A Phase-Based Analysis of Reflexive Binding in Japanese-English Interlanguage

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Abstract

This paper aims to explore a long-standing issue on the domain of reflexive binding in Japanese-English interlanguage. The issue has been discussed in terms of a parameter, which defines the binding domain on the basis of the presence/absence of tense (*Governing Category Principle*, Wexler & Manzini (1987)). In contrast, I argue that the parameter and/or tense is irrelevant to the formation of the binding domain and that a phase-based analysis provides a better explanation for the phenomenon.

***Keywords*:** second language acquisition, interlanguage, reflexive, infinitive clause, phase, uninterpretable feature

1. Introduction

Reflexive pronouns in English must be bound in a local domain, regardless of clause types, as in (1).

(1) a. Bill$_i$ thinks that **Tom**$_j$ loves **himself**$_{*i/j}$. finite
b. Bill$_i$ wants **Tom**$_j$ to love **himself**$_{*i/j}$. infinitive

It is well-known that second language (L2) learners whose first language (L1) has a

reflexive pronoun that permits long-distance (LD) binding wrongly accept LD binding in infinitive clauses in L2, as in (2b) (Finer & Broselow 1986). The binding domain in finite clauses is local in these L2 learners' grammar (2a), in contrast to infinitive clauses.

(2) a. **Bill**$_i$ thinks that **Tom**$_j$ loves **himself**$_{*i/j}$.
b. **Bill**$_i$ wants **Tom**$_j$ to love **himself**$_{\surd i/j}$.

This finite-infinitive asymmetry has been observed for Japanese-speaking learners of English (JLEs) (Cook 1990, Hirakawa 1990, Wakabayashi 1996, Watanabe et al. 2008). This phenomenon has been explained in terms of a parameter, which relies crucially on the presence/absence of tense, as we will see shortly. However, I will argue that the parameter and the presence/absence of tense are irrelevant to the formation of the binding domain.

This paper is organized as follows. The next section reviews previous studies on reflexive binding in L2 acquisition, which have been done in the framework of the Principles and Parameters approach. Then, section 3 introduces Saito's (2017, 2018) minimalist theory of reflexive binding. The experiment and its results are described in section 4. Section 5 discusses the results and section 6 concludes the paper.

2. Previous Studies on Reflexive Binding in L2

As briefly mentioned above, reflexive binding in L2 has been analyzed in the framework of the Principles and Parameters approach. The relevant parameter is called the *Governing Category Parameter* (GCP) proposed by Wexler and Manzini (1987). This parameter has multiple values, rather than a binary set. The parameter and its values are given below:

(3) *Governing Category Parameter (GCP)* (Wexler & Manzini (1987: 53))
γ is a governing category for α iff γ is the minimal category which contains α and
   a. has a subject, or
   b. has an INFL, or
   c. has a TNS, or
   d. has an indicative TNS, or
   e. has a root TNS

English (e.g., *himself*) take the (3a) value, which is the most restrictive one among the set, whereas Japanese (e.g., *zibun*) is believed to belong to the (3e) type, which is the loosest one. There is a language like Russian, where a binding domain depends on the presence/absence of tense (3c): If the embedded clause is tensed, it becomes a binding domain, whereas if it is tenseless, it cannot be a binding domain.

Previous L2 studies were done on the basis of resetting of the parameter in question. Hirakawa (1990) is a representative study on reflexive binding in Japanese-English interlanguage. She asked JLEs (classified into four levels of proficiency) to select a person who a reflexive pronoun refers to, as in (4). The embedded clauses in the target sentences were either finite or infinitive and the number of clauses was either two or three.

(4) John said that Bill hit *himself*.
   a. John
   b. Bill
   c. either John or Bill
   d. someone else _____
   e. don't know

In order to avoid redundant complexity, we will focus only on the results on the bi-clausal finite-infinitive contrast. The results showed that an LD antecedent was chosen in finite clauses at 23.05%, whereas an LD antecedent was selected in infinitive clauses at a rate of no less than 44.24%.

(5) a. **John** said that Bill hit *himself*. finite (LD: 23.05%)
b. **Mary** asked Ann to introduce *herself*. infinitive (LD: 44.24%)

This contrast tells us that reflexive binding can cross an infinitive-clause boundary more easily than finite one. Recall the GCP here. Japanese belongs to (3e) and English take the (3a) value. Nevertheless, the results of Hirakawa (1990) suggest that JLEs take an intermediate value, (3c), according to which the presence/absence of tense is a key to the formation of the binding domain (see Finer & Broselow (1986) for the original proposal). Other researchers tested the validity of the finding by using various modified tasks, and they showed the same results (e.g., MacLaughlin 1998, Akiyama 2002, Watanabe et al. 2008).

