly met in class is very kind and nice. Unbeknownst to John, however, they met at a party the other night and she hit him while he was so drunk.

\[
\begin{array}{l}
\text{John}_1\text{-un [}[\text{caki}_1\text{-lul ttayli\text{-n yeca\text{-ka}}]\text{-ka chakhata-ko sayngkakhanta}.} \\
\text{John-TOP self-ACC hit-ADN woman-NOM kind-COMP think}
\end{array}
\]

‘John\(_1\) thinks that the woman who hit him\(_1\) is kind.’ (✓ S1, ✓ S2)

The sentence with *caki* in a relative clause in (15) can felicitously report John’s attitude even in the context where the reference of *caki*, the matrix subject John, does not hold a *de se* attitude (‘S2’). This striking observation will be discussed thoroughly in Chapter 5.

Third, the LD reflexive *caki* is subject to the notion of logophoricity even when it is not interpreted *de se*. It is obvious that antecedents of *caki* in attitude environments can always be understood as a logophoric center because they are the ones who is the speaker of the reported utterance (that is, SOURCE) or an attitude holder (SELF). We will see that the antecedent of *caki* with a non-*de se* interpretation can still be understood as a logophoric center, the one whose spatio-temporal perspective is taken in the clause containing *caki* (PIVOT). For example, locative spatial phrases like ‘in front of’ and ‘on the left’, etc. can usually be interpreted with respect to the perspective of the speaker of the utterance or an internal protagonist whose perspective is taken. Interestingly, however, when *caki* co-occurs with those phrases, they must be interpreted relative to the antecedent of *caki*, who is the perspective center.

(16) **Perspective holder as the antecedent of caki**

**Context:** John thinks that a woman he met at a party the other day is very kind and nice. Unbeknownst to John, the woman who is sitting on his right side is the woman he met at the party.
‘John, thinks that the woman who is sitting on his right is kind.’ (from John’s perspective)

‘John, thinks that the woman who is sitting on his right is kind.’ (from the speaker’s perspective)

Although caki does not receive a de se interpretation in (16), the antecedent of the reflexive must be understood as the perspective holder, and thus, a logophoric center based on Sells (1987)’s notions, as witnessed by the interpretation the perspective-sensitive expression ‘on the right’.

To summarize, the LD reflexive caki is subject to the notion of logophoricity in both attitude and non-attitude environments. Moreover, it must get an obligatory de se interpretation in attitude environments, with an exception under relative clauses. These are the brief highlights of the case study of the LD reflexive caki in Korean in terms of the de se interpretation and logophoricity. Based on these novel empirical data, we will develop analyses on LD binding of caki as well as the source of the obligatory de se interpretation in attitude environments.

1.2.2 Central claims

The main claim of this thesis is that there are distinct semantic/syntactic mechanisms for the obligatory de se interpretation of caki on the one hand, and the long-distance binding of caki on the other. Specifically, for the semantics of the de se, I will provide a unified account of the obligatory de se interpretation of the LD reflexive caki and (null and overt)
controlled subjects, based upon Lewis (1979) and Chierchia (1989). That is, these are the elements that need to be bound by an individual abstractor, which is introduced by an attitude verb, and end up being interpreted as the *de se* counterpart of the attitude holder, the referents of these elements, given certain semantics of attitude verbs. Following Lewis (1979) and Chierchia (1989), we will argue that *de se* attitude reports denote self ascription of a property. While the core machinery that derives the obligatory *de se* interpretations of the so-called *de se* elements like LD reflexives and obligatory control subjects is same, they do not necessarily behave in the identical way because of the additional inherent properties of each element. Another theoretical claim that we will draw from our empirical data is that *de se* cannot always be derived as a special case of *de re* (contra Perry 1977, and many others).

For the long-distance binding of *caki* in both attitude and non-attitude environments, we will take a local logophoric binding approach (Koopman and Sportiche 1989, Adesola 2005, Anand 2006, Nishigauchi and Kishida 2008, Sundaresan 2012, Nishigauchi 2014, Charnavel and Zlogar 2016, a.o.). Based on the idea that *caki* is uniformly bound by a local logophoric binder in both attitude and non-attitude environments, we will further propose the link between *de se* and logophoric binding mechanisms. Our two-layered system of *de se* and logophoric binding will ensure that the antecedent of *caki* must be the perspective holder of a clause containing *caki* and *caki* denotes the *de se* counterpart of its antecedent under attitude verbs.

1.3 **Overview of the dissertation**

Before we discuss our two main interests (*de se* ascription and logophoricity) with the LD reflexive *caki* in Korean, **Chapter 2** provides a general background of LD anaphors and the Korean reflexive *caki*. Although the same reflexive can find a local or LD antecedent and share some basic properties, I will show that *caki* can be distinguished into two different types based on the distance to its antecedent (long-distance vs. local), and we will focus
on the long-distance cases throughout the remainder of the dissertation.

Chapter 3 is devoted to a discussion of the semantics of attitude reports with the embedded reflexive *caki* that can only be interpreted as *de se*. I will follow a particular semantic mechanism for *de se* elements, namely, the property approach of Lewis (1979) and Chierchia (1989), and propose specific binding conditions for LD *caki* that are developed based on the property approach to *de se* and the inherent properties of the reflexive.

In Chapter 4, we will expand our discussion of the semantics of *de se* attitude reports by focusing on another type of obligatory *de se* expression in Korean: obligatory control (OC) subjects. I will defend a unified view for the two types of *de se* elements in Korean based on novel empirical evidence. While we maintain the property approach as the *de se* mechanism, it will be shown that additional structural conditions of OC constructions and lexical properties of *caki* can derive some distinguishable properties between (null and overt) controlled subjects and LD *caki* as well as between (controlled and non-controlled) LD *caki* and other OC subjects (null PRO and pronouns).

Chapter 5 presents a novel environment in which LD *caki* need not receive a *de se* interpretation even within the scope of an attitude verb. That is, when LD *caki* occurs in a relative clause that is embedded under an attitude verb, it is exempt from the *de se* requirement. The main discovery of this chapter will be a new relationship between the (non-)*de se* interpretation of *caki* and the *de dicto* reading of the predicate in the same clause. Owing to the special intensional property of relative clauses, LD *caki* receives a non-*de se* interpretation only in a relative clause, especially when the predicate of the relative clause is not interpreted *de dicto* with respect to the antecedent of *caki*. In addition, two pragmatic competitions regarding *de se* will also be presented with supporting data.

Chapter 6 turns our attention to both attitude and non-attitude environments of the reflexive *caki* and develops the account of logophoric binding based on data that show LD *caki* is subject to the notion of logophoricity in both environments. The new account will diverge from our previous analysis in which the binder of *caki* is responsible for both its *de*
se interpretation and LD dependency. Under our new account, long-distance binding and the obligatory de se reading of caki are derived by two separate binders: a local logophoric binder for LD dependency and a de se binder.
CHAPTER 2

BACKGROUND ON LONG-DISTANCE ANAPHORS

2.1 Introduction

As mentioned in the Introduction (Chapter 1), this dissertation is based on a thorough case study of the Korean long-distance reflexive caki with a focus on its (non-)de se interpretation, distribution, and interactions with other elements, including the third person pronoun and obligatory control PRO. As a first step, this chapter provides the reader with basic background information regarding long-distance (LD) anaphors in general and the Korean LD reflexive caki in detail. Section 2.2 presents an introductory overview on anaphoric elements that form a long-distance dependency with their antecedents. It will be shown that there are certain typological patterns of the long-distance reflexives across languages. In Section 2.3, I begin by describing basic properties of the LD reflexive caki in Korean, such as the person and animacy restrictions. I will then distinguish between the reflexive caki with local and long-distance antecedents and will focus on the latter case throughout the rest of the dissertation.

2.2 Long-distance anaphors

In a number of languages, anaphoric elements can find either a local or long-distance antecedent; for instance, ziji in Chinese (Tang 1989, Huang and Tang 1991), sig in Ice-
landic (Thráinsson 1976), proprio in Italian (Giorgi 1984), zibun in Japanese (Kuno 1972a), dirinya in Malay (Cole and Hermon 1998), among many others. For instance, the Chinese reflexive ziji can take a local subject or a matrix subject as its antecedent, as illustrated in (1).

(1) **The long-distance anaphor ziji in Chinese**

\[
\begin{align*}
\text{Zhangsan}_i \text{ renwei} [\text{Lisi}_j \text{ hai-} & \text{le} \quad \text{ziji}_{i/j}], \\
\text{Zhangsan} \text{ think} \quad \text{Lisi} \text{ hurt-ASP self} \\
'\text{Zhangsan}_i \text{ thought that} \text{Lisi}_j \text{ hurt himself}_{i/j}. ' & \quad \text{(Huang and Tang 1991, p.263)} \\
\end{align*}
\]

These so-called “long-distance reflexives” in a number languages have been extensively discussed in the literature as a challenge to the canonical Binding Theory (Chomsky 1981). While there is a general similarity among various LD anaphors with respect to their long-distance dependency with their antecedents, contrary to anaphors that are strictly subject to the Binding Theory, there are also significant differences between such elements across languages.

Based on an overview of typological properties of LD reflexives by Cole et al. (2001b),

\[1\] There is another type of anaphoric expressions that only allow a long-distance dependency with their antecedents; for example, zich in Dutch (Reinhart and Reuland 1993), ta(a)n in Tamil (Sundaresan 2012), etc.

(i) **The long-distance anaphor ta(a)n in Tamil**

\[
\begin{align*}
\text{Raman}_i \quad [\text{Seetha}_j \quad \text{tann-ae}_{i,j} \quad \text{kaadali-kkir-aa[ünunu]} \quad \text{kaŋjupi[ji-tt-aan.} \\
\text{Raman[NOM]} \quad \text{Seetha[NOM]} \quad \text{ANAPH-ACC love-PRS-3FSG-C find.out-PST-3MSG} \\
'\text{Raman}_i \text{ found out that} \text{Seetha}_j \text{ loved him}_{i,j}. ' & \quad \text{(Sundaresan 2012, p.9)} \\
\end{align*}
\]

The so-called logophoric pronouns (or logophors) used in reported speech in some African languages, such as yè in Ewe (Clements 1975), di in Mupun (Frajzyngier 1993), etc., must also co-refer with an argument in the matrix clause.

(ii) **The logophoric pronoun yè in Ewe**

a. "Kofi_lɔ yè_t, \\
Kofi love LOG \\
"Kofi loves himself,;'

b. Kofi be yè_t-dzo. \\
Kofi say LOG-leave \\
‘Kofi said that he_t left.’ \quad \text{(Clements 1975, p.150)}
I will point out two patterns of LD reflexives from a cross-linguistic perspective.\(^2\) The first pattern regards the characterization of LD reflexives as bound anaphors or pronouns. Bound anaphors usually require c-commanding antecedents, do not allow extra-sentential antecedents, and yield only sloppy readings under VP ellipsis. On the other hand, pronouns do not require c-commanding antecedents, allow extra-sentential antecedents, and yield both sloppy and strict readings under VP ellipsis. Given these contrasting properties of bound anaphors and pronouns, Cole et al. (2001b) present (at least) three patterns of LD reflexives in terms of their anaphoric or pronominal characterization: (i) used as bound anaphors (in Chechen/Ingush, Chinese, Hindi-Urdu, Kannada), (ii) used as bound anaphors locally and as pronominals non-locally (in Turkish and Malay), and (iii) used primarily as bound anaphors but as pronominals in specific syntactic and discourse contexts (the Chinese reflexive \textit{ziji} with extra-sentential antecedent, Icelandic subjunctives, and exempt anaphors in English).

The second pattern of LD reflexives concerns the role of discourse. Based on prior studies, Cole et al. (2001b) show that certain discourse factors play an important role in licensing LD reflexives in many languages, although specific discourse conditions that matter may vary across languages. That is, LD reflexives require an antecedent who is aware of the content of the clause containing the reflexive or whose perspective is represented in the clause in languages like Kannada (Amritavalli 2000), Singapore Teochew (Cole et al. 2001c), Chinese (Huang and Liu 2001), etc.\(^3\) To capture the fact that many LD reflexives need to be associated with individuals that satisfy certain discourse roles with respect to logophoricity, perspective, or point of view, syntactic approaches that encode discourse-related factors structurally have also been proposed in the literature (Huang and Liu 2001, Nishigauchi 2005, Nishigauchi and Kishida 2008, Nishigauchi 2014, Sundaresan 2012, Charnavel and Zlogar 2016, among others).

\(^2\)I refer the reader to Cole et al. (2001b) for further details.

\(^3\)Cole et al. (2001b) point out that LD reflexives are not subject to any discourse conditions in Turkish and Malay, based on Cole and Hermon (1998) and Kornfilt (2001).
In the remainder of this chapter and Chapter 3, I will show that the LD reflexive \textit{caki} in attitude environments behaves as a bound anaphor. On the other hand, we will see in Chapter 6 that \textit{caki} also exhibits pronominal properties when it appears in non-attitude environments, such as relative and adjunct clauses. Moreover, it will be shown that \textit{caki} is subject to a discourse factor, namely, the notion of logophoricity, both in attitude and non-attitude environments.

### 2.3 The long-distance reflexive \textit{caki} in Korean

In this section, I will provide background information on the LD reflexive \textit{caki} in Korean, which can take a local or a long-distance antecedent. Section 2.3.1 presents basic common properties of \textit{caki}, which must hold regardless of the location of its antecedent. Section 2.3.2 points out some interesting properties of \textit{caki} when it takes a local antecedent. Lastly, we focus on differences between local and long-distance uses of \textit{caki} in Section 2.3.3.

#### 2.3.1 Basic properties of \textit{caki}

Let us begin by examining some basic properties of the Korean reflexive \textit{caki}. In Korean, as in Chinese and Japanese, the LD reflexive \textit{caki} allows either a local or long-distance dependency with its antecedent. An illustrative example is given in (2). In (2), \textit{caki} in the embedded clause can not only refer to the embedded subject, but also to the matrix subject.

\begin{equation}
\text{(2) \hspace{1cm} The local and long-distance uses of \textit{caki}}
\end{equation}

\begin{verbatim}
John-NOM Tom-NOM self-ACC dislike-COMP think
‘John, thinks that Tom dislikes him_i/himself_j.’
\end{verbatim}

Regardless of whether \textit{caki} finds a local or long-distance antecedent, two general restrictions hold for the reflexive \textit{caki} in Korean: i) \textit{caki} cannot have a 1\textsuperscript{st} or 2\textsuperscript{nd} person

Given the first general property of caki with respect to the person feature, the existence of the first or second person pronoun can disambiguate the referent of caki. As shown in (3), caki can only co-refer with the 3rd person NP Tom, no matter it is a local or LD antecedent.

(3) **No first or second person antecedent for caki**

a. Na$_i$-nun [Tom$_j$-i caki$_{is,j}$-lul silhehanta-ko] sayngkakhanta.  
   I-TOP Tom-NOM self-ACC dislike-C think  
   'I think that Tom$_j$ dislikes himself$_j$/*me.'

b. Tom$_i$-un [ne$_j$-ka caki$_{is,j}$-lul silhehanta-ko] sayngkakhanta.  
   Tom-TOP you-NOM self-ACC dislike-Comp think  
   'Tom$_i$ thinks that you dislike him$_j$/*yourself.'

---

4 Another Korean LD reflexive casin allows the 1st or 2nd person pronoun as its antecedent, in contrast to caki, as shown in (i).

(i) **First or second person antecedent for casin**

a. Na$_i$-nun casin$_i$-ul mitnunta.  
   I-TOP self-ACC trust  
   'I trust myself.'

b. Ne$_j$-nun casin$_i$-ul mite-yahanta  
   You-TOP self-ACC trust-should  
   'You should trust yourself.'

However, casin behaves like caki when it takes a long-distance antecedent. That is, the 1st or 2nd person pronoun cannot serve as a long-distance antecedent of casin (Sohng 2004). This contrast is illustrated in (ii): the first person pronoun in the matrix subject position cannot be a long-distance antecedent of casin, while the local subject 'I' can.

(ii) **No first or second person long-distance antecedent**

a. Na$_i$-nun [Tom$_j$-i casin$_{is,j}$-ul silhehanta-ko] sayngkakhanta.  
   I-TOP Tom-NOM self-ACC dislike-C think  
   'I think that Tom$_j$ dislikes himself$_j$/*me$_j$.'

b. Tom$_i$-un [nay$_j$-ka casin$_{is,j}$-ul silhehanta-ko] sayngkakhanta.  
   Tom-TOP I-NOM self-ACC dislike-Comp think  
   'Tom$_i$ thinks that I$_j$ dislike him$_j$/*myself$_j$.'

---

5 As Huang (1984) originally observed, an intermediate potential antecedent with a different person feature from the lower antecedent blocks any higher potential antecedents to bind the LD reflexive ziji in Chi-
Moreover, it is not surprising that *caki* can never refer to the speaker or hearer of the context of utterance, owing to the third-person restriction. As noted by previous authors (e.g., Yang 1982, Park 1986, a.o.), *caki* can sometimes find an inter-sentential antecedent, the one who is salient in the discourse. In such cases, the speaker or hearer of the utterance context can still not be qualified as an antecedent of *caki*. Consider the following examples.

(4) **Third-person inter-sentential antecedent of *caki***

A: John₁-i salam-ul ponay-ss-ni?
   John-NOM man-ACC send-PST-INT
   'Did John send a man?'

B: Ani, caki₁-ka cikcep o-ass-e.
   no self-NOM in.person come-PST-DECL
   Lit. 'No, self came in person.'

(Yang 1982)

(5) **No first or second person inter-sentential antecedent**

A: Ne₁-nun ecey salam-ul ponay-ss-ni?
   You-TOP yesterday man-ACC send-PST-INT
   'Did you send a man yesterday?'

B: #Ani, caki₁-ka cikcep ka-ss-e.
   no self-NOM in.person go-PST-DECL
   Lit. '#No, self went in person.'

B': Ani, nay₁-ka cikcep ka-ss-e.
   no I-NOM in.person go-PST-DECL
   'No, I went in person.'

In (4), *caki* can take an individual from the previous sentence, *John*, as its inter-sentential

nese, so-called 'Blocking effects'. The examples in (3) show that there is no blocking effect by the 1st/2nd person pronoun in Korean, unlike in Chinese.

(i) **Blocking effects in Chinese**

a. Zhangsanᵢ renwei Lisiᵢ j zhidaow Wangwuᵢ k xihuan zijiᵢᵢᵢ/ᵢⱼ/ᵢₖ.
   Zhangsan think Lisi know Wangwu like self
   Lit. 'Zhangsanᵢ thinks Lisiᵢ j knows Wangwuᵢ k likes selfᵢᵢᵢ/ᵢⱼ/ᵢₖ.'

b. Zhangsanᵢ renwei w₀ᵢ j zhidaow Wangwuᵢ k xihuan zijiᵢᵢᵢ/ᵢⱼ/ᵢₖ.
   Zhangsan think I know Wangwuᵢ k likes self
   Lit. 'Zhangsanᵢ thinks Iᵢ j know Wangwuᵢ k likes selfᵢᵢᵢ/ᵢⱼ/ᵢₖ.' (Cole and Sung 1994, p.92-93)
antecedent. On the other hand, \textit{caki} cannot be used to refer to the speaker of the utterance in (5). Instead, the first person pronoun must be used, as shown in (5).\footnote{LD reflexives in some languages do not exhibit the third person restriction. For example, unlike the person restriction on \textit{caki}, there is no such restriction for the Chinese reflexive \textit{ziji}. Therefore, the first/second person pronoun can freely be a referent of \textit{ziji}, as shown below.}

The second general property of \textit{caki} regrading animacy also restricts the possible reference of the reflexive. In (6), the embedded subject \textit{ciek sinmwun} ‘the local newspaper’ is not qualified as an antecedent of \textit{caki} due to its inanimacy. Therefore, only the animate subject \textit{John} can be qualified as an antecedent of \textit{caki}.

\begin{enumerate}
\item \textbf{No inanimate antecedent for \textit{caki}}
\begin{verbatim}
John-i [ciek sinmwun-i caki-i/-lul piphanhayssta]-ko malhayssta.
John-NOM local newspaper-NOM caki-ACC criticize-COMP said
\end{verbatim}
\begin{quote}
‘John said that the local newspaper criticized him.’
\end{quote}
\end{enumerate}

To summarize, we have seen that \textit{caki} displays the following two general properties: (i) \textit{caki} cannot be coreferent with the first or second person pronoun under any circumstances, thus, (ii) it cannot refer to the speaker or hearer of the utterance context when it is syntactically unbound, and (iii) the antecedent of \textit{caki} must be animate.

\begin{enumerate}
\item \textbf{No person restriction for the Chinese \textit{ziji}}
\begin{verbatim}
Wo-i juede [Lisi-j zai piping ziji-i]/j.
I think Lisi at criticize self
\end{verbatim}
\begin{quote}
‘I think that Lisi is criticizing me/himself.’ \hfill (Huang and Liu 2001, p.162)
\end{quote}

Furthermore, the syntactically unbound \textit{ziji} can also refer to the speaker of the utterance (Yu 1992, Huang and Liu 2001).

\item \textbf{First-person inter-sentential antecedent of \textit{ziji}}
\begin{verbatim}
Zhe-ge xiangfa, chule ziji, zhiyou san-ge ren zancheng.
This-CL idea, besides self only three-cl. people agree
\end{verbatim}
\begin{quote}
‘As for this idea, besides myself, only three other people agree.’ \hfill (Huang and Liu 2001, p.157)
\end{quote}

According to Huang and Liu (2001), the sentence-free \textit{ziji} in (ii) can be replaced with the first person pronoun \textit{wo} ‘I’.

24
2.3.2 Local binding of caki

We have seen that caki can have either a local or a long-distance antecedent and there are at least two general properties of caki. This subsection provides a brief discussion of the properties of 'local caki'.

It is commonly assumed that when a LD reflexive finds a local antecedent, it is used as a syntactic anaphor that needs to be bound by a c-commanding NP within a local domain (e.g., Cole et al. 2001a, Huang and Liu 2001). It is true that caki exhibits some properties that seem to obey Condition A like English-type anaphors when it is locally bound (Lee 1973, Yang 1983, 1991, among many others). First, caki must be bound by a c-commanding NP when it finds a local antecedent.

(7) C-commanding antecedents

   John-nom self-acc criticized
   ‘John criticized himself.’

   John-acc criticized-adn Mary-nom self-also criticized
   ‘Mary, who criticized John, also criticized herself/*him.'

In (7b), John inside the subject phrase cannot be an antecedent of caki because it does not c-command caki, unlike Mary.

Second, local caki only allows a sloppy reading but not a strict reading under VP ellipsis (Cho 1996).

---

7For purposes of discussion, I will refer to caki associated with a local antecedent as 'local caki' and caki with a long-distance antecedent as 'long-distance (LD) caki'.
Only sloppy readings under VP ellipsis

\[
\begin{align*}
\text{John-i} & \quad \text{caki-lul kwasihayss-ko, Mary-to kule-hayssta.} \\
\text{John-nom self-acq overtrusted-and Mary-also did.so} \\
'\text{John overtrusted himself, and Mary did, too.}' \\
(= \text{Mary overtrusted herself.}) \\
(\neq \text{Mary overtrusted John.})
\end{align*}
\]

(Cho 1996, p.631)

Following Heim and Kratzer (1998), I will tentatively assume that \textit{caki} is a variable that needs to be bound by a legitimate local binder.\footnote{Alternative semantic analyses for local binding of \textit{caki} may be possible. At this moment, I am not arguing for any particular approach to local binding of \textit{caki}.} Given the requirement of a c-commanding antecedent and a sloppy reading under ellipsis, we can characterize local \textit{caki} as a bound anaphor.

Although local binding of \textit{caki} is not the main concern of this thesis, I will point out some problematic properties of local \textit{caki} that need to be accounted for. First, it has been observed that only a subject can be an antecedent of the local anaphor \textit{caki} (and \textit{ziji} in Chinese).\footnote{According to Giorgi (2006), the subject orientation is only subject to LD anaphors but not to local anaphors in Italian.} Given that both a subject and an indirect object c-command a direct object, both of them can bind the anaphor in the direct object position in English (Larson 1988). However, in Korean (and Chinese), only a subject is qualified as an antecedent of \textit{caki} (Lee 1973).

\begin{enumerate}
\item \text{John}_i \introduced \text{Tom}_j \text{to himself}_{i/j}.
\item \text{Mary}_i\text{-nun} \text{John}_j\text{-eykey caki}_{i/sj}-uy \text{chayk-}ul \text{cwuessta}.
\end{enumerate}

\begin{enumerate}
\item \text{Mary-}top \text{John-Dat caki-gen book-acc gave}
\item \text{Mary}_i \text{gave John}_j \text{her} \text{/his} \text{book.}'
\end{enumerate}
NP that c-commands *ziji*. In other words, in some cases, an NP can bind *ziji* even though it does not directly c-command the anaphor.\(^{10}\) The same contrast holds for Korean as well. Consider the examples in (11) and (12).

(11) **Sub-commanding antecedents in Chinese**

a. \[[\textit{Zhangsan, de}] \textit{baba}]_j \textit{dui ziji}_{i/j} \textit{mei xinxin.}
\textit{Zhangsan} DE father to self no confidence
\textit{‘Zhangsan,’s father}_{j} has no confidence in himself_{i/j}.

b. \[[\textit{Zhangsan, de}] \textit{jiaooao}]_j \textit{hai-le ziji}_{i/j}
\textit{Zhangsan} DE arrogance harm-perf self
\textit{‘Zhangsan,’s arrogance hurt him}_{i/j}.
\hspace*{2cm} (Tang 1989)

(12) **Sub-commanding antecedents in Korean.**

a. \[[\textit{John,-uy}] \textit{apeci,}-ka caki_{i/j}-lul mangchiessta.}
\textit{John-gen father-nom self-acc ruined}
\textit{‘John,’s father}_{j} ruined *him*_{i/j}.

b. \[[\textit{John,-uy}] \textit{kyomanham,i} caki,-lul mangchiessta.}
\textit{John-gen arrogance-nom self-acc ruined}
\textit{‘John,’s arrogance ruined him}_{i}.

The examples in (11) and (12) show that the possessor NP can bind *ziji/caki* only when the head noun of the possessive clause is inanimate. Thus, *zijii* in (11a) and *caki* in (12a) can only refer to the animate head noun ‘father’ instead of the possessor *Zhangsan* or *John*.

With respect to this behavior of *ziji*, Tang (1989) argues that *ziji* must be bound by a "sub-commanding" binder that is not contained in another potential binder of *ziji*. 

\hspace*{1.5cm} SUB-COMMAND is defined as below.

\(^{10}\)It has been pointed out to me by Rajesh Bhatt (p.c.) that an English anaphor can sometimes be used in a similar way.

(i) **How Mark Zuckerberg’s Altruism Helps Himself**  
\hspace*{1.8cm} (The New York Times, Dec. 3 2015)
According to Tang, a potential binder of *ziji* is an NP that satisfies all conditions to be a binder of *ziji*. Given the fact that the antecedent of *ziji* must be animate in Chinese, the closest potential binder of *ziji* in (11a), then, is the NP *baba* 'father' instead of *Zhangsan*, while it is *Zhangsan* in (11b) instead of 'arrogance'. Since *Zhangsan* is not contained in an NP that is a potential binder of *ziji* and sub-commands *ziji* in (11b), it can serve as an antecedent of *ziji*.

The antecedent of *caki* can be deeply embedded in an NP if there is no other animate NPs that can serve as an antecedent of *caki*. Also, there is no further semantic restriction for inanimate nouns, such as inalienability, to allow sub-commanding.

(14)  
[John-uy cha]-nun [caki-uy pwuin-uy kes]-pota cakta.  
John-gen car-top caki-gen wife-gen thing-than small  
‘John,’s car is smaller than his, wife’s car.’

(15)  
John-gen car-gen color-top caki-gen wife-gen thing-with same  
‘The color of John,’s car is same as his, wife’s car.’

To my knowledge, there is no satisfactory semantic account of these properties of local binding of *caki* that (i) *caki* only finds a subject NP as its antecedent, and (ii) an animate NP inside an inanimate NP can bind *caki*. Although the remainder of this dissertation will mainly focus on LD binding of *caki*, especially with respect to its *de se* interpretation and the notion of logophoricity, these properties should also be explained for a better understanding of binding mechanism of the reflexive *caki*.1112
2.3.3 Local vs. long-distance caki

Having presented the basic properties of caki and the local caki binding case, we will now discuss issues of how to treat local caki and LD caki in this subsection. One of the important issues surrounding LD reflexives is whether local and long-distance binding cases of a LD reflexive should be treated uniformly or dichotomically, given the fact that the same element can be either locally or long-distance bound. I will first present evidence against the unified approach. Then I will argue that LD caki should be distinguished from local caki in Korean.

One way to account for the local and long-distance binding cases of caki is to treat them uniformly. For example, Han and Storoshenko (2012) propose a unified semantic account of the LD reflexive caki. Specifically, they argue that caki is a bound variable that

\[12\]

It is worth noting that a seemingly similar phenomenon can be found in a quite unrelated construction in English. That is, in control constructions, an animate possessor inside some inanimate NP can anomalously control PRO (Manzini 1983, Landau 1999). The contrast between Bill’s development and Bill’s friend in that only Bill in the former can control PRO in (i) looks somewhat similar to the contrast we saw for caki/ziji binding by a sub-commanding NP.

(i) a. It would help [Bill₁’s development] [PRO₁ to behave himself₁ in public].
   b. *It would help [Bill₁’s friends] [PRO₁ to behave himself₁ in public].

(Manzini 1983, Landau 1999)

Landau (1999) points out that not every NP embedded in a non-possible controller NP can control PRO. Rather, he argues that only a small number of nouns that "denote abstract notions that reflect the individuality of the controller", such as career, status, confidence, performance, development, etc., allow this kind of control. In other words, X in X’s NP, which he dubs a ‘logophoric extension of X’, can control PRO, when an NP falls under this kind of special nouns. According to him, since the ‘logophoric extension of X’ is not distinct from X, X can be a possible controller. Given this, he accounts for the contrast between Bill’s development in (ia) and Bill’s car in (ii). That is, Bill’s development is a logophoric extension of Bill so that it does not introduce a new individual, whereas Bill’s car, which is not a logophoric extension of Bill, denotes two distinct individuals in the discourse, i.e. Bill and his car. Therefore, neither Bill nor Bill’s car can be a controller.

(ii) *It would help [Bill₁’s car] [PRO₁ to plan his itinerary in advance].

(Landau 1999)

One clear distinct property of caki binding by a sub-commanding NP is that the head inanimate nouns that contain the antecedent of caki are not as restricted as the nouns that can be a logophoric extension of the controller X, that is, NP in X’s NP. Unlike in English, where car is not a logophoric extension so it does not allow its possessor to be a possible controller, the possessor John of the head NP cha ‘car’ can still be an antecedent of caki, as shown in (14).

\[12\]

See also Pollard and Xue (1998) for a proposal that sub-commanding cases are subject to nonsyntactic constraints.
requires a semantic binder, which can vary across different structures. In other words, local and LD caki are one and the same element under their account that can and must be bound by any possible semantic binder. As shown in (16) and (17), the local and long-distance binding of caki are dealt with in the same way.\(^\text{13}\)

(16) **Local semantic binding of caki**

a. \([\text{John}-\text{i} [1 [t_1 \text{caki}_1-lul \text{piphana-yess-ta}]])\]

\[\text{John-nom self-acc criticize-pst-decl}\]

Lit. ‘John, criticized self.’

b. \[\lambda P.P(j)(\lambda x.x \text{criticized} x)\]

\[= j \text{criticized} j\]  
(Han and Storoshenko 2012, p.781)

(17) **Long-distance semantic binding of caki**

a. \([\text{Motwu-ka} [1 [t_1 \text{caki}_1-lul \text{salangha-n-tako}]\]

\[\text{everyone-nom} \quad \text{John-nom self-acc love-prs-c}\]

\[\text{sayngkakha-n-ta}]]\].

\[\text{think-prs-decl}\]

Lit. ‘Everyone, thinks that John loves self.’

b. \[\lambda P.\forall y[y \text{is a person}][P(y)](\lambda x.x \text{thinks that John loves} x)\]

\[= \forall y[y \text{is a person}][y \text{thinks John loves} y]\]

(Han and Storoshenko 2012, p.780)

In both of the local and long-distance binding cases above, caki is directly bound by a binder introduced by QR of the antecedent NPs.

However, there is evidence against this unified approach to caki. The first piece of evidence comes from a special interpretation of caki in long-distance binding cases. As we discussed in the Introduction, the Korean LD reflexive caki is unambiguously interpreted **de se** under attitude verbs, while no such interpretation is relevant in local binding cases. Therefore, among two possible scenarios in (18), the sentence in (17) with LD caki can

---

\(^{13}\)Note that they treat proper names as generalized quantifiers that undergo QR. Therefore, the LF would be same even when the universal quantifier in the matrix subject position in (17) is replaced with a proper name.

---
only be used in S1, where everyone has a de se belief.

(18)  
Context: Mary, Sue, and Jane are talking about who John loves.
   S1: Mary, Sue, and Jane each thinks, “John loves me.”
   S2: Mary, Sue, and Jane each points out one girl in a photo and thinks, “John loves this girl.” Unbeknownst to them, each girl pointed out herself.

Motwu₁-ka [John₂-i caki₁-lul salangha-n-ta-ko] sayngkakha-n-ta.

Lit. ‘Everyone, thinks that John loves self.’ [✓S1, #S2]

On the other hand, the truth-conditions of this sentence shown in (17) predict for the sentence to be true both in S1 and S2, contrary to the fact. This tells us that another LF that derives stronger truth-conditions of (18) is required to capture the obligatory de se interpretation of LD caki, while such an LF is not necessary for local caki. Therefore, in order to pursue a unified account for caki, it must be accounted for why and how caki receives an obligatory de se interpretation only when it is long-distance bound under attitude verbs.

A piece of strong evidence supporting a dichotomy approach to local and LD caki is obtained from interpretations of multiple caki’s appearing in the same clause. Under multiple embeddings, multiple caki’s have three possible antecedents: two long-distance antecedents and one local one. Since caki is only required to be bound by a semantic binder with no further restrictions under the unified approach proposed by Han and Storoshenko (2012), we would expect that there are nine different possible readings of the sentence in (19) with the multiple occurrence of caki in the most embedded clause. Contrary to the prediction, however, two particular readings are not available from this sentence (as originally observed by Pan (1997) for the Chinese reflexive ziji): that is, multiple caki’s cannot take different LD antecedents.
(19) **Multiple clausemate caki’s**

gave-comp thought-comp said

Lit. ‘John said that Tom thought that Mary gave self’s book to self’s friend.’

a. ‘...Mary gave self (=Mary)’s book to self (=Mary)’s friend.’

b. ‘...Mary gave self (=Tom)’s book to self (=Tom)’s friend.’

c. ‘...Mary gave self (=John)’s book to self (=John)’s friend.’

d. ‘...Mary gave self (=Mary)’s book to self (=Tom)’s friend.’

e. ‘...Mary gave self (=Tom)’s book to self (=Mary)’s friend.’

f. ‘...Mary gave self (=Mary)’s book to self (=John)’s friend.’

g. ‘...Mary gave self (=John)’s book to self (=Mary)’s friend.’

h. ‘...Mary gave self (=Tom)’s book to self (=John)’s friend.’

i. ‘...Mary gave self (=John)’s book to self (=Tom)’s friend.’

The unavailable readings of multiple caki’s in (19h) and (19i) cannot be explained under the assumption that both local and LD caki are a semantic variable that requires any suitable semantic binder. For instance, it is mysterious why an LF like (20a) would be possible, while one in (20b) would not.

(20) a. John \( \lambda_1 \) \( t_1 \) said that Tom \( \lambda_2 \) \( t_2 \) thought that Mary \( \lambda_3 \) \( t_3 \) gave self\(_1\)’s book to self\(_3\)’s friend

b. *John \( \lambda_1 \) \( t_1 \) said that Tom \( \lambda_2 \) \( t_2 \) thought that Mary \( \lambda_3 \) \( t_3 \) gave self\(_1\)’s book to self\(_2\)’s friend

Our data support the view that LD caki behaves differently from local caki in terms of binding. While it may be true that caki in both local and LD cases need a semantic binder, as Han and Storoshenko (2012) argue, a simple unified account that caki can be bound by
any possible binder appears to be too weak to capture the obligatory de se interpretation of LD caki and the restriction on interpretations of multiple caki’s in the same clause. Given how LD caki is interpreted, it seems that LD caki must be bound by some particular binder, as opposed to any possible binder. Thus, a special treatment for LD caki needs to be provided. Throughout this thesis, I will assume that a semantic mechanism for LD caki is distinct from that of local caki, based on evidence presented in this section.

2.4 Conclusion

This chapter has provided a brief background on LD anaphors and introduction to the LD reflexive caki in Korean for a detailed discussion on the interpretation and binding mechanism of caki that will be given throughout the remainder of this dissertation. First, I have shown that there are two general properties of caki: it must take a third-person and animate antecedent. Second, while local caki behaves like a locally bound anaphor, LD caki exhibits distinctive characteristics in terms of its de se interpretation and interaction with a clausemate caki. The key similarities and differences between local caki and LD caki are summarized in 2.1.

Table 2.1: The comparison between Local caki and LD caki

<table>
<thead>
<tr>
<th></th>
<th>Local caki</th>
<th>LD caki</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third person</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Animacy</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Obligatory de se</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Obligatory coreference with a clausemate caki</td>
<td>X</td>
<td>✓</td>
</tr>
</tbody>
</table>

In the next chapter, given that binding of LD caki appears to be more restricted than local caki, I will put forth an account of long-distance binding of LD caki in attitude environments. It will be shown that LD caki must be bound by a suitable binder that satisfies its binding conditions as opposed to any semantic binder.
CHAPTER 3

**DE SE ATTITUDE REPORTS**

3.1 Introduction

As I have mentioned in Chapter 1 and Chapter 2, the LD reflexive *caki* in Korean receives an obligatory *de se* interpretation in attitude reports. In light of this, this chapter is devoted to a discussion of the semantics of attitude reports with the embedded reflexive *caki* that specifically encodes *de se* attitudes.

In this chapter, I will mainly propose binding conditions for LD *caki* that are developed based on a particular semantic mechanism for *de se* elements, namely, the property approach of Lewis (1979) and Chierchia (1989). In particular, I will argue that LD *caki* is a bound variable that requires a specific binder, a closest abstractor that is introduced by an attitude verb that bears a special feature [log]. While the *de se* interpretation of *caki* can naturally be derived by it being bound by an individual abstractor under attitude verbs (with certain semantics of attitude verbs), other properties of *caki*, such as no locality condition and obligatory coreference between multiple *caki*’s, can be explained by our proposed binding conditions for *caki*, that is, the locality and feature-match conditions.

The organization of this chapter is as follows. In 3.2, I will begin by briefly considering *de se* attitude reports, especially those with elements that obligatorily receive a *de se* interpretation. In 3.3, I draw attention to the interesting properties of LD *caki* appearing under attitude verbs. Section 3.4 then shows that LD *caki* consistently receives an unam-
biguous de se interpretation in attitude reports. After laying the empirical groundwork in Sections 3.3 and 3.4, Section 3.5 proposes a de se binding account of the reflexive caki on the basis of the dedicated de se construal. Section 3.6 provides comparisons between our proposal and two existing approaches and illustrates the advantage of our proposal. Finally, Section 3.7 discusses other constructions that involve attitudes and shows that LD caki is unambiguously interpreted de se in those constructions as well.

3.2 Background on de se attitude reports

Since the 1960−1970’s, certain mental attitudes toward oneself, i.e. de se attitudes, have received much attention in the philosophical literature (Castañeda 1966, Lewis 1979). In the linguistic literature, the issue of de se attitude ascriptions has become a focus of the debate on de se. In his seminal work on the semantics of de se attitude reports, Chierchia (1989) has shown that there are expressions in natural language that can only be used in certain attitude reports that describe someone’s attitudes toward oneself, i.e. de se attitudes. One of the most well-known examples of linguistic expressions that specifically encode de se attitudes involves obligatory control PRO, as noted by Chierchia (1989). Consider the following contrast between the third person pronoun and obligatory control PRO in English.

(1) The third person pronoun vs. PRO in English

S1 (de se): John says: "I should be elected."

S2 (de re): John is so drunk that he has forgotten that he is a candidate in the election. He watches someone on TV and finds that that person is a terrific candidate, who should definitely be elected. Unbeknownst to John, the candidate he is watching on TV is John himself.

a. John hopes that he will be elected. [✓ S1, ✓ S2]

b. John hopes PRO to be elected. [✓ S1, #S2] (Schlenker 2003)
In the situation S1 in (1), John holds an attitude about himself in a first-person way, using the first person pronoun in his direct speech. By contrast, in S2, although John has an attitude about himself, he is not aware that his attitude is toward himself. In other words, John has a (non-de se) de re attitude in S2 and a de se attitude in S1 toward himself. As shown in (1a), the attitude report sentence containing the third person pronoun can describe both of the situations in S1 and S2, indicating that the third person pronoun can be interpreted de se or (non-de se) de re. On the other hand, the obligatory control construction with the null subject PRO in (1b) can only be used under the scenario in S1, where John holds a de se attitude. Contrary to the third person pronoun, obligatory control PRO in attitude reports is unambiguously interpreted de se.

In addition to PRO, it has been found in the literature that there are other linguistic expressions in a number of languages that are obligatorily interpreted de se in attitude reports, such as logophoric pronouns, long-distance reflexives, shifted indexicals, etc. (Chierchia 1989, Schlenker 1999, Huang and Liu 2001, Schlenker 2003, Anand and Nevins 2004, Anand 2006, Pearson 2013, among many others). For instance, the long-distance reflexive ziji in Chinese, the logophor oun in Yoruba, and a shifted indexical in Zazaki are felicitous in attitude reports only when the attitude holder has a de se attitude, as shown in (2)—(4).

(2) The Chinese reflexive ziji as a de se expression

S1: Zhangsan says: "That thief stole my purse!"

S2: Zhangsan says: "That thief stole that purse!" (Unbeknownst to Zhangsan, it’s his own purse.)

Zhangsan shuo pashou tou-le ziji-de pibao.
Zhangsan say pickpocket steal-PERF ziji-DE purse

‘Zhangsan, said that the pickpocket stole his, purse.’ [✓S1, #S2]

(Huang and Liu 2001, p.158)
(3) **The Yoruba logophor *oun* as a *de se* expression**

S1: He says: "I saw John."

S2: He says: "That guy saw John." (Unbeknownst to him, that guy is him himself.)

ó, so pé *oun*, rí John.

'o say that *oun* see John

'He said that he saw John.' [✓ S1, #S2]

(Anand 2006, p.56)

(4) **A shifted indexical in Zazaki as a *de se* expression**

S1: Hensen says: "I am rich."

S2: Hensen says: "That guy is rich." (Unbeknownst to him, that guy is Hensen himself.)

Hensen;j 1(mi-k-ra) va ke ëzj dëwletia.
Hessen.OBL(I.OBL-to) said that I rich.be-PRS

'Hensen said that he is rich.' [✓ S1, #S2]

(Anand and Nevins 2004)

One of the key issues of *de se* attitude reports in the semantics field, especially with those elements with the obligatory *de se* interpretation, is their LFs and truth-conditions. In particular, prior authors draw attention to questions such as: do we need distinct LFs for *de se* attitude reports?; if so, how many different LFs are needed for attitude reports with a number of different *de se* expressions? It has been widely assumed that attitude reports that contain the third person pronoun have truth-conditions, derived from some coarse *de re* LF, that are true both when the attitude holder has a (non-*de se*) *de re* or *de se* attitude (Chierchia 1989, Percus and Sauerland 2003, Anand 2006, Maier 2011, a.o.). However, dedicated *de se* LFs that are distinct from *de re* LFs have also been proposed, motivated by the elements that are unambiguously interpreted *de se* in attitude reports (Chierchia 1989, Percus and Sauerland 2003, Anand 2006, a.o.). Anand (2006) explores distinct mechanisms for *de se* ascriptions and proposes three different ways, as shown in

1Since indexical shift is optional in Zazaki, the first person pronoun in (4) can also refer to the speaker of the utterance context.
(9) Besides those elements that can receive a *de se* or (non-*de se*) *de re* interpretation like pronouns, Anand (2006) divides various unambiguous *de se* elements into two types: (i) the semantic type, which is affected by the context-shift operator, and (ii) the syntactic type, which is bound by a syntactic operator.

(5) **Anand’s three distinct ‘routes to *de se*’**

a. Default (*de re* ascription): pronouns

b. Semantic (context-overwriting): shifted indexicals, Mandarin₁ *ziji*, Malayalam *taan*


Roughly speaking, it is assumed that the lexical meanings of *de se* expressions that fall under the "semantic" type are like indexicals so that their meanings are determined with respect to certain aspects of the context, such as *speaker, time, location*, etc. (Kaplan 1989). On the other hand, the elements in the "syntactic" type are treated as a variable that needs to be bound by a suitable operator, which turns propositions into properties, at LF (Chierchia 1989). For purposes of discussion, I will refer to the former kind of approach as the ‘indexical approach’ and the latter type as the ‘property approach’. A more detailed examination of these approaches will be provided later in this chapter.

The Korean reflexive *caki* is one of the expressions that require a *de se* interpretation in attitude environments, as illustrated below.
The Korean reflexive *caki* as a *de se* expression

S1: John says: "Mary likes me."

S2: John says: "Mary likes this guy in the photo." Unbeknownst to John, the guy in the photo is John himself.

> John-NOM Mary-NOM self-ACC like-COMP said

'John said that Mary likes him.' [✓ S1, #S2]

Attitude reports with the third person pronoun in Korean, on the other hand, can describe a *de se* or a (non-*de se*) *de re* attitude of the attitude holder, as in English.

The Korean third person pronoun *ku*

S1: John says: "Mary likes me."

S2: John says: "Mary likes this guy in the photo." Unbeknownst to John, the guy in the photo is John himself.

> John-NOM Mary-NOM he-ACC like-COMP said

'John said that Mary likes him.' [✓ S1, ✓ S2]

While LD *caki* exhibits a broad distribution in attitude reports, it must obtain a *de se* interpretation. Accordingly, the remainder of this chapter will be devoted to a distribution and interpretation of LD *caki* in attitude reports. To highlight unique properties of LD *caki*, a comparison with the third person pronoun will also be made.

3.3 The long-distance reflexive *caki* in attitude reports

In this section, I will present data showing that the Korean LD reflexive *caki* embedded under attitude verbs is obligatorily interpreted *de se*. I will present four main properties
of the reflexive *caki* when it takes a long-distance antecedent: namely, no locality restriction, (non-)subject-orientation, obligatory coreference between multiple LD *caki*’s, and obligatory sloppy readings under ellipsis.

### 3.3.1 No locality restriction

The Korean reflexive *caki* occurring in complements of attitude verbs can find its antecedent from any embedding clause, as illustrated below:

#### (8) LD *caki* in subject and object position

   Mary-NOM John-NOM self-ACC like-COMP said  
   ‘Mary, said that John likes her.’

   Mary-NOM self-NOM John-ACC like-COMP said  
   ‘Mary, said that she likes John.’

---

2Under our assumption that LD *caki*, which is associated with a long-distance antecedent, is distinguished from local *caki*, which behaves as a typical anaphor that obeys Condition A, one may wonder whether *caki* in an embedded subject position should be considered as a local or LD *caki* when it refers to a subject in the immediately embedding clause, as in (8b), given that the immediately embedding clause containing a subject can be understood as a local binding domain for an anaphor in subject position (e.g. Huang 1983, Chomsky 1986). In fact, a local anaphor *cakicasin* in Korean can indeed appear in subject position and co-refer with a subject of the immediately embedding clause.

#### (i) No long-distance dependency for the Korean anaphor *cakicasin*

John, *-un* [Mary,-ka cakicasin,-i/-ul salanghanta-ko] sayngkakhanta.  
John-TOP Mary-NOM ANA-ACC love-COMP think  
‘John thinks that Mary loves herself/*him*.’

