Overt Subjects in Obligatory Control Constructions in Korean

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1. Introduction

It has been reported in the literature that Korean is one of the languages where overt elements can appear in the subject position of control constructions (Yang, 1985; Madigan, 2008; Lee, 2009: a.o.). This paper investigates the properties of overt subjects in Korean obligatory control constructions (e.g., pronouns and long-distance anaphors) in comparison with the null subject. Focusing on the obligatory *de se* interpretations of the (null and overt) subjects in obligatory control constructions, I also present novel observations about the interaction between the controlled subjects and another *de se* element, the long-distance reflexive *caki*, in Korean. Based on the differences between the null and overt controlled subjects, I show that lexical subjects in control complements are not merely an overt form of PRO. Rather, I propose that an overt element can appear in the controlled subject position in Korean if and only if (i) it can be used as a bound variable and (ii) its own binding conditions (if there are any) are satisfied. Moreover, I argue that the obligatory *de se* interpretation of the controlled subjects and the long-distance reflexive in Korean are derived from the same mechanism, following the property analysis of *de se* ascriptions (Lewis, 1979; Chierchia, 1989; Percus & Sauerland, 2003; Pearson, 2013: a.o.).

The structure of this paper is as follows. In section 2, I present data concerning similarities and differences between null and overt controlled subjects. Section 3 provides novel data on how controlled subjects interact with another *de se* element in the same clause. In section 4, I discuss a unified analysis of controlled subjects based on structural conditions of obligatory control complements and the property analysis of *de se*. Section 5 concludes.

2. Overt subjects in obligatory control constructions
2.1. Obligatory control properties of overt subjects

Obligatory control (henceforth, OC) 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: among others). For instance, an obligatory subject control construction is created by an embedding predicate like *yaksokhata* 'promise' and a volitional modal *-keyss*, while an obligatory object control construction is formed with an imperative mood marker *-la* along with an embedding verb like *myenglyenghata* 'order', as illustrated in (1). The embedded null subject must co-refer with the matrix subject Tom in (1-a) and with the matrix object Bill in (1-b).

(1)   a. **Subject Control:** Volitional *-keyss* + *yaksokhata* 'promise'

        Tom$_i$-i   Bill$_j$-eykey [PRO$_{i/*j}$ Mary-lul manna-keyss-ta-ko]   yaksokha-ess-ta.

        Tom-NOM Bill-DAT   PRO   Mary-ACC meet-VOL-DECL-COMP promise-PST-DECL

        'Tom$_i$ promised Bill$_j$ PRO$_{i/*j}$ to meet Mary.'

    b. **Object Control:** Imperative *-la* + *myenglyenghata* 'order'

        Tom$_i$-i   Bill$_j$-eykey [PRO$_{*i/j}$ Mary-lul manna-la-ko]   myenglyenghay-ss-ta.

        Tom-NOM Bill-DAT   PRO   Mary-ACC meet-IMP-COMP order-PST-DECL

        'Tom$_i$ ordered Bill$_j$ PRO$_{*i/j}$ to meet Mary.'[1]

[1] Abbreviations in the glosses include the following: ACC = accusative; COMP = complementizer; DAT = dative; DECL = declarative; GEN = genitive; IMP = imperative; NOM = nominative; PST = past; TOP = topic; VOL = volitional.

There is a widespread consensus in the literature that OC exhibit certain properties, such as no arbitrary control, no long-distance control, only sloppy readings under ellipsis, and obligatory *de se* readings (Hornstein, 1999; Landau, 1999). The constructions like (1) in Korean indeed exhibit these OC properties (Madigan, 2008; Lee, 2009).

In addition to the null subject, overt lexical subjects such as pronouns and anaphors can also appear in OC constructions in Korean (Yang, 1985; Madigan, 2008; Lee, 2009; Park, 2011: a.o.). For example, in the subject control sentence in (1-a), the third person pronoun or the long-distance (henceforth, LD) reflexive *caki* can replace PRO, as shown in (2).[2] By contrast, lexical referential DPs cannot be used in the subject position of control constructions (Lee, 2009).