However, there remains a serious question for the parameter-resetting approach to L2 reflexive binding: Why do L2 learners not take other parametric values such as (3b) or (3d) (see Akiyama (2002), who showed that virtually no participants set values like (3b) or (3d))? A straightforward answer to this question is that the approach is simply incorrect, and the 'intermediate' parameter-resetting is merely apparent. Indeed, the logic is based on a weak assumption that L2 learners first transfer the LD binding property of *zibun* to *himself*, and the special property of *himself* in L2 gradually changes to the target (i.e., the binding domain is restricted to a local domain in any clause types, as in (3a)). However, Japanese has a phrasal reflexive form which is morphologically and syntactically more similar to *himself*, *karezisin (him-self)*. Therefore, it is more natural to assume that L2 learners are more likely to transfer the property of *karezisin* to *himself* (cf. Yuan 1994). In what follows,

we, along this line, will look at similarities and differences of the two phrasal reflexive pronouns from a minimalist perspective proposed by Saito (2017, 2018).

3. A Theory of Reflexive Binding

3.1. Saito's Theory of Reflexive Binding

As briefly mentioned above, reflexive pronouns must be locally bound in English. Recent studies attribute this locality to the nature of *phases* (Quicoli 2009, Despić 2015, Charnavel & Sportiche 2016, Saito 2017, 2018), according to which Condition A applies cyclically at each phase. When a phase is formed and *Transfer* to the interfaces occurs, Condition A is applied (only when necessary), and the reflexive pronoun searches for and locates its antecedent within the built structure.

(6) $[_{XP}{}^{PH}\ X_i \ldots \text{himself}_i]$

Saito (2017, 2018) suggests that Transfer takes place when the next phase up is formed. Furthermore, following Bošković (2016), he assumes that what undergoes Transfer is a phase, but not the complement of a phase. Therefore, when two phases are completed, the lower phase is sent to the interfaces, and the elements within a transferred phase become inaccessible, as in (7).

(7) $[_{XP}{}^{PH}\ X\ [_{YP}{}^{PH}\ Y\ Z]]$

As noted by Saito (2017, 2018), the binding domain in Japanese is wider than that in English. Saito attributes the difference in the width of the binding domain to the difference in transferred domains, and the transferred domains differ cross-linguistically due to the presence/absence of uninterpretable φ-features on *v** (and C). In what follows, we will see the details of Saito's proposal on how binding domains are determined.

3.2. Reflexive Binding in English

Uninterpretable φ-features, which originate in phase heads (e.g., *v** and C), are inherited by their local non-phase heads (e.g., V and T) (Richards 2007, Chomsky 2008). According to Saito (2017, 2018), non-phasal phrases become phasal as a result of this feature inheritance process. Thus, VP becomes phasal by inheriting uninterpretable φ-features from *v**. As a result, VP, which is a phase lower than *v**P, gets transferred. At the same time, a reflexive pronoun (Z in (8)) searches for its antecedent in the accessible domain (binding domain) and finds an appropriate antecedent (X in (8)).

(8) $[_{v^*P}{}^{PH}$ X $[_{VP[u\varphi]}{}^{PH}$ Y Z]]

This straightforwardly explains the locality in reflexive binding in English. Recall that reflexive binding in English must take place in a local domain (*v**P) whether the embedded clause is finite or infinitive.

(9) a. Bill$_i$ thinks that **Tom**$_j$ loves **himself**$_{*i/j}$. finite
b. Bill$_i$ wants **Tom**$_j$ to love **himself**$_{*i/j}$. infinitive
c. Bill$_i$ saw **Tom**$_j$ save **himself**$_{*i/j}$. bare infinitive

Once *v**P is completed and feature inheritance occurs, VP becomes a phase in addition to *v**P, and hence, we have two phases at this timing (10a). Then, Transfer takes place and the reflexive pronoun locates its antecedent within the *v**P-phase. When another noun, *Bill*, is merged at a later stage of derivation, the reflexive pronoun is no longer accessible to it, and co-reference with it fails (10b).

(10) a. $[_{v^*P}{}^{PH}$ **Tom** $[_{VP}{}^{PH}$ loves **himself**]]
b. [Bill ... $[_{v^*P}{}^{PH}$ **Tom** $[_{VP}{}^{PH}$ loves himself]]]

Thus, a reflexive pronoun must find an antecedent within *v**P, and for this reason clause types do not affect the determination of the binding domain in English.