#### (ii) *Cakicasin* in subject position

John, *-un* [cakicasin,-i ttokttokhata-ko] sayngkakhanta.  
John-TOP ANAPH-NOM smart-COMP think  
‘John thinks that he is smart.’

Assuming that a local anaphor must be bound by a legitimate local binder, I will show later that the closest legitimate binder for a local anaphor in subject position is the binder that derives a *de se* interpretation. Therefore, even a local anaphor must be interpreted *de se* in attitude reports when it appears in the embedded subject position.
There is no locality restriction on the binding domain of LD caki. That is, caki can co-refer with a subject in any superordinate clause. Thus, in (9), caki can find its antecedent in either the matrix clause, i.e. Tom, or the intermediate clause, i.e. Mary.\(^3\)

(9) **No locality restriction**

   think
   ‘Tom\(_i\) thinks that Mary\(_j\) said that John likes him\(_i/\)her\(_j\).’

   think
   ‘Tom\(_i\) thinks that Mary\(_j\) said that he\(_i/\)she\(_j\) is smart.’

3.3.2 (Non-)Subject-orientation

LD reflexives or logophors are strictly subject-oriented in some languages (e.g., Chinese ziji or Italian LD anaphors), and thus they can never co-refer with a non-subject element. In most cases, it is unavailable for the Korean LD reflexive caki to refer to a non-subject NP as well, as illustrated in (10).

(10) **Subject-orientation**

a. John\(_i\)-i Mary\(_j\)-eykey [Tom-i caki\(_{i/j}\)-lul cohahanta-ko] malhayssta.
   John-nom Mary-to Tom-nom self-acc like-comp said
   ‘John\(_i\) said to Mary\(_j\) that Tom likes him\(_i/\)her\(_j\).’

b. John\(_i\)-i Mary\(_j\)-eykey [caki\(_{i/j}\)-ka ikyessta-ko] malhayssta.
   John-nom Mary-to self-nom won-comp said
   ‘John\(_i\) said to Mary\(_j\) that he\(_i/\)she\(_j\) won.’

However, it has been reported that there are certain cases where caki (as well as Japanese zibun) can refer to a non-subject element (e.g., Kuno 1972b, Sells 1987, Yoon

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\(^3\)In addition, caki can also be bound by the local subject John.
1989). For instance, when the embedding verb is *tutta* 'hear', *caki* can take not only the matrix subject, but also the oblique source NP as its antecedent.4 The examples in (11) and (12) illustrate that *caki*, either in the embedded subject or object position, can refer to a non-subject NP only when the matrix verb is *tutta* 'hear', but not *malhata* 'say'.5

(11) ‘Say’ vs. ‘Hear’ in Korean with *caki* in subject position

   John-nom Mary-to self-nom cancer-be-comp said
   ‘John, said to Mary that he/*she, has cancer.’

   John-nom Mary-from self-nom cancer-be-comp heard
   ‘John, heard from Mary that he/*she, has cancer.’ (Yoon 1989)

4In contrast to Korean or Japanese, the LD reflexive *ziji* in Chinese is strictly subject-oriented with no exceptions.

(i) Strict subject-orientation in Chinese

Zhangsan-i cong Lisi-j chu tingshuo Wangwu-k bu xihuan *ziji/*j/k.
Zhangsan from Lisi place hear Wangwu not like self

‘Zhangsan, heard from Lisi that Wangwu didn’t like him/*himself.’ (Pollard and Xue 1998, p.296)

5The same contrast is found in Ewe (the logophor *yè*) and Japanese (the LD reflexive *zibun*) (Clements 1975, Sells 1987). Although both Clements (1975) and Sells (1987) report that there are some speakers who do not allow the coreference reading between the logophori/LD reflexive and the non-subject NP even under the verb ‘hear’ in Ewe and Japanese, the contrast is still robust, according to them.

(i) ‘Say’ vs. ‘Hear’ in Ewe

a. Tsali gblo na-e be ye-e dyi *yè* gake *yè*-kpe dyi.
   Tsali say to-he that he beget LOG but LOG-be victor
   ‘Tsali, told him, that he beget him, but he, was the victor.’ (Clements 1975, p.154, (31))

b. Ama se tso Kofu gbo be *yè*-xø nunana.
   Ama hear from Kofi side that LOG-receive gift
   ‘Ama, heard from Kofi that she/*he, had received a gift’ (Clements 1975, p.159, (45))

(ii) ‘Say’ vs. ‘Hear’ in Japanese

a. Takasi-wa Taroo-ni [Yosiko-ga *zibun*/*j-o nikundeiru-koto]-o hanasita.
   Takasi-top Taroo-dat Yosiko-nom self-acc be-hating-comp-acc told
   ‘Takasi, told Taroo, that Yosiko hated him/*j.’ (Sells 1987, p.453, (28))

   Taroo-top Takasi-from Yosiko-nom self-acc be-hating-comp heard
   ‘Taroo, heard from Takasi that Yosiko hated him/*j.’ (Sells 1987, p.445, (31))
\(12\) ‘Say’ vs. ‘Hear’ in Korean with \(caki\) in object position

a. John\(_i\)-i Mary\(_j\)-eykey [Tom\(_i\) \(caki\)\(_{i/j}\)-lul silhehanta-ko] malhayssta. John-NOM Mary-to Tom-NOM self-ACC dislike-COMP said ‘John\(_i\) said to Mary\(_j\) that Tom dislikes him\(_i\)/*her\(_j\).’

b. John\(_i\)-i Mary\(_j\)-lopwute [Tom\(_i\) \(caki\)\(_{i/j}\)-lul silhehanta-ko] tulessta. John-NOM Mary-from Tom-NOM self-ACC dislike-COMP heard ‘John\(_i\) heard from Mary\(_j\) that Tom dislikes him\(_i\)/*her\(_j\).’

Therefore, although it is true that a subject can always be an antecedent of \(caki\), we cannot generalize that LD \(caki\) is strictly subject-oriented whatsoever. How can we account for the contrast seen above, then? The only difference between Mary in (11a) and (12a), on the one hand, and (11b) and (12b), on the other, is that she can be understood as the reported speaker in the latter cases, e.g. Mary says, ‘I have cancer’ or ‘Tom dislikes me’. Thus, we may conclude that LD \(caki\) must co-refer with a subject NP of an attitude verb or a non-subject NP when it can be understood as the reported speaker or attitude holder—that is, the embedded clause containing \(caki\) expresses a speech act or attitude of the non-subject NP.\(^6\)

3.3.3 Obligatory coreference between multiple \(caki\)’s

Next, LD \(caki\) shows an interesting property when multiple LD \(caki\)’s co-occur in the same clause, as already mentioned in Section 2.3.3. For the LD reflexive \(ziji\) in Chinese, Huang and Liu (2001) present a restriction on clausemate \(ziji\)’s in a doubly embedded sentence, which was originally observed by Pan (1997): that is, more than one LD \(ziji\) in the same embedded clause must find the same long-distance antecedent. In the example below with

\(^6\)Not surprisingly, an NP inside a non-subject NP cannot be understood as an antecedent of \(caki\), as shown in (i).

(i) John\(_i\)-i [Mary\(_j\)-uy enni\(_j\)]-lopwute [\(caki\)\(_{i/j}\/-ka am-ila-ko\)] tulessta. John-NOM Mary-gen sister-from self-NOM cancer-be-COMP heard ‘John\(_i\) heard from Mary\(_j\)’s sister that he\(_i\)/*she\(_j\)/she\(_k\) has cancer.’ Since only the subject John and the entire non-subject NP ‘Mary’s sister’ can be understood as the reported speaker in (i), the genitive NP Mary cannot serve as an antecedent of \(caki\).
a multiple occurrence of \textit{ziji} in the most embedded clause, a disjoint reading is possible only when one of the \textit{ziji}'s is bound by the local subject \textit{WW}, as shown in (13b)–(13c). However, in order for both of the \textit{ziji}'s to take a long-distance antecedent, they must refer to the same individual, either \textit{ZS} or \textit{LS}, as in (13a). Therefore, the interpretations in (13d)–(13e), where the multiple \textit{ziji}'s refer to the different long-distance antecedents, are unavailable.

(13) \bf Obligatory coreference between multiple \textit{ziji}'s in Chinese

\begin{verbatim}
ZS renwei [LS zhidao [WW ba ziji\textsubscript{1} de shu song-gei-le ziji\textsubscript{2} de ZS think LS know WW BA self GEN book gave-to-perf self GEN pengyou.]]
friend

Lit. ‘ZS thinks that LS knows that WW sent self’s book to self’s friend.’

a. \textit{ziji\textsubscript{1}} = \textit{ziji\textsubscript{2}} = WW or LS or ZS
b. \textit{ziji\textsubscript{1}} = WW, \textit{ziji\textsubscript{2}} = LS or ZS
c. \textit{ziji\textsubscript{1}} = ZS or LS, \textit{ziji\textsubscript{2}} = WW
d. *\textit{ziji\textsubscript{1}} = ZS, \textit{ziji\textsubscript{2}} = LS
e. *\textit{ziji\textsubscript{1}} = LS, \textit{ziji\textsubscript{2}} = ZS
\end{verbatim}

Similarly, multiple LD \textit{caki}'s in the same embedded clause under attitude predicates must be co-referential. Consider the interpretations of the following sentence with more than one \textit{caki} in the most embedded clause.
Obligatory coreference between multiple caki’s

John-i [Bill-i [caki-uy emmeni-ka caki-lul silhehanta-ko]
John-NOM Bill-NOM self-GEN mother-NOM self-ACC hate-COMP
sayngkakhanta-ko] malhayssta.
think-COMP said

a. ‘John_i said that Bill_j thought that his_i mother hates him_j.’
b. ‘John_i said that Bill_j thought that his_j mother hates him_j.’
c. ‘John_i said that Bill_j thought that his_i mother hates him_j.’
d. ‘John_i said that Bill_j thought that his_j mother hates him_j.’
e. ‘John_i said that Bill_j thought that [his_i mother]_k hates her_k.’
f. ‘John_i said that Bill_j thought that [his_j mother]_k hates her_k.’

The readings in (14a)–(14d) show that multiple caki’s must find the same long-distance antecedent in Korean, as observed in Chinese (Pan 1997, Huang and Liu 2001). The unavailable readings in (14c) and (14d) indicate that once there is a long-distance dependency between one caki and a LD antecedent that is closer to caki than other possible antecedents, then another clausemate caki must be associated with the same LD antecedent (e.g., Bill in (14)). By contrast, we can also observe from (14e)–(14f) that the two caki’s can have different antecedents when one caki is locally bound while the other caki takes a long-distance antecedent, indicating that a mechanism for long-distance binding of caki may be distinguished from the one for local binding of caki. The possible and impossible readings of the sentence with the multiple clausemate LD caki’s are schematically illustrated in (15).

Coreference of multiple caki’s I

\[
[CP_1 NP_1 \ldots [CP_2 NP_2 \ldots [CP_3 \begin{array}{c} \text{caki}_2 \ldots \text{caki}_2 \end{array}\]]] \]
b. ✅ Coreference of multiple caki’s II

\[
\left[\begin{array}{c}
\text{NP}_1 \ldots \left[\begin{array}{c}
\text{CP}_2 \text{NP}_2 \ldots \left[\begin{array}{c}
\text{CP}_3 \text{caki}_1 \ldots \text{caki}_3
\end{array}\right]
\end{array}\right]
\end{array}\right]
\]

c. ✗ Disjoint reference of multiple caki’s I

\[
\times
\left[\begin{array}{c}
\text{NP}_1 \ldots \left[\begin{array}{c}
\text{CP}_2 \text{NP}_2 \ldots \left[\begin{array}{c}
\text{CP}_3 \text{caki}_1 \ldots \text{caki}_2
\end{array}\right]
\end{array}\right]
\end{array}\right]
\]

d. ✗ Disjoint reference of multiple caki’s II

\[
\times
\left[\begin{array}{c}
\text{NP}_1 \ldots \left[\begin{array}{c}
\text{CP}_2 \text{NP}_2 \ldots \left[\begin{array}{c}
\text{CP}_3 \text{caki}_2 \ldots \text{caki}_1
\end{array}\right]
\end{array}\right]
\end{array}\right]
\]

The ‘coreference restriction’ on multiple clausemate caki’s holds for cases where there is more than one possible LD antecedent in the same clause. Recall that caki, unlike ziji in Chinese, can refer to a non-subject NP if the referent of the NP can be understood as the speaker in the reported context with the verb ‘hear’. Since a subject NP can always be an antecedent of caki, there are two possible antecedents in the matrix clause with the attitude verb tutta ‘hear’, as shown in (16). In this case, when multiple caki’s occurring in the embedded clause take a long-distance antecedent, they still have to find the same LD antecedent: either the matrix subject John or the oblique NP Mary, who can be understood as the reported speaker.

a. ‘John, heard from Mary that his mother hates him.’
b. ‘John, heard from Mary that her mother hates her.’
c. ‘*John, heard from Mary that his mother hates her.’
d. ‘*John, heard from Mary that her mother hates him.’
The data presented so far indicate that multiple caki’s in the same domain must be associated with the same referent, only when caki takes a long-distance antecedent. Multiple caki’s in different domains, on the other hand, are not subject to the coreference restriction. Although nothing blocks the possibility of coreference between multiple caki’s in the different clauses, they can also find an antecedent independently from a higher clause, as shown below.\(^7\)

\[\text{(18) Disjoint Reading of multiple caki’s} \]

John-i [Bill-i caki-eykey [Mary-ka caki-lul silhehanta-ko]
John-nom Bill-nom self-to Mary-nom self-acc hate-comp
malhayssta-ko] sayngkakhanta.
said-comp think

a. ‘John\(_i\) thinks that Bill\(_j\) told him\(_i\) that Mary hates him\(_i\).’

b. ‘John\(_i\) thinks that Bill\(_j\) told him\(_i\) that Mary hates him\(_j\).’

\[\text{(19) Disjoint reference of multiple caki’s in different clauses} \]

\[\text{[CP}_1 \text{ NP}_1...[CP}_2 \text{ NP}_2... \text{ caki}_1...[CP}_3 \text{ ...caki}_2 ...]]\]

\(^7\)The reading where both caki’s refer to the intermediate subject Bill is also available. In this case, however, caki in the intermediate clause is bound by the local subject, i.e. local binding, while the lower caki is long-distance bound by Bill.
Further suppose that the sentence in (18) is embedded under another attitude verb. As expected, then, \textit{caki} in the lower clause cannot find its antecedent from a clause higher than the clause containing the antecedent of the higher \textit{caki}. Assuming that the lower \textit{caki} in (19) finds an antecedent above CP\textsubscript{2}, then NP\textsubscript{1} in CP\textsubscript{1} becomes the only possible antecedent, because both \textit{caki}'s are now in the same domain and they must find the same antecedent. In other words, unless the lower \textit{caki} finds an antecedent in CP\textsubscript{1} in a configuration like (20), the multiple \textit{caki}'s are in the same domain and need to refer to the same long-distance antecedent, i.e., NP\textsubscript{0} or NP\textsubscript{1} in (20). Thus, a disjoint reading is not available, as shown in (20).

(20) \textbf{\textit{\texttimes} Disjoint Reading of multiple \textit{caki}'s in different clauses}

\[
\begin{align*}
\hspace{-1.2cm} & \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad >>
from an assumption that only *caki* is subject to certain restrictions on its dependency with a long-distance antecedent.

In this subsection, we have seen that multiple LD *caki*’s in the same clause must be coreferent, unlike the third person pronoun. More concretely, if there is any long-distance dependency between one reflexive *caki* and its antecedent, any other *caki* in the same clause or in any lower clause cannot find an antecedent from a clause higher than that antecedent NP.

### 3.3.4 Sloppy readings under ellipsis

Cole et al. (2001c) point out that only a sloppy reading is available for the Chinese reflexive *ziji* under VP ellipsis, similar to PRO. Consider the contrast between (22) and (23). The LD reflexive *ziji* in (22) only gets a sloppy reading in VP ellipsis, whereas the third person pronoun *ta* in (23) allows both a strict and a sloppy reading.

(22) Zhangsan shuo [Lisi changchang kuidai *ziji*,] Wangwu ye yiyang. 
Zhangsan say Lisi always self Wangwu also the-same 
‘Zhangsan, says that Lisi always mistreats him; so does Wangwu’

a. [says Lisi mistreats Wangwu].’ (sloppy reading)
b. *[says Lisi mistreats Zhangsan].’ (*strict reading)

(23) Zhangsan shuo [Lisi changchang kuidai *ta*,] Wangwu ye yiyang. 
Zhangsan say Lisi always he Wangwu also the-same 
‘Zhangsan, says that Lisi always mistreats him; so does Wangwu’

a. [says Lisi mistreats Zhangsan] (strict reading)
b. [says Lisi mistreats Wangwu] (sloppy reading)

Similarly, LD *caki* under attitude verbs only gets a sloppy interpretation under VP ellipsis (e.g., Cho 1996, Kim and Yoon 2009, Han and Storoshenko 2012).\(^8\)

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\(^8\)Strictly speaking, the sentence in (24) contains a VP proform for non-action predicates *kule-hata*. 

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In contrast to the LD reflexive *caki*, the third person pronoun in Korean allows both a sloppy and strict reading under VP ellipsis, as in many languages.

The contrast between *caki* and *ku* ‘he’ indicates that LD *caki* under attitude verbs is not merely coreferential with its antecedent, but needs to be bound by a semantic binder, unlike the third person pronoun.

In this section, we have seen that LD *caki* embedded under attitude verbs exhibits the following properties: (i) *caki* can refer to any attitude holder in a multiple embedded sentence, (ii) it can sometimes refer to a non-subject NP when the NP can be understood as a reported speaker, (iii) multiple clausemate LD *caki*’s must find the same long-distance antecedent, and (iv) LD *caki* only allows a sloppy reading under ellipsis.

### 3.4 Obligatory de se interpretations of *caki*

Having presented the properties of LD *caki*, this section will show that LD *caki* in the complements of attitude verbs that we saw in the preceding section consistently exhibits
a property that it must receive a de se interpretation. In this section, I will provide a careful examination of the de se requirement for LD caki.

3.4.1 Obligatory de se in CP complements of attitude verbs

Prior studies on logophors/LD reflexives have shown that these elements must be interpreted de se in a number of languages (Kuno 1972b, Chierchia 1989, Pan 1997, 2001, Huang and Liu 2001, Anand 2006, a.o.). Before the term “de se” was widely used in the linguistics literature, Kuno (1972b) proposed that some complement clauses are derived from a direct discourse representation, and LD reflexives like zibun in Japanese in such complement clauses are stated as the first person pronoun in the direct discourse by the bearer of attitude, namely, the antecedent of the LD reflexive. According to Kuno, then, the Japanese LD reflexive can only be used when its referent is aware of the state or action represented by the complement clause so that she refers to herself using the first person pronoun in her speech act. This observation captures one of the core properties of LD reflexives in various languages that they obligatorily receive a de se reading in the complement clauses of attitude verbs.

It is also well known that the LD reflexive ziji in Chinese must be interpreted de se under attitude predicates (Pan 1997, 2001, Huang and Liu 2001, Anand 2006, a.o.). Thus, ziji in (26) is only felicitous under a context like ‘S1’ in (26), where the direct speech of the attitude holder Zhangsan contains the first person pronoun. Under a context like ‘S2’ in (26), on the other hand, ziji cannot be used to refer to the attitude holder in the attitude report, because the attitude holder is not aware that the stolen purse was actually his own purse.

9In fact, in Chapter 5, we will see a novel exceptional case of LD caki in which LD caki does not require a de se interpretation in attitude reports. Specifically, I will show that the LD reflexive caki cannot be interpreted de se only in cases where the predicate in the same clause is not read de dicto with respect to the antecedent of caki.

10Pearson (2013, 2015), however, recently argues that the logophor yè in Ewe allows a (non-de se) de re reading based on her fieldwork.
(26) **Obligatory de se interpretation of the Chinese reflexive ziji**

S1: Zhangsan says: "That thief stole my purse!"

S2: Zhangsan says: "That thief stole that purse!" (not aware that it was his purse)

Zhangsan shuo pashou tou-le ziji-de pibao.  
Zhangsan shuo pickpocket steal-Perf ziji-DE purse

‘Zhangsan, said that the pickpocket stole his purse.’ [✓ S1, #S2]  
(Huang and Liu 2001, Anand 2006)

It is also true in Korean that LD caki embedded under attitude predicates receives an unambiguous de se interpretation. Like ziji in (26), caki in (27) cannot refer to the bearer of attitude under the context in which the attitud holder does not know that the stolen purse is in fact his own purse. In other words, caki can refer to John only when he uses the first person pronoun to refer to himself in the direct discourse, as in ‘S1’ below.

(27) **Obligatory de se interpretation of the Korean reflexive caki**

S1: John says: "That thief stole my wallet!"

S2: John says: "That thief stole that wallet!" (not aware that it was his wallet)

John-i [somaychiki-ka caki-uy cikap-ul hwumchy-ess-ta-ko]  
John-NOM pickpocket-NOM self-GEN wallet-ACC steal-PST-DECL-COMP  
malhay-ss-ta.  
say-PST-DECL

‘John said that the pickpocket stole his wallet.’ [✓ S1, #S2]

In fact, the sentence in (27) can be used when John’s direct speech contains the content of the embedded clause containing caki in a first-person way—that is, using the first person pronoun—like That pickpocket stole my wallet or My wallet was stolen by that pickpocket, regardless of the actual state of affairs.11 Suppose that John is watching a surveillance video and says, ‘That thief stole my wallet’, after watching one scene where a nice man

11This use of LD caki is subject to the same condition not just under speech verbs but under any other attitude verbs.
picked up someone else’s (not John’s) wallet to put it in a lost and found box. In this particular situation, one can report John’s speech as in (27). Moreover, imagine another situation where John said, ‘That pickpocket stole my tablet’, after watching a surveillance video. In fact, I know that it wasn’t his tablet but his wallet that was stolen. In this case, the sentence in (27) cannot be used to report John’s direct speech because the phrase ‘my wallet’ appearing in the attitude/speech report was not contained in John’s speech act. These data suggest an important fact that LD caki in the complements of attitude verbs must be interpreted de se, while the immediate clause that embeds caki (e.g., the noun phrase ‘self’s wallet’ in (27)) is interpreted de dicto.

This behavior of caki with respect to the obligatory de se interpretation clearly contrasts with the third person pronoun in Korean. In contrast to caki, the third person pronoun ku ‘he’ can be interpreted (non-de se) de re or de se in attitude reports.

(28) **Optional de se interpretation of the Korean 3rd person pronoun ku**

S1: John says: "That thief stole my wallet!"

S2: John says: "That thief stole that wallet!" (not aware that it was his wallet)

John₁-i [somaychiki-ka ku₁-uy cikap-ul hwumchy-ess-ta-ko]
John-NOM pickpocket-NOM he-GEN wallet-ACC steal-PST-DECL-COMP
malhay-ss-ta.
say-PST-DECL

‘John said that the pickpocket stole his wallet.’ [✓S1, ✓S2]

The phrase containing the third person pronoun can also be interpreted de re in attitude reports. Thus, the sentence in (28) is felicitous in a context where John is watching a surveillance video and said, ‘The thief stole that black thing’, while, unbeknownst to John, the black thing was his wallet.

Let us further examine in detail whether the de se requirement consistently holds for LD caki under attitude predicates based on the data we saw in the previous section. First, we have seen that caki can take a subject in any superordinate clause as its antecedent in
multiple embedded sentences. Regardless of whom caki refers to, the referent of LD caki must be interpreted de se with respect to its referent. For example, in (10), repeated below as (29), the sentence is felicitous only when the sentence contains a de se attitude report of the antecedent of caki.

(29) a. **Coreference between the matrix subject and caki**

S1: Tom thinks, ‘Mary said that John likes me.’

S2: Tom thinks, ‘Mary said that John likes this guy in the photo.’ (Unbeknownst to Tom, the guy in the photo is Tom himself.)

Tom\textsubscript{1}-un [Mary\textsubscript{j}-ka [John-i caki\textsubscript{j}-lul cohahanta-ko] malhayssta-ko]
Tom-TOP [Mary-NOM [John-NOM self-ACC like]-COMP said]-COMP sayngkakhanta.
think
‘Tom\textsubscript{j} thinks that Mary\textsubscript{j} said that John likes him.’ [✓ S1, #S2]

b. **Coreference between the intermediate subject and caki**

S1: Tom thinks, ‘Mary said: “John likes me.”’

S2: Tom thinks, ‘Mary said: “John likes that girl.”’ (Unbeknownst to Mary, that girl is Mary herself.)

Tom\textsubscript{1}-un [Mary\textsubscript{j}-ka [John-i caki\textsubscript{j}-lul cohahanta-ko] malhayssta-ko]
Tom-TOP [Mary-NOM [John-NOM self-ACC like]-COMP said]-COMP sayngkakhanta.
think
‘Tom\textsubscript{j} thinks that Mary\textsubscript{j} said that John likes her.’ [✓ S1, #S2]

When LD caki refers to the intermediate subject under the multiple embeddings, the entire attitude report sentence is felicitous when caki is interpreted de se with respect to the antecedent of caki (i.e. Mary), as described in (29b). More precisely, what is more important is the fact that the intermediate subject must have a de se attitude in the matrix subject’s belief. Suppose that Mary actually said, ‘John likes Mia’, instead of, ‘John likes me.’ The matrix subject Tom, however, misheard it as the latter and formed a thought like
Mary said: “John likes me”. Then, Tom’s belief can felicitously be reported by the sentence in (29b). By comparison, the matter of how Mary’s direct speech is perceived by Tom is not critical in (29a), where the embedded caki takes the matrix subject as its antecedent. Rather, it is only important that Tom uses the first person pronoun in the direct discourse to refer to the person who Mary said John likes. For instance, Mary may say to Tom John likes you or John likes this guy in the photo. As long as Tom is aware that the guy in the photo is Tom himself, he can have a thought using the first person pronoun, e.g., Mary said that John likes me., and we can report this situation with the sentence in (29a).

Second, I have presented a special case where caki can find a matrix subject or a non-subject NP as its antecedent under the embedding verb ‘hear’. In this case, caki still must be interpreted de se with respect to its referent.

(30) Coreference between the matrix subject and caki
S1: John says: “Mary told me that Tom likes me.”
S2: John says: “Mary told me that Tom likes this guy in the photo.” (Unbeknownst to John, the guy in the photo is John himself.)

John-NOM Mary-from Tom-NOM self-ACC like-COMP heard

‘John, heard from Mary that Tom likes him,’ [✓S1, #S2]

(31) Coreference between the matrix non-subject and caki
S1: John says: "Mary told me, 'Tom likes me.'"
S2: John says: "Mary told me, 'Tom likes this girl in the photo.'" (Unbeknownst to Mary, the girl in the photo is Mary herself.)

John-NOM Mary-from Tom-NOM self-ACC like-COMP heard

‘John heard from Mary that Tom likes her,’ [✓S1, #S2]

Note that the antecedent of caki must be understood as the one who made a speech or
had a thought or belief about the content expressed by the embedded clause containing \textit{caki}. Moreover, the direct speech or thought of the antecedent of \textit{caki} must contain the first person pronoun in order for the reflexive to be used in attitude reports.

Third, given that multiple \textit{caki}'s in the same clause must find the same referent, they are obligatorily interpreted \textit{de se} with respect to the same attitude holder. Recall the example in (14), which contains multiple \textit{caki}'s in the most embedded clause under the multiple embeddings. In this case, we have seen that both of the reflexives refer to the matrix subject or the intermediate subject as their referent. In order for the multiple clausemate LD reflexives to be coreferent with the matrix subject, it must be the case that John’s speech act contains the content of the clause in which the reflexives appear using the first person pronoun, e.g. 'my mother hates me’, as shown in ‘S1’ below.

\textbf{(32) Coreference between the matrix subject and multiple \textit{caki}'s}

S1: John said: "Bill thinks that my mother hates me (, which is absurd)."

S2: John said: "Bill thinks that my mother hates this guy in the photo.” (Unknownst to John, the guy in the photo is John himself.)

S3: John said: "Bill thinks the mother of this guy in the photo hates me.” (Unknownst to John, the guy in the photo is John himself.)

S4: John said: "Bill thinks the mother of this guy in the photo hates him.” (Unknownst to John, the guy in the photo is John himself.)

\begin{verbatim}
John-i [Bill-j-[caki-i-uy emmeni-ka caki-i-lul silhehanta-ko]
John-NOM Bill-NOM self-GEN mother-NOM self-ACC hate-COMP
sayngkakhanta-ko] malhayssta.
think-COMP said
\end{verbatim}

‘John, said that Bill thought that his mother hates him.’ [☑ S1, #S2, #S3, #S4]

Similarly, multiple \textit{caki}'s can co-refer with the intermediate subject in the same sentence in a situation where Bill has a belief that contains \textit{my mother hates me}. Given that the entire attitude report is about what John said, the embedded \textit{caki} can co-refer with the
intermediate subject only when John specifies in his reported speech act that Bill has a first-personal thought, as in ‘S1’ in (33).

(33) Coreference between the intermediate subject and multiple caki’s

S1: John said: "Bill thinks, 'My mother hates me.'"

S2: John said: "Bill thinks, 'My mother hates this guy in the photo.'" (Unbeknownst to Bill, the guy in the photo is Bill himself.)

S3: John said: "Bill thinks, ‘The mother of this guy in the photo hates me.’" (Unbeknownst to Bill, the guy in the photo is Bill himself.)

S4: John said: "Bill thinks, ‘The mother of this guy in the photo hates him.’" (Unbeknownst to Bill, the guy in the photo is Bill himself.)

As we already saw before, clausemate caki’s must find the same referent. This means that the sentence with the multiple clausemate caki’s cannot be used to describe more than one attitude holder’s de se attitudes.

(34) Disjoint reading between multiple clausemate caki’s

S1: Bill thought, ‘John’s mother hates me.’ After John knew about Bill’s thought, he said: "Bill thought that my mother hates him."

S2: Bill thought, ‘My mother hates him.’ After John knew about Bill’s thought, he said: "Bill thought that his mother hates me."

Intended: 'John, said that Bill thought that his mother hates him.' [✓S1, #S2, #S3, #S4]
Even though both ‘S1’ and ‘S2’ are the situations where John and Bill, respectively, have some *de se* attitudes, we cannot report such situations with a multiple occurrence of the LD reflexive in the same clause.

In the case where multiple *caki*’s in different clauses have a disjoint reading, as seen in (18), repeated below as (35), the sentence must report two separate *de se* attitudes by each of the attitude holders. Thus, the sentence in (35) cannot be used when either John or Bill has a non-*de se* attitude, as shown in ‘S2’ and ‘S3’ below.

(35) **Disjoint reading between multiple *caki*’s**

S1: Bill told John at a party: "Mary hates *me.*" Next day, John thought, ‘Bill told *me* last night that Mary hates him.’

S2: Bill told John at a party: "Mary hates *this guy* in the photo. John, but not Bill, was aware that the guy in the photo was Bill. Next day, John thought, ‘Bill told *me* last night that Mary hates him.’

S3: John is watching a video from the party the other night. In the video, Bill told a guy in the red shirt: "Mary hates *me.*" John saw that and thought, ‘Bill told *that guy* that Mary hates him.’ Unbeknownst to John, the guy in the red shirt was John himself.

The last property of LD *caki* we discussed in the preceding section was that it only allows a sloppy reading under ellipsis. More precisely, LD *caki* in ellipsis only allows a sloppy *de se* reading.
(36) **Sloppy and de se readings of LD caki under ellipsis**

*Context:* Mary and Sue are talking about who John likes. While Mary thought, ‘John likes me.’

S1: Sue thought, ‘John likes me.’ (sloppy and *de se*)

S2: Sue thought, ‘John likes this girl in the photo.’ Unbeknownst to Sue, the girl in the photo is Sue herself. (sloppy and *de re*)

S3: Sue thought, ‘John likes Mary.’ (strict)


‘Mary thought that John likes her. Sue did so too.’ [✓ S1, #S2, #S3]

### 3.4.2 Obligatory *de se* in NP complements of attitude verbs

In contrast to the attitude verbs we saw so far, which take CP complements, factive verbs in Korean, such as *alta* ‘know’, *kkaytatta* ‘realize’, *kiekha* ‘remember’, etc., take an NP as its complement instead of a finite CP. As shown in (37), the complement clause of *alta* ‘know’ is an NP headed by a dummy noun *kes* that takes a clausal complement. While finite CP complements are followed by the complementizer −*ko*, NP complements of factive verbs take the accusative case marker −(*l)*ul. When *caki* occurs in an NP complement of factive attitude predicates, it still gets an obligatory *de se* interpretation. Thus, (37) is infelicitous when John does not know that the guy Tom criticized is actually John himself, as in ‘S2’ in (37).12

12The same restriction holds even when an NP complement is headed by a lexical noun, like *somwun* ‘rumor’, *sosik* ‘news’, etc.

(i) S1: John thinks, "(Someone says that) Mary criticized me."
S2: John thinks, "(Someone says that) Mary criticized this guy in the photo.’ Unbeknownst to John, the guy in the photo is John himself.

John-nom Mary-nom self-acc criticize-pst-decl-nm rumor-acc know
(37) S1: John says: "Tom criticized me."

S2: John says: "Tom criticized that guy." (Unbeknownst to John, that guy is John himself.)

\[
\begin{align*}
\text{John}_{\text{i}-}\text{Tom}_{\text{i}} & \text{ caki}_{-}\text{lul piphanya\text{-n}} \text{ kes}_{-}\text{ul anta.} \\
\text{John-NOM Tom-NOM self-ACC criticized-ADN kes-ACC know}
\end{align*}
\]

‘John, knows that Tom criticized him_{i}.’ [✓S1, #S2]^{13}

3.4.3 Obligatory de se under negative attitude verbs

Thus far, we have seen that LD caki embedded under attitude predicates requires an obligatory de se interpretation. It is worth noting that there has been some doubt regarding the obligatory de se requirement for LD reflexives in the literature. Cole et al. (2001c) argue that the generalization that the Chinese LD reflexive ziji must be read de se in attitude environments does not hold for ziji occurring under certain verbs like wangji ‘forget’ and bu xiao ‘not be aware’, because sentences with these verbs do not “report on the state of the world as pictured in the mind of the matrix subject” (Cole et al. 2001c).

Once the attitude holder has a first personal belief about the CP complement of the noun that contains caki, e.g., 'Mary criticized me.', the sentence in (i) is felicitous even when John is not aware that what he knows is in fact a rumor. While this is a novel observation, I will leave to future research the semantic analysis of the obligatory de se interpretation of caki in CP complements of content nouns.

^{13}The dummy noun kes can also take a ‘long-form’ as its complement, a CP complement that contains a mood marker like Declarative -\text{ta}. LD caki under factive attitude verbs must be interpreted de se regardless of the form of the CP complement of the head noun kes, as shown in (i) below. The difference between a CP complement with or without a mood marker under factive attitude verbs is beyond our scope here.

(i) S1: John says: “Tom criticized me.”
S2: John says: "Tom criticized that guy." (Unbeknownst to John, that guy is John himself.)

\[
\begin{align*}
\text{John}_{\text{i}-}\text{Tom}_{\text{i}} & \text{ caki}_{-}\text{lul piphanya\text{-ss-ta-nun}} \text{ kes}_{-}\text{ul anta.} \\
\text{John-NOM Tom-NOM self-ACC criticized-DECL-ADN kes-ACC know}
\end{align*}
\]

‘John, knows that Tom criticized him_{i}.’ [✓S1, #S2]

60
Similarly, Kuno (1972b) also distinguishes verbs like deny, forget, be unaware of from verbs like expect, claim, know, think, etc., given that the content of the complement clause of the former type of verbs does not represent the direct discourse (or feelings) of the matrix subject.

(39) a. *John denied, "I am sick."

b. *John forgot, "I have an appointment at two." (Kuno 1972b)

Under his system, this distinction predicts that LD reflexives cannot occur under the verbs in (39), since the embedded clause of these verbs is not derived from a direct discourse of the matrix subject. Contrary to the prediction, however, the LD reflexives both in Japanese and Korean can occur under these verbs as well as in Chinese, as we saw in (38).

Following Anand (2006), I argue that these are not exceptions to the de se requirement of LD caki. In fact, there is no exception for the generalization with respect to the obligatory de se interpretation of the LD reflexive caki when it is directly embedded under attitude predicates. The meanings of the sentences with the seemingly problematic verbs like wangji 'forget' and bu xiao 'not be aware' in Chinese contain negation: for instance, (38a) roughly means 'It is not the case that Zhangsan remembers that Lisi hates his brother (in the first-person way)', while the meaning of (38b) corresponds to: 'It is not the case that Zhangsan was aware that Lisi hates him (in the first-person way)'. Therefore, if ziji in (38a) and (38b) in fact receive a de se interpretation, these sentences should be false.

14 However, we will see in Chapter 5 that relative clauses are a special environment where caki need not be interpreted de se even within the scope of an attitude verb.
only when Zhangsan holds a *de se* attitude, such as *Lisi hates my brother* or *Lisi hate me*. As Anand (2006) shows, these sentences are true when Zhangsan has a (non-*de se*) *de re* attitude like *Lisi hates that person’s brother* or *Lisi hates that person* without knowing that that person is Zhangsan himself.

The Korean reflexive *caki* behaves like the Chinese reflexive *ziji* in that *caki* embedded under a negative attitude verb can only be used when the attitude holder does not have a *de se* attitude. That is, *caki* in attitude reports with negative attitude verbs is interpreted as the one in attitude reports that contain an overt negation. Although a negation is used in an attitude report, the *de se* requirement for *caki* in the complement clause must hold. Therefore, a sentence like (40) can be true when the attitude holder has a (non-*de se*) *de re* belief about himself.

(40) S1: John is watching a video from the party he attended the other night. He saw Mary having a conversation with a guy in the red shirt and thought, ‘Oh, Mary likes that guy.’ Unbeknownst to John, the guy in the red shirt is John himself.
S2: John is watching a video from the party he attended the other night. He saw Mary having a conversation with him and thought, ‘Oh, Mary likes me.’

\[ \text{John}_1 \text{-un } \text{Mary-ka } \text{caki}_1 \text{-lul cohaha-nun kes-ul alci-moshanta.} \]
\[ \text{John-TOP Mary-NOM self-ACC like-ADN kes-ACC know-NEG} \]
\[ \text{‘John, does not know that Mary likes him.’ [✓S1, *S2]} \]

The reflexive *caki* in complements of negative attitude verbs behaves in the same way. An illustrative example with a verb *moluta* ‘not know’ is provided in (41).

(41) **Caki under a negative attitude verb**

*Under the same contexts (S1 and S2) as in (40):*

\[ \text{John}_1 \text{-un } \text{Mary-ka } \text{caki}_1 \text{-lul cohaha-nun kes-ul molunta.} \]
\[ \text{John-TOP Mary-NOM self-ACC like-NM kes-ACC not.know} \]
\[ \text{‘John, does not know that Mary likes him.’ [✓S1, *S2]} \]
The sentence in (41) is true under a context like ‘S1’ because although John knows that Mary likes a guy who happens to be him, John does not hold a first-personal belief, such as Mary likes me. If LD caki in the complements of these negative attitude verbs receives a pure de re interpretation instead of an obligatory de se interpretation, the sentence with caki would not be expected to be true under a context like ‘S1’. Therefore, we can generalize that the Korean LD reflexive caki must receive a de se interpretation under any kinds of attitude verbs.

In summary, we have seen that caki appearing in the complements of any attitude verbs is obligatorily interpreted de se. In particular, the same de se requirement must be satisfied even when caki occurs in an NP complement of an attitude verb or when it is embedded under a negative attitude verb.

3.5 Deriving obligatory de se interpretations of caki

The preceding sections have presented a number of key properties of LD caki in attitude environments, which are summarized below.

(42)  Key properties of LD caki under attitude verbs

a. LD caki can find an antecedent from any superordinate clause.

b. An antecedent of caki must be understood as an attitude holder.

c. Multiple clausemate caki’s need to find the same long-distance antecedent.

d. LD caki behaves like a bound anaphor, given that it only allows a sloppy reading under ellipsis.

e. LD caki under attitude verbs must be interpreted de se with respect to the referent of caki.

In this section, I will develop a syntactic and semantic analysis of the Korean LD reflexive caki in attitude environments that can successfully account for the observed
properties presented in (42). As our analysis will be primarily based upon prior work by Lewis (1979) and Chierchia (1989), Section 3.5.1 will describe the Lewis-Chierchia’s approach to *de se* attitudes and *de se* expressions. Section 3.5.2 is devoted to a proposal of licensing conditions for LD *caki*. Specifically, I will argue that LD *caki* must be bound by a closest binder that bears a certain feature. Section 3.5.3 explores the consequences of our proposal.

### 3.5.1 A dedicated *de se* LF: The Lewis-Chierchia’s property approach

Let me first describe an existing approach to the semantics of *de se* attitude reports and *de se* expressions that stems from the work of Lewis (1979) and Chierchia (1989). In his influential work on attitudes *de se*, Lewis (1979) argues that objects of attitudes are not propositions (a set of possible worlds) but properties. More specifically, he, first, argues that any proposition can correspond to a property of inhabiting a possible world in which that proposition holds. For example, suppose I believe a proposition $p$ such that John is smart. Then, correspondingly, I have a belief about myself such that I inhabit some world where the proposition ‘John is smart’ holds. In other words, ‘I believe John is smart’ means I self-ascribe the property of inhabiting in one of the worlds where John is smart. Furthermore, Lewis claims that there are certain cases where property objects, instead of propositional objects, are required. He provides John Perry’s famous ‘Rudolf Lingens’ example (Perry 1977, pp.21–22) as crucial evidence against the propositional objects. That is, although Rudolf Lingens, an amnesiac who is lost in the Stanford library, gets to learn a lot of facts by reading books, including the biographical information about him and the detailed information about the library, he still does not know where he is and who he is. Let us suppose that Lingens says *Rudolf Lingens is great* after reading his biography. According to Lewis, only the property view can capture the difference between an amnesiac thought and a *de se* thought. In the former (amnesiac) case, Lingens self-ascribes the property of inhabiting one of the worlds where Rudolf Lingens is great, while he self-ascribes
the property of being great in the latter (de se) case.

Based upon Lewis’s work, Chierchia (1989) develops a semantic account that can derive a self-ascription of a property as a meaning of attitude reports with de se expressions. Although specific details may vary, there is a line of research since Chierchia (1989) suggesting that a dedicated de se LF is necessary because de re truth conditions are not sufficient to cover the meanings of de se attitude reports with certain elements that are obligatorily interpreted de se, such as PRO, logophors, and LD reflexives (Chierchia 1989, Schlenker 1999, Percus and Sauerland 2003, Anand 2006, Ninan 2010, Pearson 2013, a.o.).

Recall the contrast between the third person pronoun and PRO seen in (1), repeated below as (43). While the attitude reports with the third person pronoun in (43a) is true under the scenario in which the bearer of attitude has a (non-de se) de re or a de se belief, the sentence with PRO is only felicitous in the latter case.

(43) S1: John says: "I should be elected."
S2: John is so drunk that he has forgotten that he is a candidate in the election.
He watches someone on TV and finds that that person is a terrific candidate, who should definitely be elected. Unbeknownst to John, the candidate he is watching on TV is John himself.

a. John hopes that he will be elected. [✓ S1, ✓ S2]

b. John hopes PRO to be elected. [✓ S1, #S2] (Schlenker 2003)

Regardless of how the semantics of de re belief reports might be implemented, there is a considerable consensus in the literature that an attitude report like (43a) is judged true in both a de se and de re scenario—where the attitude holder has a de se or de re attitude—under the general truth-conditions generated from a de re LF (e.g., Reinhart 1991, Percus and Sauerland 2003, Schlenker 2003, Maier 2011, Anand 2006). Following Kaplan (1968), let us assume that de re beliefs are not merely about an object of belief (res), but rather about how a res is presented to a believer. As Kaplan argues, then, truth-conditions of
de re belief reports contain some special relations between a believer, res, and description α that the believer presents the res to herself. For instance, in the two scenarios in (43), although the res is the same guy John, John holds two different relations with himself that can be represented by two different descriptions, e.g. the description α ‘the terrific candidate on TV’ and the description β ‘I’. Under these two different descriptions of him, John believes that ‘α will be elected.’ To characterize a relation between an attitude holder, res, and description of the res, Kaplan introduces a three-place relation ‘R (α, x, ATT)’, which denotes ‘α represents x to the attitude holder’ if and only if (i) α denotes x, (ii) α is a name of x for the attitude holder, and (iii) α is (sufficiently) vivid. John’s (non-de se) de re or de se belief report in the contexts above, then, can be illustrated as below.

(44)  ∃α. R(α, John, John) & Believe(John, α will be elected)

Under this Kaplanian truth-conditions, the sentence in (43a) is judged true in both ‘S1’ and ‘S2’. The de se and de re attitudes of the attitude holder can be distinguished given the nature of the acquaintance relations (in particular, using the two different descriptions: ‘the terrific candidate on TV’ or ‘I’. Then, a de se attitude is merely a special case of de re, where the attitude holder identifies the res argument as himself (i.e., the identity relation). Although the Kaplanian de re truth-conditions may be sufficient to account for the semantics of attitude reports with the third person pronoun, it seems to be too weak for the sentences with the obligatory de se elements like PRO and LD reflexives. In order to maintain the Kaplanian de re LF for de se attitude reports with the obligatory de se expressions, we need an additional mechanism to restrict the acquaintance relations to those of identity, e.g., SELF acquaintance relation.

Focusing on the obligatory de se interpretation of PRO in attitude reports in contrast to the third person pronoun, Chierchia (1989) proposes a dedicated de se LF: A de se element like PRO, a logophor, or a long-distance reflexive is a variable that needs to be bound by an operator that forms a property, which is self-ascribed by an attitude holder.
Specifically, based on the proposal of Lewis (1979) that the object of de se attitudes is a property rather than a proposition, Chierchia (1989) argues that attitude verbs can take either a proposition or a property as its argument, and a de se interpretation can only be derived when an attitude verb takes a property-type object that contains a pronominal element. An operator (that is, an individual abstractor), which appears in the left periphery of the embedded clause, turns a proposition into a property. In such cases, attitude verbs denote relations between agents and properties. Moreover, a de se element in the embedded clause must be bound by the operator. An illustrative example of the Chierchia’s dedicated de se LF is as follows.\textsuperscript{15}

\begin{align*}
(45) & \quad \text{a. Mary, thinks that she is in danger.} \\
 & \quad \text{b. The de se LF of (45a):} \\
 & \quad \text{Mary, thinks [Op, that [she is in danger]]} \\
 & \quad \text{c. think (M, λx[x is in danger])} \quad \text{(Chierchia 1989)}
\end{align*}

According to Chierchia, in order for the third person pronoun to be interpreted de se, it must be bound by the de se operator, as in (45). With this particular de se LF, the sentence indicates Mary’s self-ascription of a property of being in danger.

Chierchia argues that the fact that (46b) can get a strict or a sloppy reading provides evidence that the verb believe can take either a propositional or property-type object. Under his system, a sloppy reading (Pavarotti believes that he (Pavarotti) is a genius) is derivable from the property-type de se LF, and thus the embedded pronoun is linked to the de se interpretation.\textsuperscript{16}

\textsuperscript{15}Regarding the de se operator, Chierchia favors a base-generation analysis over a movement analysis, given that we can derive a de se interpretation from an embedded clause where a pronominal element occurs in an island, such as an adverbial clause or a complex NP, as shown below.

\begin{align*}
\text{(i) a. John, thinks [Op, that Mary is still wondering [whether to marry him,]]} \\
 & \quad \text{b. Bill, believes [Op, that the fact that people like him, is a miracle]}
\end{align*}

\textsuperscript{16}While a sloppy reading of the third person pronoun is expected under the de se LF because it is bound by the local de se operator, a sloppy reading of the third person pronoun is also available when it is interpreted
(46)  
\[a. \text{ Domingo believes that he is a genius.}\]  
\[b. \text{ Pavarotti believes it too}\]

the thing that Domingo believes  
what Domingo believes

Chierchia further argues that, contrary to the finite embedded clauses with a pronominal element that can denote propositions or properties, certain complement clauses of attitude verbs that contain obligatory control PRO or long-distance reflexives only denote properties that need to be indirectly predicated of the attitude holder. For example, a property-abstractor is mandatory in obligatory control complements, and PRO—as an individual variable—must be bound by the local abstractor. Chierchia’s analysis can, then, correctly capture the well-known facts that obligatory control PRO only receives a \textit{de se} interpretation in attitude reports and it only allows a sloppy reading under VP ellipsis.