(2) **Pronouns and the LD reflexive *caki* as an OC subject**

John$_i$-un [Tom$_j$-i   Bill$_k$-eykey [PRO$_{*i/j/*k}$/ku$_{*i/j/*k}$/caki$_{*i/j/*k}$/(*Sue)-ka Mary-lul
John-TOP Tom-NOM Bill-DAT   PRO/he/self/Sue-NOM   Mary-ACC
manna-keyss-ta-ko]   yaksokha-ess-ta-ko]   mitnunta.
meet-VOL-DECL-COMP promise-PST-DECL-COMP believe

Lit. 'John$_i$ believes that Tom$_j$ promised Bill$_k$ [PRO$_{*i/j/*k}$/he$_{*i/j/*k}$/ self$_{*i/j/*k}$/*Sue to meet Mary].'

The overt controlled subjects behave like the null subject PRO in the OC complement in that (i) they must be controlled by an argument in the immediately embedding clause (e.g., Tom (but not John) in (2)), and (ii) they must be interpreted *de se*. Thus, the sentence in (2) with either the null or overt subject is only felicitous in a context in which Tom makes a promise to Bill using the first person pronoun, e.g., "I will meet Mary." These OC properties of the controlled pronouns or controlled LD *caki* are distinct from the typical properties of these elements in non-control constructions in a number of ways.[3] First, the third person pronoun can normally be used as a free variable and receive either a (non-*de se*) *de re* or *de se* reading. Second, the LD reflexive *caki* can have any long-distance antecedent that c-commands it when it is not controlled. The contrasts between the controlled and non-controlled pronouns or *caki* show that the interpretations of the pronoun and LD *caki* are restricted in a similar way only when they appear in the OC construction, indicating that the OC properties of the overt subjects may be attributed to certain structural properties of OC constructions instead of the inherent properties of the OC subjects.

2.2. Overt OC subjects ≠ overt forms of 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 interchangeable. One of the basic properties of the LD reflexive *caki* is that it cannot have a first or second person pronoun as its antecedent. This person restriction must hold even when *caki* is used as an OC subject. Thus, *caki* cannot be used as an overt OC subject when a controller is either the first or second person pronoun (Lee, 2009). Moreover, it has been reported in the literature that *caki* cannot replace PRO in the object control construction (Yang, 1985; Lee, 2009), due to its own binding conditions.[4] That is, in contrast to the English-type anaphors, the reflexive *caki* cannot co-refer with a c-commanding non-subject element (i.e., subject-orientation), and this restriction appears to be maintained in the OC subject position as well.

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[2] In addition, there are other elements that can appear in the controlled subject position in Korean, such as a LD reflexive *casin* and a local anaphor *cakicasin*.

[3] Throughout this paper, I use the term 'LD *caki*' to mean the long-distance reflexive *caki*.

[4] Madigan (2008) reports that his consultants allow object control with *caki* in the subject position of the control complement. 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.

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

Na$_i$-nun Bill$_j$-eykey [PRO$_{i/*j}$/caki$_{*i/*j}$/nay$_{i/*j}$-ka Mary-lul   manna-keyss-ta-ko]
I-TOP   Bill-DAT   PRO/self/I-NOM   Mary-ACC meet-VOL-DECL-COMP
yaksokha-ess-ta.
promised

Lit. 'I$_i$ promised Bill$_j$ PRO$_{i/*j}$/self$_{*i/*j}$/I$_{i/*j}$ to meet Mary.'

(4) **No object control with *caki***

Tom$_i$-i   Bill$_j$-eykey [PRO$_{*i/j}$/ku$_{*i/j}$/caki$_{*i/*j}$-ka Mary-lul   manna-la-ko]
Tom-NOM Bill-DAT   PRO/he/self-NOM   Mary-ACC meet-IMP-COMP
myenglyenghay-ss-ta.
order-PST-DECL

Lit. 'Tom$_i$ ordered Bill$_j$ [PRO$_{*i/j}$/he$_{*i/j}$/self$_{*i/*j}$ to meet Mary].'