3.3. Reflexive Binding in Japanese

Keeping the above discussion in mind, let us turn to reflexive binding in Japanese. Japanese is a language which lacks uninterpretable φ-features and hence feature inheritance (e.g., Kuroda 1988, Saito 2007, 2012, 2016). Given Saito's (2017, 2018) system of reflexive binding, the lack of uninterpretable φ-features and feature inheritance means that the domain of reflexive binding in Japanese should be wider than that in English because in Japanese, only inherent phase heads (i.e., *v** and C) can constitute phases, and non-inherent phase heads (V and T) cannot be phasal at any stage of derivation.

Before delving into details, let us confirm empirical facts about Japanese reflexives in different clause types like (11) ((11a) is finite, (11b) is infinitive, and (11c) is bare infinitive).

(11) a. Bill-wa Tom-ga karezisin-o aisiteiru to omotteiru.
-TOP -NOM himself-ACC love that think
'Bill thinks that Tom loves himself.'

b. Bill-wa Tom-ni karezisin-o syokaisite hosii.
-TOP -DAT himself-ACC introduce want
'Bill wants Tom to introduce himself.'

c. Bill-wa Tom-ga karezisin-o kizutukeru no-o mita.[1]
-TOP -NOM himself-ACC hurt NMLZ-ACC saw
'Bill saw Tom hurt himself.'

I asked 17 native speakers of Japanese (2nd year undergraduate students majoring in psychology) to rate the acceptability of sentences like (11) followed by a context inducing either a local (LOC) or long-distance (LD) antecedent (2 contexts

×3 tokens for each sentence type). The averaged acceptance rates for each sentence type and context are given in Figure 1.

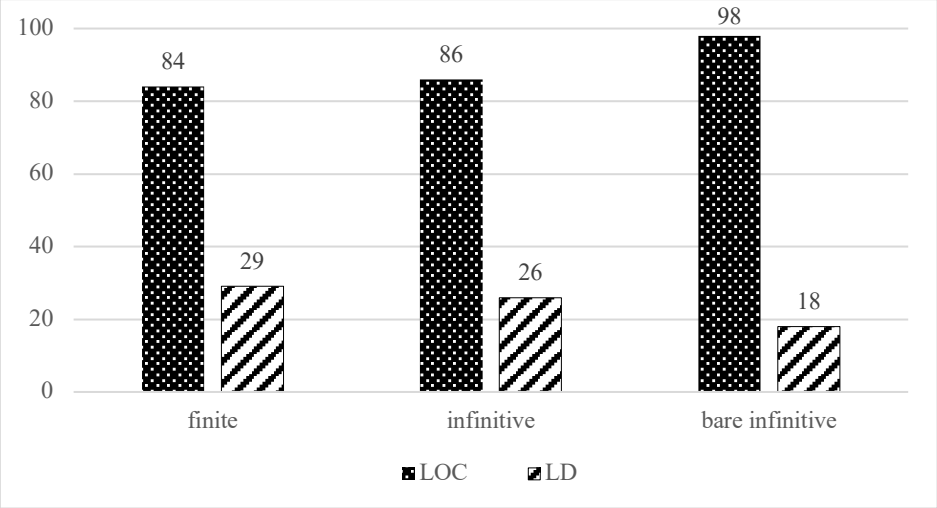

Figure 1. Mean acceptance rates for Japanese reflexives

The results showed that Japanese speakers strongly prefer the LOC antecedent and resist the LD antecedent, regardless of clause types. In this respect, *karezisin* behaves similarly to *himself*. Then, how can the LOC reflexive binding of *karezisin* be possible under Saito's (2017, 2018) system?

The simplest case is the finite clause. *v**P is an inherent phase, and VP does not inherit uninterpretable φ-features, so that VP is not phasal and it is not subject to Transfer at this timing. When the next inherent phase head, C, is merged, the lower phase, *v**P, undergoes Transfer (12a). Therefore, when another noun in the matrix clause is merged, the reflexive pronoun, which has already been transferred, cannot find it, as in (12b).

(12) a. $[_{CP}{}^{PH}$ that $[_{v*P}{}^{PH}$ **Tom** $[_{VP}$ loves **himself**]]]

b. [Bill ... [$_{CP}^{PH}$ that [$_{v*P}^{PH}$ Tom [$_{VP}$ loves himself]]]]

Thus, despite that the actual binding domain is extended by the absence of feature inheritance, the binding domain for finite clauses is still local.