(47)  
\[a. \text{ Mary expects to win, and Bill does too.}\]  
\[b. \text{ The}\ \textit{de se} \text{ LF:}\]

\[\text{Mary expects } [\text{Op}_i \text{ PRO}_i \text{ to win}] \& \text{Bill expects } [\text{Op}_i \text{ PRO}_i \text{ to win}]\]

\[c. \text{ expect (M, } \lambda x [x \text{ wins}]) \& \text{ expect (B, } \lambda x [x \text{ wins}])\]


(i) Context: Lucie, a broadcast manager, is looking for the perfect female voice for an ad, and requests to hear some samples of women in natural conversation. Unbeknown to her, the technician records her too, and adds it to the samples as number 17. Lucie does not recognize her recorded voice, and rules out 17 as too aggressive.

\[a. \text{ Lucie thought that she sounded too aggressive}\]
\[b. \text{ and Lili thought the same thing (/believed it too).}\]

(Reinhart 1991)

The sentence in (ib) can mean that Lili thought that she (Lili) sounded too aggressive, which is a sloppy reading, when Lili also does not recognize her own voice and thinks she sounds aggressive, as Lucie does in the context of (i). This shows that bound-variable readings of the embedded pronoun does not require a \textit{de se} LF, contrary to Chierchia’s assumption. Therefore, a sloppy reading of an embedded pronoun under ellipsis does not guarantee the dedicated \textit{de se} construal.

By contrast, a non-\textit{de se} sloppy reading for LD \textit{caki} is not allowed under ellipsis, as we saw in (36) in Section 3.4.1. In other words, \textit{caki} would only require a \textit{de se} construal unlike the third person pronoun.
Since PRO must be bound by the operator in the left periphery of the embedded clause, each sentence denotes a self-ascription of the property of winning by each attitude holder. Therefore, PRO can only get a sloppy reading in (47), as expected.\(^\text{17}\)

So far, I have stated that under the dedicated \textit{de se} LF proposed by Chierchia (1989) attitude reports denote a self-ascription of a property by the bearer of an attitude. However, it must be clarified what self-ascription exactly means and how an element bound by the individual abtractor receives a \textit{de se} interpretation. In fact, we need a more elaborate semantics of attitude verbs to account for the \textit{de se} interpretation of the pronominal or unambiguous \textit{de se} elements under the \textit{de se} LF we have discussed. The crucial idea regarding this issue centers on the semantics of attitude verbs and doxastic alternatives that (i) complements of attitude verbs are sets of centered worlds as opposed to just possible worlds, and (ii) doxastic alternatives of an attitude holder’s are also centered possible worlds (i.e., individual-world pairs) (Quine 1969, Lewis 1979, Cresswell and von Stechow 1982, Cresswell 1985, Chierchia et al. 1989, Percus and Sauerland 2003, Schlenker 2003, von Stechow 2003, Anand and Nevins 2006, Stephenson 2007, Pearson 2013, among many others).\(^\text{18}\)

The definition of doxastic alternatives as centered worlds is given in (48), and a sample lexical meaning of an attitude verb is illustrated in (49).

\(^{17}\)Chierchia also points out the following contrast with respect to VP-anaphora, due to T. Reinhart.

(i) a. John wants to become a doctor,
   b. but his mother doesn’t want to.
   c. but his mother doesn’t want that.

The sentence in (ib) only allows a sloppy reading, as in the VP-ellipsis cases, while the sentence in (ic) allows either a sloppy or a strict reading. Given this contrast, Chierchia argues that the verb \textit{want} may take a property (ib) or a propositional-type object (ic) so that a strict reading is possible in (ic). However, as he admits, it is unclear what the exact mechanism would be that allows the strict reading.

\(^{18}\)Centered worlds can vary from individual-world pairs to more complicated n-tuples including time and location. Throughout the rest of the dissertation, I set aside the time and location coordinates. That is, I will consider centered worlds as pairs of a possible world \(w\) and an individual \(x\).
Doxastic alternatives:
\[
\text{Dox}_{x,w} = \{<y, w'>: \text{it is compatible with what } x \text{ thinks in } w \text{ that } w' \text{ is a world } x \\
\text{might be living in and } y \text{ is the one who } x \text{ identifies in } w \text{ as herself in } w' \}
\]

\[
[\text{think}]^g = \lambda P_{<e,st>}. [\lambda x. \forall <y,w'> \in \text{Dox}_{x,w}: P(y)(w') = T]
\]

Given the semantics of attitude verbs and doxastic alternatives defined above, \( x \) thinks \( P \) is true iff in all of the agent \( x \)'s doxastic alternatives \( <y, w'> \), \( x \)'s de se counterpart \( y \) has the property \( P \) in \( w' \). Recall that de se elements in complements of attitude verbs are abstracted over by being bound by the individual abstractor. Since the derived property is predicated of the agent's de se counterpart when it combines with the attitude verb, owing to the semantics of attitude verbs, the de se interpretation is correctly derived under the property approach.

Based on the Lewis-Chierchia's property approach to de se attitude reports, Percus and Sauerland (2003) further argue for a dedicated LF of de se attitude reports that is distinct from de re. Given that pronouns in English can be read either de se or de re, it is widely assumed in the literature that a special de se LF is not necessary for attitude reports that contain pronouns. The question is whether the third person pronoun in English would admit a dedicated de se LF (Schlenker 1999). Percus and Sauerland (2003) provide an argument in favor of the dedicated de se LF for the third person pronoun in English. Consider the following example under a scenario from Percus and Sauerland (2003).

Scenario: A group of drunken election candidates watching campaign speeches on television do not recognize themselves in the broadcast. John, the only confident one, thinks "I'll win," but does not recognize himself in the broadcast. Bill and Sam, both depressive, think "I'll lose" but are impressed by the speeches that happen to be their own and are sure "that candidate" will win. Peter, also depressive, happens to be impressed not by his own speech but by John's.
Only John thinks that he will win the election.  

(Percus and Sauerland 2003)

The example in (50) is true in the scenario shown above. Percus and Sauerland (2003) show that this sentence would not turn out to be true under this particular context if a \textit{de re} LF were the only possible representation. Suppose that the VP \textit{thinks that he will win the election} has the following denotation.

\begin{align*}
(51) \quad [[\text{thinks that he} \_ \text{will win the election}]^g = \\
= \lambda x. \lambda w. \text{there is some acquaintance relation } R \text{ that } x \text{ bears uniquely to } g(i) \text{ in } w, \\
\text{such that, for all } <y, w'> \text{ in } \text{DOX}_{x,w}, \text{ the individual that } y \text{ bears } R \text{ to in } w' \text{ wins the election in } w' 
\end{align*}

First, when the embedded pronoun gets a bound-variable reading, the example in (50) cannot be true under this \textit{de re} LF. In order for it to be true, John should be the only candidate who bears an acquaintance relation \( R \) to himself. However, in the scenario above, Bill and Sam also bear some acquaintance relation to themselves, and think that the individual they bear \( R \) to (namely, Bill and Sam, respectively) will win the election. Moreover, Percus and Sauerland show that the \textit{de re} LF will also predict the example in (50) to be false even though we only consider the case where the assignments map the index of the pronoun \( i \) to John. In this case, although Bill and Sam do not bear any acquaintance relation to John, Peter, in addition to John himself, bears some \( R \) to John. Therefore, John cannot be the only individual who thinks he will win the election given the \textit{de re} LF shown in (51). Based upon this argument, Percus and Sauerland (2003) argue that a dedicated \textit{de se} LF may sometimes be required even for the third person pronoun in English. The truth-conditions in (52c) are derived from the \textit{de se} LF in (52a) and the semantics of attitude verbs in (52b). Given that the doxastic alternatives are centered worlds and a property that an attitude verb takes as its first argument is predicated of a doxastic counterpart of
the attitude holder, we can guarantee a *de se* interpretation.

(52)  

\(a. \) John thinks \([λ \lambda w' \text{ he}_1 \text{ will win the election}].\)

\(b. \) \([\text{think}]^w_\text{g} = λp_\text{<e,st>}: [λx. ∀<y,w'> ∈ \text{Dox}_{x,w}: P(y)(w') = T],\)

where \(\text{Dox}(x,w) = \{<y, w'>: \text{it is compatible with what } x \text{ thinks in } w \text{ that } w' \text{ is a world } x \text{ might be living in and } y \text{ is the one who } x \text{ identifies in } w \text{ as himself in } w'.\}\)

\(c. \) \([\text{John thinks that he will win the election}]^g_\text{g} = λw. ∀<y,w'> ∈ \text{Dox}_{\text{John},w}: y \text{ wins the election in } w'\)

Assuming that there is a dedicated *de se* LF and a *de re* LF for *de se* attitude reports, then we have at least two different mechanisms for *de se* ascriptions. If we assume two *de se* mechanisms (dedicated *de se* and *de re*) and two types of *de se* elements (ambiguous and unambiguous), now some important questions arise: First, can an unambiguous *de se* element be construed *de re*? In other words, would it ever be possible that attitude reports with the obligatory *de se* expressions have a *de re* LF in some cases (for instance, when the dedicated *de se* LF is not available for some reason)? Second, when is the dedicated *de se* construal necessary or available for the third person pronoun? Would it always be possible when the third person pronoun is interpreted *de se*, or can it only be used when it is forced to be used? We will discuss these issues focusing on the behavior of the Korean LD reflexive *caki* and the third person pronoun.

3.5.2 A proposal

3.5.2.1 Basic assumptions

I will begin by laying out some semantic assumptions, based upon the Lewis-Chierchia’s property approach and the extensional framework of modal quantification (Percus 2000). First, I assume that attitude verbs denote relations between properties and individuals.

(49) **Lexical entry for think**

\[ \text{[think]}^g = \lambda P_{<e,st>}. [\lambda x. \forall y,w' \in \text{Dox}_{x,w}: P(y)(w') = T], \]

where \( \text{Dox}_{x,w} = \{<y, w'>: \text{it is compatible with what } x \text{ thinks in } w \text{ that } w' \text{ is a world } x \text{ might be living in and } y \text{ is the one who } x \text{ identifies in } w \text{ as herself in } w'\} \)

Second, obligatory *de se* elements are variables that need to be bound by an individual abtractor introduced by an attitude verb (Chierchia et al. 1989, Percus and Sauerland 2003, von Stechow 2003, Pearson 2013, a.o.). Third, based on Percus (2000) and many other authors (e.g., Keshet 2008, Schwarz 2012), I assume that attitude verbs introduce a world and an individual abtractor in the syntax, while matrix clauses and modals introduce a world binder. Following the extensional system, then, we slightly revise the lexical meaning of the attitude verb in (49) by adding a world binder, as in (53).

(53) **Lexical entry for think** *(revised)*

\[ \text{[think]}^g = \lambda P_{<e,st>}. [\lambda x. \lambda w. \forall y,w' \in \text{Dox}_{x,w}: P(y)(w') = T], \]

where \( \text{Dox}_{x,w} = \{<y, w'>: \text{it is compatible with what } x \text{ thinks in } w \text{ that } w' \text{ is a world } x \text{ might be living in and } y \text{ is the one who } x \text{ identifies in } w \text{ as herself in } w'\} \)

Given these assumptions, an LF of a sentence with the obligatory *de se* expression PRO is provided in (54). The lexical entry for the verb *expect* is given in (55).

(54) a. John expects to win the election.

\[ \text{LF: } \lambda w \text{ w John expects } [\lambda x_1 \lambda w_2 \text{ w}_2 \text{ PRO}_1 \text{ to win the election}] \]
Lexical entry for *expect*

\[
[expect]^g = \lambda P_{<e,st>}. [\lambda x. \lambda w. \forall <y,w'> \in \text{Expect}_{x,w}: P(y)(w') = T],
\]

where \( \text{Expect}_{x,w} = \{<y,w'>: x \text{ compatibles with } x \text{ expects in } w \text{ that } w' \text{ is a world } x \text{ might be living in and } y \text{ is the one who } x \text{ identifies in } w \text{ as herself in } w'\} \)

Given the semantics of attitude verbs and the LF above, we can provide the truth conditions for the LF in (54b) as follows.

\[
[(54b)]^g = \lambda w. \forall <y,w'> \in \text{Expect}_{John,w}: y \text{ wins the election in } w'
\]

As discussed before, the obligatory *de se* interpretation is derived from the semantics of the attitude verb and the assumption that PRO is bound by the local individual abstractor. These truth-conditions correctly capture that the attitude report in (54) denotes John’s self-ascription of the property of winning the election.

Now let me put forth our basic assumptions of the Korean LD reflexive *caki*. First, given that *caki* cannot have the first or second person pronoun as its antecedent unlike *ziji* in Chinese, I assume that *caki* in Korean is inherently third-person. That is, *caki* carries the presupposition as the 3rd person pronoun: it cannot refer to the author or the hearer of the context \(c\) (Schlenker 2003, Heim 2008). Moreover, *caki* cannot have a doxastic counterpart (that is, every \(y\) in the set of doxastic alternatives of \(<y, w'>\) of the author or the hearer of the context \(c\) as its value.\(^{19}\) Given this, I provide a denotation of the LD reflexive *caki* as in (57).

\[
[[\text{caki}_n]]^{c,g} = \begin{cases} 
  g(n), & \text{if } g(n) \text{ is not } \text{AUTH}(c), \text{ADDR}(c), \\
  \text{undefined}, & \text{or a doxastic counterpart of } \text{AUTH}(c) \text{ or } \text{ADDR}(c) \\
\end{cases}
\]

\(^{19}\)This was pointed out to me by Seth Cable (p.c.).
Second, as discussed in Chapter 2, I distinguish LD caki from Local caki, while I treat both of them as a bound variable. Specifically, I differentiate them given some special syntactic feature, e.g. [log] (Maling 1984, Sells 1987, Kratzer 1998, von Stechow 2003, Anand 2006, Pearson 2013, a.o.). That is, only LD caki bears this feature given its logophoric property, while Local caki does not. Based on the notion of logophoricity proposed by Sells (1987), I assume that LD caki with the feature [log] must be coreferent with a logophoric center (Huang and Liu 2001). In attitude environments, then, LD caki must find a referent as its antecedent whose speech or attitude is represented in stating the clause that contains caki.

(58) **Primitive notions of logophoricity**

**SOURCE**: one who is the intentional agent of the communication  
**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  

(Sells 1987, p.457)

### 3.5.2.2 Two licensing conditions for caki

Based on the assumptions laid out above, let us now turn our attention to the details of how LD caki must be construed *de se* in attitude environments. We have seen in Section 3.3 that the Korean LD reflexive caki must receive a *de se* interpretation when embedded under attitude verbs. The data on caki are more complicated than those on PRO, since (i) LD caki is not subject to locality restrictions, (ii) its position is not limited to the subject position, and (iii) a multiple occurrence of LD caki is possible unlike PRO. Therefore, while our proposal of LD caki as a *de se* expression is based on the Lewis-Chierchia’s property approach, certain amendments of the property analysis are required to account for the full properties of LD caki in attitude environments. I will first put forth specific licensing conditions for LD caki and then show how the obligatory *de se* interpretation of LD caki...
can be derived.

Following Chierchia (1989), I have assumed that LD caki is a variable that needs to be bound by an individual abstractor that is introduced by an attitude predicate. Moreover, I have also assumed that LD caki bears the special feature [log]. Given these assumptions, I propose two licensing conditions for LD caki in Korean: the feature match and locality condition.

First, I assume that individual abstractors introduced by attitude verbs can optionally bear the [log] feature, and LD caki must be bound by a binder that bears the same feature [log]. Under the multiple embeddings, then, there are four possible LFs, given the existence/absence of the [log] feature on the binders.

(59)  
a. \( \lambda w \ w \text{John thinks} [\lambda x_1^{[log]} \lambda w_2 w_2 \text{Tom said} [\lambda x_3 \lambda w_4 w_4 \text{Mary likes } caki_{1/3}^{[log]}]] \)

b. \( \lambda w \ w \text{John thinks} [\lambda x_1 \lambda w_2 w_2 \text{Tom said} [\lambda x_3^{[log]} \lambda w_4 w_4 \text{Mary likes } caki_{1/3}^{[log]}]] \)

c. \( \lambda w \ w \text{John thinks} [\lambda x_1^{[log]} \lambda w_2 w_2 \text{Tom said} [\lambda x_3^{[log]} \lambda w_4 w_4 \text{Mary likes } caki_{??}^{[log]}]] \)

d. *\( \lambda w \ w \text{John thinks} [\lambda x_1 \lambda w_2 w_2 \text{Tom said} [\lambda x_3 \lambda w_4 w_4 \text{Mary likes } caki_{1/3}^{[log]}]] \)

In (59a), given that only the higher binder bears the [log] feature, caki is bound by the lambda under the verb ‘think’. On the other hand, since the [log] feature is present on the lower binder in (59b), caki must be bound by \( \lambda x_3 \) under this particular LF. The LF in (59d) is not available because there is no proper binder (that is, one with [log]) for LD caki. How about the LF in (59c), then? Which antecedent should caki be associated with under this LF? I will show in a moment that caki finds the intermediate subject as its antecedent in this case.

In addition to the feature match condition, I argue that there is a locality condition for LD caki binding. Based upon the locality condition for variable binding proposed in the previous work (e.g., Fox 2000, Anand 2006), I also assume that a variable with [log]
must be bound by a closest binder that also bears the same feature \([\text{log}]\). Note that \(\text{PRO}\) must always be bound by the closest binder whatsoever. By contrast, under our system, \(\text{LD caki}\) can be bound by a non-closest binder when the closer binder does not bear the \([\text{log}]\) feature. Therefore, our system correctly predicts that \(\text{LD caki}\) can find an antecedent from any superordinate clauses when there is no binder in lower clauses that bears the \([\text{log}]\) feature. Owing to the combination of the feature match and the locality condition, \(\text{LD caki}\) in the most embedded clause in the LF we saw in (59c), repeated below, must be associated with the intermediate subject by being bound by the lower binder. The locality condition is violated when \(\text{caki}\) is bound by the higher binder in the configuration in (60).

\[
(60) \quad \lambda w \; \text{John thinks} \; [\lambda x_1^{[\text{log}]} \lambda w_2 \; \text{Tom said} \; [\lambda x_3^{[\text{log}]} \lambda w_4 \; \text{Mary likes caki}_{3/1}^{[\text{log}]}]]
\]

The two binding conditions for \(\text{LD caki}\) proposed here determines which abstractor \(\text{caki}\) needs to be bound by and how \(\text{caki}\) should be interpreted. Based on the semantics of attitude verbs as in (61), a sample LF and truth-conditions of a sentence with \(\text{LD caki}\) are provided in (62).

\[
(61) \quad \text{Lexical entry for say}
\]

\[
[\text{say}]^g = \lambda P_{<e, st>}. \; [\lambda x. \lambda w. \forall <y, w'> \in \text{Say}_{x, w}: P(y)(w') = \top],
\]

where \(\text{Say}_{x, w} = \{<y, w'>: \text{it is compatible with what} \; x \; \text{says in} \; w \; \text{that} \; w' \; \text{is a world} \; x \; \text{might be living in and} \; y \; \text{is the one who} \; x \; \text{identifies in} \; w \; \text{as herself in} \; w'\}
\]

\[
(62) \quad \text{a. LF: } \lambda w \; \text{John says} \; [\lambda x_1^{[\text{log}]} \lambda w_2 \; \text{Mary likes caki}_{1}^{[\text{log}]}]
\]

\[
\text{b. } [(62a)]^g = \lambda w. \forall <y, w'> \in \text{Say}_{\text{John, w}}: \text{Mary likes} \; y \; \text{in} \; w'
\]

In the LF in (62a), \(\text{caki}\) satisfies its two binding conditions by being bound by the closest binder that bears the \([\text{log}]\) feature, i.e., \(\lambda x_1^{[\text{log}]}\), and receives a \(\text{de se}\) interpretation because \(\text{caki}\) is interpreted as John’s doxastic counterpart given the semantics of the attitude verb and the definition of \(\text{say-}\)alternatives.
3.5.3 Consequences

Let us now discuss the consequences of our proposal, focusing on the properties of LD \( caki \) under attitude verbs that we have seen in 3.3. Firstly, our proposed account makes a correct prediction regarding the ‘no locality restriction’ property of \( caki \). LD \( caki \) can find any LD antecedent as its antecedent with legitimate LF representations. Consider the following simplified LFs.

\[ \lambda \]

\( (63) \) No locality restriction

- a. John thinks \([\lambda_1]_{\text{log}} \text{Mary likes } caki_1]_{\text{log}}\]
- b. John thinks \([\lambda_1]_{\text{log}} \text{Tom said } [\lambda_2 \text{Mary likes } caki_1]_{\text{log}}\]
- c. John thinks \([\lambda_1]_{\text{log}} \text{Tom said } [\lambda_2 \text{Bill thinks } [\lambda x_3 \text{Mary likes } caki_1]_{\text{log}}]\]

In all the cases in (63), \( caki \) is legitimately associated with the matrix subject \( John \) because the binder introduced by the highest verb, \( \lambda x_1]_{\text{log}} \), is the closest binder with the [log] feature due to the lack of the [log] feature on the lower binders. The feature match condition will be violated if \( caki \) is bound by any binder with no [log] feature in (63).

Secondly, the obligatory coreference of multiple clausemate LD \( caki \)'s can also correctly be captured by our proposal of the binding conditions for LD \( caki \). That is, since LD \( caki \) must be bound by the closest operator that carries the [log] feature, more than one \( caki \) in the same clause must be bound by the same abstractor. Otherwise, the locality and/or feature-match condition is violated.

\[ \lambda \]

\( ^{20} \) As soon as any lower binder bears the [log] feature, LD \( caki \) cannot take the matrix subject as its antecedent anymore due to the violation of our locality condition.

\( ^{(i)} \) a. John thinks \([\lambda_1]_{\text{log}} \text{Tom said } [\lambda_2]_{\text{log}} \text{Mary likes } caki_{1/2} [\text{log}]\]
- b. John thinks \([\lambda_1]_{\text{log}} \text{Tom said } [\lambda_2]_{\text{log}} \text{Bill thinks } [\lambda_3 \text{Mary likes } caki_{1/2/3} [\text{log}]\]
- c. John thinks \([\lambda_1]_{\text{log}} \text{Tom said } [\lambda_2]_{\text{log}} \text{Bill thinks } [\lambda_3]_{\text{log}} \text{Mary likes } caki_{1/2/3} [\text{log}]\]

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(64) **Obligatory coreference of multiple clausemate \textit{caki}'s**

a. John said \(\lambda_1^{[\text{log}]}\) Bill said \(\lambda_2^{[\text{log}]}\) caki\(_2^{[\text{log}]}\)'s mother hates caki\(_2^{[\text{log}]}\)]]

b. John said \(\lambda_1^{[\text{log}]}\) Bill said \(\lambda_2^{[\text{log}]}\) caki\(_1^{[\text{log}]}\)'s mother hates caki\(_1^{[\text{log}]}\)]]

As we saw for the single \textit{caki} in a multiple embedded sentence, both \textit{caki}'s in the most embedded clause can take the matrix subject as its antecedent only when the [\text{log}] feature is absent on the lower binders so that the one in the highest clause can be the closest legitimate binder for LD \textit{caki}'s, as shown in (64b). On the other hand, the LFs in (65) cannot be derived, because the locality condition of LD \textit{caki} is violated in these cases: one of the \textit{caki}'s, caki\(_1^{[\text{log}]}\), is not bound by the closest binder with [\text{log}].

(65) **Violation of the locality condition**

a. *John said \(\lambda_1^{[\text{log}]}\) Bill said \(\lambda_2^{[\text{log}]}\) caki\(_1^{[\text{log}]}\)'s mother hates caki\(_2^{[\text{log}]}\)]]

b. *John said \(\lambda_1^{[\text{log}]}\) Bill said \(\lambda_2^{[\text{log}]}\) caki\(_2^{[\text{log}]}\)'s mother hates caki\(_1^{[\text{log}]}\)]]

c. *John said \(\lambda_1\) Bill said \(\lambda_2^{[\text{log}]}\) caki\(_2^{[\text{log}]}\)'s mother hates caki\(_1^{[\text{log}]}\)]]

Some impossible LFs due to the violation of the feature-match condition are illustrated in (66). Since a binder with [\text{log}] is required to properly bind LD \textit{caki}, a configuration like (66b) is ruled out.

(66) **Violation of the feature-match condition**

a. *John said \(\lambda_1^{[\text{log}]}\) Bill said \(\lambda_2^{[\text{log}]}\) caki\(_2^{[\text{log}]}\)'s mother hates caki\(_1^{[\text{log}]}\)]]

b. *John said \(\lambda_1\) Bill said \(\lambda_2^{[\text{log}]}\) caki\(_1^{[\text{log}]}\)'s mother hates caki\(_1^{[\text{log}]}\)]]

As we saw earlier, multiple \textit{caki}'s in different clauses may take different antecedents. The coreference and disjoint readings of multiple \textit{caki}'s in different clauses can easily be derived as well based on the existence/absence of the [\text{log}] feature on the individual abstractors.
(67) **Multiple caki’s in different clauses**

a. John thinks \([\lambda_1^{\text{log}} \text{ Bill told } \lambda_1^{\text{log}} \text{ Mary hates } \lambda_2^{\text{log}}]\)

b. John thinks \([\lambda_1^{\text{log}} \text{ Bill told } \lambda_1^{\text{log}} \text{ Mary hates } \lambda_1^{\text{log}}]\)

c. *John thinks \([\lambda_1^{\text{log}} \text{ Bill told } \lambda_1^{\text{log}} \text{ Mary hates } \lambda_1^{\text{log}}]\)

While *caki* embedded directly under the matrix verb *think* has only one possible binder, the one in the most embedded clause has two binding possibilities. When the lower binder bears \([\text{log}]\), as in (67a), the lower *caki* must be bound by that and be interpreted *de se* with respect to Bill. Owing to the feature \([\text{log}]\) on the higher binder in (67a), \(\lambda_1^{\text{log}}\), the higher *caki* is bound by \(\lambda_1^{\text{log}}\) and receives a *de se* interpretation with respect to the matrix subject John. Therefore, the sentence with the LF in (67a) can be true only when both John and Bill have a *de se* attitude: e.g., John thinks, ‘Bill told me, ‘Mary hates me’.’

Thirdly, we have seen that LD *caki* can co-refer with a non-subject NP when the non-subject NP can be understood as the one whose speech is reported in the embedded clause that contains *caki*. The illustrative example we saw in (12b), repeated below as (68), includes the matrix verb ‘hear’.

(68) S1 (John = *caki*): John said: "Mary told me that Tom hates me."

S2 (Mary = *caki*): John said: "Mary told me, ‘Tom hates me,’"

\[
\begin{array}{ll}
\text{John-nom} & \text{Mary-from } [\text{Tom-nom } \text{caki-i/j-lul silbehanta-ko} ] \text{ tulessta.} \\
& \text{John-nom Mary-from Tom-nom self-ACC dislike-COMP heard} \\
& \text{‘John, heard from Mary that Tom dislikes him, her.’}
\end{array}
\]

We can report the situations S1 and S2 using the same sentence in (68). Note first that the non-subject NP is the source of the content of the embedded clause, regardless of the antecedent of *caki*. Moreover, the first person pronoun must be used in Mary’s direct speech when Mary is interpreted as the referent of *caki*. Given this, I propose that there is a covert speech verb *say* in a sentence like (68). The LFs of (68), then, are parallel to
those of the doubly embedded cases, as shown in (69) and (70).

(69) **Coreference between the matrix subject and caki with the verb ‘hear’**

a. LF: $\lambda w w_1 w_2 \text{John heard } [\lambda_1 w_2 w_2 w_2 \text{ Mary say } [\lambda_3 w_4 w_4 w_4 \text{ Tom hates caki}_1 [\text{log}]]]

b. $[(69a)] = \lambda w. \forall <y, w'> \in \text{Hear}_{John, w}: \forall <z, w''> \in \text{Say}_{Mary, w'}: \text{Tom hates } y$ in $w''$, where

\[\text{Hear}_{John, w} = \{ <y, w'>: \text{it is compatible with what John hears in } w \text{ that } w' \text{ is a world John might be living in and } y \text{ is the one who John identifies in } w \text{ as himself in } w' \}\]

(70) **Coreference between the matrix non-subject and caki with the verb ‘hear’**

a. LF: $\lambda w w_1 w_2 \text{John heard } [\lambda_1 w_2 w_2 w_2 \text{ Mary say } [\lambda_3 w_3 w_4 w_4 \text{ Tom hates caki}_3 [\text{log}]]]

b. $[(70a)] = \lambda w. \forall <y, w'> \in \text{Hear}_{John, w}: \forall <z, w''> \in \text{Say}_{Mary, w'}: \text{Tom hates } z$ in $w''$, where

\[\text{Say}_{Mary, w'} = \{ <z, w''>: \text{it is compatible with what Mary says in } w' \text{ that } w'' \text{ is a world Mary might be living in and } z \text{ is the one who Mary identifies in } w' \text{ as herself in } w'' \}\]

Since caki is bound by an individual abstractor that is introduced by the matrix verb ‘hear’ or the covert intermediate predicate say, it receives a *de se* interpretation with respect to either the matrix subject John or the intermediate subject Mary.\(^{21}\)

---

\(^{21}\)The source of the covert verb say may be problematic. Seth Cable (p.c.) suggests that this covert attitude verb say may be contributed from the postpositional phrase ‘from Mary.’ It is a very plausible idea, given that LD caki can only be associated with the matrix subject under the verb ‘hear’ when the ‘source’ postpositional phrase is absent in the sentence.

(i) S1: John said: "Someone said that Tom hates me."
S2: John said: "Someone said, 'Tom hates me,"

\[\text{John-nom Tom-nom self-acc dislike-comp heard} \]

'John, heard that Tom dislikes him, /"someone,"' [✓ S1, ✗ S2]
Lastly, our account also derives the property of LD caki that it only allows a sloppy reading under ellipsis. The elided part in the second conjunct of (71) contains caki and an individual abstractor under the verb 'think'. The LF of the first and second conjuncts of (71) are given in (72).

John-top self-nom genius-comp think-and Bill-also so-does  
Lit. 'John, thinks that self, is a genius and Bill does, too.'

a. Bill thinks that Bill is a genius, too. (sloppy reading)  
b. *Bill thinks that John is a genius, too. (*strict reading)

(72) a. LF: $\lambda w$ $w$ John think $[\lambda x_1^{[log]} \lambda w_2 w_2 caki_1^{[log]}$ is a genius]  
b. LF: $\lambda w$ $w$ Bill think $[\lambda x_1^{[log]} \lambda w_2 w_2 caki_1^{[log]}$ is a genius]

Given our assumptions on LD caki and the semantics of attitude verbs, LD caki must be bound by the abstractor under the verb 'think' in (72), and thus, it only receives a de se interrogation with respect to the subject of each conjunct: John in the first conjunct and Bill in the second conjunct. Therefore, the obligatory sloppy and de se readings of LD caki are derived in an ellipsis construction.

3.5.4 Summary

To summarize, I proposed in this section the two binding conditions of LD caki: the feature-match and locality conditions. Based upon the Lewis-Chierchia’s property approach to de se attitudes and ascriptions, I have assumed that LD caki is a variable that needs to be bound by an individual abstractor introduced by an attitude verb. Given our proposed account of LD caki, the LD reflexive caki, which bears the special feature [log], cannot be bound by any abstractor but must be bound by a closest binder with the feature [log]. While the binding mechanism of LD caki in attitude reports is based upon the dedicated de se LF, our system specifically regulates the suitable binder for LD caki.
I have shown that under our account the properties of LD caki within the scope of attitude verbs can all be derived, such as no-locality restriction, obligatory coreference of multiple clausemate caki’s, obligatory sloppy readings under ellipsis, and the obligatory de se interpretation, etc.

3.6 Comparison with previous accounts

We have pursued an extension of the property approach to de se to account for the obligatory de se interpretation of caki as well as its other properties. Besides the property approach that has been developed based upon prior work by Lewis (1979) and Chierchia (1989), other analyses of the semantics of de se ascriptions have also been proposed in the literature. In this section, I will examine two existing semantic accounts of de se expressions and demonstrate the advantages of our account for the LD reflexive caki.

3.6.1 The indexical approach

One of the alternative semantic approaches to de se expressions, such as PRO, logophors, and LD reflexives, involves assigning indexical-like semantic values to these elements (Schlenker 1999, Anand and Nevins 2004, Stephenson 2007, a.o.).

Under the Kaplanian semantics (Kaplan 1989), an interpretation function is relative to a context $c$, an index (point of evaluation) $i$, and an assignment function $g$, $[[\cdot]]^{c,i,g}$. Moreover, it is assumed that both contexts and indices are represented as tuples of coordinates, such as $<\text{author, hearer, time, location, world}>$ (Kaplan 1989, Schlenker 1999, a.o.).\footnote{The tuples of coordinates of the context and index parameter vary between authors.}

Under this system, the extensions of indexicals are dependent on the context parameter, as illustrated in (73).
Lexical entries for indexicals

a. \( I^{c,i,g} = \text{AUTH}(c) \)
b. \( you^{c,i,g} = \text{ADDR}(c) \)
c. \( here^{c,i,g} = \text{LOC}(c) \)

In light of this, Anand and Nevins (2004) propose that certain \( de \ se \) elements like logophors as well as obligatory control PRO can be identified as an indexical that refers to either the AUTH or ADDRESSEE coordinate of the index (point of evaluation) parameter, as shown below.

Indexical meanings of PRO

a. \( [\text{PRO}_{\text{subj}}]^{c,i} = \text{AUTH}(i) \) \( \text{subject-controlled PRO} \)
b. \( [\text{PRO}_{\text{obj}}]^{c,i} = \text{ADDR}(i) \) \( \text{object-controlled PRO} \)

Since the AUTH coordinate of the context or index parameter is the one who the speaker identifies as himself, Anand and Nevins argue that this account can explain one of the important properties of logophors and obligatory controlled PRO that they must be interpreted \( de \ se \). In other words, given that the first person pronoun is used by the speaker of the utterance context to refer to herself, a logophor or PRO refers to an individual that the speaker of the reported context identifies as her counterpart.23

Under the semantics of PRO seen in (74) and the assumption that attitude predicates quantify over indices, which include speaker, hearer, time, location, world, etc. coordinates, the truth-conditions of a sentence with PRO in (76a) would be as in (76b).24

---

23 Although their system is distinguished from Anand and Nevins (2004), Schlenker (1999, 2003) also treat PRO and logophors as indexicals.

24 If one takes an intentional approach, a semantic rule like Intensional Function Application would be required for the semantic composition of attitude predicates and propositions (Anand 2006, Stephenson 2007).

(i) **Intensional Function Application** (adopted from Heim and Kratzer (1998))

If \( \alpha \) is a branching node and \( \{ \beta, \gamma \} \) the set of its daughters, then, for any context \( c \), index \( i \), and assignment \( g \): if \( [\beta]^{c,i,g} \) is a function whose domain contains \( \lambda i' \), \( [\gamma]^{c,i,g} \), then \( [\alpha]^{c,i,g} = [\beta]^{c,i,g}(\lambda i') \).
Lexical entry for hope

\[ [\text{hope}]^{c,i,g} = \lambda p_{<\kappa t>} \cdot [\lambda x. \forall i' \text{ compatible with what x hopes in i, } p(i') = T]^{25} \]

(76) a. John hopes PRO to win.
   b. \[ [((76a))]^{c,i,g} = \forall i' \text{ compatible with what John hopes in i, } \text{AUTH}(i') \text{ wins in } i' \]

Since \text{AUTH}(i') denotes the speaker of the reported context (i.e. the person 'I' refers to in John’s reported speech act refers to), the obligatory de se interpretation of PRO can be derived in (76).

Anand and Nevins also propose that logophoric pronouns in languages like Bafut also have the same lexical entries as those of PRO, and thus receive an obligatory de se interpretation.

Indexical meanings of logophors

(77) a. \[ [\text{LOG-auth}]^{c,i,g} = \text{AUTH}(i) \]
   b. \[ [\text{LOG-addr}]^{c,i,g} = \text{ADDR}(i) \] (Anand and Nevins 2004)

However, the semantics in (77) predicts that logophors can also occur outside the scope of attitude predicates, contrary to the property of logophors in many languages that they have to appear under the scope of attitude predicates. Therefore, they propose the following additional restriction.

Context blocking:

Do not use a logophor when an indexical could be used. (Anand and Nevins 2004)

In the matrix clause, what a logophor denotes, \text{AUTH}(i), would be identical with what the

\[ [[\gamma]^{c,i,g}]. \]

\( ^{25} \kappa \) is the semantic type of the set of quintuples \(<a, h, t, l, w>\).
1st person indexical indicates, \textit{auth(c)}. Given the restriction in (78), then, the indexical should be used instead of the logophor in an unembedded sentence.

Importantly, the semantics of shifted indexicals is also uniformly explained under the indexical approach. In languages like English, where there is no operator that can manipulate the context parameter, semantic values of indexicals are solely determined by the context parameter. Therefore, for example, the first person pronoun always refers to the speaker of the context of utterance under any intensional operators in these languages. By contrast, indexicals in complements of attitude verbs can be interpreted with respect to the reported context instead of the actual speech context in certain languages, such as Amharic (Schlenker 1999), Navajo (Speas 2000), Zazaki (Anand and Nevins 2004), Uyghur (Sudo 2012, Shklovsky and Sudo 2014), Nez Perce (Deal 2014), etc., a phenomenon known as ‘indexical shift’.

(79) \textbf{No indexical shift in English}

John said that I am smart. \( (I=\)the speaker of the sentence\( */\)John) 

(80) \textbf{Indexical shift in Zazaki}

\texttt{Hessenij (mi_j-ra) va ke ezwletia} \hspace{1cm} \texttt{Hessen.obl (OBL-to) said that I rich.be-pres}

‘Hensen said that I am, Hesen is rich.’ \hspace{1cm} (Anand and Nevins 2004)

Anand and Nevins (2004) argue that indexical shift is the result of a context-shift operator that overwrites the context parameter on the interpretation function with the index, as illustrated in (81). If there is any indexical under the scope of the context-shift operator, then those indexicals refer to certain coordinates of the index parameter. For instance, the first person pronoun in (80) will be interpreted as the author of the reported speech context when a context-shift operator appears in the embedded clause.
(81) Context-shift operator

\[
\text{OP}_\gamma \, \alpha \, \gamma^{c,i,g} = \alpha^{i,i,g}
\]  

(Anand and Nevins 2004)

(82) a. No indexical shift

\[
[H\, \text{Hensen said I am rich}]^{c,i,g} = T \text{ iff } \forall i' \text{ compatible with what Hensen says in } i, \text{ AUTH}(c) \text{ is in } i'.
\]

b. Indexical shift

\[
[H\, \text{Hensen said [OP}_\gamma \, \text{I am rich}]^{c,i,g} = T \text{ iff } \forall i' \text{ compatible with what Hensen says in } i, \text{ AUTH}(i') \text{ is in } i'.
\]

Note that the semantics of the shifted first person pronoun is identical to those of PRO and logophors seen above, that is, AUTH(i').

While the indexical approach may uniformly capture the obligatory de se interpretation of the elements like PRO, logophors, and shifted indexicals, there are some potential problems with this approach for certain de se elements. First, as Landau (2015) points out for PRO, under this proposal we must assume multiple lexical entries for PRO and logophors. In particular, given that LD caki can also appear in non-attitude environments, the indexical approach can only be adopted for caki under attitude predicates. Landau (2015) rejects this proposal for PRO also because of the core differences between PRO and shifted indexicals. Contrary to indexical shifting that is found only in a limited number of languages and that usually occurs optionally, obligatory controlled PRO is rather general and consistent.

More importantly, Park (2015) raises some crucial problems with this approach to account for the obligatory de se interpretation of the Korean LD reflexive caki. The first problem has to do with the interpretation of caki under multiple embeddings. As we already saw, under more than one attitude predicate, LD caki can find its antecedent from either the matrix clause or the intermediate clause, as illustrated below. No matter which attitude holder LD caki takes as its antecedent, caki must be interpreted de se in either
case.

(83) John-i [Mary-ka [caki-ka ttotkkokhata-ko] sayngkakhanta-ko]
John-NOM Mary-NOM self-NOM smart-COMP think-COMP
malhayssta.
said
Lit. ‘John said that Mary thinks self is smart.’

Assuming that LD caki in attitude environments indicates an author of an index, as shown in (84), then it is hard to explain how the meaning of the LD caki can depend on either point of evaluation under the two intensional operators (i.e., attitude verbs). It is only expected to be determined by the closest intensional operator. The presence of the context-shift operator would also be ineffective, because it only overwrites the context parameter, not the index parameter.

(84) **Lexical entry for LD caki under the indexical approach**

\[
[caki]^{c.i.g} = \text{AUTH}(i)
\]

Another problem arises in a sentence where two elements with the same semantics (e.g., a shifted indexical and a logophor) co-occur. In the previous sections, we have seen that multiple LD caki’s in the same clause must have the same antecedent. Park (2015) also shows that indexical shifting in Korean is subject to the so-called ‘Shift Together’ constraint so that more than one (same type of) indexical in the same clause must find their reference from the same context. Assuming shift indexicals and LD reflexives are the same type of de se elements, the indexical approach predicts that a shifted indexical and a LD reflexive in the same embedded clause should not be able to find references from different contexts.

This is, however, a false prediction. First, caki and the shifted first person pronoun can never be co-referential, unlike clausemate shifted indexicals or LD cakis.\(^{26}\) Rather,

\(^{26}\)Park (2014) shows that this is due to the person feature of caki.
they must be disjoint, as illustrated below.

(85)  
\[
\begin{array}{l}
\text{[John-i} 
\text{Bill-i} 
\text{caki-uy emeni-ka na-lul silhehanta-ko]}
\text{John-NOM Bill-NOM self-GEN mother-NOM I-ACC hate-COMP}
\text{malhayssta-ko] malhayssta.]}
\text{said-COMP said}
\text{Lit. ‘John, said that Bill said that self (=Bill)’s mother hates me; (=John)’}^{27}
\end{array}
\]

There are two logically possible referents of *caki* and *na ‘I’* in (85), namely, the matrix subject *John* and the intermediate subject *Bill*. In (85), each element can independently find its reference so that *caki* refers to the intermediate subject *Bill*, while *na ‘I’* refers to the matrix subject *John*. Such interpretations are not predicted if we assume *caki* is an instance of indexical-type elements.

Additionally, the relationship between PRO and LD *caki* also challenges the unified indexical approach by Anand and Nevins (2004) for shifted indexicals, logophors, and PRO. Again, under this approach, we would expect for the clausemate PRO and LD reflexive to be coreferent. Contrary to the prediction, however, the clausemate PRO and *caki* in (86) can have different referents. That is, the subject-controlled PRO must refer to *John*, whereas *caki* can refer to the matrix subject *Mary*. Again, we would not predict such a disjoint interpretation if the semantics of PRO and *caki* were identical.\(^{28}\) The data on *caki* and PRO are problematic under the indexical approach even though one may assume that

\(^{27}\)Interestingly, the other reading where *caki* refers to the matrix subject and *na ‘I’* the intermediate subject is impossible. Park (2015) shows that binding of *caki* is impossible once indexical shifting occurs in the lower clause. That is, the context-shift operators cannot intervene between *caki* and its antecedent, if they are separated by more than one clause boundary. On the basis of this observation, the interaction between the shifted indexicals and *caki* can be described and be schematized, as in (i).

(i)  **IS-Blocking Effect** (Park 2015)

If *caki* and its antecedent are separated by more than one clause, a context-shift operator cannot intervene between them.

\[
\x
*[\underbrace{[CP_1 \ A_1...[CP_2 \ A_2^\log B_2...[CP_3 \ OP_{PER/ADV}...caki_j...ind_2...]]]}_{\text{at least 2 clauses}}]
\]

\(^{28}\)The interpretation where PRO and *caki* are coreferential is also available. In this case, however, *caki* can be understood to be bound by the local binder, PRO. The properties of obligatory control PRO and the LD reflexive *caki* in Korean will receive focused discussion in Chapter 5.
these indexical-like elements can refer to an author of any index, because the obligatory coreference of multiple caki’s is then not predicted.

(86) **Disjoint reference of PRO and caki**


promise-pst-decl-comp -thought

‘Mary\textsubscript{i} thought that John\textsubscript{j} promised to visit her\textsubscript{i}/his\textsubscript{j} mother.’

Therefore, the unified indexical account of shifted indexicals, logophos/LD reflexives, and PRO is faced with an empirical challenge from the Korean data seen above. However, it should be noted that there is a possibility that the semantic value of caki may be determined by another parameter other than author or addressee of the context or index parameter: for instance, judge (Stephenson 2007) or perspective-holder (Bylinina et al. 2014), etc. However, it is also not entirely clear how an element that denotes a perspective-center or judge would obligatorily get a de se interpretation in attitude reports.

### 3.6.2 The de se-as-a-special-de re analysis

Another alternative approach that we will examine is to derive the obligatory de se interpretation of de se expressions from a de re construal instead of a dedicated de se LF. I will first present a compositional semantic theory of de re ascriptions proposed by Percus and Sauerland (2003). Then, I will provide an examination of one version of the so-called ‘de se-as-a-special-de re’ analysis of Landau (2015).

Regardless of how the semantics of de re belief reports might be implemented, there is a considerable consensus in the literature that attitude reports with a de re LF yield truth-conditions that can be true whether the attitude in question is a de re attitude or a de se attitude (e.g. Reinhart 1991, Percus and Sauerland 2003, Schlenker 2003, Maier 2011, Anand 2006). To discuss how a de re construal is compatible with a de se attitude report,
let us begin with the famous ‘double-vision’ problem that was first discussed by Quine (1956). The belief statements in (87) can easily be judged contradictory when Ralph holds both beliefs at the same time. Interestingly, however, they can be understood as rational beliefs of Ralph towards Ortcutt in the following situation: Ralph encounters Ortcutt in two difference guises, namely, the man in the brown hat and the man seen at the beach, and he holds a belief of Ortcutt in the first guise that he is a spy, whereas he also thinks of Ortcutt in the second guise not as a spy, without knowing that those two men are actually the same person, Ortcutt.

(87)  
\begin{align*}
&\text{a. Ralph believes that Ortcutt is a spy.} \\
&\text{b. Ralph believes that Ortcutt is not a spy.}
\end{align*}

How can we, then, represent that the two sentences in (87) are not contradictory and Ralph holds consistent \textit{de re} beliefs about Ortcutt? As we briefly discussed in Section 3.5.1, Kaplan (1968) provides a solution to this problem: \textit{de re} beliefs are not merely about an object of belief (\textit{res}), but rather about how a \textit{res} is presented to a believer. In other words, Kaplan argues that truth-conditions of \textit{de re} belief reports contain some special relations between a believer, \textit{res}, and description \textit{\alpha} that a believer presents a \textit{res} to herself. For instance, in the ‘double-vision’ scenario, although the \textit{res} is the same guy Ortcutt, Ralph holds two different relations with Ortcutt that can be represented by two different descriptions: the description \textit{\alpha} ‘the man in the brown hat’ and the description \textit{\beta} ‘the man seen at the beach’. Under these two different descriptions of Ortcutt, Ralphs believes that ‘\textit{\alpha} is a spy’ and ‘\textit{\beta} is not a spy’, which are indeed not inconsistent beliefs. To characterize a relation between an attitude holder, \textit{res}, and description of the \textit{res}, Kaplan introduces a three-place relation ‘\textit{R (\alpha, x, ATT)}’, which denotes ‘\textit{\alpha} represents \textit{x} to the attitude holder’ if and only if (i) \textit{\alpha} denotes \textit{x}, (ii) \textit{\alpha} is a name of \textit{x} for the attitude holder, and (iii) \textit{\alpha} is (sufficiently) vivid. Ralph’s two \textit{de re} belief reports about Ortcutt in the context above, then, can be illustrated as below.
Given the Kaplanian approach to the semantics of *de re*, we can naturally derive the fact that an embedded pronoun that is coreferential with the attitude holder can be interpreted (non-*de se*) *de re* or *de se* without assuming any special mechanism for *de se*. Although the *res* may be the same, namely the attitude holder, the descriptions of the *res* argument for the attitude holder may vary. Consider the following sentence with two different contexts from Reinhart (1991).