In summary, we have examined the properties of overt OC subjects, such as the pronouns and the reflexive *caki*, in Korean both in comparison to the null subject PRO and to the non-controlled pronouns and *caki*. In the OC subject position, even the pronouns get an obligatory *de se* interpretation and the LD reflexive *caki* can only be controlled by a local controller. It is hard to assume, then, that these OC properties of the controlled pronouns or *caki* are the 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 the controlled *caki* preserves its basic properties, such as its third person feature and subject orientation. Therefore, the LD reflexive *caki* cannot be used as an OC subject when a controller is the first or second person pronoun or when a controller is in a non-subject position (e.g. object control constructions).

3. OC PRO/controlled pronouns vs. controlled LD *caki*

In the previous section, we saw that although the LD reflexive *caki* can replace PRO in OC constructions, they are not always interchangeable due to the inherent properties of *caki*. In this section, I will present more novel data on the difference between the 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 in the same clause.

The LD reflexive *caki* in Korean must receive an obligatory *de se* interpretation in attitude environments, regardless of its position (e.g., subject or object) or the type of complements (e.g., control or non-control). 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.

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.

(5) **Between PRO/controlled pronouns and LD *caki***

John$_i$-un [Bill$_j$-i   [**PRO$_{*i/j}$/ku$_{*i/j}$**-ka **caki$_{i/j}$**-uy cip-ulo   ka-keyss-ta-ko]
John-TOP Bill-NOM PRO/he-NOM   self-GEN   house-to go-VOL-DECL-COMP
yaksokhayssta-ko] sayngkakhayssta.
promised-COMP   thought

'Lit. John$_i$ thought that Bill$_j$ promised [PRO$_j$/he$_j$ to go to self$_{i/j}$'s house].'

The OC subject and *caki* must be interpreted *de se* with respect to their referents, respectively, in (5) even when they are not coreferential. In other words, the disjoint reading of PRO (or the controlled pronoun) and *caki* in (5) can only be obtained in the following situation: Bill said, '**I** will go to John's house', while John thought, 'Bill promised that he will go to **my** house.' Contrary to the disjoint reading

of PRO/controlled pronouns and LD *caki*, multiple clausemate LD *caki*s need to be coreferential, as illustrated in (6). Thus, the disjoint reading of PRO and *caki* in (5) may be unexpected if one assumed that the two elements are the same type of *de se* element. Given this, our first key question regarding PRO and LD *caki* is whether the obligatory *de se* construals of these two types of elements arise via the same or different mechanisms.

(6)   **Multiple clausemate LD *caki*s**

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

malhayssta.
said

a.   'John$_i$ said that Bill$_j$ thought that **his**$_i$ mother hates **him**$_i$.'
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**$_i$.'[5]

Second, 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 *caki*s. Since the controlled *caki* can only refer to the local controller Bill in (7), the clausemate LD *caki* must also find the same referent as its antecedent.

(7)   **Between controlled and non-controlled *caki*s**

John$_i$-un [Bill$_j$-i   [**caki**$_{*i/j}$-ka **caki**$_{*i/j}$-uy cip-ulo ka-keyss-ta-ko]   yaksokhayssta-ko]
John-TOP Bill-NOM self-NOM   self-GEN   house-to go-VOL-DECL-COMP promised-COMP

sayngkakhayssta.
thought

'Lit. John$_i$ thought that Bill$_j$ promised [self$_{*i/j}$ to go to self$_{*i/j}$'s house.'

We already saw that PRO and LD *caki* need not be coreferent, whereas multiple LD *caki*s in the same clause must be. 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.

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 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 1 below.

	PRO	Controlled pronoun	Non-controlled pronoun	Controlled *caki*	Non-controlled LD *caki*
Obligatory *de se*	✓	✓	✗	✓	✓
Obligatory local control	✓	✓	✗	✓	✗
Object control	✓	✓	—	✗	—
3rd person restriction	✗	✗	✗	✓	✓
Obligatory coreference w/ a clausemate LD *caki*	✗	✗	✗	✓	✓

Table 1: Summary: PRO, (non-)controlled pronoun, and (non-)controlled LD *caki*

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[5]   In addition, *caki* in the object position can take the subject DP, 'self's mother', as its local antecedent.

4. Proposal: The property analysis

Having presented the properties of PRO, overt controlled subjects (pronouns and *caki*) and their interactions with a clausemate LD *caki*, 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 (8).

(8)   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 *caki*s have to be coreferential, while PRO (or controlled pronouns) and non-controlled LD *caki* need not?

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 (e.g., Schlenker, 2003; Anand & 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, following and extending the Lewis-Chierchia's property approach to *de se* (Lewis, 1979; Chierchia, 1989), 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*. While there is one and the same semantic mechanism for the two types of *de se* elements in Korean, I will show that additional structural conditions of OC constructions and the lexical properties of *caki* can derive the complete set of properties of the OC subjects, LD *caki*, and their interactions.

4.1. 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 (9), motivated by Chierchia (1984, 1989).

(9)   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 (9), control constructions are properties that are attributed to an argument in the immediately embedding clause. The definition in (9) 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 complements 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 & Sauerland, 2003; Pearson, 2013: a.o.), the definition of control in (9) can be revised as in (10).[6]

(10)   The Definition of Control (*revised version*)
        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 (12), based on the semantics of attitude verbs, as illustrated in (11).

(11) $[[expect]]^g = \lambda P_{<e,st>}. [\lambda x. \forall <y,w'> \in \text{Expect}_{x,w}: P(y)(w') = T]$,
        where $\text{Expect}_{x,w} = \{<y, w'>: w'$ is a world compatible with what x expects in w, and y is the one who x identifies in w as herself in w'.$\}$

(12)   a.   John expects PRO to win the election.
        b.   LF: λw_0 John expects w_0 $[\lambda x_1 \lambda w_2 \text{PRO}_1$ to win the election $w_2]$.
        c. $[[(12\text{-}a)]]^g = \lambda w. \forall <y,w'> \in \text{Expect}_{John,w}:$ y wins the election in w'

Given our definition of control seen in (10), the sentence in (12-a) 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. Thus, the unavailability of referential OC subjects that we saw in (2) 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.

4.2. Binding conditions of LD caki

Following Park (2015), I assume that there are two inherent binding conditions for the LD reflexive *caki* in Korean: the feature match and locality conditions. The feature match condition is based on the assumption that LD *caki* is a variable that bears a special feature [+log] (e.g., Anand, 2006; Pearson, 2013). In addition, the locality condition requires LD *caki* to be bound by the closest individual binder that bears the same feature, [+log], under the assumption that individual binders introduced in the complements of attitude verbs can optionally take the [+log] feature. These binding conditions for LD *caki* can correctly capture the obligatory coreference reading between multiple clausemate LD *caki*s seen in (6).

(13)   **Deriving the coreference reading of multiple *caki*s**[7]
        a.   John said $[\lambda_j{}^{+log}$ Bill said $[\lambda_k{}^{+log}$ caki$_k{}^{+log}$'s mother hates caki$_k{}^{+log}]$]
        b.   *John said $[\lambda_j{}^{+log}$ Bill said $[\lambda_k{}^{+log}$ caki$_k{}^{+log}$'s mother hates caki$_j{}^{+log}]$]
        c.   *John said $[\lambda_j{}^{+log}$ Bill said $[\lambda_k{}^{+log}$ caki$_j{}^{+log}$'s mother hates caki$_k{}^{+log}]$]
        d.   John said $[\lambda_j{}^{+log}$ Bill said $[\lambda_k$ caki$_j{}^{+log}$'s mother hates caki$_j{}^{+log}]$]

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[6]   More precisely, this is a definition of Logophoric Control (Landau, 2015), where control complements appear in attitude environments.