S1: Lucy hears herself and says: "I sound too aggressive."

S2: Lucie, a broadcast manager, is looking for the perfect female voice for an ad, and requests to hear some samples of women in natural conversation. Unbeknown to her, the technician records her too, and adds it to the samples as number 17. Lucie does not recognize her recorded voice, and rules out 17 as too aggressive.

a. Lucie\(_1\) believes that she\(_1\) sounds too aggressive. [✓ S1, ✓ S2]

b. ∃α. R(α, Lucy, Lucy) & Believe(Lucy, α sounds too aggressive)

The sentence in (89a) can be used in either scenario, S1 or S2, corresponding to a *de se* and a (non-*de se*) *de re* attitude, respectively. The sentence is predicted to be true in either scenario given the Kaplanian *de re* truth-conditions, shown in (89b). Note that we have two different descriptions of the *res* argument (Lucy) for the attitude holder (Lucy): either "I" or "the person labeled as number 17". Therefore, the *de se* or *de re* attitude can be reported using the same sentence with the same LF given the relevant descriptions, and the *de se* reading is merely a special case of *de re*, where the attitude holder identifies the *res* argument as herself.

Although we would agree that a pronoun can be interpreted *de se* in an attitude
report with a *de re* LF when there is an acquaintance relation of identity (that is, SELF acquaintance relation), it is more controversial whether we can employ the same *de re* construal for attitude reports containing the obligatory *de se* expressions like PRO and the LD reflexive *caki*. In order to force an element to be unambiguously interpreted *de se* with a *de re* LF, acquaintance relations in LFs need to be fixed as the special acquaintance relation of identity. The crucial problem is how we can enforce such a special acquaintance relation when the obligatory *de se* elements are used.

### 3.6.2.1 The concept-generator analysis: Percus and Sauerland (2003)

As we just saw, it has been widely believed since Kaplan (1968) and Lewis (1979) that a *de re* reading of an NP in a propositional attitude sentence is associated with a special acquaintance relation (R) between an attitude holder and an object entity (*a res*). In other words, for a *de re* reading, an attitude holder must be acquainted with a *res* in the actual world under a certain relation R, and the relation R provides the mode of presentation of the *res*, that is, how the attitude holder represents the *res* to herself. For instance, imagine a situation where John is looking at a girl with a big smile in the picture (unbeknownst to John, this girl is actually Mary), and thinks, 'This girl in the picture is happy.' In this situation, the acquaintance relation R is the relation that the attitude holder bears to 'the girl in the picture', namely, Mary. Given that there is a unique relation that John bears to Mary in this situation and that he ascribes the property of ‘being happy’ to her in the actual world, the truth-conditions of the sentence in (90a) can be provided as in (90b).

\[ (90) \]
\[ \text{(a) John thinks that Mary is happy.} \]
\[ \text{(b) } [[(90a)]] = T \text{ iff there is a relation R such that John uniquely bears to Mary in w,} \]
\[ \text{and for all John’s doxastic alternatives } <y, w'>, \]
\[ \text{the entity that y uniquely bears R to in w’ is happy in w’}. \]
Assuming that the truth-conditions of *de re* reports are like those in (90b), there is a problem of how to derive these *de re* truth-conditions compositionally. Lewis (1979) assumes that an entity can exist at exactly one possible world. However, an entity in \( w \) can be related to a different entity at a different possible world as *counterparts*. An entity can be mapped to its counterpart in different possible worlds via a function from entities to individual concepts (that is, functions from possible worlds to entities). Along this line of idea, Percus and Sauerland (2003) assume that *de re* truth-conditions involve existential quantification over functions from entities to acquaintance-based concepts of those entities, which are different from the *de re* truth-conditions seen in (90b), in which existential quantification over acquaintance relations is involved. Under this *de re* theory of Percus and Sauerland (2003), then, the *de re* truth-conditions of (90a) are as following.

\[
[(90a)] = T \text{ in } w \text{ iff there is some way } G \text{ of assigning individuals to acquaintance-based concepts of those individuals for John in } w, \text{ such that} \]

\[
\text{for all John’s doxastic alternatives } <y, w'>, G(Mary)(w') \text{ is happy in } w'
\]

Note that the *de re* truth-conditions in (91) involve quantification over ways of assigning individuals to acquaintance-based concepts, which Percus and Sauerland (2003) dub ‘acquaintance-based concept-generator’. The ‘concept-generator’ and ‘acquaintance-based concept-generator’ are defined as below.

\[
(92) \quad \textbf{The definition of the ‘concept-generator’ (Percus and Sauerland 2003)}
\]

\[
G \text{ is a concept-generator for individual } x \text{ in } w \text{ iff}
\]

i. \( G \) is a function from individuals to individual concepts

ii. \( \text{Dom}(G) = \{z: x \text{ is acquainted with } z \text{ in } w\} \)
The definition of the ‘acquaintance-based concept-generator’ (Percus and Sauerland 2003)

G is an acquaintance-based concept-generator for individual x in w iff

i. G is a concept-generator for x in w

ii. the concepts G yields are "acquaintance-based" in the sense that

   For all z in Dom(G), there is some acquaintance relation R such that
   x bears R uniquely to z in w, and
   for all <y,w'> in Dox,x,w, y bears relation R uniquely to G(z)(w') in w'

Percus and Sauerland (2003) propose that concept-generators appear in LFs as variables inside a resP that also contains a res argument and a world variable, and there are also abstractors over concept generator variables in the syntax. Then, the complements of attitude verbs denote functions from concept-generators to propositions, and attitude verbs denote relations between individuals and functions from concept-generators to propositions. Given the definitions shown in (92) and (93), as well as their syntactic assumptions, the LF and truth-conditions of (90a) are as follows.

(94) [[think]] = λΠ<e,se>,<s,t>. λx.λw. there is some acquaintance-based concept-generator G for x in w such that,

for all <y,w'> in DOX,x,w, p(G)(w') = 1.

(95) a. [John thinks [λG1 λw' [w' resP G1 Mary w'] is happy ]]

b. [((90a))] = T in w iff there is some acquaintance-based concept-generator G

   for John in w,

   such that ∀<y,w'>∈ Doxjohn,w, G(Mary)(w') is happy in w'

The merit of the concept-generator analysis, besides eliminating the ‘res’-movement, is thoroughly discussed in Charlow and Sharvit (2014).29

---

29They show that de re readings of bound pronouns, e.g. her in (i), can be derived from the concept-
The embedded pronoun in (96a) can be interpreted de se under the concept-generator approach in cases where John, as a res argument, in the actual world is associated with a concept that is based on a ‘self’ acquaintance relation. Assuming John bears a relation of self-representation to himself in the actual world, the truth-conditions in (96b) will only be defined when ∀<y,w’> ∈ Dox-John,w’, y bears R, the relation of self-representation, to G(John)(w’) in w’. Therefore, under this special kind of acquaintance relations with a de re LF, the pronoun is interpreted de se.

(96) a. [John_i thinks [λG_1 λw’ [w’ [resP G_1 he_i w’] is happy ]]

b. [(96a)] = T in w iff there is some acquaintance-based concept-generator G for John in w,
   such that ∀<y,w’> ∈ Dox-John,w’, G(John)(w’) is happy in w’

Given the nature of acquaintance relations that are contextually provided, an embedded pronoun in attitude reports can be interpreted (non-de se) de re or de se. However, the focus of this section is whether these de re LFs can be employed for the obligatory de se expressions.

While Percus and Sauerland (2003) develop the concept-generator analysis for de re ascriptions, they argue for a dedicated de se LF within the Lewis-Chierchia’s property approach for cases in which an element is unambiguously interpreted de se. In particular, they present a case where even the third person pronoun must be associated with a dedicated de se LF. Recall the example in (50), repeated below as (97), from Percus and Sauerland (2003).

(i) John believes that every female student, likes her_i mother.

30 They adopt the scenario and sentence from Schlenker (1999), where he credits them to Ede Zimmermann.
Context: A group of drunken election candidates watching campaign speeches on television do not recognize themselves in the broadcast. John is the first speaker, Bill is the second, Sam is the third, and Perter is the last speaker. John, the only confident one, thinks "I'll win," but does not recognize himself in the broadcast. Bill and Sam, both depressive, think "I'll lose" but are impressed by the speeches that happen to be their own and are sure "that candidate" will win. Peter, also depressive, happens to be impressed not by his own speech but by John’s.

Only John thinks that he will win the election.

The sentence in (97) can be judged true under this particular context. Percus and Sauerland argue that the sentence can be true only under a dedicated de se construal like in (98a), but not under a de re construal in (98b).

(98)  
(a) [Only John]₁ λ₁ t₁ thinks [λx₂. λw’. he₂ will win the election]  
(b) [Only John]₁ λ₁ t₁ thinks [λG₂. λw’. [G₂ he₁/he₃]-w’ will win the election]

The sentence in (97) is true under the LF in (98a) because it is only John among the candidates who self-attributes the property of winning, confirmed by his utterance I will win. On the other hand, the sentence is predicted to be false under the de re LF in (98b) no matter the third person pronoun is used as a bound variable or a free variable that is mapped to John. First, when the pronoun he gets a bound-variable reading, the property (VP denotation) shown in (99) should only be true of John in order for the sentence to be true. However, because it is not only John but also Bill and Sam who bear an acquaintance relation R to themselves (e.g. ‘the second speaker’ and ‘the third speaker’), respectively, and they think the individual they bear R to will win the election, the sentence turns out to be false under (98b).
(99)  \([(\text{think that he will win the election}]) = \lambda x.\lambda w. \text{there is some acquaintance-based concept-generator } G \text{ for } x \text{ in } w \text{ such that,}

  \text{for all } <y,w'> \text{ in } \text{DOX}_{x,w}, G(x)(w') \text{ wins the election in } w'\).}

Second, the sentence is false with the \textit{de re} LF even under the reading where \textit{he} specifically refers to John. Given the VP denotation shown in (100), the sentence can be true when only John, and no one else, bears an acquaintance relation \(R\) to John in \(w\). This is not the case because there is another individual in the context in addition to John who bears an acquaintance relation \(R\) to John, namely, Peter, and thinks the person he bears \(R\) to will win the election.

(100) \([(\text{think that he will win the election}]) = \lambda x.\lambda w. \text{there is some acquaintance-based concept-generator } G \text{ for } x \text{ in } w \text{ such that,}

  \text{for all } <y,w'> \text{ in } \text{DOX}_{x,w}, G(\text{John})(w') \text{ wins the election in } w'\).

Given these arguments, Percus and Sauerland (2003) argue for a dedicated \textit{de se} LF that is distinct from a \textit{de re} LF. However, as Anand (2006) points out, the context and sentence above may merely indicate that there are cases in which acquaintance relations in a \textit{de re} LF are restricted to a special kind, i.e. acquaintance relations of identity. If we can restrict the type of acquaintance relations to the identity relation or posit a special concept-generator that ultimately yields a special entity, e.g. a \textit{de se} counterpart of the attitude holder, we will be able to derive an obligatory \textit{de se} interpretation from a \textit{de re} LF. The problem is how we can do that.

3.6.2.2 Landau (2015): \textit{De se-as-a-special-de re}

Based upon the concept-gerator analysis for \textit{de re} by Percus and Sauerland (2003), Landau (2015) attempts to derive the obligatory \textit{de se} interpretation of \textit{PRO} from a \textit{de re} LF. Under his analysis, the source of the special SELF concept comes from the syntactic structure of
certain control constructions, i.e. the OC complementizer. In this section, we will examine a version of the ‘de se-as-a-special-de re’ analysis proposed by Landau (2015) and discuss whether this account can be employed for the LD reflexive caki.31

Focusing on the facts that obligatory control constructions can be distinguished into two types by the existence/absence of attitude complements - predicative control and logophoric control - and that de se readings of PRO are only relevant in logophoric control (Mary began to paint the wall. vs. John intends to visit Athens.), Landau (2015) proposes a two-tiered theory of control. That is, on top of the predicative control complements (FinP), there is a second-tier in the structure that forms logophoric control with attitude complements. Under his analysis, then, attitude complements are syntactically more complex than non-attitude complements, e.g. an additional CP layer headed by the OC complementizer.

In the two-tiered theory of control put forth in Landau (2015), the OC complementizer that exists only in attitude complements play a crucial role in deriving the obligatory de se interpretation of PRO in attitude complements. Within the theory of concept-generators by Percus and Sauerland (2003), Landau introduces a special concept-generator for de se, GSELF, which is a constant function that maps an individual to an AUTHOR function. Consider the definition of the ‘self concept-generator’ below.

(101) Self concept-generator: $G_{\text{SELF}} = \text{def}_{G}: \forall y \in \text{Dom}(G), G(y) = \text{AUTHOR}.$

For any individual $z$: $[[G_{\text{SELF}}]]^{g,i}(z) = \lambda i'. \text{AUTHOR}(i')$ (Landau 2015)

Self concept-generators are functions from entities to individual concepts, which are functions from indices (AUTHOR, ADDR, WORLD, TIME, etc.) to entities, and the domains of the self concept-generator $G_{\text{SELF}}$ are singletons, AUTHOR. In other words, $G_{\text{SELF}}$ takes an individual (an AUTHOR) as its argument, and returns a special individual concept – a function

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31 See Maier (2009, 2011) for another version of the ‘de se-as-a-special-de re’ analysis within a dynamic framework.
mapping a possible index \( i \) to an individual who is the author of the index \( i \). Therefore, when an entity is associated with this self concept-generator, it gets an unambiguous \textit{de se} reading.\(^{32}\)

The next step, then, is to identify how OC PRO is only associated with \( G_{\text{SELF}} \)(or \( G_{\text{THOU}} \)) instead of regular acquaintance-based concept-generators. Landau assumes that PRO is a minimal pronoun (Kratzer 2009), and it turns a predicative control complement into a property type by undergoing movement from Spec of TP to Spec of FinP and creating a lambda abstraction. These property-type predicative complements are selected by non-attitude verbs, and the property that is created by the movement of PRO is directly predicated of the matrix controller. Note that a \textit{de se} interpretation of PRO must be derived only when there is an additional tier, CP, above FinP for logophoric complements that are selected by attitude verbs under the two-tiered theory of control. Given that, Landau attributes the primary role in deriving \textit{de se} interpretations of PRO to the head of CP in logophoric complements, the OC complementizer (\( C^\text{OC} \)).

The special roles of \( C^\text{OC} \) are that (i) it projects an individual variable that corresponds to either author or addressee coordinate as a specifier, and (ii) it introduces a presupposition that the concept-generator that is attached to this variable should be \( G_{\text{SELF}} \)(or \( G_{\text{THOU}} \)). Landau’s core idea is that the obligatory \textit{de se} interpretation of PRO is the result of a \textit{de re} LF with a specially enforced self-identification relation (SELF concept) between the attitude holder and himself.

A question that immediately arises is whether we can extend this line of analysis to other \textit{de se} elements, especially the LD reflexive \textit{caki}, which can freely appear in non-control constructions contrary to PRO. There are at least two different ways to consider to examine Landau’s approach based on our Korean data: First, one may assume that LD

\(^{32}\)Landau also introduces another special concept-generator for \textit{de te} readings of PRO.

\((i) \) \( G_{\text{THOU}} =_{\text{def}} G: \forall y \in \text{Dom}(G), G(y) = \text{addressee}. \)
\( \text{For any individual } z: \left[ [G_{\text{THOU}}]^{\delta'}(z) = \lambda i'. \text{addressee}(i') \right] \) (Landau 2015)
*caki* is a different kind of *de se* element that is not subject to the ‘*de se-as-a-special-de re*’ route. Second, one may argue that the obligatory *de se* interpretation of LD *caki* is also derivable from a *de re* LF with a specifically determined acquaintance relation. In order to pursue the latter view, Landau’s version of the ‘*de se-as-a-special-de re*’ analysis must be adequately modified to account for other *de se* elements, because the current version only targets PRO, which appears in subject position of OC complements, and takes the special structure of OC complements (C_{oct}) as the ultimate source of the *de se* interpretation of PRO. As we saw, the Korean LD reflexive *caki* occurs in both subject and object position in any complements of attitude verbs, and a multiple occurrence of *caki* is available in the same clause. Therefore, a significant change in Landau’s analysis is unavoidable to expand this account to other *de se* elements. Under the former view, we may maintain our property approach for *caki*, while PRO is subject to a different *de se* mechanism. This option, however, is not only uneconomical but also not straightforward to explain the interaction between PRO and *caki*, as well as the fact that *caki* and pronouns can also be used as an overt OC subject in Korean. We will discuss this matter in detail in Chapter 4 and propose a unified account for both PRO and *caki*, based on our proposed account.

### 3.7 An extension: *Caki* in other attitude environments

In this final section of this chapter, I would like to briefly address the cases in which *caki* appears in attitude environments without explicit attitude verbs. In the previous subsection, we have examined the properties of LD *caki* occurring in the complements of attitude verbs. We have observed the close relationship between the attitude predicates and obligatory *de se* interpretation of *caki*. The presence of an attitude verb in a sentence forces LD *caki* to be interpreted *de se*, no matter in which environment it occurs. In other words, *caki* can be used under attitude predicates only when its antecedent, the one whose speech or thought is represented in a sentence (source or self under Sells (1987)’s notions), can identify herself in a first-person way in her speech or thought (using the first person pro-
noun). In this section, we will discuss other environments that involve attitudes other than with overt attitude verbs and show that LD caki must be interpreted de se in those attitude environments as well.

### 3.7.1 Attitudes without attitude verbs

An attitude can be reported not only with attitude verbs but with adjunct forms such as ‘according to A’ or ‘in A’s thought’, etc. Interestingly, caki still must be interpreted de se when attitudes are not explicitly expressed by a predicate (as zibun in Japanese; Bylinina et al. 2014). In (102), the main clause describes the attitude of John towards Mary that is introduced not by a predicate but by an adjunct clause. Similar to the case where caki is embedded in the complement clause of an attitude verb, caki occurring in the main clause that refers to the attitude holder in the adjunct clause has to be interpreted de se.

(102) S1: John thinks, ‘Mary hates me.’

S2: John thinks, ‘Mary hates this guy in the photo.’ Unbeknownst to John, the guy in the photo is John himself.

John-uy sayngkakey, Mary-ka caki-lul silhehanta.
John-GEN thought Mary-NOM self-ACC hate

Lit. ‘In John’s thought, Mary hates self_i.’ [✓ S1, #S2]

In the example in (103), the adjunct -ey ttalumyen ‘according to’ and the Korean reportative evidential -tay indicate that the sentence is reporting John’s speech act. In this case as well, John’s speech must contain the content of the main clause using the first person pronoun in order to use LD caki, as in S1.
S1: John said: "Mary is funnier than me."
S2: John said: "Mary is funnier than that guy in the video." Unbeknownst to John, the guy in the video is John himself.

John-ey.ttalumyen, Mary-ka caki-pota wuski-tay. John-according.to, Mary-NOM self-than funny-RPT
Lit. 'According to John, Mary is funnier than him (I heard).' [✓ S1, #S2]

LD caki can be further embedded in the attitude construction like above, and it can take any attitude holder as its long-distance antecedent as in the multiple embedding cases we saw before. Moreover, LD caki is subject to the de se restriction regardless of its antecedent in this construction. Thus, in (104), it must be the case that either John said, 'Tom thinks that Mary is funnier than me.' or Tom thinks, 'Mary is funnier than me.'

(104) John-ey.ttalumyen, Tom-j-i [Mary-ka caki-j/-j-pota wuski-tay]
John-according.to, Tom-NOM Mary-NOM self-than funny-comp
sayngkakhan-tay. think-RPT
Lit. 'According to John, Tom thinks that Mary is funnier than him (I heard).'</n
The examples in (102)–(104) show that LD caki requires a de se interpretation under attitude environments, although it is not explicitly expressed by an attitude verb. I assume that these adjunct clauses introduce covert attitude operators whose semantics are identical to those of attitude verbs like 'think' and 'say'.

3.7.2 Backward binding

In this subsection, I will introduce another environment in which caki gets an obligatory de se interpretation. In a number of languages, such as in Icelandic, Italian, Tamil, Japanese, Chinese, etc., anaphors in the subject phrase can co-refer with an object NP, a phenomenon called "backward binding", (Kuno 1972b, Sells 1987, Maling 1990, Huang and Liu 2001, Giorgi 2006, Sundaresan 2012, among many others). It has been noted that
backward binding is possible mostly with psych-verbs or causatives in these languages.

Sells (1987) argues that backward binding with psych verbs is the case where a logophor (e.g., *zibun* in Japanese) finds an individual "whose mental state or attitude the content of the proposition describes" (i.e. *self*) as its antecedent (Sells 1987, p.457). Under his analysis, a psych verb specifies its experiencer object NP as a *self*, and an NP that bears the *self* role must be aware of the propositional content that contains the logophor, since "the *self* represents the one whose "mind" is being reported" (Sells 1987, p.455).

(105) [Yosiko-ga zibun₁-o nikundeiru koto]-ga Mitiko₁-o zetuboo e oiyatta. Yosiko-nom zibun-acc be-hating C-nom Mitiko-acc desperation to drove 'That Yosiko hated her₁ drove Mitiko₁ to desperation.' (Sells 1987, p.453)

Backward Binding is also available for *caki* with psych-verbs or causatives. While backward binding of *caki* in the subject NP by the object (i.e., Mary) is possible in (106), *caki* in the object position cannot be bound by an element in the subject NP, as shown in (107). When *caki* occurs in a subject clause and co-refers with an experiencer object, it must be interpreted de se (Lee 2001). For instance, Mary in (106) must be able to identify the propositional content of the news that disappointed her by using the first person pronoun, e.g., "My daughter didn’t get the award."

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33 In some languages, local backward binding is possible with psych-verbs, as shown in (i). By contrast, *caki* in the subject position cannot be coreferential with a local experiencer in the object (ii).

(i) a. La propria moglie preoccupa molto Gianni. Self’s wife worries Gianni a lot.

b. *La propria moglie ha ucciso Gianni. Self’s wife murdered Gianni.

(Giorgi 2006)

(ii) *Caki₁-uy atul-i Mary₁-lul kekcensikhyessta self-gen son-nom Mary-acc worried Intended: ‘Self₁’s son worried Mary₁.’

34 Han and Storoshenko (2012) argue that *caki* in Korean is a bound variable. According to them, *caki* cannot be bound by an element in a subject clause because the subject clause is an island that blocks QR.
There are certain restrictions in order for LD *caki* in subject position to take an object NP as its antecedent. Firstly, backward binding seems to be sensitive to the types of predicates. As shown below, LD *caki* in the subject clause cannot refer to the agent NP in the passive construction, even though the surface positions of LD *caki* and a possible antecedent NP look similar to those in (106).

(107) *[[Mary]_{i} -uy ai-ka sang-ul patci mosha-ss-ta-nun sosik]-i caki_{i},-lul Mary-gen child-nom award-acc get not-pst-decl-nom news-nom Mary-acc silmangskihyessta. disappointed.*

Intended: ‘The news that Mary’s child didn’t get the award disappointed self_{i}.’

Secondly, even though local backward binding is usually unavailable in Korean, as shown in fn.33, *caki* can occur in a subject NP without a clausal complement and co-refer with an object NP in some cases.

(108) *[[Inho-ka caki_{i},-lul moyokhaess-ta-nun sasil]-i Yumi_{i}-eyuyhay Inho-nom self-acc insulted-decl-nm fact-nom Yumi-by phoklotoeessta. disclosed.*

Intended: ‘The fact that Inho insulted her was disclosed by Yumi_{i}.’ (Lee 2001)

(109) *Caki_{i},-uy-kwake-ka Mary_{i}-lul koylophyessta. Caki-gen-past-nom Mary-acc bothered*  

Lit. ‘Self’s past bothered Mary.’ (Lee 2001)

(110) *Caki_{i},-ey kwanhan somwun-i Mary_{i}-lul koylophyessta. Caki about rumor-nom Mary-acc bother*  

Lit. ‘The rumor about self bothered Mary.’
Thirdly, not every backward binding case of caki requires a *de se* interpretation. For instance, while some non-psych predicates also allow backward binding, caki is not always subject to the *de se* restriction because backward binding sentences do not necessarily contain attitudes. Therefore, the sentences in (111) with non-psych matrix verbs are still felicitous when Mary is not aware that the sound that awoke her is from her own child’s piano sound.

(111) \[\textit{Caki}_1-\textit{uy ai-ka } \textit{piano chi-nun soli}-\textit{ka } \textit{Mary}_1-lul \textit{kkaywessta}.\]
Caki-gen child-nom piano play-nm sound-nom Mary-acc awoke
Lit. ‘The sound of self$_1$’s child playing piano awoke Mary$_1$. ’

Lastly, the type of subject phrases determines whether caki must receive a *de se* interpretation. To illustrate this, consider the contrast between (112) and (113). While the matrix predicate is identical and caki can take the object NP as its antecedent in both sentences, only the one in (113) is subject to the *de se* requirement.

(112) S1: Mary heard some nice sound and said: “What is this sound? This sound makes me feel good.”
S2: Mary’s son, Bill, played piano for her, and Mary said: “Bill’s piano sound makes me feel good.”

\[\textit{Caki}_1-\textit{uy ai-ka } \textit{piano chi-nun soli}-\textit{ka } \textit{Mary}_1-lul \textit{kipwun}\]
Caki-gen child-nom piano play-nm sound-nom Mary-acc mood
cohkey hayssta.
good-caus
Lit. ‘The sound of self$_1$’s child playing piano made Mary$_1$ feel good.’ [✓S1, ✓S2]

(113) S1: Mary said: “I feel so good today because I heard that my child got the award.”
S2: Mary, who was a judge of a writing contest, said: “I feel so good today because I heard that the one I gave a high score got the award.” Unbeknownst to Mary, the one who she gave a high score and got the award was her own child.
\[Caki_{1}-uy\ a\-i\-ka\ sang\-ul\ patass\-ta\-nun\ sosik\]-i\ Mary_{1}\-lul\n\]
\[Caki\-gen\ child\-nom\ award\-acc\ received\-decl\-nm\ news\-nom\ Mary\-acc\n\]
\[kipwun\ cohkey\ hayssta.\n\]
\[mood\ good\-caus\n\]

Lit. ‘The news that self\_1’s child got the award made Mary\_1 feel good.’ [✓ S1, # S2]

Note that the subject phrase in (112) describes the sound and the sentence expresses Mary’s perception of sound. In other words, the subject phrase in (112) does not contain any propositional content. On the other hand, in (113), the subject phrase contains the propositional content, ‘Mary’s child got the award.’ The entire sentence also expresses Mary’s emotive attitude toward the content of the news. Therefore, with the existence of attitudes in the sentence, caki in the subject clause must be interpreted de se.

Given the data seen above, only the subset of backward binding cases requires a de se interpretation for LD caki. Specifically, we have seen that caki receives an unambiguous de se reading when the subject phrase in which caki appears contains a propositional content and the entire sentence (either explicitly or implicitly) expresses an attitude of the antecedent of caki.

3.7.3 Summary

In summary, we have observed that LD caki must be interpreted de se within attitude environments, although attitudes may be expressed by an adjunct instead of verbs. Moreover, caki in backward binding cases receives an obligatory de se interpretation when a sentence expresses an attitude of the antecedent of caki. For these constructions, I tentatively assume that there is a covert attitude operator whose semantics resembles that of attitude verbs, but I leave for future work the thorough investigation of these constructions.
3.8 Conclusion

In this chapter, we have developed a binding theory of the LD reflexive *caki* in Korean that can account for the following properties of *caki*:

(114) **Key properties of LD caki under attitude verbs**

a. LD *caki* can find an antecedent from any embedding clause.

b. A long-distance antecedent of *caki* must be understood as an attitude holder.

c. Multiple clausemate *caki*’s need to find the same long-distance antecedent.

d. LD *caki* behaves like a bound anaphor, given that it only allows a sloppy reading under ellipsis.

e. LD *caki* under attitude verbs must be interpreted *de se* with respect to the referent of *caki*.

Our analysis is largely based on the Lewis-Chierchia’s property approach to *de se* ascriptions. That is, *caki* in the complement of an attitude verb is a variable that must be bound by an individual abstractor, which turns the complement clause into a property type. On the basis of our semantics of attitude verbs and the definition of doxastic alternatives as individual-world pairs, *caki*, then, is interpreted as a doxastic counterpart of an attitude holder, who she thinks as herself in every possible world. This is how we can derive the properties shown in (114b), (114d), and (114e).

While the pure property approach can explain some of the core properties of LD *caki*, it is still not sufficient to account for the remaining properties like (114a) and (114c). In order to capture these facts, we have added additional constraints to *caki* binding. That is, *caki* cannot be freely bound by any individual abstractor, but must be bound by a particular abstractor that satisfies two conditions: the feature-match and locality condition. In other words, *caki*, a variable that bears the feature [log], needs to be bound by a closest binder that bears the [log] feature. The existence/absence of the feature on a binder as
well as the distance of a binder determine one suitable binder for *caki* in cases where there is more than one possible binder under multiple embeddings.

Although our proposed account for LD *caki* accommodates all the properties of LD *caki* presented in (114), it should be noted that our focus has been confined to LD *caki* in attitude environments only. In fact, in Chapter 6, we will see that *caki* can appear in non-attitude environments and find a long-distance antecedent. Accordingly, I will propose a new logophoric binding system for LD *caki* in both attitude and non-attitude environments in Chapter 6, while still maintaining the property approach for the dedicated *de se* construal.
CHAPTER 4

INTERACTIONS BETWEEN DE SE ELEMENTS IN
CONTROL CONSTRUCTIONS

4.1 Introduction

The preceding chapter has provided an in-depth discussion of the obligatory de se interpretation of the LD reflexive caki in complements of attitude verbs, from both empirical and theoretical perspectives. In this chapter, I will expand our discussion of the semantics of de se attitude reports by focusing on another type of obligatory de se expression in Korean, namely, obligatory control (OC) subjects.

Despite significant advances in the literature on the obligatory de se expressions in attitude reports, far less attention has been paid to the interactions between more than one de se element in a language. Given that different semantic mechanisms have been proposed for the de se expressions like PRO, logophors, and LD reflexives, respectively, there are two possibilities when one language has multiple de se elements: first, more than one mechanism may be employed for different kinds of de se elements, or, alternatively, there could be one and the same route to de se ascriptions with these seemingly different de se elements. I will argue for the latter view for the two types of de se elements in Korean, controlled subjects and the LD reflexive caki, based on novel empirical evidence.

While the null subject in Korean OC constructions receives an obligatory de se in-
interpretation as in English, overt OC subjects are also unambiguously interpreted de se in Korean. While maintaining the dedicated de se construal for LD caki that we developed in the previous chapter, I will extend the same construal to controlled subjects (e.g. PRO, controlled pronouns and controlled anaphors), and will show that we do not need separate mechanisms for OC subjects and LD caki. In addition, I will argue propose that additional structural conditions of OC constructions and lexical properties of caki can derive a complete set of properties of OC subjects, LD caki, and their interactions.

Section 4.2 will introduce basic properties of OC constructions in Korean, focusing on attitudinal OC constructions (logophoric control). Section 4.3 presents the properties of overt OC subjects (pronouns and the reflexive caki) in comparison with the null subject PRO and their non-controlled uses. Section 4.4 then provides novel data on how OC subjects (PRO and controlled pronouns on the one hand, and the controlled caki on the other) interact with non-controlled LD caki within the same clause. Section 4.5 proposes a unified analysis of the two types of de se elements (controlled subjects and LD caki) under the property approach.

4.2 Basic properties of obligatory control constructions in Korean

In this section, I begin by introducing some basic properties of control constructions in Korean. Then, in Section 4.2.2, we limit our attention to a specific type of obligatory control complements that are embedded under attitude verbs.

4.2.1 Obligatory control

It has been proposed that control environments in Korean can be formed by a combination of certain embedding predicates and mood markers in the embedded clause or some special complementizers (Yang 1985, Borer 1989, Madigan 2008, Lee 2009, etc.). Let us first consider how mood or modal markers play a role in control constructions in Korean, as illustrated in (1).
(1)  

a. **Subject Control with a volitional modal marker -keyss**

Tom$_i$-i Bill$_j$-eykey [PRO$_{i/s}$ Mary-lul manna-keyss-ta-ko]  
Tom-NOM Bill-DAT PRO Mary-ACC meet-vol-decl-comp  
yaksokha-ess-ta.  

promised  

‘Tom$_i$ promised Bill$_j$ PRO$_{i/s}$ to meet Mary.’

b. **Object Control with an imperative mood marker -la**

Tom$_i$-i Bill$_j$-eykey [PRO$_{s/i}$ Mary-lul manna-la-ko]  
Tom-NOM Bill-DAT PRO Mary-ACC meet-imp-comp  
myenglyenghay-ss-ta.  

order  

‘Tom$_i$ ordered Bill$_j$ PRO$_{s/i}$ to meet Mary.’

c. **Split Control with a hortative mood marker -ca**

Tom$_i$-i Bill$_j$-eykey [PRO$_{s/i}$ Mary-lul manna-ca-ko]  
Tom-NOM Bill-DAT PRO Mary-ACC meet-hor-comp  
ceyanhay-ss-ta.  

propose  

‘Tom$_i$ proposed Bill$_j$ PRO$_{s/i}$ to meet Mary.’

In (1a), an obligatory subject control construction is created by the combination of the embedding predicate *yaksokhata* ‘promise’ and a volitional modal -keyss.\(^1\) Thus, PRO in (1a) can only refer to the matrix subject. On the other hand, the sentence in (1b) with the embedding verb *myenglyenghata* ‘order’ and an imperative mood marker -la is an instance of an obligatory object control construction in which PRO is controlled by the matrix object. Moreover, a hortative mood marker -ca and the matrix verb *ceanhata* ‘propose’ in (1c) form a split control environment, where PRO must be jointly controlled by both arguments in the matrix clause, Tom and Bill. The data presented above show that the mood/modal markers play a crucial role in determining the interpretation of PRO in Korean. It should also be noted that these control complements are headed by a complementizer -ko and embedded under control verbs that are also attitude predicates.

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\(^1\)-keyss can also denote a speaker’s inference in evidential sentences (Chung 2005, 2007).
Before we explore our main question of interest—the semantics of *de se* attitude reports with control constructions—we need to make sure that the constructions shown above are indeed obligatory control constructions in Korean. There is a widespread consensus in the literature that obligatory control (henceforth, OC) exhibit certain properties shown in (2) (e.g., Hornstein 1999, Landau 1999). We can confirm that the constructions in (1) are indeed obligatory control constructions in Korean using these properties (Madigan 2008, Lee 2009).

(2) **The properties of Obligatory Control (OC)**

a. Arbitrary control is impossible.

b. Long-distance control is impossible.

c. Strict reading of PRO is impossible.

d. *(Non-*de se*) *de re* reading of PRO is impossible (only *de se*).

Firstly, arbitrary control is impossible in the examples in (1). That is, the null subject in the embedded clause must refer to the matrix subject in (1a), the matrix object in (1b), and both of the matrix arguments in (1c). Any other coreference readings are not available. Secondly, when the sentences in (1) are embedded under another attitude verb, the null subject in the control clause must be controlled by a local controller, an argument in the immediately embedding clause, as illustrated below.

(3) **No long-distance control**

a. John-un [Tom]-i Bill-eykey [PRO*-i/*k Mary-lul manna-keyss-ta-ko]
John-nom Tom-dat PRO Mary-acc meet-vol-decl-comp
promise-pst-decl-comp believe
‘John, believes that Tom promised Bill [PRO*-i/*k to meet Mary].’

(Yang 1985, p.390-91)
b. John
\(\text{un} [\text{Tom}_{j-i} \text{ Bill}_{k-\text{eykey}} [\text{PRO}_{i+j/k} \text{ Mary-lul manna-la-ko}]
\text{John-top Tom-NOM Bill-DAT PRO Mary-ACC meet-IMP-COMP}
\text{myenglyenghay-ss-ta-ko] mitnunta.}
\text{order-PST-DECL-COMP believe}
\text{‘John, believes that Tom, ordered Bill, [PRO}_{i+j/k} to meet Mary].’}

c. John
\(\text{un} [\text{Tom}_{j-i} \text{ Bill}_{k-\text{eykey}} [\text{PRO}_{i+j/k/i+j} \text{ Mary-lul manna-ca-ko}]
\text{John-top Tom-NOM Bill-DAT PRO Mary-ACC meet-HOR-COMP}
\text{ceyanhay-ss-ta-ko] mitnunta.}
\text{propose-PST-DECL-COMP believe}
\text{‘John, believes that Tom, proposed Bill, [PRO}_{i+j/k/j+k} to meet Mary].’}

The matrix subjects of the sentences in (3) cannot be a legitimate controller of PRO in the most embedded clause, due to the locality restriction on obligatory control.

Thirdly, the null subjects in these constructions only allow a sloppy reading under VP ellipsis, as shown in (4).

\textbf{(4) Only sloppy reading under ellipsis}

\text{Tom}_{i-i} \text{ Bill}_{j-\text{eykey}} [\text{PRO}_{i+j} \text{ Mary-lul manna-keyss-ta-ko} \text{ yaksokha-ess-ta}.]
\text{Tom-NOM Bill-DAT PRO Mary-ACC meet-VOL-DECL-COMP promised}
\text{John-to kuli-hay-ss-ta.}
\text{John-also so-do-PST-DECL}

‘Tom promised Bill to meet Mary. John did too.’

a. \(\times\) Strict reading: John, promised Bill that Tom would meet Mary.

b. \(\checkmark\) Sloppy reading: John, promised Bill that he, would meet Mary.

Lastly, the null subjects in (1) only get a \textit{de se (/de te/ de se+de te) reading}. For instance, the sentence in (1a) is felicitous only when Tom promised Bill: "I will meet Mary." Similarly, in the object control construction in (1b), Tom must identify Bill as his addressee and say something like, ‘You should meet Mary.’ In the split control case as in (1c), the matrix subject Tom must identify himself and his addressee as the ones who would meet Mary, and say: "Let us (you and me) meet Mary."

In summary, we have focused on the control constructions in Korean in which con-
control complements are headed by the complementizer -ko and contain a volitional modal, an imperative mood marker, or an exhortative mood marker. We have seen that the null subject in these constructions exhibits the well-known properties of obligatory control. We also saw that the type of mood/modal marker determines the interpretation of PRO: subject control with the volitional modal -keyss, object control with the imperative mood -la, and split control with the exhortative mood -ca. The null subject PRO in an obligatory control complement and LD caki have both similarities and differences: both of them must be interpreted de se and only allow a sloppy reading under ellipsis, while only PRO requires a local and obligatory control.

4.2.2 Logophoric control

Landau (2015) distinguishes obligatory control into two subtypes: Predicative control and Logophoric control. According to him, the crucial difference between the two types of obligatory control is the existence/absence of attitude complements. That is, predicative control environments are constructed with verbs that take non-attitude complements, such as implicative (e.g., avoid, fail, force, manage, etc.), aspectual (e.g., begin, continue, finish, start, etc.), modal (e.g., have, may, must, etc.), and evaluative (e.g., crazy, kind, rude, etc.) predicates. On the other hand, logophoric control applies in attitude complements that are selected by attitude predicates.

(5) Predicative Control

a. Mary began to paint the wall.
b. Mary is able to paint the wall.
c. Mary saw fit to paint the wall.
d. It was smart of Mary to paint the wall. (Landau 2015, p.24)
Logophoric Control

a. Mary claimed to have found the solution.
b. Mary was shocked to find the solution.
c. Mary intended to find the solution.
d. Mary asked how to find the solution. (Landau 2015, p.30)

Landau’s distinction between predicative and logophoric control in terms of the type of complements (non-attitude vs. attitude) is closely related to the fact that obligatory de se interpretations of PRO only arise in logophoric control. In other words, the de se interpretation of PRO is irrelevant in predicative control, where there is no attitude environment.

Landau also presents empirical contrasts between the two types of obligatory control. He examines phenomena of implicit control, control shift, partial control, and split control, and argues that these phenomena are available only in logophoric control. Consider the following examples of partial and split control from Landau (2015).

Partial Control

a. James agreed PRO to meet thanks to our pressures. logophoric
b. *James condescended PRO to meet thanks to our pressures. predicative

Split Control

a. John proposed to Mary [PRO to meet each other at 6]. logophoric
b. John asked Mary [whether PRO to get themselves a new car]. logophoric

2 By contrast, he shows that inflected complements and [-human] PRO are only possible in predicate control.
Given this distinction, the obligatory control constructions in Korean that we saw in the previous section can be distinguished as logophoric control. We already saw that the control complements with a mood or modal marker are selected by attitude predicates in Korean. In other words, non-attitude verbs (e.g. implicative, aspectual, modal, evaluative) cannot take a complement headed by the complementizer -ko that contains a particular mood or modal marker. Moreover, it has been observed that these structures allow partial and split control in Korean (e.g., Madigan 2008, Lee 2009). As shown below, control complements that contain the volitional modal -keyss or imperative mood marker -la allow partial control, while split control can be created in control complements with the exhortative mood marker -ca.

(9) **Partial Control in Korean**

a. Tom-i, Bill-j-ekey [PROj-+ tosekwon-eyse moi-keyss-ta]-ko  
Tom-NOM Bill-DAT PRO library-LOC gather-VOL-DECL-COMP  
yaksokhay-ss-ta.  
promise-PST-DECL  
‘Tom promised Bill to gather in the library.’

b. Tom-i, Bill-j-ekey [PROj-+ tosekwon-eyse moi-la]-ko  
Tom-NOM Bill-DAT PRO library-LOC gather-IMP-COMP  
myenglyenghay-ss-ta.  
promise-PST-DECL  
‘Tom ordered Bill to gather in the library.’

The collective verb moita ‘gather’ in Korean requires a plural subject, as in English. Given this, PRO in the subject control construction in (9a) must be understood as plural that includes the matrix subject, whereas object-controlled PRO in (9b) must refer to a group that contains the matrix object.
(10) Split Control in Korean

Tom-

i


tom-

i

\text{propose-pst-decl}

\text{cemanhay-ss-ta.}

Tom-i, Bill-j-eykey [\text{PRO} t+j tosekwan-eyse manna-ca]-ko

Tom-nom Bill-dat \text{PRO} library-loc meet-exh-comp

cyanhay-ss-ta.

‘Tom proposed Bill to meet in the library.’

As we saw before, the control complements with the exhortative mood -\text{ca} are only associated with split control. Thus, \text{PRO} in (10) must be controlled by both the matrix subject and object arguments.

Based upon Landau’s (2015) distinction between \textit{predicative} and \textit{logophoric} control among obligatory control, we have shown that the relevant Korean OC constructions we saw in the previous section—complements that contain certain modal/mood markers and are headed by the complementizer -\text{ko}—are logophoric control cases where there are attitude environments. Therefore, \text{PRO} in these constructions always need to be interpreted \textit{de se (de te/de se+de te)} in Korean. Throughout the remainder of this chapter, we will focus our attention on \textit{logophoric} control that contains attitude complements.

4.3 Overt controlled subjects in Korean

4.3.1 Pronouns and \textit{caki} as controlled subjects

It has been argued that Korean is a language where lexical subjects, such as pronouns or anaphors, can appear in OC constructions (Yang 1985, Madigan 2008, Lee 2009, Park 2011, a.o.).\textsuperscript{3} For instance, in the subject control sentence we saw in (1a), repeated below as (11),

3Madigan (2008) argues that the third person pronoun cannot be controlled, while the first/second pronoun and the reflexive \textit{caki} can be. However, it has been widely reported in the literature that even the third person pronoun can replace \textit{PRO} in Korean (Yang 1985, Lee 2009, Park 2011, etc.). Judgments from my consultants and myself as a native speaker support the latter view that overt third person pronouns can be controlled in Korean, while they may sound less natural than anaphors.

4A number of other languages also allow overt subjects in OC constructions: see, among many others, Szabolcsi (2009a,b) for Hungarian; Raposo (1987) for Portuguese; etc.
the third person pronoun or the LD reflexive \textit{caki} can replace PRO.\textsuperscript{56}

(11) \textbf{Overt subject in subject control}

S1: Tom promised Bill: "I will meet Mary."

S2: Tom promised Bill: "I'll make sure that that guy in this picture meets Mary."

(Unbeknownst to Tom, the guy in the photo is Tom himself.)

\begin{verbatim}
Tom\textsubscript{j}-i Bill\textsubscript{k}-eykey [PRO\textsubscript{x\i/j/sk}/ku\textsubscript{x\i/j/sk}-ka/caki\textsubscript{x\i/j/sk}-ka Mary-lul
Tom-NOM Bill-DAT PRO/he-NOM/self-NOM Mary-ACC
meet-VOL-DECL-COMP promise-PST-DECL

Lit. 'Tom\textsubscript{j} promised Bill\textsubscript{k} [PRO\textsubscript{j}/he\textsubscript{j}/self\textsubscript{j} to meet Mary].' [✓ S1, # S2]
\end{verbatim}

In (11), the third person pronoun \textit{ku} and the reflexive \textit{caki} behave as OC PRO in that they must be controlled by the subject of the immediately embedding clause (Tom), and they only allow a de se reading.

Overt subjects are also possible in object and split control sentences, as illustrated in (12) and (13).

\textsuperscript{5}In addition to the LD reflexive \textit{caki}, another LD reflexive \textit{casin} and the local anaphor \textit{cakicasin} can also appear in the controlled subject position.

(i) \textbf{Casin and cakicasin as an OC subject}

S1: Tom promised Bill: "I will meet Mary."

S2: Tom promised Bill: "I'll make sure that that guy in this picture meets Mary." (Unbeknownst to Tom, the guy he is referring to is Tom himself.)

\begin{verbatim}
Tom\textsubscript{j}-i Bill\textsubscript{k}-eykey [casin\textsubscript{x\i/j/sk}/cakicasin\textsubscript{x\i/j/sk}-i Mary-lul manna-keyss-ta-ko]
Tom-NOM Bill-DAT self-NOM Mary-ACC meet-VOL-DECL-COMP
yaksokha-ess-ta.
promise-PST-DECL

'Lit. Tom\textsubscript{j} promised Bill\textsubscript{k} [self\textsubscript{j} to meet Mary].' [✓ S1, # S2]
\end{verbatim}

As shown above, both the LD reflexive \textit{casin} and the local anaphor \textit{cakicasin} occurring in the controlled subject position also exhibit the OC properties.

\textsuperscript{6}It has been noted that overt controllees usually get a focused reading in Korean as in other languages like Spanish and Hungarian, etc. (Madigan 2008, Lee 2009, Szabolcsi 2009a).
(12) **Overt subject in object control**

S1: Tom told Bill: "You meet Mary!"

S2: Tom told Bill: "That guy in this picture should meet Mary!" (Unbeknownst to Tom, the guy he is referring to is Bill.)

Tom₁-i Bill₂-eykey [PRO₁/s₁,j/ku₂/s₁,j-ka Mary-lul manna-la-ko]
Tom-NOM Bill-DAT PRO/he-NOM Mary-ACC meet-IMP-COMP
myenglyenghayssta.

ordered

‘Lit. Tom₁ ordered Bill₂ PRO₂/he₂ to meet Mary.’ [✓ S1, # S2]

The third person pronoun *ku* can replace PRO in the object control construction, as in (12). Although it may sound a bit awkward to some speakers with no context, it gets easily accepted when a context is provided where the embedded subject is focused, e.g. Tom told Bill, ‘You, not someone else, should meet Mary’. Both the null subject and the overt pronoun are felicitous in the object control construction only when the attitude holder expresses an attitude toward his addressee, as in S1. It should be noted that unlike in the subject control case, object controlled PRO cannot alternate with the reflexive *caki*. We will address this issue shortly in 4.3.3.

(13) **Overt subject in split control**

S1: Tom told Bill: "Let us (you and me) meet Mary."

S2: Tom told Bill: "Let these two guys in this picture meet Mary." (Unbeknownst to Tom, the guys he is referring to are Tom himself and his addressee Bill.)

Tom₁-i Bill₂-eykey [PRO₁/s₁,i+j/kutul₁,s₁,i+j-i/caki-tul₁,s₁,i+j-i Mary-lul]
Tom-NOM Bill-DAT PRO/they-NOM/caki-PL-NOM Mary-ACC
manna-ca-ko] ceyanhayssta.
meet-HOR-COMP proposed

‘Lit. Tom₁ proposed Bill₂ PRO₂/they₁+j/selves₁+j to meet Mary.’ [✓ S1, # S2]

In the split control construction, both the third person pronoun and *caki* can appear in the
subject position. We can see that overt controlled subjects must take a plural form, either
the plural third person pronoun *kutul ‘they’* or the plural LD reflexive *caki-tul*, indicating
that the subject of the split control construction must be plural. Moreover, the subject of
the split control construction must be interpreted both *de se* and *de te*, as shown in S1.

In contrast to the pronouns and anaphors, lexical referential NPs cannot be used in
subject position of the control construction (Lee 2009). It is compatible with the traditional
view on PRO that it is non-referential.

(14) **No referential NPs as an OC subject**

*Tom_j-i Bill_k-eykey [Sue-ka Mary-lul manna-keyss-ta-ko]*
Tom-nom Bill-dat Sue-nom Mary-acc meet-vol-decl-comp
yaksokha-ess-ta.
promise-pst-decl

‘Lit. Tom_j promised Bill_k [Sue to meet Mary].’

So far, we have seen that overt subjects in obligatory control constructions behave like
the null subject PRO with respect to the basic properties of obligatory control. In the
next subsection, I will provide a comparison between controlled and non-controlled pro-
nouns/caki.

### 4.3.2 Controlled vs. non-controlled pronouns/reflexives

We have seen that pronouns and the LD reflexive *caki* in the controlled subject position
must be controlled by a matrix argument in the immediately embedding clause and must
be obligatorily interpreted *de se* with respect to their controllers. These properties of
controlled pronouns or *caki* are distinguished from the typical properties of these elements
in a number of ways. First, the third person pronoun can usually be used as a free variable.
Second, the LD reflexive *caki* can have any long-distance antecedent that c-commands it.
Moreover, the third person pronoun can usually get either a (non-*de se*) *de re* or *de se*
reading. Consider a non-control construction with the third person pronoun *ku* and *caki*
Pronoun and *caki* in a non-control construction

(15) **Pronoun and *caki* in a non-control construction**

a. John₁-un [Tom₉-i Bill₆-eykey [kuᵢ/jᵢ/kᵢ{l}-ka Mary-lul
John-TOP Tom-NOM Bill-DAT he-NOM Mary-ACC
meet-PST-DECL-COMP say-PST-DECL-COMP believe
‘John₁ believes that Tom₉ said to Bill₆ that heᵢ/jᵢ/kᵢ{l} met Mary.’

b. Johnᵢ-un [Tom₉-i Bill₆-eykey [cakiᵢ/jᵢ/kᵢ{l}-ka Mary-lul
John-TOP Tom-NOM Bill-DAT self-NOM Mary-ACC
meet-PST-DECL-COMP say-PST-DECL-COMP believe
‘Johnᵢ believes that Tom₉ said to Bill₆ that heᵢ/jᵢ/kᵢ{l} met Mary.’

The complement clauses with the declarative marker -*ta* only form a non-control construction in Korean. In (15a), the third person pronoun *ku* in the most embedded clause can refer to any male individual in the sentence, as long as it does not violate Condition B, or in the context. Moreover, a (non-*de se*) *de re* reading of the third person pronoun is easily acceptable under a mistaken scenario. The non-controlled LD reflexive *caki* in (15b) can be coreferential with any long-distance subject, John or Tom.

Pronouns and LD *caki* differ significantly in non-control constructions than in OC constructions. The contrasts between controlled and non-controlled pronouns or *caki* presented in this subsection show that the interpretations of the pronoun and LD *caki* are restricted in a similar way only when they occur in the OC subject position, indicating that the OC properties seem to be attributed to structural properties of OC constructions instead of inherent properties of the elements that can be used as an OC subject.

### 4.3.3 Controlled *caki* vs. OC PRO

Given that the LD reflexive *caki* behaves like PRO in the OC subject position, one may argue that the controlled LD reflexive is merely an overt form of PRO in OC constructions (e.g. Madigan 2008). However, as Lee (2009) points out, *caki* and OC PRO are not always
One of the basic properties of caki we have seen is that caki cannot have a first or second person pronoun as its antecedent. This person restriction holds even when caki is used as a controlled subject. Thus, caki cannot replace PRO when a controller is either the first or second person pronoun (Lee 2009).

In (16), contrary to the first or second person pronoun, caki cannot overtly appear in the controlled subject position when the controller is the first or second person pronoun. If it were the case that caki were merely an overt form of PRO in the OC construction, we would not expect this person restriction on the controlled caki.

Moreover, it has been reported in the literature that caki cannot replace PRO in the object control construction (Yang 1985, Lee 2009). In the object control construction below with the imperative mood marker -la, caki is not interchangeable with PRO while the third person pronoun is.

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(i) Inho\textsubscript{1} jwuhi\textsubscript{j} -eykey caki\textsubscript{si/j} -ka cip-ey ka-la-ko mal-ha-yess-ta.  
I-NOM Jwuhi-DAT caki-NOM home-Lpc go-IMP-COMP tell-do-PST-DECL  
Lit. ‘Inho\textsubscript{1} told Jwuhi\textsubscript{j} SELF\textsubscript{si/j} to go home.’ (Madigan 2008, p.84)

---

Madigan (2008) reports that his consultants allow object control with caki in the subject position of the control clause. However, I agree with the judgment reported in Lee (2009) (see fn.80, p.177) that caki in the object control construction can only be understood as a discourse pronoun ‘you’ rather than an anaphor.

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7Madigan (2008) reports that his consultants allow object control with caki in the subject position of the control clause. However, I agree with the judgment reported in Lee (2009) (see fn.80, p.177) that caki in the object control construction can only be understood as a discourse pronoun ‘you’ rather than an anaphor.
(17) **No object control for controlled caki**

Tom\(_i\)-i Bill\(_j\)-eykey \[\text{PRO}_{s_i/j}/\ku_{s_i/j/-ka/caki_{s_i/s_j/-ka}\text{Mary-lul manna-la]-ko}}\]
Tom-NOM Bill-DAT \[\text{PRO/he-NOM/self-NOM Mary-ACC meet-IMP-COMP myenglyenghay-ss-ta..}\]
order-PST-DECL

Lit. ‘Tom\(_i\) ordered Bill\(_j\) [\text{PRO}_{s_i/j}/\he_{s_i/j}/self_{s_i/s_j} to meet Mary].’

Given this fact, Yang (1985) argues that the controlled *caki* is still subject to its general binding conditions.\(^8\) That is, we have seen that *caki* is mostly subject-oriented unless a non-subject element can be understood as a person whose speech or thought is represented, i.e. source or self. The unavailability of *caki* in the object control construction, then, can be attributed to the fact that the object controller is not a legitimate antecedent of *caki* in general—it is neither a subject nor a source or self NP.

### 4.3.4 Summary

In this section, I have presented the properties of controlled lexical subjects like pronouns and the reflexive *caki* in obligatory control constructions in Korean in comparison with the null subject PRO and non-controlled pronouns and *caki*. In the obligatory controlled subject position, even pronouns get an obligatory *de se* interpretation and LD *caki* can only be controlled by a local controller like the null subject PRO. It is hard to see, then, that these OC properties of the controlled pronouns or *caki* are inherent lexical properties of these elements. Rather, it would be more plausible to assume that these OC properties are imposed by certain structural properties of OC constructions. We have also seen that

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\(^8\)Yang (1985) provides an object control example with the complementizer -tolok.

(i) John\(_i\)-un [Tom\(_j\)-i Bill\(_k\)-eykey \[\text{PRO}_{s_i/s_j/k}/\ku_{s_i/s_j/k/-ka/caki_{s_i/s_j/k/-ka}\text{Mary-lul manna-tolok]}\]
John-NOM Tom-DAT \[\text{PRO/he-NOM/self-NOM Mary-ACC} \text{manna-tolok] seltukhay-ss-ta-ko} \text{mitnunta.} \text{meet-COMP persuade-PST-DECL-COMP believe} \text{‘Lit. John\(_i\) believes that Tom\(_j\) persuaded Bill\(_k\) [\text{PRO}_{s_i/s_j/k}/\he_{s_i/s_j/k}/self_{s_i/s_j/k} to meet Mary].’} \text{(Yang 1985, p.392)}

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the controlled *caki* preserves its basic properties that it cannot be anteceded by the first or second person pronoun and it requires a subject antecedent or an antecedent that satisfies certain discourse roles (e.g., source or self). Therefore, *caki* cannot be used as a controlled subject when a controller is the first or second person pronoun or when a controller is not in a subject position (e.g., object control constructions).

Table 4.1: Interim summary: PRO, (non-)controlled pronoun, and (non-)controlled LD *caki*

<table>
<thead>
<tr>
<th></th>
<th>PRO</th>
<th>Controlled pronoun</th>
<th>Non-controlled pronoun</th>
<th>Controlled <em>caki</em></th>
<th>Non-controlled LD <em>caki</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligatory de se</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Obligatory local control</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Object control</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3rd person restriction</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

4.4 OC PRO vs. LD *caki*

In the previous section, we saw that although LD *caki* can replace PRO in OC constructions, they are not always interchangeable due to the inherent properties of *caki*, such as the third person restriction and subject-orientation. In this section, I will present more novel data on the difference between OC subjects—PRO and controlled pronouns on the one hand and controlled LD *caki* on the other—with respect to their interactions with another *de se* element, a non-controlled LD *caki*, in the same clause.

4.4.1 Clausemate OC PRO and LD *caki*

As we saw already, both OC PRO and LD *caki* must be interpreted *de se* within the scope of attitude verbs in Korean. Although the obligatory *de se* interpretations of PRO and long-distance reflexives in many languages have received considerable attention, the interaction of these two different *de se* elements (when they co-occur in the same clause) has not been fully discussed. Interestingly, OC subjects do not interact with a clausemate LD *caki* in the same way. This subsection provides novel data regarding how OC subjects
and LD caki interact with each other.

First, if the OC subject is PRO or an overt pronoun, a clausemate caki does not have to be coreferent with the OC subject under multiple embeddings. For example, the most embedded clause in (18) contains both the null subject PRO and caki. Not surprisingly, PRO in this subject control complement must be controlled by the local controller—the subject of the immediately embedding clause, Bill. The LD caki, on the other hand, can refer to either the matrix subject John or the intermediate subject Bill.

(18) Disjoint reference possible between PRO/controlled pronouns and LD caki

\[
\text{John}_i\text{-un [Bill}_j\text{-i Mary}_k\text{-eykey [PRO}_{i/-j/sk}/ku_{i/-j/sk} \text{caki}_{i/-j/sk}\text{-uy cip-ulo John-top Bill-nom Mary-dat PRO/he caki-gen house-to ka-keys-sta]-ko yaksokhaysts-sta]-ko sayngkakhays-sta. go-vol-decl-comp promised-comp thought} \\
\text{Lit. ‘John}_i\text{ thought that Bill}_j\text{ promised Mary}_k\text{ PRO}_{i/-j} \text{he}_{j} \text{ to go to his}_i\text{/j house.’}
\]

When PRO (as well as the controlled pronoun) and caki are not coreferential, each of the element must be interpreted de se with respect to each attitude holder. In other words, the disjoint reading of PRO and caki in (18) can be obtained only when Bill says to Mary, ‘I will go to John’s house’, while John thinks, ‘Bill said to Mary that he will go to my house.’

There are two interesting points about the clausemate PRO and caki shown in (18). First, the disjoint reading of PRO and caki in (18) may be unexpected if we assume that the two elements are the same type of de se element, given that multiple clausemate LD cakis need to be coreferential, as we saw before, repeated below as (19).

(19) Obligatory coreference of multiple clausemate LD caki’s

\[
\text{John-i [Bill-i \text{caki-uy emmeni-ka caki-lul silhehanta]-ko John-nom Bill-nom caki-gen mother-nom caki-acc hate-comp sayngkakhanta]-ko malhaysta. think-comp said} \\
a. ‘John}_i\text{ said that Bill}_j\text{ thought that his}_i\text{ mother hates him}_i\text{.’}
\]

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b. ‘John said that Bill thought that his mother hates him.’

c. ‘John said that Bill thought that his mother hates him.’

d. ‘John said that Bill thought that his mother hates him.’

As shown in (19), the two cakis in the same clause need to find the same LD antecedent, contrary to the clausemate PRO and caki. Given this, our first key question to ask regarding PRO and caki is whether the obligatory de se construals of PRO and caki arise via the same or different mechanisms.

The second point that is worth noting in (18) is the coreference reading of PRO and caki. In the case where PRO and caki refer to the intermediate subject, Bill, both of the elements still obligatorily receive a de se reading. Thus, it is infelicitous to use the sentence in (18) when Bill says to Mary, ‘I will go to this house’, without knowing that that house he is referring to is actually his own house. There are two possible ways to derive the coreference reading between PRO and caki: caki being locally bound by the local subject PRO or (directly or indirectly) bound by the LD antecedent Bill. The fact that caki that is covalued with PRO only gets a de se interpretation can be compared with a similar case in English.

The interpretation of reflexives in control complements has received some attention since Heim (1994), especially due to the fact that a reflexive that is covalued with a local c-commanding PRO can be interpreted de re. Given that the reflexives in English are subject to Condition A, herself in (20) can only be understood to be covalued with the local c-commanding NP, PRO. What has been considered as a puzzle regarding this construction in the literature is that the reflexive herself can get a (non-de se) de re reading, although it is covalued with an obligatory de se element PRO, a puzzle so-called ‘unexpected binding theory (BT) effects’ (Sharvit 2011). Consider the following sentence under the particular de re scenario adopted from Sharvit (2011).
‘Unexpected Binding Theory Effects’ (Sharvit 2011)

Context: Sarah Palin, who is running for president, wakes up from a coma and suffers from severe memory loss: she does not remember that she is running for president and perhaps does not even know who she is. McCain visits her in the hospital, and she says to him: ‘I don’t know who to vote for’. While the two of them look at a picture of her in the newspaper, he says to her: ‘You must vote for this woman’. Palin, who does not recognize herself in the picture, says: ‘You are right; I will vote for this woman. She seems reliable’.

a. McCain convinced Palin [PRO₁ to vote for herself₁].

b. *McCain convinced Palin₂ [PRO₁ to vote for her₂].

One might assume that herself may get a de re interpretation if it is directly bound by Palin instead of PRO. Note, however, that Palin is outside of the local binding domain of herself, and the use of the pronoun her instead of herself makes the sentence ungrammatical, as shown in (20b). Given Condition A, then, herself needs to be understood to be bound by the local c-commanding NP, PRO, and then a de re reading of herself is unexpected.⁹ Therefore, the possible de re reading in (20a) has been considered a puzzle. Now another puzzle emerges given our Korean data: Why does an anaphor that is covalued with PRO only get a de se reading in languages like Korean, while an anaphor covalued with PRO can be interpreted de re in languages like English? Although we will not examine how this puzzle has been dealt with in the prior studies in this subsection, it should be noted that whichever mechanism that allows the ‘unexpected BT effects’ in English cannot be employed in Korean.¹⁰

---

⁹Suppose that the de se interpretation of PRO is derived from our dedicated de se construal following the property approach. PRO, then, is co-indexed and bound by the local individual abstractor, which means that the reflexive herself will also be bound by the same binder. Hence, only a de se interpretation is expected for herself under this approach.

¹⁰See, for instance, Sharvit (2011) and Pearson (2013, 2015) for existing accounts of this issue.
4.4.2 Clausemate controlled and non-controlled LD caki

Having shown that PRO and LD caki do not need to be coreferent when they appear in the same clause, contrary to multiple clausemate LD caki’s, let us now turn to another example that also leads us to important puzzles regarding de se elements. We have seen that PRO can be replaced with the LD reflexive caki in Korean OC constructions. Then, how would a controlled caki interact with another non-controlled LD caki in the same clause? Interestingly, if the LD reflexive caki is used as an OC subject, it must co-refer with a non-controlled LD caki appearing in the same clause, which is in contrast to the PRO/controlled pronouns but identical to the multiple non-controlled LD cakis. Consider the following sentence in which PRO in (18) is replaced with a lexical subject, LD caki.

(21) **Obligatory coreference between a controlled and non-controlled caki**

```
John-top [Bill,un [Bill]-i Mary-[Mary] eykey [caki,vi/j/-ka caki,vi/j/-uy cip-ulo
John-NOM Bill-NOM Mary-DAT caki-NOM caki-GEN house-to
ka-keyss-ta]-ko yaksokhayssta]-ko sayngkakhayssta.
go-VOL-DECL-COMP promised-COMP thought
```

Lit. ‘John, thought that Bill promised Mary self to go to his house.’

In (21), the controlled caki in the subject position and another caki in the object position co-occur in the most embedded clause. As we saw before, in this subject control construction with the volitional modal -keyss, the subject caki of the most embedded clause in (21) must be controlled by the subject in the immediately embedding clause. Interestingly, the non-controlled caki can also only refer to the intermediate subject, Bill, in (21). That is, the controlled and non-controlled caki must be coreferent. We already saw that PRO and a clausemate LD caki do not need to be coreferential, whereas multiple LD caki’s in the same clause must be. As expected, the controlled and non-controlled caki in (21) are unambiguously read de se as well. The controlled caki, then, behaves like the non-controlled caki with respect to the interaction with another clausemate LD caki. On the other hand,
the controlled caki also exhibits the PRO-like property in terms of the obligatory local control. This dual property of the controlled caki is puzzling and requires explanation.

4.4.3 Summary

To summarize, the data presented in this section suggest that (i) not every de se element (OC subjects vs. LD caki) behaves identically in Korean, and (ii) not every OC subject exhibits the same property, especially with respect to their interactions with another de se element, LD caki, in the same clause, although they share some properties in common (e.g., local control and obligatory de se interpretations). The complete properties of PRO, (non-)controlled pronouns, and (non-)controlled LD caki presented so far are summarized in Table 4.2 below.

<table>
<thead>
<tr>
<th></th>
<th>PRO</th>
<th>Controlled pronoun</th>
<th>Non-controlled pronoun</th>
<th>Controlled caki</th>
<th>Non-controlled LD caki</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligatory de se</td>
<td>✓</td>
<td>✓</td>
<td>×</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Obligatory local control</td>
<td>✓</td>
<td>✓</td>
<td>×</td>
<td>✓</td>
<td>×</td>
</tr>
<tr>
<td>Object control</td>
<td>✓</td>
<td>✓</td>
<td>N/A</td>
<td>×</td>
<td>N/A</td>
</tr>
<tr>
<td>3rd person restriction</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Coreference with a clausemate LD caki</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

4.5 De se construal in obligatory control constructions

Having presented the properties of PRO, let us now discuss how to account for these properties of OC subjects and their relationships with another de se element in Korean. A number of questions we need to explain are listed in (22).

(22) a. How do the OC subjects, either null or overt, consistently exhibit OC properties?

b. How does the LD reflexive caki in the OC subject position display both the
OC PRO-like and non-controlled LD *caki*-like properties?

c. How can we account for the difference between the two *de se* elements: OC PRO on the one hand and LD *caki* on the other?

d. Why do controlled and non-controlled LD *cakis* have to be coreferential, while PRO (or controlled pronouns) and non-controlled LD *caki* need not?

e. What blocks the ‘unexpected BT effects’ in Korean?

Given that PRO is obligatorily interpreted *de se*, some prior studies on PRO attributed its unambiguous *de se* interpretation to the lexical meaning of PRO, as we discussed in the previous chapter (e.g., Schlenker 2003, Anand and Nevins 2004, Stephenson 2007). For instance, PRO is treated as the first or second person indexical, which denotes the author or addressee of the context (or index). However, our data about the overt controlled subjects in Korean provide evidence against this indexical approach. If the obligatory *de se* interpretation of PRO is derived from its inherent indexical-like meaning, we may also need to assume that the third person pronoun or LD *caki* has the same lexical meaning only when it is controlled, given that they must also receive a *de se* interpretation in the controlled subject position. It does not seem to be reasonable, however, to directly posit the first or second person-like meaning to the third person pronoun or LD *caki*. Rather, since any element that can appear in the OC subject position must be construed *de se* in Korean, it would be more plausible to argue that the obligatory *de se* interpretation of the elements in the controlled subject position is derived due to certain structural properties of the obligatory control construction, instead of some special lexical meaning of these elements.

In this section, based upon our analysis for the LD *caki* proposed in Chapter 3, we will discuss how to analyze the data on the null and overt controlled subjects and their interactions with non-controlled LDcaki in Korean. In particular, following and extending the Lewis-Chierchia’s property approach to *de se* (Lewis 1979, Chierchia 1989, Percus and
Sauerland 2003), I will provide a unified account of obligatory *de se* interpretations of any kinds of controlled subjects (e.g., PRO, controlled pronouns, and controlled anaphors) and the LD reflexive *caki*, arguing that additional structural conditions of OC constructions and lexical properties of *caki* can derive a complete set of properties of the OC subjects, LD *caki*, and their interactions.

4.5.1 Structural conditions of OC constructions

Based on the Chierchia’s (1989) semantic approach to OC, I assume that OC complements are derived predicates, whose subject must be a bound variable that needs to be bound by a local individual abstractor. Madigan (2008) provides the definition of Control as in (23), motivated by Chierchia (1984, 1989).

(23) **Definition of Control proposed by Madigan (2008)**

Let X be an NP in a sentence S, Y a subject NP in a sentence S’ that is embedded under S, and R the predicate that selects Y. X and Y are in the control relation (or X controls Y) iff the property that corresponds to R is unambiguously attributed to the referent of X and the referent is aware of the attribution.

(Madigan 2008, p.49)

Given the definition of control shown in (23), control constructions are properties that are attributed to an argument in the immediately embedding clause. The definition in (23) attempts to capture the obligatory *de se* interpretation of OC subjects by adding a condition that the referent of controller must be aware of the attribution. However, this condition has no clear link to the semantic mechanism of the obligatory *de se* interpretation of the controlled subjects.

From a semantic point of view, the obligatory *de se* construal of PRO can be derived from the Lewis-Chierchia’s property approach with the assumption that PRO is a variable that is bound by an individual abstractor, which appears in the left periphery of comple-
ments of attitude predicates. In contrast with other de se elements like LD caki, controlled subjects are special in that they only allow local control. Based on the property analysis of de se (Lewis 1979, Chierchia 1989, Percus and Sauerland 2003, Pearson 2013, a.o.), the definition of control in (23) can be revised as in (24).\footnote{More precisely, this is a definition of Logophoric Control (Landau 2015), where control complements appear in attitude environments.}

\begin{equation}
\text{(24) \hspace{1cm} Definition of Control (revised version)}
\end{equation}

Let X be an NP in a sentence S, Y a subject NP in a sentence S’ that is directly embedded under S. Y is abstracted over, yielding a structure that denotes a property P. X and Y are in the control relation (or X controls Y) iff the property P is self-ascribed by the referent of X.

Our revised version of the definition of control states that (i) control complements denote properties, (ii) the subject of control complements is a variable that is abstracted over, and (iii) the properties denoted by control complements must be attributed to an argument of the immediately embedding clause (by being bound by the local abstractor). A sample LF and the semantics of a control construction is provided in (26), based on the semantics of attitude verbs, as illustrated in (25).

\begin{equation}
\text{(25) \hspace{1cm} }[[\text{expect}]] = \lambda P_{<e,s>}. [\lambda x. \forall <y,w'> \in \text{Expect}_{x,w}: P(y(w')) = T],
\end{equation}

where $\text{Expect}_{x,w} = \{<y, w'>: w' \text{ is a world compatible with what x expects in w that w'} \text{ is a world x might be living in and y is the one who x identifies in w as herself in w'}\}.$

\begin{equation}
\text{(26) \hspace{1cm}}
\begin{align*}
a. \quad & \text{John expects PRO to win the election.} \\
b. \quad & \text{LF: } \lambda w_0. w_0 \text{ John expects } [\lambda x_1 \lambda w_2. w_2 \text{ PRO}_1 \text{ to win the election}]. \\
c. \quad & [[(26a)]] = \lambda w. \forall <y,w'> \in \text{Expect}_{\text{John},w}: y \text{ wins the election in w'}
\end{align*}
\end{equation}

Given our definition of control seen in (24), the sentence in (26a) is a legitimate control
construction where the matrix subject John controls the null subject PRO, since the control complement denotes a property of type \(<e, st>\) whose subject (PRO) is abstracted over, and the controller John self-ascribes the property of winning the election. The latter condition can be satisfied by our semantics of attitude verbs and the fact that PRO is bound by the local individual abstractor. Given the definition of ‘expect-alternatives’ as centered worlds, PRO is interpreted as John’s expect-alternative \(y\) in \(w’\), who John identifies in \(w\) as himself in \(w’\), and thus receives an obligatory de se interpretation.

Our discussion of control constructions predicts that if a language allows an overt subject in the OC complement for an independent reason, the overt element must be able to be used as a bound variable, such as anaphors or pronouns.\(^{12}\) Thus, the unavailability of referential OC subjects that we saw in (14) is also predicted. Moreover, any bound variable that can appear in the OC subject position must also be locally controlled and receive an unambiguous de se interpretation under our system.

4.5.2 Overt OC subjects under the property approach

In the previous sections, we have examined the properties of pronouns and LD caki when they appear in the OC subject position: they only allow local control and a de se interpretation like PRO. In contrast to PRO, however, LD caki preserves its basic properties with respect to the third person feature and its binding conditions. Thus, caki cannot replace PRO in the OC construction when a controller is the first or second person pronoun or a non-subject element. Given the definition of Control, I have argued that an overt element can be controlled in Korean only when it can be used as a bound variable. In addition, I will show that overt elements need to satisfy their own inherent lexical or binding conditions (if there are any) even when they occur in the OC subject position. Therefore, overt subjects in control construction in Korean are not merely an overt form of the null subject

\(^{12}\)In fact, it is controversial whether pronouns can be used as a bound variable in Korean (and Japanese). Although they may be more restricted than in other languages, I assume that pronouns in Korean can actually be used as bound variables.
Now let us see how the basic property of controlled \textit{caki} can be derived. First, LD \textit{caki} must be subject to the structural conditions of OC complement. Thus, the control complement containing LD \textit{caki} in its subject position must denote a property, and the property must be self-ascribed by an argument of the clause that immediately embeds the control complement. Due to this structural condition of OC, controlled \textit{caki} does not allow long-distance control unlike non-controlled LD \textit{caki}. Second, the lexical entry for controlled \textit{caki} is identical to the one for non-controlled \textit{caki}, as we proposed in (27) in Chapter 3, repeated as (27) below. The inherent third person feature of \textit{caki} is responsible for the person restriction in the controlled case as well. That is, when LD \textit{caki} is controlled by the first or second person pronoun, or a doxastic counterpart of the first or second person pronoun, it suffers from presupposition failure.

\begin{equation}
[[\text{caki}_n]]^{c,q} = \begin{cases} 
g(n), & \text{if } g(n) \text{ is not } \text{AUTH}(c), \text{ADDR}(c), \\
& \text{or a doxastic counterpart of } \text{AUTH}(c) \text{ or } \text{ADDR}(c) \\
\text{undefined}, & \text{otherwise}
\end{cases}
\end{equation}

When a controlled \textit{caki} satisfies its own conditions, the semantics of a control sentence containing LD \textit{caki} as an overt subject of the control complement is identical to the one with the null subject PRO. The semantics of a pseudo-Korean OC sentence with a controlled \textit{caki} is given in (28)--(29).

\begin{enumerate}
\item a. Pseudo-Korean: John promised [caki to meet Mary].
\item b. LF: \(\lambda w \text{ w John promise } [\lambda_1 \lambda w' w' \text{ caki}_1 \text{ to meet Mary}].\)
\end{enumerate}
\[
\left[\text{John promised caki to meet Mary}\right]^{c-g} = \lambda w. \forall \langle y, w' \rangle \in \text{Say}_{\text{John},w}: y\text{ will meet Mary in } w',
\]
where \(\text{Say}_{\text{John},w} = \{\langle y, w' \rangle: \text{it is compatible with what John says in } w \text{ that } w' \text{ is a world John might be living in and } y \text{ is the one who John identifies in } w \text{ as himself in } w'\}\}

### 4.5.3 Interactions between PRO and LD caki

Recall that, in Chapter 3, we suggested the two binding conditions for the LD reflexive \(caki\): the locality and feature match condition. That is, LD \(caki\), which is a variable that bears the feature \([\text{log}]\), must be bound by a closest individual binder that bears the same feature, \([\text{log}]\) (e.g., Anand 2006). We also assumed that a \(de\) \(se\) binder introduced by an attitude verb can optionally take the \([\text{log}]\) feature.

Note that only LD \(caki\) bears the \([\text{log}]\) feature and is subject to the particular binding conditions. While LD \(caki\) must be bound by the closest binder with the feature \([\text{log}]\), PRO and controlled pronouns must be bound by the local individual abstractor in order to satisfy the structural conditions of OC. Given that, we can now derive the interactions between PRO/controlled pronouns and a clausemate LD \(caki\), especially with respect to their disjoint reading. Let us recall the example (18), repeated below as (30), in which the PRO/controlled pronouns and LD \(caki\) co-occur under the multiple embeddings.

### (30) Disjoint reference between PRO and caki

\begin{verbatim}
John1-un [Bill, i] Mary_k-eykey [PRO_{i/j}^{*}k caki_{i/j}^{*}k-uy cip-ulo
John-top Bill-nom Mary-dat PRO caki-gen house-to
ka-keyss-ta]-ko yaksokhayssta]-ko sayngkakhayssta.
go-vol-decl-comp promised-comp thought
Lit. 'John, thought that Bill_{j} promised Mary_{k} PRO_{j} to go to his_{i/j} house.'
\end{verbatim}

When the closest abstractor does not bear the \([\text{log}]\) feature as in (31a), PRO or the controlled pronoun and the clausemate LD \(caki\) are bound by the different abstractors, and
thus they can have a disjoint reading. This disjoint reading is only felicitous when John
thinks, ‘Bill promised (it a first person way) that he would go to my house.’ On the other
hand, the configuration in (31b) is not legitimate because the locality condition of LD caki
is violated: caki is not bound by the closest binder with the feature [log].

(31) **Deriving the disjoint reading of PRO and LD caki**

a. John thought $[\lambda_1^{[\log]}$ Bill promised Mary $[\lambda_2^{[\log]} PRO/he_2$ to go to caki$_1^{[\log]}$’s
house]]

b. *John thought $[\lambda_1^{[\log]}$ Bill promised Mary $[\lambda_2^{[\log]} PRO/he_2$ to go to caki$_1^{[\log]}$’s
house]]

Although PRO/controlled pronouns and LD caki are distinguished by the specific struc-
tural or binding conditions, one and the same semantic mechanism is responsible for their
*de se* interpretations under the property approach. We can derive the *de se* interpretation
of both PRO and LD caki with respect to their referents based on the LF in (32a) and our
semantics of attitude verbs.

(32) **a. LF of (30) with the disjoint reading:**

\[ \lambda w \,[ w \ \text{John thinks} \, [\lambda x_1^{[+\log]} \lambda w_2 \, w_2 \ \text{Bill promised} \, [\lambda x_3 \lambda w_4 \, w_4 \ \text{PRO}_3 \, to \, go \, to \, caki_1^{[\log]}'s \, house}] \]

\[ [[(30)]]^g = \lambda w. \ \forall <y,w'> \in \text{Dox}_{\text{John},w} : \ \forall <z,w''> \in \text{Say}_{\text{Bill},w'} : z \, \text{goes to} \, y's \, house \, in \, w'' \]

4.5.4 **The dual property of controlled LD caki**

Lastly, we can also derive the dual property of LD caki in the OC subject position. We have
seen that a controlled LD caki displays both the OC PRO-like and non-controlled LD caki-
like properties. Due to the structural conditions of OC, LD caki only allows local control
in the OC subject position. Since LD caki must also satisfy its own binding conditions
when it appears in the OC subject position, the local binder in the control complement must bear the [log] feature to properly bind LD caki. Given this, we can now explain the obligatory coreference between controlled and non-controlled LD cakis as well. Consider the following configurations.

(33) Deriving the obligatory coreferential reading of the controlled and non-controlled LD cakis

c. *John thought [λx₁[^log][log] Bill promised [λx₂[caki₁[^log][log] to go to caki₁[^log][log]ʼs house]]

Since the local binder must bear the feature [log] to properly bind LD caki and satisfy the structural conditions of OC complements, any other clausemate LD caki must also be bound by the same local binder to meet its ‘locality’ binding condition. Therefore, the disjoint reading of the controlled and non-controlled LD cakis are ruled out.

In summary, I have shown that the complete set of the properties of OC subjects, both null and overt, and LD caki in Korean can be uniformly explained under the property approach (Lewis 1979, Chierchia 1989, Percus and Sauerland 2003, among many others) with the additional binding conditions for LD caki and structural conditions of OC. Our system correctly predicts that any bound variable type elements may appear in the controlled subject position in Korean, unless it is blocked by an independent reason. As predicted, local anaphors such as caki-casin or pronoun-casin in Korean can also be controlled and display OC properties.
4.5.5 Potential problems

There were two main puzzles concerning the properties of controlled subjects and LD caki. Why does controlled caki not allow long-distance control like PRO and controlled pronouns?; And why does controlled caki have to co-refer with a clausemate LD caki unlike PRO and controlled pronouns? While maintaining a unified account for the different elements that are obligatorily construed de se under the property approach, we have attempted to provide solutions to these puzzles based upon our assumptions about the [log] feature on the binders and controlled elements. Specifically, the first puzzle was treated by assuming that when LD caki occurs in the OC subject position the individual abstractor in control complements must bear the [log] feature to obey the structural condition of OC. The second puzzle has been handled on the assumption that the LD caki differs from both PRO and controlled pronouns in terms of the [log] feature: only LD caki bears the [log] feature and requires a binder with the same feature.

Although the analysis presented above under the property analysis seems to be able to explain the key properties of the controlled subjects and LD caki, it also faces considerable challenges. Firstly, what does it mean for an element to take a [log] feature? Given that PRO gets an obligatory de se interpretation under attitude verbs, von Stechow (2003) argues that PRO is a logophoric pronoun that bears a feature [log(ophoric)]. Similarly, Anand (2006) also posits the same feature [log] on one type of de se elements to indicate that such elements need to be bound by a logophoric operator. Under our system, we assume that only one type of de se elements, i.e., LD caki, bears the [log] feature, although we assume that all of these elements are variables that need to be bound by an individual abstractor that is introduced by an attitude verb and thus obligatorily recieve a de se interpretation. We therefore should seek fundamental differences between PRO and controlled pronouns on the one hand and the LD caki on the other. In Chapter 6, I will demonstrate

\[^{13}\text{von Stechow (2003) argues that PRO also bears an additional feature [loc(al)] to capture that it must be bound by the most local binder.}\]
that LD *caki* is strictly subject to the notion of logophoricity.

Secondly, we cannot avoid the stipulative nature of the optional [log] feature on the binders in control complements. A clearer explanation of the property of the [log] feature, which is not just on the logophoric elements but also on the binders, should be provided on the basis of a better understanding of logophoricity.

Lastly, we did not discuss the fact that overt subjects can also appear in OC complements without attitude environments in Korean (Landau 2015). In these cases, *de se* interpretations of controlled subjects are not relevant because there is no attitude environment. One might wonder how our proposal can be extended to overt subjects in OC complements under non-attitude environments. I leave this issue for future research.

### 4.6 Conclusion

The purpose of this chapter was to fill the gap in the literature on multiple *de se* expressions by exploring the interactions between different kinds of *de se* elements appearing in the same clause. In particular, we have examined the properties of OC subjects and their relationship with the LD reflexive *caki*. I have shown that the obligatory *de se* interpretations of the controlled subjects and the LD reflexive *caki* in Korean can uniformly be derived under the property analysis of *de se*. That is, these elements are variables that must be bound by an individual abstractor, which appears in the complement of attitude verbs, so that they are interpreted as a *de se* counterpart of an attitude holder.

Given that overt lexical subjects (pronouns and anaphors) can appear in the OC complements in Korean, I have also shown that not every OC subject exhibits identical properties, while they display the similarities in terms of the obligatory local control and *de se* interpretation. Specifically, we saw that LD *caki* behaves both like PRO and non-controlled *caki* when it appears in the OC subject position. Under our system, the consistent OC properties of any kinds of OC subject can be explained by the structural conditions of OC constructions, repeated below.
(34) **Definition of Control**

Let X be an NP in a sentence S, Y a subject NP in a sentence S’ that is directly embedded under S. Y is abstracted over, yielding a structure that denotes a property P. X and Y are in the control relation (or X controls Y) iff the property P is self-ascribed by the referent of X.

In order to be a proper OC construction, given the definition of control shown in (34), an OC subject must be bound by a local abstractor that posits in the left periphery of the OC complement (i.e., only local control). Moreover, the differences between the OC subjects can also be captured by the inherent lexical or binding conditions of the OC subjects. In particular, when the reflexive *caki* is used as an OC subject, it still must satisfy its binding conditions we proposed in the previous chapter (i.e., the locality and feature match conditions).
CHAPTER 5

DE SE AND DE DICTO

5.1 Introduction

In Chapters 3 and 4, I demonstrated that the Korean LD reflexive caki embedded under attitude verbs is unambiguously interpreted de se and developed a dedicated de se mechanism based upon the property approach. In this chapter, I will present a novel environment in which LD caki need not receive a de se interpretation even when it is embedded within the scope of an attitude verb. That is, when LD caki occurs in a relative clause that is embedded under an attitude verb, it is exempt from the de se requirement.

Our main discovery of this chapter will be a new relationship between the (non-)de se interpretation of caki and the de dicto reading of the predicate in the same clause. Owing to the special intensional property of relative clauses, LD caki receives a non-de se interpretation only in a relative clause, especially when the predicate of the relative clause is not interpreted de dicto with respect to the antecedent of caki.

In the later part of this chapter, I will also address two important theoretical questions regarding elements that can be interpreted de se or pure de re (e.g., pronouns) in attitude reports: First, would a de se interpretation of elements like pronouns be freely derived from a de re construal, as is widely assumed in the literature? Second, can a pronoun always be interpreted de se in attitude reports? On the basis of empirical evidence, I will argue that pronouns can not always receive a de se interpretation and a de re con-
strual is not always sufficient to derive a *de se* reading of the pronouns. Specifically, I will propose two pragmatic competitions between the dedicated and non-dedicated *de se* LF’s and between the obligatory and non-obligatory *de se* elements.

The structure of this chapter is as follows. In Section 5.2, I will present new observations on LD *caki* in (gapless) relative clauses that a *de se* interpretation is no longer mandatory of *caki* even in attitude environments when it is directly embedded in a relative clause. Interestingly, it will be shown that LD *caki* would still not allow a pure *de re* reading. In order to capture the seemingly peculiar property of LD *caki* in this new environment, in Section 5.3 we will discuss the special intensional status of relative clauses in comparison to finite complement clauses. Then, in Section 5.5, I will draw two generalizations of the relationship between *de se* and *de dicto*: ‘Obligatory *de se* under *de dicto*’ and ‘Obligatory non-*de se* under non-*de dicto*’. Lastly, in Section 5.6, I will show that the new data presented in this chapter also shed important lights on the uses of the ‘*de se* as a special *de re*’ route and (non-)obligatory *de se* expressions.

### 5.2 LD *caki* in relative clauses

In this section, I will present a striking fact about LD *caki* in attitude environments that it can receive a non-*de se* reading when it occurs in a (gapless) relative clause. Interestingly, LD *caki* does not allow a (non-*de se*) *de re* reading even when embedded in a (gapless) relative clause.

#### 5.2.1 Non-obligatory *de se* interpretations under attitude verbs

Like other LD reflexives in many languages such as Chinese, Japanese, etc., the LD reflexive *caki* in Korean can occur in a relative clause and take a matrix subject as its long-distance antecedent, e.g. *Lit. Mary, likes the person who praised self*.

While LD *caki* in relative clauses is similar to the one in complements of attitude verbs with respect to the long-distance dependency between *caki* and its antecedent, the latter can be distin-
guished from the former in terms of the obligatory \textit{de se} interpretation. In contrast to the obligatory \textit{de se} interpretation of LD \textit{caki} in attitude environments that we saw in the previous chapter, a \textit{de se} interpretation of \textit{caki} is not relevant anymore in sentences that do not report any attitudes. To capture the intuition that LD reflexives in attitude and non-attitude environments differ in how they are interpreted, it has been pointed out in the literature that the ‘awareness condition’ does not need to hold for LD reflexives in Chinese and Japanese when they appear in relative clauses (Kuroda 1973, Sells 1987, Pollard and Xue 2001, Anand 2006). The ‘awareness condition’ states that the attitude holder must be aware of the content of clauses in which LD reflexives appear and this condition must hold for LD reflexives in attitude environments—which is another way of stating the obligatory \textit{de se} interpretation of these elements. However, LD reflexives in relative clauses are not subject to this condition. To illustrate, consider the example in (1).

(1) **No awareness condition for LD \textit{caki} in a relative clause**

S1: John met a person who he identifies as “That person criticized me!”  
S2: John met Tom. Unbeknownst to John, Tom is the person who criticized John.

\begin{Verbatim}
John\textsubscript{i}-i \ [caki\textsubscript{i}-lul piphanha-n] salam-ul mannassta.
John-NOM self-ACC criticized-ADN person-ACC met

‘John\textsubscript{i} met the person who criticized him\textsubscript{j}.’ (✓ S1, ✓ S2)
\end{Verbatim}

As shown in (1), \textit{caki} in the relative clause can be coreferent with the matrix subject in a context like ‘S2’, where its antecedent is not aware of the content of the relative clause containing \textit{caki}. However, since the sentence in (1) is not an attitude report, we cannot discuss whether LD \textit{caki} in (1) receives a \textit{de se} interpretation or not. Although some prior studies have attempted to distinguish LD reflexives in relative clauses from those in the complements of attitude verbs (e.g., ‘extensional’ vs. ‘intensional’ in Anand 2006), it has not been examined carefully whether LD reflexives occurring in relative clauses would exhibit distinctive properties even in attitude environments.
Our focus in this section is on the interpretation of LD *caki* in the relative clause within the scope of attitude verbs. We will present novel data showing that LD *caki* in a relative clause does not have to receive an obligatory *de se* interpretation even in attitude environments. Throughout Chapter 3, we have seen that the LD reflexive *caki* in Korean must be unambiguously interpreted *de se* under attitude verbs, as illustrated in (2).

(2) S1: John thinks, "I am kind."

S2: John thinks, "That guy on TV is kind." Unbeknownst to John, the guy on TV is John himself.

\[
\text{John}\text{-un } [\text{caki}\text{-ka chakhata]-ko sayngkakhanta.} \\
\text{John-TOP self-NOM kind-COMP think} \\
\text{'}John_i\text{ thinks that he}_i\text{ is kind.' (✓ S1, # S2)}
\]

Given our assumptions on LD *caki* that it is a variable that needs to be bound by an individual abstractor as well as the semantics of attitude verbs presented in Chapters 3, the truth-conditions of (2) are derived as in (3).

(3) a. LF: \( \lambda w_0 \) John thinks \( w_0 [\lambda x_1 \lambda w_2 \text{caki}_1 \text{ is nice } w_2] \)

b. \( [(3a)]^9(w) = T \text{ iff for every possible world } w' \text{ and individual } y \text{ that are compatible with what John thinks in } w, y \text{ is nice in } w' \) (where \( w' \) is a world John might be living in and \( y \) is the one who John identifies in \( w \) as himself in \( w' \)).

Strikingly, however, there is at least one environment in which LD *caki* does not necessarily receive an obligatory *de se* interpretation under attitude verbs, which, to my knowledge, has not been discussed in the literature: namely, relative clauses. Consider the example in (4), which only differs from (3) in that *caki* is embedded in a relative clause of the embedded subject DP under the matrix verb ‘think’.

\[\text{1}^\text{As Chisato Kitagawa (p.c.) and Kiyomi Kusumoto (p.c.) point out to me, the LD reflexive } \text{zibun} \text{ also behaves like } \text{caki} \text{ when it appears in a relative clause.}\]

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No de se requirement for LD caki in a relative clause

S1: John thinks, "That woman who hit me is actually kind."  
S2: John thinks that a girl he has newly met in class is very kind and nice. Unbeknownst to John, however, they met at a party the other night and she hit him while he was so drunk.

\[
\text{John}_{\text{top}} \quad \text{self-ACC} \quad \text{hit-ADN} \quad \text{woman-NOM} \quad \text{kind-COMP} \quad \text{think}
\]

'John\textsubscript{i} thinks that the woman who hit him\textsubscript{i} is kind.' (✓ S1, ✓ S2)

We have seen that the example in (3), where caki appears in the embedded subject position, is felicitous only under a scenario in which the attitude holder holds a de se belief, such as ‘S1’. Similarly, LD caki in the relative clause can also receive a de se interpretation. In such a case, as in ‘S1’ in (4), the attitude holder must identify the woman as ‘the one who hit me’, regardless of whether she is actually the one who hit him in the actual world. On the other hand, caki in the relative clause in (4) can co-refer with the matrix subject John, even when John only holds a de re belief about the woman without expressing any de se attitude, as in ‘S2’ above. That is, the subject DP ‘the woman who hit self’ is the description from the speaker’s point of view given the actual world. John would only be able to describe the woman he has attitude toward as ‘the woman who I met in class’ instead of ‘the woman who hit me at the party’ under the scenario in S2. This shows that LD caki appearing in the relative clause does not have to be interpreted de se even when the relative clause is embedded under an attitude verb.

Given that LD caki can be exempt from the de se requirement in relative clauses, one might wonder if caki in (4) can also receive a (non-de se) de re interpretation. Surprisingly, the answer is no. Consider the following additional context.
(5) **S3:** John finds Mary very kind. One day, John watches a video and sees Mary hitting a guy. John recognizes that it is Mary and thinks, “That woman who is hitting that guy is actually kind.” Unbeknownst to John, the guy on the video was John himself and Mary was actually giving him a massage. ((non-\textit{de se}) \textit{de re})

\begin{verbatim}
John,-un [\text{[caki,-lul ttau\-yi]-n ye\-ca]-ka} chakhata-ko sayngkahanta.
\end{verbatim}

‘John thinks that the woman who hit him is kind.’ (#S3)

Note that LD \textit{caki} can receive a non-\textit{de se} interpretation when the content of the relative clause is not in John’s belief, as in ‘S2’ in (4). Given the context, we know that the content of the relative clause is true in the actual world. By contrast, in the context ‘S3’ shown in (5), there is a woman who hit a guy (which happens to be John) in John’s belief worlds, while John does not know that the guy is John himself. The fact that LD \textit{caki} cannot be used under a context like this indicates that LD \textit{caki} in the relative clause cannot be interpreted (non-\textit{de se}) \textit{de re}.