[7]   For the sake of simplicity, world variables and their binders are omitted in these configurations.

In (13-a), both *caki*s satisfy their binding conditions by being bound by the closest binder with the [+log] feature. On the other hand, one of the *caki*s, $caki_j{}^{+log}$, is not bound by the closest binder with [+log] in (13-b) and (13-c), violating the locality condition of LD *caki* binding. Therefore, neither (13-b) nor (13-c) is derivable. Moreover, the multiple *caki*s in the most embedded clause can take the matrix subject as its antecedent only when the closer binder does not bear the [+log] feature, as shown in (13-d).

Note that only LD *caki* bears the [+log] feature and is subject to these particular binding conditions. While LD *caki* must be bound by the closest binder with the feature [+log], PRO and controlled pronouns must be bound by the local individual abstractor, regardless of the presence/absence of the feature [+log], 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 (5) in which the PRO/controlled pronouns and LD *caki* co-occur under the multiple embeddings. When the closest abstractor does not bear the [+log] feature as in (14-a), PRO or the controlled pronoun and the clausemate LD *caki* are bound by the different abstractors, and thus they can have a disjoint reading. On the other hand, the configuration in (14-b) is not legitimate because the locality condition of LD *caki* is violated: *caki* is not bound by the closest binder with the feature [+log].[8]

(14) **Deriving the disjoint reading of PRO and LD *caki***
   a. John thought [$\lambda_1{}^{[+log]}$ Bill promised Mary [λ_2 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 structural 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 (15-a) and our semantics of attitude verbs.

(15) a. LF of (5): λw w John thinks [$\lambda x_1{}^{[+log]}$ λw_2 w_2 Bill promised [λx_3 λw_4 w_4 PRO$_3$ to go to caki$_1{}^{[+log]}$'s house]
   b. $[[(5)]]^g = \lambda w.$ $\forall <y,w'> \in \mathrm{Dox}_{John,w}$: $\forall <z,w''> \in \mathrm{Say}_{Bill,w'}$: z goes to y's house in w''

4.3. 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 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 control complements 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 *caki*s as well. Consider the following configurations.

(16) **Deriving the obligatory coreferential reading of the controlled and non-controlled LD *caki*s**
   a. John thought [$\lambda x_1{}^{[+log]}$ Bill promised [$\lambda x_2{}^{[+log]}$ caki$_2{}^{[+log]}$ to go to caki$_2{}^{[+log]}$'s house]]
   b. *John thought [$\lambda x_1{}^{[+log]}$ Bill promised [$\lambda x_2{}^{[+log]}$ caki$_2{}^{[+log]}$ to go to caki$_1{}^{[+log]}$'s house]]
   c. *John thought [$\lambda x_1{}^{[+log]}$ Bill promised [λx_2 caki$_1{}^{[+log]}$ to go to caki$_1{}^{[+log]}$'s 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 *caki*s are ruled out.

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[8] There are two possible LFs for the coreference reading of PRO/controlled pronoun and *caki*, given that the reflexive *caki* in Korean can take a local or long-distance antecedent.

(i) **Deriving the coreference reading of PRO and *caki***
   a. John thought [λ_1 Bill promised Mary [$\lambda_2{}^{[+log]}$ PRO/he$_2$ to go to caki$_2{}^{[+log]}$'s house]]
   b. John thought [λ_1 Bill promised Mary [$\lambda_2{}^{[+log]}$ PRO/he$_2$ λ_3 to t$_3$ go to caki$_3$'s house]]

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 & 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.

5. Conclusion

I proposed that overt lexical subjects can appear in OC complements in Korean if they can be used as a bound variable. While overt OC subjects exhibit the same OC properties, such as obligatory local control and *de se* interpretations, owing to the structural conditions of OC, they also display the different properties in the OC subject position based on their inherent lexical or binding conditions. I have also 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. However, the structural conditions of OC and the binding conditions of LD *caki* (i.e., the locality and feature match conditions) specifically determine by which binder these variables need to or can be bound.

In this paper, 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.

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