In contrast to LD \textit{caki} in the relative clause, there is no such restriction when the third person pronoun is used in the relative clause. As we saw before, the third person pronoun \textit{ku} ‘he’ in Korean can be construed either \textit{de se} or (non-\textit{de se}) \textit{de re}, as in English. Unlike the example with \textit{caki}, the following sentence with \textit{ku} ‘he’ can be used in all of the three contexts we examined above.

\begin{itemize}
\item \textbf{(6) Third person pronoun in a relative clause}
\end{itemize}

\begin{itemize}
\item S1: John thinks, "That woman who hit me is actually kind." \textit{(de se)}
\item S2: John thinks that a girl he has newly met in class is very kind and nice. Unbeknownst to John, however, they met at a party the other night and she hit him while he was so drunk. \textit{(non-de se)}
\end{itemize}
S3: John finds Mary very kind. One day, John watches a video and sees Mary hitting a guy. John recognizes that it is Mary and thinks, “That woman who is hitting that guy is actually kind.” Unbeknownst to John, the guy on the video was John himself and Mary was actually giving him a massage. ((non-de se) de re)

\[\text{John}_1\text{-un } [\text{[ku}_1\text{-lul ttayli]}\text{-n yeca}]-\text{ka } \text{chakhata-ko sayngkakhanta.}\]
\[\text{John}\text{-top he-ACC hit-ADN woman-NOM kind-COMP think}\]

‘John thinks that the woman who hit him is kind.’ (√ S1, √ S2, √ S3)

So far, we have seen that LD caki in the relative clause can receive a non-de se interpretation under a particular scenario even in the attitude environment, while it can never be used when the attitude holder has a (non-de se) de re belief about himself.

5.2.2 A similar environment: Gapless relative clauses

Based on our observations on LD caki occurring in relative clauses, let us now turn our attention to another similar environment where LD caki can find a long-distance antecedent without being obligatorily interpreted de se in attitude environments. In Korean, certain nouns can take a modifying clause which looks almost identical to relative clauses, except that they do not contain any gap in them (Cha 1998, 1999, Kim 1998, among others). Due to this reason, this noun-modifying construction is dubbed ‘gapless relative clauses’ (e.g., Cha 1998, 1999, Zhang 2008). As shown in (7), while the surface forms of the DPs with the two types of noun-modifying clauses look very similar (i.e., ‘Noun modifying clause+Adnominal marker nun+Head noun’), only the relative clause in (7a) contains a gap in it. By contrast, there is no gap position in the gapless relative clause in (7b).\(^2\)

\(^2\)There is another type of noun-modifying clause in Korean that looks very much similar to, but is different from, the so-called ‘gapless relative clauses’. Certain nouns in Korean can take a clausal complement with a mood marker, which indicates that the complement is a full-fledged clause. The surface structure of DPs with this type of clause is same as those with (gapless) relative clauses: the head noun is preceded by a modifying clause and the adnominal marker -nun. As shown in (i), this noun-complement clause is distinguished from gapless relative clauses in the existence of the mood marker -ta. The existence of the mood marker is mandatory in the complement clause of certain nouns like somwun ‘rumor’, sosik ‘news’, cwucang ‘claim’.
Relative vs. Gapless relative clause

a. [ei sayngsen-ul pha-nun] salam,f
   fish-ACC sell-ADN person
   ‘The person who sells fish’

b. [sayngsen-i tha-nun] naymsay
   fish-NOM burn-ADN smell
   ‘The smell of fish burning’ (‘Lit. the smell that fish burns’)

Perception verbs like pota ‘see’ and tutta ‘hear’ can take DP complements that contain a gapless relative clause. As illustrated in (8), when LD caki appears in a gapless relative clause, it can take the matrix subject as its long-distance antecedent, and the ‘awareness condition’ is not required, as in relative clauses.

Gapless relative clause under a perception verb

John1-un [[thipi-eyse Mary-ka caki1-lul piphanha]-nun kes/cangmyen]-ul
John-top TV-in Mary-NOM self-ACC criticize-ADN thing/scene-ACC
poassta.
saw

‘John1 saw (the scene of) Mary criticizing him1 on TV.’

Moulton (2009) shows that perception verbs taking a bare infinitival complement in English express direct perception and do not implicate any beliefs of the subject (Barwise 1981, Higginbotham 1983). Since these direct perception reports are epistemically neutral, the sentence in (9b) is not a contradiction.

As discussed in Chapter 3, LD caki in the noun-complement clause with a mood marker must be interpreted de se as in the complement clause of attitude verbs. In this subsection, we focus on the noun-modifying clauses without a mood marker and show that they behave more like relative clauses when they contain the reflexive caki: that is, LD caki contained in these clauses can receive a non-de se reading as in regular relative clauses.
(9)  
  a. John saw Fred leave early.
  
  b. Edina saw Fred leave the house early, but she thought he was just looking out the door.  
      (Moulton 2009)

Similarly, *pota 'see'* taking a DP complement with a gapless relative clause also expresses a direct perception report and is epistemically neutral. Therefore, it is not a contradiction when the sentence in (8) is followed by a sentence like (10). This shows that (8) is felicitous in a situation in which John does not identify what he saw as the scene of Mary criticizing him—i.e., no awareness condition.

(10) Haciman ku-nun [Mary-ka solinayse chayk-ul ilk-ko.iss-ta]-ko
      But he-TOP Mary-NOM out.loud book-ACC read-PROG-DECL-COMP
      thought
      ‘But he thought that Mary was reading a book out loud.’

More importantly, LD *caki* in gapless relative clauses displays the same properties as *caki* in regular relative clauses in attitude environments. That is, LD *caki* in gapless relative clauses can also be exempt from an obligatory *de se* interpretation within the scope of an attitude verb.

(11)  
      Context: Bill, John’s son, was fixing a piano. John heard it while he was taking a nap, and thought:
      S1: ‘Oh my son is playing piano again. His piano sound is so loud.’  
          (de se)
      S2: ‘What is this sound? It’s so loud.’  
         (non-*de se*)

      John1-un [[caki1-uy atul-i phiano-lul chi-nun] soli-ka sikkulepta]-ko
      John-TOP self-GEN son-NOM piano-ACC play-ADM sound-NOM loud-COMP
      thought
      ‘John, thought that the sound of his, son playing piano was loud.’  
          (✓ S1, ✓ S2)
The fact that the sentence in (11) can be used under the context in ‘S2’ indicates that LD \textit{caki} in the gapless relative clause can be interpreted non-\textit{de se}. Although John cannot identify the sound he heard as ‘my son’s piano sound’, the description with the noun-modifying clause containing \textit{caki} can be chosen by the speaker in the attitude report given the actual world.

Moreover, the non-\textit{de se} interpretation of LD \textit{caki} in the gapless relative clause is only available when the content of the clause is interpreted relative to the actual world instead of the attitude holder’s belief worlds. Therefore, LD \textit{caki} cannot get a non-\textit{de se} interpretation when the content of the gapless relative clause—for instance, \textit{someone’s son is playing piano}—is contained in John’s belief worlds, as shown in ‘S3’ below.

(12) S3: John saw a video in which a boy was fixing a piano and a guy was standing by the boy, and he thought the boy is the son of the guy next to him and was playing piano. John thought, "Oh gosh, that guy’s son plays piano so badly. The sound is too loud." Unbeknownst to John, the boy on the video was his own son and the guy was John himself. ((non-\textit{de se}) \textit{de re})

\begin{center}
\begin{tabular}{l}
thought

‘John, thought that the sound of his son playing piano was loud.’ (\# S3)
\end{tabular}
\end{center}

The unavailable context in (12) shows that LD \textit{caki} in the gapless relative clause cannot receive a (non-\textit{de se}) \textit{de re} interpretation. Due to the unavailability of the (non-\textit{de se}) \textit{de re} reading of the LD \textit{caki} in this construction, the sentence in (13) cannot be followed by a sentence like (14).


‘But John didn’t know that the boy who’s fixing the piano was his own son.’
Again, the sentence can be used under the context in ‘S3’ as well as ‘S1’ and ‘S2’ in (12) when LD *caki* is replaced by the third person pronoun.

### 5.2.3 Summary

The novel data presented in this section indicate that (i) LD *caki* can be exempt from an obligatory *de se* interpretation in attitude environments when it is contained in a (gapless) relative clause, (ii) LD *caki* in the relative clause can receive a non-*de se* interpretation only when the description with the relative clause is used by the speaker as opposed to the bearer of attitude, and (iii) LD *caki* cannot receive a (non-*de se*) *de re* interpretation when the content of the relative clause containing *caki* holds in every belief world of the attitude holder.

Two important questions need to be addressed with regard to our new findings. First, what are the structural properties of relative clauses that enable LD *caki* to be exempt from the obligatory *de se* interpretation in attitude environments? Second, how can we formally generalize the behavior of LD *caki* in relative clauses with respect to its (non-)obligatory *de se* interpretation? The following sections will discuss these issues in detail.

### 5.3 Intensional status of relative clauses

As we have discussed in Chapter 3, we assume that intensional variables (e.g., variables over possible worlds/situations) and abstractors over these variables are contained in the syntax of the object language (Cresswell 1990, Percus 2000, Keshet 2008, Schwarz 2012, a.o.). Like other pronouns, these unpronounced world pronouns are indexed and bound by a co-indexed binder. Although the exact syntactic positions of these silent world pronouns may be controversial, it is less controversial that these pronouns appear in verb and determiner phrases.

Under this extensional system, the so-called ‘*de re/de dicto* ambiguity’ of noun phrases
can be analyzed with different indexings of the world pronouns occurring in noun phrases. For instance, the embedded subject *my brother* in (14) can be interpreted in two different ways. First, the sentence in (14) can be used when Mary thinks John is Canadian, while John is in fact my brother (although Mary may not be aware of that). Second, (14) is also felicitous when Mary mistakenly thinks Tom is my brother and he is Canadian, although Tom may not be my brother in the actual world. The first case is the so-called *de re* or *transparent* reading, while the second case is the *de dicto* or *opaque* reading. Under the intensional variable approach, the following two structures in (15) yield these two readings, which differ only with respect to the index of the world pronoun in the embedded DP: \( w_0 \) in (15a) and \( w_2 \) in (15b).

(14) Mary thinks that my brother is Canadian. (Percus 2000)

(15) *De re vs. de dicto*

a. \( \lambda w_0 \) Mary thinks \( w_0 [\lambda x_1 \lambda w_2 [\text{my brother } w_0] \text{ is Canadian } w_2] \) (*de re*)

b. \( \lambda w_0 \) Mary thinks \( w_0 [\lambda x_1 \lambda w_2 [\text{my brother } w_2] \text{ is Canadian } w_2] \) (*de dicto*)

In addition to the two structures in (15), there are two more possible structures to consider, as shown in (16): namely, the structures in which the world pronoun that appears in the embedded VP is bound by the higher binder, \( \lambda w_0 \). Importantly, Percus (2000) shows that the intended readings that the structures in (16) would yield are not available. For instance, in (16b), the embedded DP *my brother* is interpreted relative to Mary’s belief worlds, while the interpretation of the embedded VP *is Canadian* is relative to the actual world. With this particular structure, the sentence in (14) should be judged true under the scenario where there is a guy who is my brother (and may not be Canadian) in Mary’s belief worlds, while that guy is actually Canadian, e.g., Mary thinks, ‘John, Yangsook’s brother, is Korean’ (Unbeknownst to Mary, John is Canadian and not my brother). In fact,
the sentence in (14) is judged false under this scenario.

(16) a. \( \lambda w_0 \) Mary thinks \( w_0 [\lambda x_1 \lambda w_2 [\text{my brother } w_0] \text{ is Canadian } w_0] \)
b. \( \lambda w_0 \) Mary thinks \( w_0 [\lambda x_1 \lambda w_2 [\text{my brother } w_2] \text{ is Canadian } w_0] \)

Based on this observation that the binding of world pronouns are not entirely free, Percus (2000) proposes a binding principle for world pronouns in the object language so that we can block the impossible structures as in (16).\(^3\)

(17) **Generalization X:**

The situation[/world] pronoun that a verb selects for must be coindexed with the nearest \( \lambda \) above it. (Percus 2000, p.201; bracketed texts mine)

Given this principle, a world pronoun that is associated with a verb in the complement of attitude verbs must be bound by the closest world binder that is introduced by the immediately embedding attitude verb, and thus, verb phrases in complements of attitude verbs always receive a *de dicto* or *opaque* reading.\(^4\)

Note, however, that a world pronoun that is associated with a verb inside the relative clause, which occurs in a complement of an attitude verb, does not have to be co-indexed with a binder that is introduced by the embedding attitude verb. To illustrate, consider the example in (18), where a relative clause is embedded under the attitude verb *think*.

(18) Mary, thinks [the woman [who criticized her paper]] is Canadian.

As in (14), the definite description ‘the woman’ may be interpreted *de re* or *de dicto*, while the embedded predicate *be Canadian* can only be read *de dicto*. The problem is how the verb inside the relative clause would be interpreted. Unlike the subordinate verb directly

\(^3\)This approach may lead to overgeneralization, as pointed out by a number of authors: see, for instance, Keshet (2008) and Romoli and Sudo (2009).

\(^4\)Contrary to Percus’s Generalization X, embedded verbs may allow transparent readings in some cases (Cable 2011).
under the attitude verb *think*, the verb *criticize* in the relative clause seems to allow the *de re/de dicto* ambiguity. Suppose that Mary met a woman at a conference and mistakenly thinks her paper was criticized by this woman and she is Canadian: Mary thinks, ‘The woman who criticized my paper is Canadian.’ Although the woman Mary met did not criticize Mary’s paper, we can report Mary’s thought using the sentence in (18). In this case, the verb embedded in the relative clause gets an opaque (*de dicto*) reading. On the other hand, now suppose that Mary met a woman and thinks she is Canadian. Unbeknownst to Mary, however, the woman is the one who criticized Mary’s paper. In this latter case, the verb *criticize* in the relative clause is interpreted transparently (*de re*).

(19)  **De re vs. de dicto readings of the verb in the relative clause**

a. \[\lambda w_0 \text{Mary}_1 \text{thinks } w_0 \[\lambda x_1 \lambda w_2 \text{[the woman } w_0 \text{[who criticized her}_1 \text{ } w_0] \text{is Canadian } w_2]\] \ (de re/transparent)

b. \[\lambda w_0 \text{Mary}_1 \text{thinks } w_0 \[\lambda x_1 \lambda w_2 \text{[the woman } w_2 \text{[who criticized her}_1 \text{ } w_2] \text{is Canadian } w_2]\] \ (de dicto/opaque)

In addition to the world pronoun, other intensional entities like time pronouns are also known to behave differently in relative clauses than in finite complement clauses. A well-known instance is the interpretation of the past tense in relative clauses (e.g., Cresswell 1990, Kusumoto 1999, 2005). That is, a past tense in a relative clause can be interpreted relative to the utterance time instead of the matrix event time so that the eventuality of the relative clause can be understood to take place later than the eventuality of the matrix clause, an interpretation dubbed ‘later-than-matrix’ by Kusumoto (1999, 2005).

(20) a. John believed that Mary was sick. \(\times\) later-than-matrix

b. Hillary married a man who became the president of the U.S. \(\checkmark\) later-than-matrix

(Kusumoto 2005)
Given the special properties of relative clauses with respect to their temporal or intensional status (Kusumoto 2005, Schwarz 2012, a.o.), we will assume that world pronouns in relative clauses do not have to be bound by the closest binder, contrary to the restriction on main predicates. We will see that this special intensional property of relative clauses is the main source of the non-*de se* interpretation of LD *caki*.

### 5.4 The relationship between *de se* and *de dicto* attitude reports

#### 5.4.1 Generalizations

Having shown the interesting and novel restriction on the interpretation of LD *caki* in relative clauses, let us now further examine the relationship between the interpretations of LD *caki* in a relative clause and the whole relative clause that contains it. Our observations about the (non-)obligatory *de se* interpretation of LD *caki* in relative clauses can be summarized as follows: LD *caki* in the relative clause receives a non-*de se* interpretation only when the predicate of the relative clause is not interpreted relative to the belief worlds of the attitude holder, which is the antecedent of *caki* (*de re*), while LD *caki* must receive a *de se* interpretation when the relative clause containing *caki* is interpreted with respect to the attitude holder’s belief worlds (*de dicto*).

Given our assumption that the world variable in relative clauses need not be bound by the closest binder, the two possible readings and one impossible reading of (4), repeated below as (21), can be represented as in (22) with different indexing on the world pronoun within the relative clause.\(^5\)

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\(^5\)Here, the co-indexing between LD *caki* and its antecedent in (22b) does not mean that LD *caki* in the relative clause is free or directly bound by the matrix subject. The co-indexing merely indicates that *caki* is not construed *de se* but is coreferential with the long-distance antecedent. A mechanism for long-distance binding of LD *caki* in relative clauses (in addition to other environments) will be proposed in Chapter 6.
S1: John thinks, “That woman who hit me is actually kind.”  
S2: John thinks that a girl he has newly met in class is very kind and nice. Unbeknownst to John, however, they met at a party the other night and she hit him while he was so drunk.  
S3: John finds Mary very kind. One day, John watches a video and sees Mary hitting a guy. John recognizes that it is Mary and thinks, “That woman who is hitting that guy is actually kind.” Unbeknownst to John, the guy on the video was John himself and Mary was actually giving him a massage.

(21) a. _De se_ interpretation of _caki_ in the RC
\[ \lambda w_0 \text{John}_j \text{ thinks } w_0 [\lambda x_1 \lambda w_2 \text{ [the woman who hit self}_1 \text{ w}_2 ] \text{ is nice w}_2 ] \]

b. _Non-de se_ interpretation of _caki_ in the RC
\[ \lambda w_0 \text{John}_j \text{ thinks } w_0 [\lambda x_1 \lambda w_2 \text{ [the woman who hit self}_j \text{ w}_0 ] \text{ is nice w}_2 ] \]

c. _Non-de se_ _De re_ interpretation of _caki_ in the RC
\[ *\lambda w_0 \text{John}_j \text{ thinks } w_0 [\lambda x_1 \lambda w_2 \text{ [the woman who hit self}_j \text{ w}_2 ] \text{ is kind w}_2 ] \]

The structure in (22a) yields a _de dicto_ reading of the predicate in the relative clause, given that the world pronoun that is associated with the verb ‘hit’ is co-indexed with the lower binder \( \lambda w_2 \). This particular structure also yields a _de se_ interpretation of LD _caki_ in the relative clause, since the reflexive is bound by the local individual abstractor \( \lambda x_1 \). Accordingly, this structure corresponds to the reading under ‘S1’ in (21). On the other hand, the LF in (22b) yields a _de re_ reading of the embedded verb ‘hit’, which means that there exists someone who hit John in the actual world, although there may be no one who hit John in John’s belief worlds, as described in ‘S2’ in (21). When the predicate in the relative clause is interpreted relative to the actual world, LD _caki_ in the relative clause is
associated with its long-distance antecedent without being bound by the local individual abstractor, and thus receives a non-
de se interpretation.\textsuperscript{6} Lastly, the structure like (22c), which corresponds to the reading under the scenario ‘S3’ in (21), is not available. Here the verb ‘hit’ in the relative clause that contains \textit{caki} is interpreted with respect to John’s belief worlds (\textit{de dicto}), whereas \textit{caki} is not construed \textit{de se}.

There is one additional interpretation that cannot be derived from the sentence in (21): \textit{caki} is read \textit{de se} while the predicate of the relative clause is true in the actual world (\textit{de re}). Suppose a situation where John is watching a video of himself and thinks, "Oh, that woman who is massaging me is very kind". Unbeknownst to John, the woman was actually hitting him. The sentence in (21) cannot be used in this particular scenario. While John has a \textit{de se} attitude in this scenario, the predicate of the relative clause in the attitude report is not contained in John’s thought. Since John only used the expression ‘the man who is massaging me’ instead of ‘the woman who is hitting me’ in his thought—although the two descriptions denote the same person in the same situation on the video, \textit{caki} in the relative clause in (21) cannot be construed \textit{de se}.

\textbf{(23) Impossible \textit{de se} interpretation of \textit{caki} in the RC}

\[
\* \lambda w_0 \text{John}_j \text{ thinks } w_0 [\lambda x_1 \lambda w_2 [\text{the woman } [\text{who hit self}_1 w_0]] \text{ is kind } w_2]
\]

Importantly, the unavailability of the \textit{de se} reading in some cases like (23) provides important evidence that \textit{de se} interpretations of certain elements—at least LD \textit{caki} in Korean—can only be derived from a dedicated \textit{de se} LF, contra Perry (1977) and others.

The patterns we saw above can be schematically illustrated as in (24).

\textsuperscript{6}Given that LD \textit{caki} in the relative clause can be associated with the matrix subject without a \textit{de se} interpretation in attitude reports, we need an account how LD \textit{caki} is associated with its long-distance antecedent in this case. This issue will be dealt with in Chapter 6, where we provide a syntactico-semantic account for logophoric binding of LD \textit{caki}.
(24) **Caki in a RC under an attitude verb** (where DP\(_i\) = caki)

a. **✓** RC predicate: de re & caki: non-de se

\[ \lambda w_0 \text{DP}_i \text{att-verb}_1 [CP \lambda x_1 \lambda w_2 [DP ... [RC ... caki ... w_0 ]] V w_2] \]

b. **✓** RC predicate: de dicto & caki: de se

\[ \lambda w_0 \text{DP}_i \text{att-verb}_1 [CP \lambda x_1 \lambda w_2 [DP ... [RC ... caki ... w_2 ]] V w_2] \]

c. **✗** RC predicate: de dicto & caki: (non-de se) de re

\[ *\lambda w_0 \text{DP}_i \text{att-verb}_1 [CP \lambda x_1 \lambda w_2 [DP ... [RC ... caki ... w_2 ]] V w_2] \]

d. **✗** RC predicate: de re & caki: de se

\[ *\lambda w_0 \text{DP}_i \text{att-verb}_1 [CP \lambda x_1 \lambda w_2 [DP ... [RC ... caki ... w_0 ]] V w_2] \]

Given this pattern, I propose descriptive generalizations of the relationship between the de re or de dicto reading of the predicate in the relative clause containing caki and the (non-)obligatory de se interpretation of LD caki in the relative clause.

(25) **Generalizations of the relationship between de se and de dicto**

a. **Generalization I: Obligatory de se under de dicto**

The LD reflexive caki must be construed de se when the predicate in the same clause is read de dicto with respect to the antecedent of caki.

b. **Generalization II: Obligatory non-de se under non-de dicto**

The LD reflexive caki must be construed non-de se when the predicate in the same clause is not read de dicto with respect to the antecedent of caki.

Our generalizations capture the close relationship between the obligatory de se interpretation of LD caki and de dicto reading of the predicate in the clause that contains caki. Interestingly, LD caki must receive a non-de se interpretation when the predicate in the same clause is not interpreted de dicto with respect to the antecedent of caki. As noted in (25), a de dicto reading of the embedding predicate must be determined with respect to the antecedent of caki. Given this, a structure like (22c) cannot be derived because LD
caki is not construed *de se* while the predicate in the same clause (the relative clause) is part of John (i.e., the attitude holder and the antecedent of caki)'s attitudes. Moreover, the special non-*de se* interpretation of caki only in relative clauses can also be explained by the behavior of the intensional variables in relative clauses. That is, only relative clauses under an attitude verb allow the world variable within its scope to be interpreted relative to either the actual world (*de re*) or the attitude holder’s belief worlds (*de dicto*). In the rest of this section we will examine carefully whether our generalizations hold for more complex data including multiple embeddings and multiple occurrences of caki.

### 5.4.2 Doubly-embedded sentences

In order to examine our generalizations in (25), let us consider how LD caki contained in a relative clause would be interpreted given the interpretation of its predicate when there is more than one attitude verb in a sentence. We will show that our generalizations dubbed ‘Obligatory *de se* under *de dicto*’ and ‘Obligatory Non-*de se* under non-*de dicto*’ hold for doubly-embedded sentences as well.

As we saw earlier, LD caki in the most embedded clause can refer to either the matrix or intermediate subject under multiple embeddings, as illustrated in (26). LD caki under multiple embeddings must be construed *de se* with respect to its referent. Thus, the coreference reading between the matrix subject John and caki in (26) is only felicitous when John’s speech contains Tom’s thought about him in a first-personal way: e.g., ‘Tom thinks Mary likes me’. Under the coreference reading between the intermediate subject Tom and caki, the sentence can be used only when John says that Tom has a *de se* attitude: e.g., John said, ‘Tom thought, ‘Mary likes me’.”

said ‘John, said that Tom_j thinks that Mary likes him_i/j.’
The truth-conditions of each of the *de se* reading in (26) can be derived from the structures in (27) and (28), respectively.

**Coreference between the matrix subject and caki**

(27)  
a. LF: \(\lambda w_0 \) John said \(w_0\) \[\lambda x_1 \lambda w_2\) Tom thinks \(w_2\) \[\lambda x_3 \lambda w_4\) Mary likes \(\text{caki}_4\) \(
w_4)\]  
b. \([(27a)]^g = \lambda w. \forall <y,w'> \in \text{Say}_\text{John},w: [\forall <z,w''> \in \text{Dox}_\text{Tom},w': \text{Mary likes} y \text{ in } w'']\)

**Coreference between the intermediate subject and caki**

(28)  
a. LF: \(\lambda w_0 \) John said \(w_0\) \[\lambda x_1 \lambda w_2\) Tom thinks \(w_2\) \[\lambda x_3 \lambda w_4\) Mary likes \(\text{caki}_3\) \(
w_4)\]  
b. \([(28a)]^g = \lambda w. \forall <y,w'> \in \text{Say}_\text{John},w: [\forall <z,w''> \in \text{Dox}_\text{Tom},w': \text{Mary likes} z \text{ in } w'']\)

LD *caki* appearing in a relative clause can also find any subject in the higher clauses as its antecedent under multiple embeddings, as shown in (29). Contrary to *caki* in (26) with the obligatory *de se* interpretation, LD *caki* in the relative clause can receive a non-*de se* interpretation under some particular situations, as we saw already.

(29)  
John,un [Tom,-i \[\text{[(caki}_{i/j}-
layli]-n yeca]-ka chakhata-ko  
John-top Tom-nom self-acc hit-adn woman-nom kind-comp  
sayngkakhanta]-ko malhayssta], think-comp  
said  
‘John, said that Tom,j thinks that the woman who hit him_{i/j} is kind.’

First, let us consider the case in which LD *caki* is coreferent with the matrix subject. There are a number of structures to examine depending on the interpretation of *caki* (**de se** vs. non-**de se**) and the predicate of the relative clause (with a world variable co-indexed with \(\lambda w_0\), \(\lambda w_2\), or \(\lambda w_4\)).
Given our generalizations, we expect \textit{caki} to receive an obligatory non-\textit{de se} interpretation when the verb phrase in the same clause is not interpreted \textit{de dicto} with respect to the antecedent of \textit{caki}, the matrix subject. Moreover, we predict that \textit{caki} would only allow a \textit{de se} reading but not a (non-\textit{de se}) \textit{de re} reading when the relative clause is interpreted relative to John’s belief worlds. These predictions are borne out.

(30) \[\text{\textbf{LF}}: \lambda w_0 \text{John}_i \text{ said } [_{CP_1} \lambda x_1 \lambda w_2 \text{Tom}_j \text{ thinks } [_{CP_2} \lambda x_3 \lambda w_4 \text{ [the woman [who hit }_{\text{self}_1/i} \text{ w}_0/2/4]\text{ is kind } w_4]]]\]

Coreference between the matrix subject and \textit{caki} in the RC

a. \checkmark RC predicate: \textit{de re} & \textit{caki}: non-\textit{de se}

\textit{Context}: John and Tom met a woman at a party. Tom thought she was very kind after talking to her, and told John: “That woman we met at a party is very kind.” When Sue asked John about the party, he said: “I don’t remember anything about the party, but Tom thinks the woman we met is kind.” Unbeknownst Tom and John, however, the woman they met was the one who hit John a while ago.

\textit{LF}: \lambda w_0 \text{John}_i \text{ said } w_0 [\lambda x_1 \lambda w_2 \text{Tom}_j \text{ thinks } w_2 [\lambda x_3 \lambda w_4 \text{ [the woman [who hit }_{\text{self}_1/i} \text{ w}_0]\text{ is kind } w_4]]]

b. \times RC predicate: \textit{de re} & \textit{caki}: \textit{de se}

\textit{Context}: John and Tom met a woman at a party. Tom thought she was very kind after talking to her, and told John: “That woman we met at a party is very kind.” John also remembered her as the one who gave him a massage, and said: “Tom thinks the woman who gave me a massage is kind.” Unbeknownst to John, she hit him rather than gave him a massage.
c. ✓ RC predicate: John’s *de dicto & caki: de se*

*Context:* Tom told John: "Mary is a kind person." John thought that Mary is the one who hit him the other day and John doesn’t like her because of that. John said: "Tom thinks the woman who hit me is kind. I don’t think she is kind, though." Unbeknownst to John, however, Mary is the one who protected him.

LF: \(\lambda w_0 \text{John} \ i \ \text{said} \ w_0 \ [\lambda x_1 \ \lambda w_2 \ \text{Tom} \ j \ \text{thinks} \ w_2 \ [\lambda x_3 \ \lambda w_4 \ ([\text{the woman [who hit self}_i \ w_2]] \ \text{is kind} \ w_4)]\]

The contrast between (31a) and (31b) supports our second generalization ‘Obligatory non-*de se* under non-*de dicto’*, while the contrast between (31c) and (31d) confirms the first generalization ‘Obligatory *de se* under *de dicto* readings’. The content of the relative clause in (31a) and (31b)—that is, there is an individual x and x hit John—is true only in the actual world. In this case, *caki* must be associated with the matrix subject without being

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7 More concretely, we may also need to indicate how the subject in the most embedded clause is construed *de re* with respect to the intermediate subject, given that Tom also has a *de re* belief about Mary. One possible LF that captures Tom’s *de re* belief about Mary (with an additional *de re* LF for the trace) may be as follows: e.g. \(\lambda w_0 \ \text{John} \ i \ \text{said} \ w_0 \ [\lambda x_1 \ \lambda w_2 \ \text{Tom} \ j \ \text{thinks} \ w_2 \ [\lambda x_3 \ \lambda w_4 \ ([\text{the woman [who hit self}_i \ w_2]] \ \lambda_5 \ t_5 \ \text{is kind} \ w_4)]\].
construed *de se*. On the other hand, the verb phrase of the relative clause is interpreted relative to John’s belief worlds in both (31c) and (31d). In such cases, John’s direct speech must include the definite description with the first person pronoun (e.g., ‘the woman who hit *me*) in order to use the LD reflexive *caki* in the attitude reports. Thus, a non-*de se* construal of *caki* is ruled out in (31d).

There are two more structures that need to be considered: the cases in which the world variable in the relative clause is interpreted relative to the intermediate subject’s belief worlds. As shown below, LD *caki* must be construed *de se* in these cases.

(32) a. ✓RC predicate: Tom’s *de dicto & caki: de se*

 *Context*: At a party, Tom had a nice conversation with Mary and thought she was very kind, although he saw Mary hitting John (In fact, Mary was protecting John). Next day, Tom told John: "There was this girl, Mary, who hit you last night, but she was actually very kind." John does not remember anything about the party and said: "Tom thinks the woman who hit me is kind."

 *LF*: \(\lambda w_0 \text{John}, \text{said} w_0 [\lambda x_1 \lambda w_2 \text{Tom} j \text{thinks} w_2 [\lambda x_3 \lambda w_4 [\text{the woman [who hit }_{x_1} w_4]] \text{is kind} w_4]]\)

b. ✗RC predicate: Tom’s *de dicto & caki: non-*de se*

 *Context*: At a party, Tom had a nice conversation with Mary and thought she was very kind, although he saw Mary hitting a guy (In fact, Mary was protecting him.). Next day, Tom showed a photo of the party to John and told John: "There was a girl, Mary, who hit this guy in the photo last night. But she was actually very kind." John does not remember anything about the party and said: "Tom thinks the woman who hit this guy in the photo is kind."

Unbeknownst to Tom and John, the guy in the photo was actually John.
LF: \[\lambda w_0 \text{John}_i \text{ said } w_0 [\lambda x_1 \lambda w_2 \text{Tom}_j \text{ thinks } w_2 [\lambda x_3 \lambda w_4 [\text{the woman [who hit self ]}_i w_4]] \text{ is kind } w_4]]

This is an interesting case because it looks like the content of the relative clause is included in the intermediate attitude holder’s *de dicto* beliefs instead of the actual antecedent of *caki*’s. However, a careful examination reveals that these cases involve John’s *de dicto* reports about Tom’s *de dicto* beliefs. For instance, the description about the woman with the relative clause is expressed in John’s reports as well—as ‘the woman who hit me’ or ‘the woman who hit that guy’ in the contexts of (32). If John made a *de re* report about Tom’s *de dicto* attitudes, he would not use the same description that Tom used, but instead would use his own description to describe Mary from his perspective. Suppose, for instance, that John remembers that the woman Tom is referring to is the one who saved him instead of hit him. Then, John could make a *de re* report about Mary with his own term rather than using Tom’s expression as ‘Tom thinks the woman who saved me is kind’, although Tom thinks ‘The woman who hit John is kind.’ Thus, the entire sentence under the context in (32a) is a *de dicto* report of John’s speech that involves a *de dicto* report of Tom’s belief (i.e., the iterated *de dicto* reports). Accordingly, the obligatory *de se* interpretation of *caki* in (32) also supports our generalization ‘Obligatory *de se* under *de dicto*’. The (im)possible structures of doubly-embedded cases in which LD *caki* in the relative clause finds the matrix subject as its antecedent can be schematized as in (33).

(33) **In a doubly-embedded sentence** (where DP\(_i\) = *caki*)

a. ✓ RC predicate: *de dicto* & *caki*: *de se*

\[\lambda w_0 [\text{DP}_i] \text{att-verb}_1 [\text{CP}_1 \lambda x_1 \lambda w_2 \text{DP}_j \text{att-verb}_2 [\text{CP}_2 \lambda x_3 \lambda w_4 [\text{DP} ... [\text{RC} ... \text{caki}_i ... w_{2/4}] V-w_4]]\]

b. ✗ RC predicate: *de dicto* & *caki*: non-*de se*

\[\not\lambda w_0 [\text{DP}_i] \text{att-verb}_1 [\text{CP}_1 \lambda x_1 \lambda w_2 \text{DP}_j \text{att-verb}_2 [\text{CP}_2 \lambda x_3 \lambda w_4 [\text{DP} ... [\text{RC} ... \text{caki}_i ... w_{2/4}] V-w_4]]\]
c. ✓ RC predicate: de re & caki: non-de se
\[
\lambda w_0 [\text{DP}] \text{att-verb}_1 [CP_1 \lambda x_1 \lambda w_2 \text{DP}_j \text{att-verb}_2 [CP_2 \lambda x_3 \lambda w_4 [DP \ldots [RC \ldots caki_i \ldots w_0]]] V-w_4]
\]

d. ✗ RC predicate: de re & caki: de se
\[
\lambda w_0 [\text{DP}] \text{att-verb}_1 [CP_1 \lambda x_1 \lambda w_2 \text{DP}_j \text{att-verb}_2 [CP_2 \lambda x_3 \lambda w_4 [DP \ldots [RC \ldots caki_i \ldots w_0]]] V-w_4]
\]

Next, let us examine the cases under the coreference between the intermediate subject Tom and and LD caki in the example in (29). First, we predict that caki must be interpreted de se when the predicate in the relative clause is interpreted de dicto with respect to Tom—the antecedent of caki. Second, we also predict that caki would receive an obligatory non-de se interpretation when the verb phrase in the same clause is not interpreted relative to Tom’s belief worlds but by the actual world (de re) or John’s—another attitude holder in the higher clause—belief worlds (de dicto with respect to John). These predictions are confirmed by our data shown in (34).

(34) a. ✓ RC predicate: Tom’s de dicto & caki: de se

Context: At a party, Tom had a nice conversation with Mary and thought she was very kind, although he thought she’s the one who hit him earlier (In fact, Mary protected him.). Next day, Tom told John: "There was this girl, Mary, who hit me last night, but she was actually very kind." John does not remember anything about the party and says: "Tom thinks the woman who hit him is kind."

LF: \[
\lambda w_0 \text{John_i said w}_0 [\lambda x_1 \lambda w_2 \text{Tom}_j \text{thinks w}_2 [\lambda x_3 \lambda w_4 [\text{the woman [who hit self_i w}_4]]] \text{is kind w}_4]]
\]

b. ✗ RC predicate: Tom’s de dicto & caki: non-de se

Context: At a party, Tom had a nice conversation with Mary and thought she was very kind, although he thought Mary was the one who was hitting a guy
on a video he watched. Next day, Tom told John: "There was this girl, Mary, who hit some guy on the video I watched. But she was actually very kind."

Unbeknownst to Tom, John knew that the guy on the video was Tom, and Mary was helping him out instead of hitting him on the video. John said: "Tom thinks the woman who hit him is kind."

LF: $\lambda w_0 \text{John}, \text{said } w_0 [\lambda x_1 \lambda w_2 \text{Tom}_j \text{thinks } w_2 [\lambda x_3 \lambda w_4 [\text{the woman [who hit self}_j w_2]] \text{is kind } w_4]]$
her, but Tom thinks she is kind.” Unbeknownst Tom and John, however, the
woman they met was the one who hit Tom a while ago.

LF: \( \lambda w_0 \text{John}_i \text{said} w_0 [\lambda x_1 \lambda w_2 \text{Tom}_j \text{thinks} w_2 [\lambda x_3 \lambda w_4 [\text{the woman} [\text{who} \text{hit} \text{self}_j w_6]] \text{is kind} w_4]] \)

f. \( \times \) RC predicate: De re & caki: de se

Context: At a party, Tom finally met the girl who he thought protected him earlier and thought she was indeed very kind. Next day, Tom told John:
“There was this girl, Mary, who protected me earlier, and she was indeed very kind.” John does not remember anything about the party and says: “Tom thinks the woman who protected him is kind.” Unbeknownst to Tom and John, Mary did not protect Tom but hit him.

LF: \( \lambda w_0 \text{John}_i \text{said} w_0 [\lambda x_1 \lambda w_2 \text{Tom}_j \text{thinks} w_2 [\lambda x_3 \lambda w_4 [\text{the woman} [\text{who} \text{hit} \text{self}_j w_6]] \text{is kind} w_4]] \)

The possible and impossible readings shown in (34) can be schematically represented as in (35).

(35) In a doubly-embedded sentence (where DP \( _j = \text{caki} \))

a. \( \checkmark \) RC predicate: DP \( _j \) ’s de dicto & caki: de se

\[ \lambda w_0 \text{DP}_i \text{att-verb}_1 [CP_1 \lambda x_1 \lambda w_2 [\text{DP}_j \text{att-verb}_2 [CP_2 \lambda x_3 \lambda w_4 [DP \ldots [RC \ldots caki_j \ldots w_4]] V-w_4]] \]

b. \( \times \) RC predicate: DP \( _j \) ’s de dicto & caki: non-de se

\[ *\lambda w_0 \text{DP}_i \text{att-verb}_1 [CP_1 \lambda x_1 \lambda w_2 [\text{DP}_j \text{att-verb}_2 [CP_2 \lambda x_3 \lambda w_4 [DP \ldots [RC \ldots caki_j \ldots w_4]] V-w_4]] \]

\[ \text{This reading does not sound as good as the one in (34c), indicating that there may be an additional restriction for the world variable binding in the relative clause.} \]
c. \(\checkmark\) RC predicate: Not de dicto w.r.t. DP \(_j\) & caki: non-de se
\[
\lambda w_0 \text{DP}_i \text{att-verb}_1 [C_P_1 \lambda x_1 \lambda w_2 [\text{DP}_j] \text{att-verb}_2 [C_P_2 \lambda x_3 \lambda w_4 [\text{DP} \ldots [\text{RC} \ldots \text{caki}_j \ldots w_{20/2}] \text{V-w}_4]]
\]

d. \(\times\) RC predicate: Not de dicto w.r.t. DP \(_j\) & caki: de se
\[
\lambda w_0 \text{DP}_i \text{att-verb}_1 [C_P_1 \lambda x_1 \lambda w_2 [\text{DP}_j] \text{att-verb}_2 [C_P_2 \lambda x_3 \lambda w_4 [\text{DP} \ldots [\text{RC} \ldots \text{caki}_3 \ldots w_{0/2}] \text{V-w}_4]]
\]

Again, when caki is replaced with the third person pronoun ku in the multiple embedding case, the sentence can be used in all of the contexts we saw above, indicating that there is no restriction on the de se or de re construal for the third person pronoun unlike LD caki.

(36) John\(_i\)-un [Tom\(_j\)-i [[ku\(_{i/j}\)-lul tlayli]-n yeca]-ka chakhata-ko sayngkakhanta]-ko malhayssta.
John-top Tom-nom he-acc hit-adn woman-nom kind-comp said
‘John\(_i\) said that Tom\(_j\) thinks that the woman who hit him\(_{i/j}\) is kind.’

The data presented in this subsection support our generalizations, repeated below.

(37) Generalizations of the relationship between de se and de dicto

a. Generalization I: Obligatory de se under de dicto
The LD reflexive caki must be construed de se when the predicate in the same clause is read de dicto with respect to the antecedent of caki.

b. Generalization II: Obligatory non-de se under non-de dicto
The LD reflexive caki must be construed non-de se when the predicate in the same clause is NOT read de dicto with respect to the antecedent of caki.

In fact, these generalizations hold for LD caki that appears directly under attitude verbs. These cases fall under the first generalization ‘Obligatory de se under de dicto’. We have
seen that there is a widely accepted generalization on main predicates under the intensional variable theory: that is, main predicates are always read *de dicto* since world pronouns in VP need to be co-indexed with the closest binder. Given this, LD *caki* in a complement clause of attitude verbs must always be construed *de se* because the predicate of the clause that contains *caki* is always interpreted *de dicto* with respect to the subject in the immediately embedding clause or the subject in the higher clause by transitivity. For instance, recall that LD *caki* in a sentence like ‘Lit. John thinks that Mary likes caki’ must be construed *de se* with respect to its LD antecedent, John. Thus, it can only be used in this attitude report when John holds a belief like ‘Mary likes me.’ instead of ‘Mary hates me.’ (although perhaps Mary hates John in the actual world) or ‘Mary likes that guy.’ (while John is not aware that that guy is John himself). LD *caki* under multiple embeddings is also not an exception. For example, suppose a situation where Tom thinks Mary likes John. John can report Tom’s *de dicto* belief as ‘Tom thinks Mary likes me.’ (although John himself thinks Mary hates him). This whole situation can be reported as ‘Lit. John said Tom thinks Mary likes caki.,’ and *caki* is expected to be read *de se*, because the predicate of the most embedded clause is contained in John’s *de dicto* report of Tom’s *de dicto* belief.

While Generalization I holds for LD *caki* in general, Generalization II in (37) specifically captures the property of LD *caki* in relative clauses. We have seen that the peculiar properties of LD *caki* in relative clauses are derived not from LD *caki* itself but from the special intensional status of relative clauses. Since the world pronoun in relative clauses does not have to be bound by the nearest binder, the predicate of the relative clause may not be read *de dicto* with respect to the antecedent of *caki*. We have seen that *caki* cannot be construed *de se* in such cases and must receive a non-*de se* interpretation, as Generalization II states.
5.5 Disjoint readings of multiple caki’s

This section discusses another seemingly peculiar property of LD caki in relative clauses with respect to the interaction with another LD caki in the same complement clause. First, we will present that LD caki in relative clauses does not have to be coreferential with another caki in the same complement clause. Then, more importantly, we will show that LD caki in a relative clause cannot be exempt from another general restriction on multiple LD caki’s that they need to be coreferential under the de se construal. The behavior of multiple LD caki’s under the de se construal is not derived from Generalizations I & II, but follows from an independent constraint, that is, our proposed binding conditions for LD caki.

Recall that multiple caki’s in the same complement clause only allow a coreference reading and must be interpreted de se when they find a long-distance antecedent under attitude environments. The example in (38), repeated from (14) in Chapter 3, illustrates this.

(38) John-i [Bill-i [caki-uy emmeni-ka caki-lul silhehanta]-ko sayngkakhanta]-ko malhayssta.
    think-comp said
  a. ‘Johni said that Billj thought that hisj mother hates himj.’
  b. ‘Johni said that Billj thought that hisj mother hates himj.’
  c. ‘*Johni said that Billj thought that hisj mother hates himj.’
  d. ‘*Johni said that Billj thought that hisj mother hates himj.’

Given this, let us consider new examples involving multiple caki’s and a relative clause under multiple embeddings. In the example below, multiple caki’s appear in the most embedded clause: one inside the relative clause and the other directly under the attitude predicate ‘think’. There are three important points regarding this example. First,
caki in the relative clause does not have to be coreferent with another caki in the same embedded clause, as shown in (39c)-(39d). This is in contrast to the obligatory coreference reading of multiple caki's seen in (38).

(39)  
think-comp said  
Lit. 'John said that Mary thinks that the woman who hit self likes self.'

a. John, said that Mary, thinks that the woman who hit him, likes him.
b. John, said that Mary, thinks that the woman who hit her, likes her.
c. John, said that Mary, thinks that the woman who hit him, likes her.
d. John, said that Mary, thinks that the woman who hit her, likes him.

Second, as expected from our discussion in the previous section, caki in the relative clause in (39) does not need to receive a de se interpretation, while another caki that is in the immediate scope of the attitude verb must be interpreted de se (e.g., (40b), (40d), (40e)). For example, both caki's can refer to John, whereas only the latter one gets a de se interpretation, as in the following situation: John said, 'Mary thinks Sue likes me.' (Unbeknownst to John, Sue is the woman who hit him). Similarly, a disjoint reading, as in (40e), can be derived from a situation where John says, 'Mary thinks Sue likes her.' (Unbeknownst to John, Sue is the woman who hit him) and Mary thinks, 'Sue likes me.'

Third, the multiple caki's in (39) still need to be coreferent in order for both caki's to be interpreted de se (e.g., (40a)/(40c) vs. (40g)). In other words, the sentence in (39) with the multiple occurrence of LD caki cannot be used under a situation where both John and Mary hold a de se belief, respectively, as following: John says, 'Mary thinks the woman who hit me likes her', while Mary thinks, 'Sue, the woman who hit John, likes me.' Therefore, when multiple caki's find the different antecedents, the one in the relative

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9In addition, caki in the object position can take the subject DP, 'the woman who hit self', as its local antecedent.
clause can only receive a non-*de se* reading. All the (im)possible readings of the multiple reflexives in (39) are listed below.

(40)  
a. *John*\(^{dese}\) \ldots *John*\(^{dese}\)  
b. John\(^{non-dese}\) \ldots *John*\(^{dese}\)  
c. Mary\(^{dese}\) \ldots Mary\(^{dese}\)  
d. Mary\(^{non-dese}\) \ldots *Mary*\(^{dese}\)  
e. John\(^{non-dese}\) \ldots *Mary*\(^{dese}\)  
f. Mary\(^{non-dese}\) \ldots John\(^{dese}\)  
g. *John*\(^{dese}\) \ldots *Mary*\(^{dese}\)  
h. *Mary*\(^{dese}\) \ldots John\(^{dese}\)  

The available readings of multiple *caki*s in (40) can be schematically illustrated as in (41).\(^{10}\)

(41)  
a. \(\lambda w_0 \text{DP}_i \text{att-verb}_1 \left[CP_1 \lambda x_1 \lambda w_2 \text{DP}_j \text{att-verb}_2 \left[CP_2 \lambda x_3 \lambda w_4 \left[\text{DP} \ldots \left[RC \ldots caki_{i/j} \ldots \right] V-w_4 \ldots \left[caki_1 \ldots \right]\right]\right]\right]\)  
b. \(\lambda w_0 \text{DP}_i \text{att-verb}_1 \left[CP_1 \lambda x_1 \lambda w_2 \text{DP}_j \text{att-verb}_2 \left[CP_2 \lambda x_3 \lambda w_4 \left[\text{DP} \ldots \left[RC \ldots caki_{i/j} \ldots \right] V-w_4 \ldots \left[caki_3 \ldots \right]\right]\right]\right]\)

The LFs of the impossible readings of multiple *caki*s in (40g) can be schematized as in (42).

(42)  
a. \(*\lambda w_0 \text{DP}_i \text{att-verb}_1 \left[CP_1 \lambda x_1 \lambda w_2 \text{DP}_j \text{att-verb}_2 \left[CP_2 \lambda x_3 \lambda w_4 \left[\text{DP} \ldots \left[RC \ldots caki_1 \ldots \right] V-w_4 \ldots \left[caki_3 \ldots \right]\right]\right]\right]\)  
b. \(*\lambda w_0 \text{DP}_i \text{att-verb}_1 \left[CP_1 \lambda x_1 \lambda w_2 \text{DP}_j \text{att-verb}_2 \left[CP_2 \lambda x_3 \lambda w_4 \left[\text{DP} \ldots \left[RC \ldots caki_3 \ldots \right] V-w_4 \ldots \left[caki_3 \ldots \right]\right]\right]\)  

The Generalizations I & II are not sufficient to rule out the impossible readings in (42). For

\(^{10}\)Although the world variable in the relative clause is not provided in detail in (41), the interpretations of the relative clause (*de dicto* or *de re*) and *caki* (*de se* or non-*de se*) fall under our Generalizations I & II.
instance, given our generalizations, the LD reflexive in the relative clause is expected to both co-refer with the matrix subject and receive a *de se* interpretation in (42a) unless the predicate of the relative clause is interpreted relative to the actual world (*de re*). Regardless of the indexing of the world variable that is associated with the predicate in the relative clause, however, *caki* in the relative clause in (42a) cannot be interpreted *de se* with respect to the matrix subject when another *caki* is bound by the closer binder \( \lambda x_3 \), and thus, is interpreted *de se* with respect to the intermediate subject.

This behavior of LD *caki* in the relative clause follows from our system of *de se* construals and long-distance binding conditions for LD *caki*. We have assumed that the *de se* interpretation of LD *caki* in the relative clause is also derived from the dedicated *de se* construal for LD *caki*. Therefore, in order for LD *caki* in the relative clause to be interpreted *de se*, it still must be bound by the closest abstractor that bears the special feature \([\text{log}]\). Having a *caki* that is interpreted *de se* with respect to the intermediate subject indicates that there is a legitimate abstractor for LD *caki* in the lower clause (e.g., \( \lambda x_3^{[\text{log}] \text{)} \) in (42)). Therefore, any other LD *caki* in the same clause must also be bound by the same binder, instead of the one that is in the higher clause, to satisfy our proposed binding conditions for LD *caki*. The problem that has not been solved yet is how LD *caki* in the relative clause can be associated with its long-distance antecedent without being construed *de se*. We will come back to this issue in Chapter 6.

5.6 **Obligatory non-*de se* readings of the 3rd person pronoun**

In this section, we discuss cases where the third person pronoun cannot receive a *de se* interpretation when co-occurring with a LD *caki* in the same complement clause. Based on the data presented in this section, I will make further claims about the use of obligatory *de se* expressions and dedicated *de se* construals. In particular, we will see that a dedicated *de se* LF is pragmatically preferred over a *de re* LF and a dedicated *de se* expression is also preferred over an expression that can optionally be interpreted *de se*. 

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5.6.1 Competition between a dedicated and a non-dedicated de se LF

Although it is controversial whether a dedicated LF is necessary for de se attitude reports with linguistic expressions that only allow a de se reading, it has been widely assumed that a de se reading of non-de se elements (that is, expressions that allow either a de se or a pure de re reading like the third person pronoun) can be derived from a de re structure. An important theoretical question that deserves further investigation is whether a de se interpretation of a non-obligatory de se element like the third person pronoun can always be derived from a de re LF. In this subsection, I will provide crucial evidence that it cannot in some cases, based upon empirical data on the behavior of the third person pronoun and LD caki in Korean.

We can observe interesting interactions between the third person pronoun and LD caki when caki in the relative clause is replaced with the third person pronoun in a multiple embedding case. In (43), while ku ‘he’ is coreferential with the matrix subject, LD caki can refer to either John or Mary.

(43) John₁-un [Mary₂-ka [[[ku₁-lul ttayli]-n yeca]-ka caki₂/j₁-lul cohahanta]-ko John-TOP Mary-NOM he-ACC hit-ADN woman-NOM self-ACC like-COMP sayngkakhanta]-ko malhaysssta. think-COMP said Lit. ‘John₁ said that Mary₂ thinks that the woman who hit him₁ likes self₂/j₁.’

Let us first examine the case where the third person pronoun in the relative clause and caki are disjoint in reference: ku ‘he’ refers to John, while caki refers to Mary. Interestingly, the third person pronoun and LD caki behave like multiple cakis in (39): that is, they cannot be interpreted de se with respect to different antecedents. In other words, it has to be the case that the third person pronoun referring to the matrix subject receives a non-de se interpretation, whereas caki is interpreted de se with respect to the intermediate subject.¹¹

¹¹The same restriction holds when the feminine third person pronoun kunye ‘she’—which co-refers with Mary—is used: kunye ‘she’ must receive a non-de se interpretation, while caki is interpreted de se with respect to John. Similarly, we get the same pattern when caki in the relative clause remains and the latter
Non-coreference between *ku* ‘he’ and *caki*

S1: Mary told John: "The woman who hit you the other day likes me." Later, John told this to a friend of him: "Mary thinks the woman who hit me likes her."

('he': *de se* w.r.t. John, *caki*: *de se* w.r.t. Mary)

S2: Mary told John while watching TV: "The woman who is hitting that guy on TV likes me." Later, John told this to a friend of him: "Mary thinks the woman who hit some guy on TV likes her." Unbeknownst to Mary and John, the guy on TV was John. ('he': *non-*de *se* *de re* w.r.t. John, *caki*: *de se* w.r.t. Mary)

Again, there is no such restriction when *caki* is replaced with the third person pronoun *kunye* ‘she’. The multiple pronouns in (45) can be interpreted *de se* with respect to their own referent, respectively, as illustrated in ‘S1’ in (45).

Multiple pronouns with different *de se* referents

S1: Mary told John: "The woman who hit you the other day likes me." Later, John told this to a friend of him: "Mary thinks the woman who hit me likes her."

('he': *de se* w.r.t. John, 'she': *de se* w.r.t. Mary)

S2: Mary told John while watching TV: "The woman who is hitting that guy on TV likes me." Later, John told this to a friend of him: "Mary thinks the woman who hit some guy on TV likes her." Unbeknownst to Mary and John, the guy on TV was John. ('he': *non-*de *se* *de re* w.r.t. John, 'she': *de se* w.r.t. Mary)

caki is replaced by the third person pronoun.
Given that (45) differs from (44) only in one element (i.e., kunye ‘she’ vs. caki), the unavailable de se interpretation of the third person pronoun in (44) must be closely related to the existence of the obligatory de se element LD caki.

The obligatory non-de se interpretation of the third person pronoun seen in (44) challenges the common view that a de se interpretation of the third person pronoun can always be derived from de re without employing any dedicated machinery for de se interpretations (e.g., Percus and Sauerland 2003, Anand 2006). If the ‘de se as a special de re’ route is always available for elements like pronouns, we would expect the third person pronoun in a sentence like (44) to be able to receive a de se interpretation, contrary to the fact. Hence, our data provide important evidence that a de se interpretation cannot always be freely derived from a de re LF. Then, the question is when and why a de se interpretation is blocked from a de re LF.

Regarding the relationship between a dedicated de se and a de re LF, Schlenker (2005) provides an insightful pragmatic principle, stated under (46).

(46) **Prefer De Se!**

Whenever this is compatible with the situation which is reported, prefer a De Se over a De Re Logical Form. (Schlenker 2005)

The novel data presented in this subsection support Schlenker’s pragmatic competition between a de re and a dedicated de se LF. More precisely, our data show that the ‘de se as a

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12 Additionally, kunye ‘she’ can also be interpreted (non-de se) de re, while ku ‘he’ receives a de se or a de re interpretation.
special *de re*’ route is not just dispreferred, but actually blocked when a structure employs the dedicated *de se* route. Given this, I provide a stronger version of pragmatic principle for the dedicated *de se* LF, as follows.

\[(47) \quad \textbf{Obligatory *De se* LF!} \]

Whenever a *de se* LF is employed in the structure at least for one element, a *de se* interpretation of all the other elements cannot be derived from a *de re* LF.

The obligatory non-*de se* interpretation of the third person pronoun in (44) can be explained under this principle, since the structure of the sentence with LD caki involves an obligatory *de se* construal. On the other hand, multiple pronouns in the same clause can be interpreted *de se* with respect to different referents under a *de re* construal, because a *de se* construal is not required in this case.

\[5.6.2 \quad \textbf{Competition between the 3\textsuperscript{rd} person pronoun and caki}\]

This subsection investigates a competition between an obligatory *de se* element and a non-obligatory *de se* element that is compatible with a *de se* interpretation. Assuming that there are both types of elements in a language, which element would be used to report a *de se* attitude? If there is no restriction on the use of these elements to convey a *de se* interpretation, we would predict that an obligatory and non-obligatory *de se* element can both be used in a sentence with a *de se* reading. We will see in this subsection that if a language has an obligatory *de se* expression, then it is preferred in *de se* attitude reports.

We have not yet examined a coreference reading of the third person pronoun and caki in a sentence like (43), which is repeated below. When they are coreferent as in (48), one might wonder whether the third person can receive a *de se* interpretation, while LD caki must. Interestingly, although we saw in (36) that the third person pronoun ku in relative clauses can freely receive a (non-*de se*) *de re* or *de se* reading, it is very difficult for the third person pronoun to be interpreted *de se* in (48)—where there is a reflexive caki in
the same complement clause that is obligatorily construed \textit{de se}.

(48) \textbf{Coreference between \texttt{ku} ‘he’ and \texttt{caki}}

S1: John says: "Mary thinks the woman who hit me likes me." 
\quad (‘he’: \textit{de se}, \texttt{caki}: \textit{de se})

S2: John says: "Mary thinks Sue likes me." Unbeknownst to John, Sue is the one 
\quad who hit him the other day. \quad (‘he’: non-\textit{de se}, \texttt{caki}: \textit{de se})

S3: John says: "Mary thinks that woman on TV who is hitting a guy likes me." 
\quad Unbeknownst to John, the guy on TV is John himself. \quad (‘he’: \textit{de re}, \texttt{caki}: \textit{de se})

\begin{verbatim}
John,un [Mary,j-ka [[[ku,-lul ttypayli]-n yec-a]-ka \texttt{caki},-lul cohahanta]-ko John TOP Mary NOM he ACC hit ADN woman NOM self ACC like COMP sayngkakhanta]-ko malhaysta.
think COMP said

‘John, said that Mary,j thinks that the woman who hit him,i likes him,i.’
\end{verbatim}

(# S1, \checkmark S2, \checkmark S3)

The only impossible reading of (48) seems to indicate that both the third person pronoun 
and LD \texttt{caki} cannot be interpreted \textit{de se} with respect to the same referent. Assuming that 
the ‘\textit{de se} as a \textit{de re}’ route is blocked for the third person pronoun due to our pramatic 
principle ‘Obligatory \textit{de se}!’, there is still a possibility of the dedicated \textit{de se} construal for 
the third person pronoun. Why, then, is it impossible for the pronoun to be construed \textit{de se} 
in a sentence like (48)?

I demonstrate that there is a pragmatic competition between an obligatory \textit{de se} 
expression and a non-obligatory \textit{de se} element when a language has both type of elements. 
That is, given that an obligatory \textit{de se} expression \texttt{caki} is already used in the clause to 
unambiguously report John’s \textit{de se} belief, the use of the third person pronoun, instead of 
the dedicated \textit{de se} expression \texttt{caki}, in the relative clause strongly implies that John does 
not have a \textit{de se} belief about the content of the relative clause. In fact, when \texttt{caki} in (48) 
is replaced with another third person pronoun, then multiple third person pronouns can
again freely interpreted (non-\textit{de se}) \textit{de re} or \textit{de se}.\textsuperscript{13} This pragmatic competition is stated below.

\begin{equation}
\text{(49) Obligatory \textit{De se} expression!}
\end{equation}

Whenever an obligatory \textit{de se} expression is used in an attitude report, a non-obligatory \textit{de se} expression in the same complement clause cannot be interpreted \textit{de se}.

The novel observation presented in this subsection reveals an interesting aspect of the use of the obligatory \textit{de se} expressions in comparison with the elements that allow a \textit{de se/de re} ambiguity in attitude reports.

\section*{5.7 Conclusion}

To summarize, I proposed the two generalizations of the relationship between \textit{de se} and \textit{de dicto} readings. \textit{LD caki} in the relative clause can receive a non-\textit{de se} interpretation even when embedded under an attitude verb because of the special intensional property of relative clauses.

Before we leave this section, it should be pointed out that \textit{LD caki} contained in a larger DP usually cannot be exempt from the obligatory \textit{de se} construal. Given that \textit{LD caki} in a relative clause can get a non-\textit{de se} interpretation even under attitude verbs, one may wonder whether the same pattern would be found when \textit{LD caki} is embedded in a larger DP. As shown in (50), \textit{LD caki} is still subject to the obligatory \textit{de se} interpretation when it appears in the genitive phrase.

\textsuperscript{13}The example with multiple third person pronouns is provided below:

\begin{equation}
\text{(i) John\textsubscript{i}-un [Mary\textsubscript{j}-ka [[[ku\textsubscript{1}-lul tlayli]-n yeca]-ka ku\textsubscript{1}-lul cohahanta]-ko sayngkakhanta]-ko John-\textsc{top} Mary-\textsc{nom} he-\textsc{acc} hit-\textsc{adn} woman-\textsc{nom} he-\textsc{acc} like-\textsc{comp} think-\textsc{comp} malhayssta. said 'John\textsubscript{i} said that Mary\textsubscript{j} thinks that the woman who hit him\textsubscript{i} likes him\textsubscript{i}.'}
\end{equation}
S1: John thinks, "The wife of my friend Bill is kind."
S2: John met Mary at a party and thought she was very kind. Unbeknownst to John, Mary is the wife of his friend Bill.

John-un [[caki chinkwu]-uy pwuin]-i chakhata-ko sayngkakhanta.
John-TOP caki friend-GEN wife-NOM kind-COMP think

‘John, thinks that the wife of his, friend is kind.’ (√ S1, # S2)

In Chapter 6, we will see that our syntactico-semantic approach to long-distance binding of LD caki can capture this contrast. Briefly speaking, relative clauses can host an operator that mediates between LD caki and its long-distance antecedent, while genitive phrases cannot, due to the lack of CP layer. Therefore, LD caki cannot be licensed in a genitive construction unless it is construed de se under an attitude verb.
CHAPTER 6

LOGOPHORIC BINDING

6.1 Introduction

In our discussion on LD caki so far, we have primarily focused on its obligatory de se interpretation in attitude environments. Recall that we have assumed that LD caki is a variable with special feature [log] that needs to be bound by a de se binder, which is introduced under an attitude verb, that also bears the same feature. I have shown that our account correctly captures some key aspects of the LD reflexive caki in attitude environments, including the obligatory de se interpretation, the obligatory co-reference of multiple clausemate caki’s, and the relationships between controlled subjects (both overt and null) and the LD reflexive caki in control constructions.

However, we have also seen that caki can appear in the environments without attitudes (e.g., relative clauses, adverbial clauses, etc.) and still find a LD antecedent. Moreover, we also saw in the previous chapter that LD caki can be interpreted non-de se in an attitude environment when it is directly embedded in a relative clause. Therefore, our analysis of LD caki binding faces an immediate problem when we consider the long-distance dependency between caki and its antecedent in non-attitude environments because of the absence of the de se binder in the non-attitude environments.

There are two ways to approach the problem of LD caki in the non-attitude environments. Firstly, one may assume that LD caki appearing in relative or adjunct clauses
is distinct from LD *caki* under attitude verbs. In this view, we can maintain our account presented in the preceding chapters for the latter LD *caki* and propose a new account for the former LD *caki*. On the other hand, one may consider LD *caki* in both attitude and non-attitude environments as the same type of LD reflexive. In that case, our semantic/syntactic analysis of LD *caki* requires some major modifications to be extended to non-attitude environments. Based on data that show LD *caki* is subject to the notion of logophoricity in both attitude and non-attitude environments, we will take the latter approach. Thus, we need to modify our previous account to capture the long-distance binding of LD *caki* in both attitude and non-attitude environments, as well as the relationship between the obligatory *de se* interpretation of *caki* only in attitude environments. In addition, we need to account for the long-distance dependency between *caki* appearing in a relative clause and its antecedent when the anaphor does not get a *de se* interpretation even in an attitude environment.

In this chapter, I develop a syntactico-semantic analysis of long-distance binding in terms of the notion of logophoricity. The main goals of our analysis are to account for the facts that (i) LD *caki* can be long-distance bound both under attitude verbs and in non-attitude environments, (ii) LD *caki* needs to be coreferent with a logophoric center when it is long-distance bound, (iii) LD *caki* must get a *de se* interpretation when it occurs under attitude verbs, and (iv) LD *caki* appearing in a relative clause can be exempt from an obligatory *de se* interpretation even in attitude environments. The first three issues on long-distance anaphors have, in fact, drawn considerable attention for decades. Notwithstanding extensive research, to my knowledge, a satisfactory mechanism has not yet been proposed that can capture the consistent long-distance binding in both attitude and non-attitude environments, as well as the obligatory *de se* interpretation only in attitude environments. Moreover, the last issue is an entirely novel observation from this study, which cannot be explained by any existing analysis of long-distance binding.

Our first specific question is what the syntactic mechanism is that is responsible for
long-distance binding of *caki* in both attitude and non-attitude environments. The second question concerns what the semantic mechanism is that is responsible for the obligatory *de se* interpretation of LD *caki* in attitude environments. To answer these questions, based upon previous syntactic work on logophoric binding (Koopman and Sportiche 1989, Anand 2006, Sundaresan 2012, Charnavel 2017, a.o.), I will first argue for a local binding approach to long-distance anaphors like LD *caki*. That is, LD anaphors like *caki* are not directly bound by their long-distance antecedents, but rather by a local operator that mediates between LD anaphors and their antecedents. For the *de se* interpretation of LD *caki*, while I maintain the property approach as a dedicated *de se* mechanism for *caki*, I distinguish the *de se* mechanism from the machinery that is responsible for long-distance binding of *caki*.

I will begin by providing some background on the notion of logophoricity. Then in Section 6.3, I will show that the long-distance dependency between *caki* and its antecedent is consistently subject to this notion. That is, the reference of the LD reflexive *caki* must be understood as a logophoric center. Specifically, an antecedent of LD *caki* in attitude environments must be the one whose speech or thoughts are represented in the clause that the reflexive appears, while in non-attitude environments it must be the one whose perspective or point of view is taken in the phrase containing the reflexive. In 6.4, I will present a syntactico-semantic analysis of logophoric binding of LD *caki*. The new account will diverge from our previous analysis in which the binder of *caki* is responsible for both its *de se* interpretation and LD dependency. Under our new account, these two properties of *caki* are derived by two separate binders: a local logophoric binder for LD dependency and a *de se* binder, which is identical to the one in our previous account, for the obligatory *de se* interpretation.
6.2 Background on logophoricity

6.2.1 The notion of logophoricity: Clements (1975) and Sells (1987)

The notion of logophoricity was originally introduced by Hagège (1974) and Clements (1975) for logophoric pronouns in certain African languages, which must be co-referential with the one "whose speech, thoughts, feelings, or general state of consciousness are reported" (Clements 1975, p.141). For instance, as illustrated in (1), the logophoric pronoun yè in Ewe must refer to the attitude holder, e.g., Kofi in (1).

(1) The logophoric pronoun yè in Ewe

Kofi be yè-dzo.  
Kofi say LOG-leave

'E Kofi, said that he, left.' (Clements 1975, p.142)

Clements (1975) proposes that logophoric pronouns in African languages exhibit the following set of cross-linguistic properties (Clements 1975, p.171–2).

(2) The cross-linguistic characterization of logophoric pronouns

a. Logophoric pronouns are restricted to reportive contexts transmitting the words or thoughts of an individual or individuals other than the speaker/narrator;

b. The antecedent does not occur in the same reportive context as the logophoric pronoun;

c. The antecedent designates the individual or individuals whose words or thoughts are transmitted in the reported context in which the logophoric pronoun occurs.

The first property states the fact that logophors in African languages are third person and they can only occur under a limited number of speech/attitude verbs. The second one re-
gards the long-distance dependency between logophoric pronouns and their antecedents: that is, they cannot appear in the same clause. The last property shown in (2c) points out the characteristic of the antecedents of logophoric pronouns: the speaker of reported speech or attitude holder.

Although long-distance reflexives in many languages can be distinguished from logophoric pronouns in African languages — mainly due to their wider distribution than logophoric pronouns, which are limited to the reportive contexts — the notion of logophoricity has been adopted and extended to account for long-distance reflexives in a number of languages (e.g., Maling 1984, Kameyama 1985, Sells 1987). Based on the properties of the long-distance reflexives in Icelandic, Italian, and Japanese, as well as logophoric pronouns in some African languages, Sells (1987) defines the notion of logophoricity with three primitive notions, as shown in (3). Under his analysis, when an element such as a logophoric pronoun or long-distance reflexive is sensitive to logophoricity, the referent of that element should be understood as at least one of these three notions. Sells’ notion of logophoricity can be adopted for a much wider range of elements, because it is not restricted to the reportive contexts.

(3) **source**: one who is the intentional agent of the communication  
**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

(Sells 1987, p.457)

Sells proposes that the first two primitive notions of logophoricity are specified by certain embedding verbs. In other words, verbs of communication specify their subject as a source, while psychological verbs can only represent a self role. Contrary to the source and self, the pivot role is not specified by certain types of embedding predicates, but instead may arise constructionally under particular interpretations or situations. To illustrate each of these primitive notions of logophoricity, let us consider the following three

(4)  

a. **SOURCE**

Takasi\(i\)-wa Taroo-ni [Yosiko-ga zibun\(i\)-o nikundeiru koto]-o hanasita.
Takasi-TOP Taroo-DAT [Yosiko-NOM self-ACC be-hating C]-ACC told
‘Takasi\(i\) told Taroo that Yosiko hated him\(i\).’

b. **SELF**

[Yosiko-ga zibun\(i\)-o nikundeiru koto]-ga Mitiko\(i\)-o zetuboo e
[Yosiko-NOM self-ACC be-hating C]-Nom Mitiko-ACC desperation to
drove
‘That Yosiko hated her\(i\) drove Mitiko\(i\) to desperation.’

c. **PIVOT**

Takasi\(i\)-wa [Yosiko-ga zibun\(i\)-o tazunete-kita node] uresigatta.
Takasi-TOP [Yosiko-NOM self-ACC visit-came because] happy
‘Takasi\(i\) was happy because Yosiko came to visit him\(i\).’

In (4a), zibun occurs in the complement clause of the communication verb ‘tell’ and is
coreferential with the matrix subject, which bears the source role given the lexical prop-
erty of the embedding verb. In (4b), zibun in the subject clause can co-refer with the
matrix object Mitiko, who is specified as the one whose mental state is represented in
the sentence (i.e., self) by the psychological predicate.\(^1\) In (4c), zibun appearing in the
because-clause can co-refer with the matrix subject because it can easily be understood
as a pivot, the one whose point of view is taken by the external speaker, owing to the
motion verb ‘come’ in the because-clause.

Sells argues that there is an implicational or hierarchical relationship between these
three roles, that is, source > self > pivot. If an individual can be understood as a source,
it is implicated that that individual also satisfies the self and pivot roles. On the other

\(^1\)Strictly speaking, the matrix subject of certain attitude verbs such as believe, think, etc. bears the
self role instead of the source role. However, these attitude verbs behave more similar to the verbs of
communication than to psych-verbs in that they specify their subject instead of object as a self. Sells (1987)
does not discuss the difference between attitude verbs and psych-verbs in representing the self role.
hand, even though an individual can satisfy a pivot role in a sentence, it is not guaranteed that that individual can also be understood as a source or self.

These logophoric roles also play an important role in explaining cross-linguistic variation. Sells claims that the requirement of these logophoric roles for logophoric elements may vary across languages. For instance, only those referents that bear the source role can be qualified as an antecedent of logophoric elements in some languages (e.g., Icelandic; Maling 1984), whereas in other languages an individual can serve as an antecedent of a logophoric element if it can be understood as a pivot (e.g., Japanese).²

The term "logophor" has also been used for anaphors that are exempt from Condition A of the binding theory (Chomsky 1981). It has been well-known that anaphors in English can be exempt from syntactic constraints on binding in certain environments, such as picture-noun reflexives (Postal 1971, Kuno 1972b, Zribi-Hertz 1989, Pollard and Sag 1992, Reinhart and Reuland 1993, a.o.). For instance, even though the reflexives myself and herself in (5) do not have an antecedent in the local domain that can properly bind them, the sentences in (5) have been reported to be grammatical.

(5) Exempt anaphors in English

a. A picture of myself would be nice on that wall.

b. Lucie thought that a picture of herself would be nice on that wall.

c. The queen demands that books containing unflattering descriptions of herself will be burned. (Reinhart and Reuland 1993, p.682)

Pollard and Sag (1992) argue that such exempt anaphors often find an "individual whose viewpoint or perspective is somehow being represented" (Pollard and Sag 1992, p.274) as their antecedents, which resembles the notion of logophoricity. In a series of work (Reinhart and Reuland 1991, 1993), Reinhart and Reuland also distinguish "logophors" from

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²Given the hierarchy between the logophoric notions, the long-distance reflexive zibun in Japanese can thus refer to any individual who bears a source, self, or pivot role.
anaphors in that the former is not governed by Condition A but discourse-oriented. Under their account, an anaphor can be used as a logophor only when it is not subject to the grammatical constraints, such as the c-command relationship and locality condition. Although there may be additional conditions in order for anaphors in English-type languages to be exempt from Condition A, Charnavel and Zlogar (2016) show that the notion of logophoricity is a necessary condition for exemption from Condition A.

6.2.2 Logophors and awareness

One of the common properties of logophoric elements that have been noted in the literature is that a logophoric element can be used only in a situation in which the referent of its antecedent is aware of the content of the clause that contains the logophoric element, the so-called "awareness condition" (Kuno 1972b, Abe 1997, Huang and Liu 2001, a.o.). We have seen that this observation is closely related to the de se interpretation of these elements.

It should be familiar by now that long-distance reflexives like caki in Korean, ziji in Chinese, and zibun in Japanese are subject to the awareness condition within the scope of attitude verbs: that is, they receive a de se interpretation. What is more controversial is whether such a logophoric element needs to satisfy the awareness condition when occurring in non-attitude environments as well. Kuno (1972b) examines the LD reflexive zibun in Japanese in various positions, both in attitude and non-attitude environments, and proposes that zibun must satisfy the awareness condition regardless of the type of environments in which it appears. For example, zibun appearing in an adverbial clause—a non-attitude environment—can find the matrix subject as its long-distance antecedent in (6). Kuno argues that the sentence like (6a) must also be derived from a direct discourse by John using the first person pronoun, as in (6b).
According to Kuno, the following sentences with *zibun* in an adverbial or relative clause are ungrammatical “because the referent of the matrix sentence could not have been aware of the action or state represented by the constituent sentences involving *zibun*” (Kuno 1972b, p.183).

(7) a. ‘John, was taken to my father’s hospital when (he was aware that) he fainted.’

b. ‘John, had met before in my house the man who (he was aware) killed him.’

c. ‘John, becomes tender to me only when (he is aware that) he gets drunk.’

(Kuno 1972b, p.183)

Similarly, Huang and Liu (2001) also propose that logophoric binding of *ziji* is subject to the ‘awareness/consciousness condition’ in Chinese. According to them, while *ziji* occurring in an adjunct clause co-references with the subject of the main clause in both sentences in (8), only the sentence in (8b) is degraded. They argue that the sentence in (8a) involves a legitimate logophoric binding of *ziji*, since the antecedent *Zhangsan* can be characterized as a logophoric center (i.e., *pivot* and he is aware of the content of
the *because*-clause containing *ziji*. In (8b), on the other hand, since nothing implies that *Zhangsan* is aware of the event stated in the adjunct clause, the awareness condition is not satisfied.

(8)  

a. Yinwei Lisi piping *ziji*, suoyi Zhangsan, hen shengqi.  
   Because Lisi criticize self so Zhangsan very angry  
   ‘Because Lisi criticized him, Zhangsan was very angry.’

b. ??(Dang) Lisi piping *ziji* de shihou, Zhangsan, zheng zai kan shu.  
   (at) Lisi criticize self DE moment Zhangsan right at read book  
   ‘At the moment Lisi was criticizing him, Zhangsan was reading.’

   (Huang and Liu 2001)

However, Kuroda (1973) presents evidence against Kuno’s (1972) claim that *zibun* requires an antecedent who is aware of the content of the clause that contains *zibun*. According to Kuroda, the example in (9), in which *zibun* occurs in a relative clause, is felicitous even under the situation where Oedipus does not know that Jocasta bore him in that house.

(9)  

Oedipus-wa [Jocasta-ga *zibun*-o unda] ie-de ima-wa kodomotati-to  
Oedipus-TOP [Jocasta-NOM self-ACC bore] house-LOC now-TOP children-with  
happily living-is  
‘Oedipus, now lives happily with his children in the house where Jocasta bore him.’

   (Kuroda 1973)

Similarly, Pollard and Xue (2001) also present an example that shows that *ziji* in a relative clause is not subject to the awareness condition in Chinese. As shown in (10), *ziji* can still refer to the matrix subject *Zhangsan* in a context like ‘S2’, where the matrix subject is not aware of the existence of the guy who saved him.

(10)  

S1: Zhangsan can identify Fred, the man who saved his life by “That man saved my life!”
S2: Zhangsan is trapped in a burning building and faints. When he wakes up, he is safely outside. He thinks he was lucky, but in fact was saved by a passerby.

Zhangsan, zai mei you jian-guo jiu-le ziji, ming de na-ge ren
Zhangsan again not have see-perf save-perf self life DE that-cl person

‘Zhangsan, didn’t see again the person, who saved his, life.’ (✓ S1, ✓ S2)

(Pollard and Xue 2001)

Note that, both in (9) and (10), Oedipus or Zhangsan is not the one whose speech or mental attitude is reported, thus neither a source nor a self. Rather, they (Oedipus in (9) and Zhangsan in (10)) can be understood as the one from whose point of view the sentence is uttered, that is, a pivot. Based upon this observation, Sells (1987) argues that the awareness condition is not required when zibun finds a pivot antecedent, since the speaker can "report things of which some person is presently unaware from that person’s own point of view" (Sells 1987, p.471).

What we have seen so far can be summarized as follows: First, the antecedent of a logophoric element in non-attitude environments can only be understood as a pivot (but not source or self). Second, the awareness condition can be violated in cases where a logophoric element finds a pivot antecedent in non-attitude environments.

6.2.3 Logophoricity vs. empathy

We have seen that pivot denotes the one from whose point of view or (spatio-temporal) location the report is made (Sells 1987). Sells notes that pivot is similar to the notion of "empathy" proposed by Kuno and Kaburaki (1977). According to Kuno and Kaburaki, "empathy" is associated with a person who the speaker places himself/herself closer to or takes angles from when describing an event under discussion. The notion of empathy is defined below.
Empathy

Empathy is the speaker’s identification, with varying degrees (ranging from degree 0 to 1), with a person who participates in the event that he describes in a sentence. (Kuno and Kaburaki 1977, p.628)

Kuno and Kaburaki (1977) show that the notion of empathy can effectively capture the difference between two giving verbs in Japanese, *yaru* and *kureru*. While both *yatta* and *kureta* in (12) mean ‘give-rs’, the two sentences in (12) differ with respect to whose perspective or point of view is taken. In other words, the verb *yatta* is used when the sentence is reported from the subject’s point of view, whereas another giving verb *kureta* is used when the speaker takes the perspective of the dative object to describe the event.

Two giving verbs *yaru* and *kureru* in Japanese

a. Taroo-wa Hanako-ni okane-o *yatta*. (Subject-Centered)
   Taroo-top Hanako-to money-ACC gave
   ‘Taroo gave money to Hanako.’

b. Taroo-wa Hanako-ni okane-o *kureta*. (Dative-Centered)
   Taroo-top Hanako-to money-ACC gave
   ‘Taroo gave money to Hanako.’ (Kuno and Kaburaki 1977, p.630)

Given this contrast, Kuno and Kaburaki (1977) further propose that the long-distance reflexive *zibun* in Japanese must co-refer with an empathy locus – a referent who the speaker empathizes most with. For example, the (un)grammaticality of the sentences in (13) can be explained with respect to empathy. That is, the verb *kureta* in (13a) ensures that the speaker is taking the perspective of the subject (thus, *Taroo* is the empathy locus), and the reflexive *zibun* is coreferent with the empathy locus. On the other hand, *zibun* is not coreferent with the empathy locus in (13b): *Hanako* is the empathy locus given the use of the verb *yatta*, but *zibun* co-refers with *Taroo* instead of *Hanako*.  

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(13)  

a. Taroo-i-wa [Hanako-ga zibun,-ni kasite kureta] okane-o tukatte
Taroo-top Hanako-NOM self-to lending gave money-ACC spending
ended-up
‘Taroo, has spent all the money that Hanako had lent to him.’


(Kuno and Kaburaki 1977, p.635)

Similarly, deictic motion verbs (e.g., come vs. go) also indicate whose point of view is represented in the sentence (Kuno and Kaburaki 1977, Kuno 1987, Sells 1987, a.o.). The examples in (14) illustrate the contrast between the embedded verbs ‘come’ and ‘go’ in the same because-clause. Sells (1987) argues that the antecedent of zibun in an adjunct clause should be understood as the one whose point of view is represented. He explains that (14b) is ungrammatical because it is difficult to understand the matrix subject Takasi as the one whose perspective is taken due to the motion verb ‘go’ in the adjunct clause.

(14)  ‘Come’ vs. ‘Go’

a. Takasi-i-wa [Yosiko-ga zibun,-o tazunete-kita node] uresigatta.
Takasi-top [Yosiko-NOM self-ACC visit-came because] happy
‘Takasi, was happy because Yosiko came to visit him.’

Takasi-top [Yosiko-NOM self-ACC visit-went because] happy
‘Takasi, was happy because Yosiko went to visit him.’ (Sells 1987, p.465)

Moreover, an empathy locus is usually understood as a deictic center as well (Culy 1997, Sells 1987, Oshima 2007). For example, when a spatial preposition (e.g., ‘to the right (of)’, ‘in front (of)’, etc.) co-occurs with zibun in a sentence, that expression is interpreted from the perspective of the referent of zibun, since the use of zibun denotes that the speaker empathizes with the referent of zibun. This is illustrated in (15).
The contrast between (15a) and (15b) shows that the spatial expression must be interpreted from the perspective of the empathy locus when there is an empathy-sensitive element (e.g., zibun), while it can also be interpreted from the speaker’s point of view with an empathy-neutral element (e.g., ‘he’).

Although there are some expressions like giving verbs in Japanese and motion verbs that relatively clearly indicate who the speaker empathizes with or whose point of view the speaker takes in describing an event, it is not always straightforward to detect who the perspective holder or empathy locus is in a sentence. For example, Sells (1987) (following Kuroda (1965)’s judgment) observes the contrast between a because- and when-clause in (16): only the former can contain the LD reflexive that co-refers with an argument in the main clause. Sells, following Iida and Sells (1988), argues that zibun in the because-clause in (16a) can find the matrix subject as its antecedent, because “the use of node ‘because’ (but not toki ‘when’) implicates the external speaker and thereby allows that speaker to take the point of view of the matrix subject” (Sells 1987, p.466). That is, Takasi in (16a) can easily be understood as a pivot or an empathy locus.
b. “Takasi-wa [Yosiko-ga mizu-o zibun-i no ue-ni kobosita toki]
   Takasi-top [Yosiko-nom water-acc self-gen on-loc spilled when]
   nurete-simatta.
   wet-got
   ‘Takasi, got wet when Yosiko spilled water on him.’ (Sells 1987, p.455)

However, the contrast seen in (16) cannot merely be reduced to the type of adjunct clauses, since zibun can occur in a when-clause in some cases. Nishigauchi (2014) points out that the sentence with zibun in the when-clause gets improved when an evidential auxiliary soo ‘be likely’ is used in the adjunct clause, as shown below.

(17) Mari-ga zibun-i ni mizu-o kake soo-ni nar-ta toki, Takasi-wa
   Mari-nom self-dat water-acc pour likely become-pst when, Takasi-top
   subayaku nige-ta.
   quickly evade-pst
   Lit. ‘When Mari was about to pour water on self, Takashi quickly stepped aside.’
   (Nishigauchi 2014, p.164)

This shows that LD reflexive binding can be affected by a number of different elements and situations with respect to perspective or point of view. That is why there is a wide variation in acceptability judgments of sentences in which LD reflexives find a pivot or empathy locus as its antecedent.

One issue regarding pivot or empathy is whether it can be understood as one aspect of logophoricity (e.g., Sells 1987, Huang and Liu 2001, Charnavel and Zlogar 2016) or as an a distinct notion (e.g., Culy 1994, 1997, Oshima 2004, 2007). This issue is closely related to how we treat LD reflexives like zibun in Japanese and caki in Korean. For instance, Oshima (2004) argues that a dichotomic analysis of these reflexives (e.g., anaphoric vs. logophoric, local vs. long-distance) is not sufficient (contra Abe 1997, Kameyama 1985), based on the assumption that the notion of logophoricity and empathy need to be distinct. Instead, he proposes that the LD reflexive zibun in Japanese can be used in three different ways: anaphoric, empathic, and logophoric. On the other hand, based on Sells’ (1987) notion of
logophoricity, Charnavel and Zlogar (2016) divide pivot, as a logophoric notion, into two separate logophoric centers: ‘empathy locus’ and ‘deictic center’.3

In the remainder of this chapter, following Sells (1987), we will treat pivot or empathy cases as logophoric and provide a unified account of logophoric binding. Moreover, we will also take into account the difference between the two types of environments of LD anaphors—attitude (a source or self antecedent) and non-attitude (a pivot antecedent).

6.3 The long-distance reflexive *caki* and logophoricity

In the previous sections, we have seen that long-distance reflexives in many languages refer to an individual who can be understood as a logophoric center (e.g., source, self, pivot). According to the notion of logophoricity, all the cases of the LD reflexive *caki* in attitude environments shown in the previous chapters are where *caki*, as a logophoric element, finds a source or self antecedent. Like the LD reflexives in other languages, such as Chinese ziji and Japanese zibun, caki can not only occur in attitude environments, but also occur in non-attitude environments in which *caki* finds a pivot antecedent. This section examines the logophoric properties of the LD reflexive *caki* in both attitude (e.g., complements of attitude verbs) and non-attitude environments, such as relative clauses and adjunct clauses.

6.3.1 LD *caki* in attitude environments

6.3.1.1 Source or self antecedents

When LD *caki* appears in attitude environments, it always finds a logophoric center as its antecedent who can be understood as the one whose speech or thought is represented in a sentence (source or self). Since a subject of an attitude verb can always be understood as a source or self, they are always qualified as an antecedent of LD *caki*. As we saw

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3In addition, Charnavel and Zlogar (2016) combine Sells’ source and self as ‘attitude holder’.
before, LD caki can also find a non-subject LD antecedent only when it is a logophoric center.¹

(18) **Source or self antecedents**

‘Johnᵢ thinks that Billₗ said that Mary liked himᵢ₋ₗ.’

As we saw before, LD caki under the multiple attitude verbs can find any subject as its antecedent in (18). When caki refers to Bill, Bill must be understood as the speaker of the most embedded clause containing the reflexive. On the other hand, when caki refers to the subject of the matrix verb ‘think’, the content of the clause containing caki is representing John’s thought.⁵ Therefore, the antecedent of the reflexive in this case is understood as the **self**.⁶

### 6.3.1.2 Awareness condition

As we discussed in detail in the previous chapters, another property of LD caki in attitude environments is that it must receive a de se interpretation. Therefore, LD caki can only be used when the attitude holder’s direct speech or thought contains the first person pronoun to refer to herself: Bill said ‘Mary likes me’, or John thought ‘Bill said that Mary liked me’ in (18). By contrast, I will show in the next subsection that LD caki in a non-attitude environment behaves quite differently, although it still requires a logophoric center as its antecedent.

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¹Japanese zibun behaves like Korean caki, while Chinese zijì is strictly subject oriented. Therefore, even though a non-subject element can be understood as a logophoric center, it cannot serve as an antecedent of zijì in Chinese.

²In this actual world, it could be that what Bill said was not Mary likes John, but Mary likes Jack.

⁵Given the hierarchical relationship between the notion of logophoricity that Sells proposed, an element that is a source or self can also be understood as a pivot. Therefore, if a (spatio-temporal) perspective sensitive element co-occurs with the LD reflexive, it must be interpreted relative to the antecedent of the reflexive.
6.3.2 LD caki in non-attitude environments

This subsection discusses non-attitude environments of caki in which caki can take a long-distance antecedent. First, we have seen in Chapter 5 that LD caki can appear in relative clauses and co-refer with the matrix subject. Another possible non-attitude environment for LD caki is adjunct clauses. It has been reported in the literature that the LD reflexives in a number of languages (e.g., Chinese, Icelandic, Italian, Japanese, etc.) can also occur in adjunct clauses (Kuno 1972b, Sells 1987, Maling 1990, Abe 1997, Huang and Liu 2001, Giorgi 2006, Nishigauchi 2014, a.o.).

LD caki can also appear in adjunct clauses, such as if, because, when-clauses, etc. and find its long-distance antecedent from the main clause, as illustrated in (19).

(19) a. If-clause

John-i caki,-lul tto piphanka-myen, Mary,-nun teisang kaman.issci
John-nom self-acc again criticize-if Mary-top anymore stand
anh-ulkesi-ta.
not-fut-decl
Lit. ‘If John criticizes self, again, Mary, won’t stand it anymore.’

b. Because-clause

John-i caki,-lul piphanhay-se, Mary,-to ku-lul piphanhayssta.
John-nom self-acc criticize-because Mary-also he-acc criticized
Lit. ‘Because John criticized self, Mary also criticized him.’

c. When-clause

John-i caki,-lul piphanal-ttay, Mary,-nun ku-lul
John-nom self-acc criticize-when Mary-top he-acc
chingchanhako-iss-ess-ta.
praise-prog-pst-decl
Lit. ‘When John criticized self, Mary was praising him.’

In this subsection, I will show that caki in the (gapless) relative clauses or adjunct clauses finds a pivot or empathy locus as its antecedent. We will also see that the awareness
condition is not necessary for LD *caki* binding in non-attitude environments. Lastly, it will be shown that the behavior of LD *caki* in adjunct clauses is not identical to those in (gapless) relative clauses within the scope of attitude verbs. In contrast to the latter types of clauses, *caki* in an adjunct clause needs to receive a *de se* reading when the adjunct clause is embedded under an attitude verb.

### 6.3.2.1 Pivot antecedents

It is not as straightforward as in the attitude environments to characterize the antecedents of LD *caki* as a logophoric center in non-attitude environments like relative and adjunct clauses. I will show that LD *caki* in relative and adjunct clauses also need to find a logophoric center as its antecedent in Korean (Sells 1987, Huang and Liu 2001, Pollard and Xue 2001). In particular, we will see that *caki* in non-attitude environments must find a pivot antecedent.

Let us first consider cases in which LD *caki* appears in the relative clauses. In the example (1) in Chapter 5, repeated below as (20), the referent of *caki*, John, cannot be understood as a source or self, since the sentence does not represent any speech, attitudes or feelings of John.

(20) John₁-i [caki₁-lul piphanka-n] salam-ul mannassta.
John-NOM self-ACC criticized-ADN person-ACC met
‘John, met the person who criticized him₁.’

On the other hand, the antecedent of *caki* in (20) can still be understood as the one who the speaker empathizes with or takes a perspective from in describing the event. This can be shown rather clearly with an expression that denotes a spatial perspective, as we saw in (15). Consider the following Korean examples with a directional expression. The contrast between the third person pronoun and LD *caki* with the same relative directional phrase is clear, as shown in (21).
Similar to the Japanese examples in (15), the sentence with *caki*, as in (21b), only allows the directional expression to be interpreted from the perspective of the referent of *caki* instead of the speaker of the utterance, which indicates that the antecedent of *caki* is the one whose point of view or spatial perspective is taken by the speaker to describe the event, i.e., pivot. Given this, we will assume that long-distance *caki* in a relative clause must be co-referent with a logophoric center.

Next, let us turn to the adjunct clauses as another non-attitude environment of LD *caki*. Based on Sells (1987), we can provide at least two pieces of evidence in support of the pivot antecedents for LD *caki* in the adjunct clauses. First, LD *caki* in an adjunct clause can easily find a LD antecedent when the referent of its antecedent is understood as the one whose point of view is represented in the sentence. The contrast derived from the deictic motion verbs 'come' and 'go' seen in (14) can be found in Korean too.\(^7\)

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\(^7\)As Sells (1987) notes, the coreference reading of John and LD *caki* in (22b) can be acceptable under a certain context in which John can still be understood as the deictic locus. For instance, the sentence in (22b) can be acceptable under a situation where John is out of town and Mary went to John’s town to see him. Without such a supporting context, however, there is a clear contrast between (22a) and (22b).
Another diagnostic for the pivot provided in Sells (1987) involves an expressive term like ‘beloved.’ That is, an expression like ‘beloved X’ in a sentence is interpreted from the perspective of the logophoric center. Given the fact that the expression salanghanun ‘beloved’ in the example (23) is interpreted relative to John (that is, John’s beloved Mary, instead of the speaker’s beloved Mary), John can be understood as a pivot and serve as an antecedent of LD caki in the ‘because’-clause.

(23) John,un [salanghanun Mary-ka caki,eykey phyenci-lul cwe-se] kippessta.
    was.happy
    Lit. ‘John, was happy because the beloved Mary gave a letter to him,’

a. ‘John, was happy because his, beloved Mary gave a letter to him,’

b. *‘John, was happy because my, beloved Mary gave a letter to him,’

The main goal of this subsection was to show that the notion of logophoricity is necessary for LD caki appearing in the non-attitude environments as well. We have seen that LD caki in the relative and adjunct clauses requires a logophoric center (in particular, a pivot) as its long-distance antecedent.

6.3.2.2 No awareness condition

In this subsection, I will show that LD caki in the non-attitude environment does not have to satisfy the awareness condition, contrary to LD caki in the attitude environment. First, we have already seen that LD caki in the relative clauses can be used when the
antecedent of *caki* is not aware of the content of the clause in which *caki* occurs. The illustrative example is repeated below as (24).

(24) S1: John met a person who he identifies as “That person criticized me!”

S2: John met Tom. Unbeknownst to John, Tom is the person who criticized John.

\[
\text{John} \_i \ [\text{caki} \_l \text{ul piphanha-n}] \text{ salam-ul mannassta.} \\
\text{John-NOM self-ACC criticized-ADN person-ACC met} \\
\text{‘John, met the person who criticized him,’ (✓ S1, ✓ S2)}
\]

In some prior work, it has been argued that the awareness condition holds for LD *caki* appearing in the adjunct clauses in Korean (e.g., Lee 1973). According to Lee (1973), (25a) is degraded compared to (25b), since the antecedent of *caki* cannot be understood as a sentient subject.

(25) a. ?*Honswusangthay-ey p paci-n Chelswu_i-nun [Yenghuy-ka caki_i-lul coma-at fall.in-Rel Chelswu-TO P Yenghuy-NOM self-ACC cikhyepo-nun kawuntey] swumciessta. \\
\text{while died} \\
\text{‘Chelswu_i, who fell in a coma, died while Yenghuy was watching him.’}

b. Wiphwungtangtangha-n Chelswu_i-nun [Yenghuy-ka caki_i-lul stately-looking-Rel Chelswu-TO P Yenghuy-NOM self-ACC cikhyepo-nun kawuntey] swumciessta. \\
\text{watch while died} \\
\text{‘Chelswu_i, who looks stately, died while Yenghuy was watching him.’} \\
\text{(Lee 1973)}

However, the contrast seen in (25) is not so clear to many Korean speakers, and (25a) is equally acceptable as (25b) to the native speakers of Korean I consulted including myself. Although the matrix subject may not be conscious in (25a), the speaker of the utterance can still take his perspective to report the situation.

We can further provide evidence against the awareness condition for LD *caki* in the adjunct clauses. The sentence in (27) is a corresponding Korean example of the Chinese
example in (8b), repeated below as (26), except that the awareness condition is explicitly violated by the adverb ‘without knowing anything’ in the main clause. Huang and Liu (2001) argue that (26) is degraded because the two concurrent events do not implicate any possible awareness of Zhangsan toward the event of Lisi criticizing him. Note that *caki* in the *when*-clause in (27) can still refer to John, while it is clearly expressed that John was not aware of the event of Mary criticizing him.

(26) ??(Dang) Lisi piping ziji, de shihou, Zhangsan zheng zai kan shu.  
(at) Lisi criticize self DE moment Zhangsan right at read book  
‘At the moment Lisi was criticizing him, Zhangsan was reading.’

(Huang and Liu 2001)

(27) Mary-ka caki-lul piphanhal-ttay, John-un amwu-kesto moluko  
Mary-nom self-ACC criticize-when John-TOP anything not.know  
cako-iss-ess-ta.  
sleep-PROG-PST-DECL  
Lit. ‘When Mary was criticizing self, John was sleeping without knowing anything.’

In fact, Huang and Liu (2001) also note that (26) is acceptable for some speakers in Chinese as well. That is, some speakers can take the perspective of Zhangsan or empathizes with him with the same sentence. This shows that speakers vary in how much they can empathize with a protagonist in a sentence, especially when there is no other expressions related to perspective or point of view or a relevant context. When the awareness condition is satisfied, the protagonist who is aware of or conscious about the described event can always easily be understood as a *pivot* or empathy locus, and thus can be more easily acceptable as an antecedent of the LD reflexives. However, that does not mean that the speaker can never take a point of view of an internal protagonist who is not aware of the relevant event, although it may not be as easy or obvious as the cases in which the awareness condition is satisfied.
6.3.2.3 Adjunct clauses under attitude verbs

Recall that \textit{caki} in the (gapless) relative clauses does not have to be interpreted \textit{de se} even when embedded under an attitude predicate. By contrast, \textit{caki} in an adjunct clause must receive a \textit{de se} interpretation when the adjunct clause is embedded under an attitude verb. In (28), without the presence of the attitude verb, \textit{caki} inside the \textit{if}-clause can refer to the matrix subject John regardless of whether John is aware of the event of Mary inviting him. In other words, the sentence in (28) is felicitous when John does not know what makes him able to go to the party. On the other hand, when the \textit{if}-clause is embedded under an attitude verb and \textit{caki} in the \textit{if}-clause co-refers with the matrix subject, \textit{caki} must be interpreted \textit{de se}, as illustrated in (29).

\begin{enumerate}
\item[(28)] Mary-\textit{ka} \textit{caki}₁-lul chotayhaci anhumyen, John₁-un phathi-ey kaci moshal Mary-\textit{nom} self-\textit{acc} invite not.\textit{if} John-top party-to go cannot kesi-ta. will-\textit{DECL} Lit. 'If Mary doesn’t invite self₁, John₁ won’t be able to go to the party.'
\item[(29)] S1: John says, "I won’t be able to go to the party unless Mary invites me." S2: John says, "I won’t be able to go to the party unless Mary invites that guy." (Unbeknownst to him, that guy is John himself.)
\end{enumerate}

\begin{enumerate}
\item[(28)] John₁-un [Mary-\textit{ka} \textit{caki}₁-lul chotayhaci anhumyen, pro₁ phathi-ey kaci John-top Mary-\textit{nom} self-\textit{acc} invite not.\textit{if} pro party-to go moshal kesi-la]-ko malhayssta. cannot will-\textit{DECL}-\textit{COMP} said Lit. ‘John₁ said that he₁ won’t be able to go to the party unless Mary invites self₁.’
\end{enumerate}

In fact, the adjunct case is not different from the relative clause cases in that \textit{LD caki} can never be interpreted (non-\textit{de se}) \textit{de re} under attitude verbs. The only difference between the adjunct and relative cases is that the predicate of the \textit{if}-clause containing \textit{caki} can only be understood as part of the \textit{de dicto} attitudes of the antecedent of \textit{LD caki}, contrary to
the relative clause. Therefore, the obligatory \textit{de se} interpretation of LD \textit{caki} in the adjunct clause also falls under our generalization proposed in Chapter 5, namely, 'Obligatory \textit{de se} under \textit{de dicto}'.

There is another important finding about the interpretation of LD anaphors in an adjunct clause embedded under an attitude verb, which was originally observed by Pollard and Xue (1998) for Chinese \textit{ziji}. That is, LD \textit{caki} prefers a source antecedent over a pivot one whenever there is more than one logophoric center in a sentence. In (30a), \textit{caki} can co-refer with Tom when the speaker takes Tom’s perspective to report the sentence. When the sentence in (30a) is embedded under an attitude verb, as in (30b), there is now more than one logophoric center in the sentence: the matrix subject John as a source or Tom as a pivot. The reading of (30b) that is immediately possible is the coreference reading between John, as a source, and \textit{caki}. Even though it is not entirely impossible for \textit{caki} to co-refer with Tom (a pivot antecedent) under a particular context, it is significantly less preferred than the reading where \textit{caki} finds a source antecedent. Moreover, LD \textit{caki} receives an unambiguous \textit{de se} reading when it co-refers with the matrix subject in (30b).

   Mary-nom self-acc criticize-if, Tom-top go-NEG-FUT-DECL
   ‘If Mary criticizes him, Tom won’t go.’

   b. John-un [Mary-ka caki-lul piphanha-myen Tom-i
     John-top Mary-nom self-acc criticize-if   Tom-nom

---

---
kaci-anh-ulkes-ila]-ko malhayssta.
go-NEG-FUT-DECL-COMP said
‘John said that if Mary criticizes him, Tom won’t go.’

The preference for the source antecedent in (30) supports Sells’ claim that there is a hierarchical implication between the three primitive notions of logophoricity: source > self > pivot. Given that it is also possible for LD caki to find a pivot under a specific context, the preference may not be due to a grammatical reason.

Our observations on LD caki provided so far are: (i) it must find a logophoric center as its antecedent (source or self in the attitude environments and pivot in the non-attitude environments), (ii) LD caki must receive a de se interpretation once it appears in (or directly under) an attitude environment and the predicate of the clause containing it is part of a de dicto attitude of the antecedent of caki, (iii) a source or self antecedent is preferred over a pivot antecedent, and (iv) determining a pivot antecedent largely depends on other perspective-sensitive expressions in the sentence or the context.

6.3.3 Logophoricity and the (non-)de se interpretation of caki

This subsection focuses on the correlation between the type of logophoric center and the (non-)de se interpretation of LD caki. In particular, I will show that LD caki must receive a de se interpretation when it finds a source or self antecedent, while it gets a non-de se reading when its antecedent is a pivot. Since the discussion of a (non-)de se interpretation is only relevant with the existence of attitude environments, let us now confine our attention to the attitude environments.

In Chapter 5, we have seen that LD caki does not have to be interpreted de se in the attitude environments when it directly appears in a relative clause. Relative clauses are the sole exceptional environment in which LD caki can be exempt from the obligatory de se interpretation under the attitude environments. We also provided the interesting

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9The local subject Mary can also serve as an antecedent of caki.
generalizations of the relationship between \textit{de se} and \textit{de dicto} in (25) in Chapter 5, which are repeated below as (31).

(31) \textbf{Generalizations of the relationship between \textit{de se} and \textit{de dicto}}

a. \textbf{Generalization I: Obligatory \textit{de se} under \textit{de dicto}}

The LD reflexive \textit{caki} must be construed \textit{de se} when the predicate in the same clause is read \textit{de dicto} with respect to the antecedent of \textit{caki}.

b. \textbf{Generalization II: Obligatory non-\textit{de se} under non-\textit{de dicto}}

The LD reflexive \textit{caki} must be construed non-\textit{de se} when the predicate in the same clause is \textit{not} read \textit{de dicto} with respect to the antecedent of \textit{caki}.

For example, LD \textit{caki} in the relative clause in (32) can receive a \textit{de se} or non-\textit{de se} interpretation. It must be interpreted \textit{de se} when the predicate ‘criticize’ is contained in John’s belief (\textit{de dicto}). On the other hand, LD \textit{caki} must receive a non-\textit{de se} reading when the description with the relative clause is chosen by the speaker given the actual world (\textit{de re}).

(32) \begin{align*}
S1: & \text{John thinks, “Mary likes the person who criticized me.” } \quad \text{(\textit{de se})} \\
S2: & \text{John saw Mary talking with Tom and thought: “Mary likes Tom.” Unbeknownst to John, Tom criticized John a while ago. } \quad \text{(non-\textit{de se})}
\end{align*}

\begin{Verbatim}
John-top Mary-nom self-acc criticized-advn person-acc like-comp sayngkahanta. think

‘John, thinks that Mary likes the person who criticized him.’ \(\checkmark S1, \checkmark S2\)
\end{Verbatim}

Based on our discussion of the logophoric properties of the antecedents of LD \textit{caki}, let us now consider how the antecedent of LD \textit{caki} in the relative clause (with or without the \textit{de se} interpretation can be characterized with respect to logophoricity. First, when
LD *caki* in the relative clause is interpreted *de se* within the attitude environment, its antecedent is always understood as a *source of self*, as we saw before. For example, the sentence in (32) is a belief report that correctly states John’s belief in a situation where John holds a *de dicto* belief like ‘Mary likes the person who criticized me.’ In this case, LD *caki* in (32) receives a *de se* interpretation, and the antecedent of *caki*—that is, John—is the one whose thought is represented in the sentence (i.e., *self*). More precisely, we need to focus on the clause that immediately contains LD *caki*, that is, the relative clause. The antecedent of *caki* can still be understood as a *self* with particular respect to the relative clause, since John is the one whose thought is represented in describing the relative clause, which immediately embeds LD *caki*.

Next, consider another situation where John thinks, ‘Mary likes Tom.’ Unbeknownst to John, Tom is the one who criticized him before. I, as the speaker with the actual information about Tom, can properly report John’s belief using the sentence in (32). In this case, LD *caki* must receive a non-*de se* interpretation since the predicate of the relative clause is not part of John’s *de dicto* belief. How can we, then, characterize the antecedent of *caki* in terms of logophoricity? Again, we need to focus on the relative clause itself as opposed to the entire embedded clause. In this case, John cannot be understood as a *self* in describing the content of the relative clause, since ‘the person who criticized self’ is not contained in John’s thought. Instead, the antecedent of *caki* can still be understood as a *pivot*. In other words, John can be understood as the individual who the speaker empathizes with or takes perspectives from in describing the relative clause. To confirm this, let us add another perspectival element in the relative clause and see how it is interpreted. An element like *local* involves a (spatial) perspective sensitive expression, whose meaning must be anchored to a certain reference location (Mitchell 1986, Partee 1989). Suppose that John lives in Boston, while the speaker of the sentence in (33) lives

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10 If we change the embedding attitude verb to a speech verb like *malhata* ‘say’, then the antecedent of *caki* is understood as a *source*.

11 In particular, according to Mitchell (1986), expressions like *local*, *foreign*, *visiting*, *from out of state*, *home* involve a spatial perspective that does not merely depend on physical locations; rather, their meanings...
in Amherst. When *caki* co-refers with John in (33a), *ciyek sinmwun* 'local newspaper' in the same relative clause can most naturally be interpreted as Boston’s local newspaper, indicating that John is the one whose spatial perspective is taken in describing the relative clause. By contrast, 'local' can be anchored to either the utterance location (that is, Amherst) or John’s location (that is, Boston) when the third person pronoun is used instead in the relative clause.

   (i) ‘John, thinks that Mary likes the person who criticized him, on the local (from John’s point of view) newspaper.’
   (ii) ‘John, thinks that Mary likes the person who criticized him, on the local (from the speaker’s point of view) newspaper.’

b. John-i-un [Mary-ka [ciyek sinmwun-eyse ku-i-lul piphansa-n John-TOP Mary-NOM local newspaper-on he-ACC criticized-ADN salam]-ul coahanta]-ko sayngkahanta. person-ACC like-COMP think
   (i) ‘John, thinks that Mary likes the person who criticized him, on the local (from John’s point of view) newspaper.’
   (ii) ‘John, thinks that Mary likes the person who criticized him, on the local (from the speaker’s point of view) newspaper.’

The data in (33) demonstrate that the antecedent of LD *caki* with a non-*de se* interpretation can be understood as the one whose point of view is taken (PIVOT) in describing the clause that immediately embeds *caki*. In addition to the generalizations about *de se* and *de dicto*, depend on "socio-cultural organization of space" (Mitchell 1986, p.41).

12 Recall that there is a hierarchical relationship between the three primitive notions of logophoricity, according to Sells (1987): *source > self > pivot*. Given this hierarchy, we would predict that the perspectival element 'local' should also be anchored to the matrix subject even when the antecedent of *caki* is understood as a *source* or a *self*. Suppose that John has the following belief: 'Mary likes the person who criticized me on the local newspaper.' In this case, the relative clause is part of John’s *de dicto* thought, and *caki* in the relative clause must be interpreted *de se* and finds a *self* antecedent. As predicted, 'local' must

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the data above suggest a three-way relationship between *de se*, *de dicto* and the type of antecedent in terms of logophoricity, as illustrated below.

(34) A three-way relationship between *de se*, *de dicto*, and logophoricity

a. Generalization I: Obligatory *de se* under *de dicto* with a source or self antecedent

The LD reflexive *caki* must be construed *de se* when the predicate in the same clause is read *de dicto* with respect to the antecedent of *caki*, and its antecedent can only be understood as a source or self.

b. Generalization II: Obligatory non-*de se* under non-*de dicto* with a pivot antecedent

The LD reflexive *caki* must be construed non-*de se* when the predicate in the same clause is not read *de dicto* with respect to the antecedent of *caki*, and its antecedent can only be understood as a pivot.

The multiple *caki* case under multiple embeddings provide further evidence in support of our new observation that LD *caki* with a *de se* interpretation finds a source or self antecedent, while LD *caki* with a non-*de se* interpretation takes a pivot antecedent in attitude environments. The example in (35) contains one *caki* in the relative clause and another one directly under the attitude verb. Therefore, the immediate logophoric domain of the multiple *caki*’s are different: the relative clause for the former *caki* and the complement clause of the verb ‘think’ for the latter *caki*. Recall that the LD reflexive directly within the scope of the attitude verbs always receives a *de se* interpretation because the predicate in the same clause is always read *de dicto* with respect to the antecedent of *caki*. In other words, John’s speech or Mary’s thought in (35) must contain the first person pronoun, given the actual antecedent of *caki*: e.g., John said something like ‘Mary thinks 

be anchored to the location of the self antecedent of *caki*, supporting the hierarchical relationship between the logophoric notions proposed by Sells (1987).
X likes me’ or Mary thought, ‘X likes me’, while the description of X may vary. Naturally, then, the antecedent of the latter caki in (35) is understood as a source or self. Similarly, the LD reflexive in the relative clause must receive a de se interpretation when the predicate of the relative clause—that is, the immediately embedding clause of caki—is read de dicto with respect to John or Mary, as ‘the person who hit me’. Again, the antecedent of caki in this case is also characterized as a source or self.

(35) John-un [Mary-ka [[caki-lul piphanha-n salam]-i caki-ul
John-top Mary-nom self-acc criticized-adv person-nom self-acc
cohahanta]-ko sayngkahanta]-ko malhayssta.
like-comp think-comp said
Lit. ‘John said that Mary thinks that the person who criticized self likes self.’

a. John, said Mary, thinks the person who criticized him, de se likes him, de se.
b. John, said Mary, thinks the person who criticized him, non-de se likes him, de se.
c. John, said Mary, thinks the person who criticized her, de se likes her, de se.
d. John, said Mary, thinks the person who criticized her, non-de se likes her, de se.
e. John, said Mary, thinks the person who criticized him, non-de se likes her, de se.
f. John, said Mary, thinks the person who criticized her, non-de se likes him, de se.13

By contrast, the antecedent of LD caki with a non-de se interpretation in the relative clause cannot be understood as a source or self with respect to the immediate logophoric domain that contains LD caki. To demonstrate this, let us consider a scenario in which the reading in (35b) can be derived. In this reading, both caki’s refer to the same referent, John, while only the latter one receives a de se interpretation. One possible context is as follows: At a party, Mary thought some guy named Tom was being especially nice to

13As we have seen before, multiple caki’s in the same complement clause cannot be interpreted de se with respect to different attitude holders due to the independent binding conditions of LD caki. Therefore, the following interpretations cannot be derived from the sentence in (35):

(i) a. *John, said Mary, thinks the person who criticized him, de se likes her, de se.
b. *John, said Mary, thinks the person who criticized her, de se likes him, de se.
John, so she told John: "I think that guy Tom likes you." Next day, John said to a friend of his: "Mary thinks the guy I met at a party likes me." Unbeknownst to both John and Mary, Tom was the one who criticized John a while ago. Under this particular context, we can felicitously report the situation using the sentence in (35). While John is the antecedent of both caki’s in this case, the logophoric meaning of the same referent, John, varies relative to each logophoric domain. With respect to the relative clause, which is the immediate logophoric domain of the former caki, John cannot be understood as a source because ‘the person who criticized self’ is not part of John’s direct speech. Instead, John can still be understood as a pivot, the one whose point of view or perspective the speaker takes to report the relative clause. On the other hand, John is the one who makes the report (source) with respect to the complement of the embedding verb ‘think’, which is the immediate logophoric domain of the latter caki. Therefore, we can draw the same generalization from the data involving multiple caki’s: LD caki is associated with a source or self antecedent when it is interpreted de se, whereas it finds a pivot antecedent when it gets a non-de se interpretation.

To summarize, our key observations in this section are listed below.

(36) Summary

a. LD caki directly embedded in the complement of an attitude verb must be interpreted de se, and in this case its antecedent is always understood as a particular logophoric center, i.e. source or self.

b. LD caki directly embedded in the relative clause must be interpreted de se when the predicate of the relative clause is interpreted de dicto with respect to the antecedent of caki, and in this case its antecedent is always understood as a particular logophoric center, i.e. source or self.

c. LD caki directly embedded in the relative clause must be interpreted non-de se when the predicate of the relative clause is not read de dicto relative to the
antecedent of *caki*, and in this case its antecedent is always understood as a particular logophoric center, i.e. **pivot**.

### 6.4 Logophoric operators

In this section, I develop a syntactico-semantic analysis of long-distance anaphor binding based on the notion of logophoricity. In particular, I follow and extend the local binding approach for the long-distance binding and further propose a semantic analysis that can capture the (non-)*de se* interpretation of LD *caki* in attitude environments. The core ideas of our analysis will be that: (i) LD *caki* is uniformly bound by a local logophoric operator that mediates between the anaphors and its long-distance antecedent, as opposed to being directly bound by its antecedent, (ii) the logophoric operator links the LD *caki* to a logophoric center whose perspective is taken in describing the clause containing *caki*, and (iii) logophoric binding mechanism is distinct from but closely related to the *de se* mechanism in attitude environments.

Under our new proposal, there will be a two-layered system for logophoric binding and the obligatory *de se* interpretation of LD *caki*. While the property analysis will remain unchanged for the obligatory *de se* interpretation of LD *caki*, we will propose that it is not *caki* itself anymore that is directly bound by the *de se* binder but a null pronominal element that directly binds *caki*.

#### 6.4.1 Syntactic analysis: Local logophoric operators

Based upon previous syntactic analyses on logophoric binding, this section proposes a local binding approach for the long-distance reflexive *caki* in Korean. In the syntactic literature, a number of studies have claimed that logophors or LD reflexives that are coreferent with a long-distance antecedent are not directly bound by their antecedents but by a silent logophoric operator that mediates them (Koopman and Sportiche 1989, Adesola 2005, Anand 2006, Nishigauchi and Kishida 2008, Sundaresan 2012, Nishigauchi 2014,
The logophoric operator binding approach can be divided into two groups depending on the location of the operators: non-local and local logophoric operators. The first group argues that the null operator that mediates between LD anaphors and their antecedents are located at the CP periphery that is directly below the clause containing the antecedent (Koopman and Sportiche 1989, Anand 2006). In other words, the distance between the operator and logophoric elements may be long-distance in multiple embedding cases, while the distance between the operator and the antecedent is always local. By contrast, the second group proposes a local operator approach (Nishigauchi 2005, 2014, Sundaresan 2012, Charnavel and Zlogar 2016, Charnavel 2017). That is, logophoric operators are always located in the left periphery of the clause that contains a logophoric element. Under this approach, then, a logophoric element is always bound by a local operator, while the operator may associate it with a long-distance antecedent.

Following the latter approach, I assume that the LD reflexive caki is uniformly bound by a local logophoric operator that occurs in the left periphery of the clause that directly contains LD caki. Given the observation that LD caki must be coreferent with an individual whose mental or physical perspective is represented in the clause where the reflexive occurs, I also assume that the logophoric operator projects a pronominal element, the one whose perspective is taken in describing the clause containing caki (Speas 2004, Nishigauchi 2005, 2014, Charnavel 2017). While the local null operator consistently binds the LD reflexive in the same clause, the pronominal element that is projected by the logophoric operator is associated with a logophoric center. In Korean, we can assume that any CP, including CP complements of attitude verbs, (gapless) relative clauses, and a number of adjunct clauses, can host a logophoric operator in their left periphery.¹⁴

¹⁴The question of where exactly the logophoric operator posits in the left periphery is orthogonal to our approach. Following Cinque (1999) and (Speas 2004), Nishigauchi (2014) proposes a number of point of view related projections that can project a null pronoun in their Spec, which is the local binder for the LD reflexive zibun in Japanese: Speech Act Phrase, Evidential (Mood) Phrase, Epistemological Phrase, Evaluative (Mood) Phrase, Benefactive Phrase, Deixis Phrase. On the other hand, Sundaresan (2012) argues for one projection (Perspectival Phrase) that is responsible for logophoric/perspectival binding.
(37) **Local binding of LD caki by logophoric operators** *(first attempt)*

a. Logophoric operator under an attitude verb

John\(_k\) thinks [CP pro\(_k\) [OP-LOG\(_j\) Mary likes self\(_j\)]]\(^{15}\)

b. Logophoric operator in a relative clause

John\(_k\) met [the guy [CP who\(_i\) [pro\(_k\) [OP-LOG\(_j\) ti saved self\(_j\)]]]]

c. Logophoric operator in an adjunct clause

[CP pro\(_k\) [OP-LOG\(_j\) Because John criticized self\(_j\)]], Mary\(_k\) got upset.

Given the syntactic assumptions put forth above, we can account for the facts that LD *caki* can appear in a number of different clauses that allow a logophoric operator and find a long-distance antecedent by being bound by the local logophoric operator. However, our system has not yet been fully worked out with respect to the the relationship between the (non-)obligatory *de se* interpretations of *caki* and the types of the embedded clauses. In other words, the pure syntactic account cannot explain why LD *caki* must receive a *de se* interpretation when it appears in the complements of attitude verbs and how it can be exempt from the obligatory *de se* interpretation under the (gapless) relative clauses.

### 6.4.2 Semantic analysis: Perspective predicates

Based upon the syntactic assumptions I have provided in the previous section, this section develops a semantic account for the logophoric operators. Most of the syntactic work on logophoric binding assumes that logophoric operators are null pronominal elements that directly bind a logophoric elements (e.g., Nishigauchi 2005, 2014, Sundaresan 2012). However, we need a more sophisticated semantic analysis that can derive the fact that LD *caki* is associated with an individual whose mental or physical perspective is represented

\(^{15}\)The co-indexing between the matrix subject and the pronominal element in the embedded clause merely indicates that they are "linked" in some way. In the next subsection, I will show how they are "linked" under our semantic assumptions.
in the clause that contains the LD reflexive.

Anand (2006) proposes that a logophoric operator is a lambda abstractor, while logophoric elements are individual variables that need to be bound by the logophoric operator. This base-generated operator that is co-indexed with a logophoric element turns a propositional complement into a property (type <e,st>).

(38) \[
\text{[[OP-log} \, \alpha]]^g = \lambda x. \text{[[} \alpha\text{]]}^{g[j \mapsto x]} \quad \text{(Anand 2006, p.50)}
\]

Since Anand (2006) considers logophors/LD anaphors only under attitude verbs that receive an obligatory de se interpretation, he argues that the property created by the logophoric operator takes a special referential item, the author of the index. The CENTER takes an index, which is bound by the closest index binder, as its argument and returns the speaker of that index. Therefore, logophoric elements bound by the logophoric operator ultimately denote the speaker of a particular index, and thus get a de se reading.

(39) \[
\text{[[CENTER]]}^g = \lambda i. \text{AUTH}(i) \quad \text{(Anand 2006, p.50)}
\]

Note, however, that we consider both attitude and non-attitude environments. A de se interpretation may be irrelevant in the latter cases. In other words, LD antecedents of caki in non-attitude environments does not denote the speaker of some index. Instead, we need to associate the LD reflexive with a (mental or physical) perspective holder.

Based on the prior syntactic and semantic work cited above, Charnavel (2017) provides a local binding approach to exempt anaphors. Specifically, she argues that exempt anaphors are bound by a local logophoric operator, which takes a clause P as complement and a null pronominal element as subject denoting perspective centers. The null pronoun, then, locally binds the exempt anaphor and is coreferent with the actual antecedent. The denotation of the logophoric operator is provided in (40).

(40) \[
\text{[[OP_{LOG}]]} = \lambda P. \lambda x. P \text{ from } x\text{’s perspective} \quad \text{(Charnavel 2017)}
\]
This account captures the facts that exempt anaphors are understood as perspective centers and the clause containing an exempt anaphor is described from the perspective of the antecedent of the exempt anaphor. However, this analysis lacks an account of the obligatory *de se* interpretation of exempt anaphors in attitude environments. Our account will incorporate some of the insights from the proposals in Anand (2006) and Charnavel (2017), but will diverge from their proposals in a number of ways.

First, following Anand (2006), I assume that logophoric operators are individual abstractors. Then I specifically argue that these operators are introduced by a covert perspective-predicate, whose semantics denote relations between individuals and properties. The logophorphic operator that is coindexed with LD *caki* within its scope turns its complement of type <t> into a property type. The perspective predicate takes this property, and the subject of the predicate saturates this property. Therefore, LD *caki* is bound by the subject of the perspective predicate. Moreover, I further argue the perspective predicate has a presuppositional meaning that P(x) is true from x’s perspective. This captures the fact that the complement of the perspective predicate containing LD *caki* is described from the perspective of the antecedent of *caki*, that is, the subject of the perspective predicate.

(41)  **The semantics of the covert P(erspective)-PRED**

\[
[p\text{-}pred]^o = \lambda P. \lambda x: P(x)=T \text{ from } x\text{'s perspective}. \ P(x) = T
\]

For instance, the embedded clause that contains *caki* in a sentence like *Lit. John*₁ *thinks Mary likes caki*₂ would have a presuppositional meaning, as in (42).

(42)  \[p\text{-}pred \ [op\text{-}log_j \ Mary \ likes \ caki_j]^o(pro_1) = \]

a. Assertive meaning: Mary likes g(1), where g(1) = John

b. Presupposition: Mary likes g(1) from g(1)’s perspective
Therefore, if the referent of the free variable, i.e., the subject of the perspective predicate, is not a perspective holder, the complement clause containing caki cannot be defined.

Given this, we now revise the LFs of the sentences with LD caki as following.

(43) **Local binding of LD caki by logophoric operators** *(second attempt)*

a. Logophoric operator under an attitude verb

\[ \text{John thinks } [\text{CP pro}_k \text{ P-PRED } [\text{OP-LOG}_j \text{ Mary likes self}_j]], \text{ where pro}_k = \text{John} \]

b. Logophoric operator in a relative clause

\[ \text{John met } [\text{the guy } [\text{CP who}_i [\text{pro}_k \text{ P-PRED } [\text{OP-LOG}_j t_i \text{ saved self}_j]]]], \text{ where pro}_k = \text{John} \]

c. Logophoric operator in an adjunct clause

\[ [[\text{CP pro}_k \text{ P-PRED } [\text{OP-LOG}_j \text{ Because John criticized self}_j]], \text{ Mary got upset}], \text{ where pro}_k = \text{Mary} \]

Under our current account, LD caki always appears within the scope of the perspective predicate and it denotes a perspective holder by being bound by the logophoric operator under the P-Pred. There is one last problem that the current proposal has not yet provided a solution: how is the obligatory *de se* interpretation of LD caki derived in attitude environments? Since denoting a perspective holder does not guarantee a *de se* interpretation, we still need a mechanism for *de se* construals. Recall that we proposed one mechanism in Chapter 3 that is responsible for both the *de se* interpretation of caki and long-distance binding, under the property approach and our proposed licensing conditions for LD caki. However, this account cannot be adopted for LD caki in non-attitude environments. Therefore, I distinguish the two mechanisms from each other. Specifically, while I argue for the local binding approach for the LD reflexives, which can cover the consistent long-distance dependency between caki and its antecedent as well as the characteristic and role of the antecedent of caki as a perspective holder, I maintain the property approach for the *de se* construal of LD caki.
Now I propose that it is not caki itself but the pronominal element, which is projected by the perspective predicate, that is bound by the individual abstractor under an attitude predicate. The difference between the attitude and non-attitude environments comes from the property of the pronominal element, the subject of the perspective predicate. First, the pronominal element directly under attitude verbs must be bound by a closest binder with the feature [log]. These binding conditions are not for LD caki anymore, but for the subject of the perspective predicate. Second, the one in the relative clause can be free or bound. Given the presuppositional meaning of the perspective predicate, the sentence will not be defined when the subject of the perspective predicate refers to an individual who is not a perspective holder. Since the pronominal element in the relative clause need not be bound, it can have a non-de se interpretation.

(44) **Local binding of LD caki by logophoric operators** *(final)*

a. Logophoric operator under an attitude verb

John thinks \([_\text{}CP\lambda_1\text{pro}_1\text{p-pred}[\text{op-log}_j\text{Mary likes self}_j]]\)

b. Logophoric operator in a relative clause

John met \([\text{the guy }[_\text{}CP\text{who}_i\text{pro}_1\text{p-pred}[\text{op-log}_j\text{t}_i\text{saved self}_j]]\] , where g(1)=John

c. Logophoric operator in an adjunct clause

\([_\text{}CP\text{pro}_1\text{p-pred}[\text{op-log}_j\text{Because John criticized self}_j]]\) , Mary got upset, where g(1)=Mary

A sample derivation of the obligatory de se reading of caki under the attitude verb in (45) is shown in (47b), based on the semantics of the attitude verb think in (46) and the LF structure of (45) as in (47a).

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16 I admit the stipulative nature of this analysis. I will have to leave to future study the source of this distinction between the complements of attitude verbs and relative clauses.
John thinks that Mary likes him.

\[ \text{think} = \lambda P_{<e, st>} : [\lambda x. \lambda w. \forall <y, w'> \in \text{Dox}_{x, w} : P(y)(w') = T], \]

where \( \text{Dox}_{x, w} = \{<y, w'>: \text{it is compatible with what } x \text{ thinks in } w \text{ that } w' \text{ is a world } x \text{ might be living in and } y \text{ is the one who } x \text{ identifies in } w \text{ as herself in } w'\} \)

\[ (47) \]

a. LF structure of (45):

\[ \lambda w w \text{ John thinks } [\lambda_1 \lambda_2 w_2 \text{ pro}_1 \text{ p-pred } [\text{op-log}_3 \text{ Mary likes self}_3]] \]

b. \[ [(47a)]^g = \lambda w \forall <y, w'> \in \text{Dox}_{John, w} : \text{Mary likes } y \text{ in } w' \]

Note that the truth-conditions of the sentence like (45) derived from our new LF structure with the perspective predicate and logophoric operator are identical to our old version. However, the binding mechanism for LD \textit{caki} and the \textit{de se} mechanism are now distinct in our current system.

### 6.4.3 Consequences

#### 6.4.3.1 Caki in complements of attitude verbs

Given our syntactic and semantic assumptions about local logophoric binding of LD \textit{caki}, I would like to point out some advantageous consequences of our analysis. Previously, we assumed that LD \textit{caki} is a variable that is bound by an individual abstractor that is introduced by an attitude verb, and thus it unambiguously gets a \textit{de se} reading under attitude verbs. Instead, our current system assumes that LD \textit{caki} is uniformly bound by the local logophoric operator, while the subject of the perspective predicate, a bound variable under attitude verbs, is bound by the \textit{de se} binder. The only difference between the previous and current approaches lies in the binder of \textit{caki}: an individual abstractor introduced below an attitude verb vs. a local logophoric operator. Since the bound variable element (that is, the subject of the perspective predicate) is bound by an individual abstractor that
is introduced by an attitude verb, we can maintain the obligatory de se construal of *caki* under attitude verbs. That is, it is identical in either case that LD *caki* is interpreted as the one who the attitude holder identifies as himself/herself (a de se counterpart).

Recall that our previous assumption about LD *caki* was that LD *caki*, which is a variable that bears the special feature [log], needs to be bound by a closest abstractor that also bears the same feature. Since we assumed that individual abstractors under attitude verbs can optionally take the [log] feature, LD *caki* can be bound by an abstractor in the higher clause only when the closer binder does not bear the [log] feature. Instead of the reflexive itself, now we assume that the subject of the perspective predicate is subject to this licensing conditions. Note that the LD reflexive is uniformly bound by the local logophoric operator that is introduced by the perspective predicate.

(48) **Single caki under multiple embeddings**

a. John thinks \[\lambda_1 \text{Mary says } [\lambda_2 [\text{log}] \text{pro}_2 \text{P-PRED} [\text{OP-LOG}_3 \text{Mary likes self}_3]]] \]
   (coreference between *caki* and Mary)

b. John thinks \[\lambda_1 [\text{log}] \text{Mary says } [\lambda_2 [\text{pro}_1 \text{P-PRED} [\text{OP-LOG}_3 \text{Mary likes self}_3]]] \]
   (coreference between *caki* and John)

The LD anaphor in the most embedded clause can refer to either the matrix or intermediate subject given by which abstractor the variable *pro* is bound.

(49) **Multiple caki’s under multiple embeddings**

a. John thinks \[\lambda_1 \text{Mary says } [\lambda_2 [\text{log}] \text{pro}_2 \text{P-PRED} [\text{OP-LOG}_3 \text{self}_3’s \text{father likes self}_3’s \text{mother}]]] \]
   (coreference between multiple *caki’s* and Mary)

b. John thinks \[\lambda_1 [\text{log}] \text{Mary says } [\lambda_2 [\text{pro}_1 \text{P-PRED} [\text{OP-LOG}_3 \text{self}_3’s \text{father likes self}_3’s \text{mother}]]] \]
   (coreference between multiple *caki’s* and John)

Strictly speaking, we do not need the optional [log] feature on the binder to account for the
obligatory coreference of multiple caki’s in our current account, because multiple caki’s in the same complement clause must be bound by the same local logophoric operator. We will see shortly, however, that we still need the featural condition for the subject of the perspective predicate.

6.4.3.2 Caki in (gapless) relative clauses

The most interesting and novel data we saw before involve a LD caki in a (gapless) relative clause embedded under an attitude verb. Our local logophoric binding account predicts that LD caki in a (gapless) relative clause can receive a non-de se reading even under an attitude verb, because the subject of the perspective predicate that appears in the relative clause can be free, in contrast to the one under attitude verbs. It can also receive a de se interpretation when the pronominal subject is bound by the individual abstractor. Consider the illustrative example in (4) of Chapter 5, repeated below as (50).

(50) John$_i$-un [[caki$_i$-lul ttayl]-n yeca]-ka chakhata-ko sayngkakhanta.
    John-TOP self-ACC hit-ADN woman-NOM kind-COMP think
    ‘John$_i$ thinks that the woman who hit him$_i$ is kind.’

There are two possible structures for this sentence, and the only difference is how the subject of the perspective predicate is interpreted.

(51) The de se and non-de se LF of caki in RCs

a. The de se LF

John thinks $[\lambda_1^{[\text{log}]} [\text{the woman } [\text{who}_i [\text{pro}_1 \text{ P-PRED [op-log}_j \text{ t, hit self}_j]] \text{ is kind }]]$

b. The non-de se LF

John thinks $[\lambda_1^{[\text{log}]} [\text{the woman } [\text{who}_i [\text{pro}_3 \text{ P-PRED [op-log}_j \text{ t, hit self}_j]] \text{ is kind }]], \text{ where } g(3)=John$
As shown above, when *pro* is used as a free variable, LD *caki* receives a non-*de se* interpretation while it can refer to John. On the other hand, LD *caki* is interpreted *de se* when the pronominal subject of the perspective predicate is bound by the individual abstractor \((\lambda_1)\) in the left periphery of the complement clause of the verb ‘think’.

Our proposed account also correctly predicts that LD *caki* in a DP like ‘*caki*’s sister’ must be interpreted *de se* in a sentence like ‘John thinks *caki*’s sister is nice.’ Since only CPs can host a logophoric operator (at least in Korean), *caki* in a DP like ‘*caki*’s sister’ must be bound by the logophoric operator appearing in the left periphery of the complement clause, which associates *caki* with a *de se* center.

Lastly, let us examine how our analysis of local logophoric binding would explain the novel data we saw in Chapter 5 that involve multiple *caki*’s: one inside a relative clause and the other directly under an attitude verb. The relevant example (39) in Chapter 5 is repeated below as (52). The LF for each reading of this sentence is provided in (53). While LD *caki*’s are unambiguously bound by the local logophoric operator in the relative clause and the complement clause, respectively, the interpretation of the pronominal elements can vary.

\[
(52) \quad \begin{array}{l}
\text{John-un [Mary-ka }[[[caki-lul ttayli]-n yeca]-ka } caki-lul cohahanta]-ko \\
\text{John-top Mary-nom self-acc hit-adn woman-nom self-acc like-comp} \\
\text{sayngkakhanta]-ko malhayssta.} \\
\text{thinks-comp said} \\
\text{Lit. ‘John said that Mary thinks that the woman who hit self likes self.’}
\end{array}
\]

\[
\begin{align*}
\text{a. } & \text{John, said that Mary, thinks that the woman who hit him,}^{\text{des}} \text{ likes him,}^{\text{des}}. \\
\text{b. } & \text{John, said that Mary, thinks that the woman who hit him,}^{\text{non-des}} \text{ likes him,}^{\text{des}}. \\
\text{c. } & \text{John, said that Mary, thinks that the woman who hit her,}^{\text{des}} \text{ likes her,}^{\text{des}}. \\
\text{d. } & \text{John, said that Mary, thinks that the woman who hit her,}^{\text{non-des}} \text{ likes her,}^{\text{des}}. \\
\text{e. } & \text{John, said that Mary, thinks that the woman who hit him,}^{\text{non-des}} \text{ likes her,}^{\text{des}}. \\
\text{f. } & \text{John, said that Mary, thinks that the woman who hit her,}^{\text{non-des}} \text{ likes him,}^{\text{des}}. \\
\text{g. } & \text{*John, said that Mary, thinks that the woman who hit him,}^{\text{des}} \text{ likes her,}^{\text{des}}.
\end{align*}
\]
h. *John said that Mary thinks that the woman who hit her likes him.

(53) LFs of the sentence in (52)

a. John\textsuperscript{de se} – John\textsuperscript{de se}

John says [\lambda_1 \text{Mary thinks [\lambda_2 \text{PRED [OP-LOG3 [the woman [ whoi [\text{PRED [OP-LOG4 t_i hit self_i]]] likes self_i]]]]]}

b. John\textsuperscript{non-de se} – John\textsuperscript{de se}

John says [\lambda_1 \text{Mary thinks [\lambda_2 \text{PRED [OP-LOG3 [the woman [ whoi [\text{PRED [OP-LOG4 t_i hit self_i]]] likes self_i]]], where g(5) = John]}

c. Mary\textsuperscript{de se} – Mary\textsuperscript{de se}

Mary says [\lambda_2 \text{PRED [OP-LOG3 [the woman [ whoi [\text{PRED [OP-LOG4 t_i hit self_i]]] likes self_i]]]}

d. Mary\textsuperscript{non-de se} – Mary\textsuperscript{de se}

Mary says [\lambda_2 \text{PRED [OP-LOG3 [the woman [ whoi [\text{PRED [OP-LOG4 t_i hit self_i]]] likes self_i]], where g(5) = Mary]}

e. John\textsuperscript{non-de se} – Mary\textsuperscript{de se}

John says [\lambda_2 \text{PRED [OP-LOG3 [the woman [ whoi [\text{PRED [OP-LOG4 t_i hit self_i]]] likes self_i]], where g(5) = John]}

f. Mary\textsuperscript{non-de se} – John\textsuperscript{de se}

Mary says [\lambda_2 \text{PRED [OP-LOG3 [the woman [ whoi [\text{PRED [OP-LOG4 t_i hit self_i]]] likes self_i]], where g(5) = Mary]}

g. *John\textsuperscript{de se} – Mary\textsuperscript{de se}

*John says [\lambda_2 \text{PRED [OP-LOG3 [the woman [ whoi [\text{PRED [OP-LOG4 t_i hit self_i]]] likes self_i]]]}

h. *Mary\textsuperscript{de se} – John\textsuperscript{de se}

*John says [\lambda_2 \text{PRED [OP-LOG3 [the woman [ whoi [\text{PRED [OP-LOG4 t_i hit self_i]]] likes self_i]]]}

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In order to properly bind both caki’s in (53), two logophoric operators are required: one in the CP periphery of the complement of the attitude verb and the other in the relative clause. The existence of the two logophoric operators and the property of the pronominal elements as the subject of the perspective predicate can account for the interesting facts seen in (53). The first important point regarding (53) was that caki directly under the attitude verb must be interpreted de se with respect to either the matrix subject or the intermediate subject, while the one in the relative clause does not. This fact can be derived from the fact that the pronominal element located in the left periphery of the most embedded clause under the verb ‘think’ must be bound, whereas the one in the relative clause can be bound or free. Second, multiple caki’s in (53) can find different referents owing to the two separate logophoric operators. Third, multiple caki’s need to be coreferential in order for them to be interpreted de se, given our assumption that when the pronominal element projected by the logophoric operator is bound by a de se binder under an attitude verb, it must be bound by a closet binder that bears the [log] feature. For example, if one of the caki’s is interpreted de se with respect to the intermediate subject, the other should also be because it implies that there exists an individual abstractor with the [log] feature under the intermediate verb ‘think’, which is the closest suitable binder for the bound variable type element in the subject position of either perspective predicate.

6.5 Conclusion

This chapter proposed a new account of logophoric binding of the LD reflexive caki. Having shown that LD caki requires a logophoric center/perspective holder as its antecedent regardless of in which environment it appears, I have argued that LD caki is always bound by a local logophoric operator that is introduced by a covert perspective predicate. The major divergence from the analysis presented in the previous chapters is that there are now two separate mechanisms for de se and long-distance binding, respectively. In our
new two-layered system for *de se* and logophoricity, a logophoric element like LD *caki* must be bound by a local logophoric operator and the perspective predicate that introduces the binder of *caki* plays an important role in linking *caki* to a perspective holder. The *de se* binder appearing under an attitude verb is still the source of the obligatory *de se* interpretation of the LD reflexive in the attitude environments.

Furthermore, we explained that the difference between the complement of attitude verbs and relative clauses comes from the property of the subject of the perspective predicate. The subject of the perspective predicate appearing directly under attitude verbs must be a bound-variable type element, which then must be bound by a *de se* binder. On the other hand, the pronominal element in the subject position of the perspective predicate appearing in a relative clause can be free or bound. Therefore, LD *caki* in the relative clause can co-refer with a LD antecedent without a *de se* interpretation when its binder, the subject of the perspective predicate, is a free variable. Again, the free variable still needs to refer to a perspective holder in order to satisfy the presupposition introduced by the perspective predicate.

To summarize, our system has the following advantageous consequences: (i) given the semantics of the perspective predicate, it predicts that the antecedent of LD *caki* must be understood as the perspective holder of the clause containing the reflexive, (ii) it correctly derives the *de se* or non-*de se* interpretation of *caki* depending on the clause it appears, and (iii) it also predicts that if multiple *caki*'s within the scope of the same attitude verb are interpreted *de se*, then they need to find the same referent.
CHAPTER 7

CONCLUSION

This chapter provides a summary of this thesis by first reminding the readers of the research questions we raised in Introduction.

(1) The main research questions

   a. How do multiple (same or different kinds of) de se expressions behave and interact with each other in one language?
   b. As widely assumed, can a de se interpretation of any element be freely derived via a de re LF?
   c. What are the relationships between de se ascriptions and other notions that reflect perspective in grammar?

Regarding the first question, based upon the property approach to de se that we developed in Chapter 3, in Chapter 4 we proposed a unified account for the multiple de se expressions including PRO, controlled pronouns, and (non-)controlled LD reflexive caki. While it is identical that these de se expressions must be bound by a de se binder, the question of by which binder they are bound was dependent on the lexical properties of the elements or structural properties of the environments they appear. In particular, we saw that controlled subjects must be bound by the closest de se binder due to the structural property of the obligatory control construction, whereas LD caki needs to be bound by a binder with
the special feature [log], regardless of whether it is controlled or not.

The second question in (1) was mainly discussed in Chapter 5. First, we have shown that there is a special case where the LD reflexive caki cannot receive a de se interpretation. The novel generalizations of the correlation between de se and de dicto that we presented in Chapter 5 are repeated below.

(2) **Generalizations of the relationship between de se and de dicto**

a. **Generalization I: Obligatory de se under de dicto**

The LD reflexive caki must be construed de se when the predicate in the same clause is read de dicto with respect to the antecedent of caki.

b. **Generalization II: Obligatory non-de se under non-de dicto**

The LD reflexive caki must be construed non-de se when the predicate in the same clause is not read de dicto with respect to the antecedent of caki.

Since a relative clause is the only possible environment where the predicate can be interpreted quite freely, LD caki in a relative clause receive a non-de se reading when the predicate of the relative clause is not interpreted de dicto with respect to the antecedent of caki.

Moreover, we proposed two pragmatic competitions regarding de se ascriptions, based on the empirical evidence of how the third person pronoun interacts with the obligatory de se expression caki. That is, a ‘de se as a special de re’ route is blocked when a dedicated de se machinery is being used in the same construction, and a non-de se expression cannot be interpreted de se when a clausemate de se expression is used that refers to the same referent.
(3) **Obligatory De se LF!**

Whenever a *de se* LF is employed in the structure at least for one element, a *de se* interpretation of all the other elements cannot be derived from a *de re* LF.

(4) **Obligatory De se expression!**

Whenever an obligatory *de se* expression is used in an attitude report, a non-obligatory *de se* expression in the same complement clause cannot be interpreted *de se*.

Lastly, Chapter 6 was devoted to the relationship between the two notions of our main interest: *de se* ascriptions and the notion of logophoricity. We have proposed a two-layered system for these two notions. First, there is a covert perspective predicate appearing in the clause where LD *caki* occurs. Its role is to (i) introduce the logophoric operator that locally binds *caki* and turns its complement into a property type, (ii) triggers a presupposition that its property-type complement P(x) is true from x’s perspective, and (iii) projects a null pronominal element in its subject position. The denotation of the covert perspective predicate is shown below.

(5) **The semantics of the covert P(erspective)-PRED**

\[ [\text{P-pred}]^q = \lambda P. \lambda x: P(x)=T \text{ from } x\text{’s perspective. } P(x) = T \]

Throughout the dissertation until Chapter 5, we assumed that an element gets an obligatory *de se* interpretation if it is bound by an individual abstractor that is introduced under an attitude verb. Under our new system presented in Chapter 6, the subject of the perspective predicate must be bound by a *de se* binder in the attitude environments, and thus, LD *caki* directly embedded under an attitude verb is ultimately interpreted *de se*. By contrast, the subject of the *p-pred* in a relative clause can be free or bound. When it is free, LD *caki* is exempt from the *de se* interpretation, while it can still refer to a matrix argument who is a perspective holder. Our account correctly captures the distinct but close relationship
between the *de se* ascription and notion of logophoricity.
BIBLIOGRAPHY