Next, as we have seen, infinitive clauses also require local binding. Infinitive clauses (ECM) in Japanese arguably contain CP (e.g., Taguchi 2009), and hence, when an infinitive clause is completed, the lower phase, *v**P gets transferred and a higher NP (*Bill*) cannot be the antecedent of *himself*.

(13) a. Bill-wa Tom-ni karezisin-o syokaisite hosii.
-TOP -DAT himself-ACC introduce want
'Bill wants Tom to introduce himself.'

b. [Bill ... [$_{CP}^{PH}$ **Tom** [$_{v*P}^{PH}$ $t_{\textbf{Tom}}$ [$_{VP}$ introduce **himself**]]]]

Finally, let us consider bare infinitives, which again require local binding. As shown below, bare infinitives disallow a tense mismatch: In (14), two temporal expressions are present; the first one modifies the main verb *hairu* (*come*), and the second one modifies the perception verb *mita* (*saw*).

(14) *Taro-wa *mousugu* densha-ga eki-ni hairu-no-o
-TOP soon train-NOM station-DAT come-NMLZ-ACC
(*sakki*) mita.
a moment ago saw
Lit: "A moment ago, Taro saw the train come into the station soon."

This suggests that bare infinitives do not have tense of their own. The syntax of bare infinitives is controversial, but it is agreed that they project a phasal category without tense (cf. Felser 1999, Basilico 2003). I assume a structure like that in (15b) for bare

infinitives.

(15) a. Bill-wa Tom-ga karezisin-o tasukeru-no-o mita.
-TOP -NOM himself-ACC help-NMLZ-ACC saw
'Bill saw Tom help himself.'

b. [Bill saw [$_{XP}^{PH}$ [$_{v*P}^{PH}$ **Tom** [$_{VP}$ help **himself**]]]]

Thus, since Japanese lacks uninterpretable φ-features and feature inheritance, the binding domain is wider than *v**P and is determined on the basis of the presence of inherent phases. Given the backgrounds introduced in this section, we will look at the present study.

4. The Present Study

4.1. Participants

The participants of the experiment consist of seven native speakers of English and 16 intermediate Japanese learners of English (their TOEIC scores range from about 400 to 700), who were undergraduate students at Tohoku University at the time of testing. These participants had never studied linguistics.

4.2. Task

I administered an acceptability judgment task. Test sentences followed short conversations, which provide a context inducing either an LOC or LD antecedent. Participants were asked to give a 5-scale judgement for the acceptability of test sentences in a given context. A sample is given below:

(16) *Sample* (LOC context)
Bill: "I'm handsome and well-educated. I'm a perfect man."
Tom: "You seem to be a narcissist…"

Test Sentence: *Tom thinks that Bill loves himself.*

5 natural

4 probably natural

3 in between

2 probably unnatural

1 unnatural

**Cannot judge the sentence*

Experimental types were finite, infinitive, and bare infinitive bi-clausal sentences, examples of which are given below.

(17) a. Bill_i thinks that **Tom**$_j$ loves **himself**$_{*i/j}$. finite

b. Paul_i wants **Alan**$_j$ to introduce **himself**$_{*i/j}$. infinitive

c. Jack_i saw **Kevin**$_j$ save **himself**$_{*i/j}$. bare infinitive

Three tokens were prepared for each type and each context, and distractors (n=33) were also included, so that the total number of items amounted to 51.

4.3. Predictions

If the learner's grammar contains uninterpretable φ-features, then feature inheritance occurs automatically (Richards 2007). Therefore, if *v** has uninterpretable φ-features, V inherits them and becomes phasal, and the binding domain is restricted to *v**P.

By contrast, if the grammar lacks uninterpretable φ-features, then the binding domain is dependent on the presence of inherent phases. If there is a phase boundary between *v**P and a phrase that contains a higher candidate of the antecedent, the binding domain should be apparently local. If, on the other hand, there is no phase boundary between them, the binding domain would be extended to the matrix clause

to contain a higher candidate for the antecedent.

Lastly, a GCP-based approach predicts that the binding domain is determined by the presence of tense. Therefore, as for finite clauses, the embedded clause, which has tense, becomes the binding domain, whereas (bare) infinite clauses, whose embedded clause lacks tense, cannot close the binding domain. Importantly, infinitives and bare infinitives would be responded similarly, and finite clauses would be treated differently from them.

4.4. Results

The results for LD-antecedent contexts were excluded from the analysis iff the corresponding LOC-antecedent contexts were not correctly accepted.

First of all, let us look at the results obtained from native controls. As shown in Figure 2, they responded as expected, accepting LOC contexts and rejecting LD contexts for all clause types. As a result of individual analysis, five out of seven participants consistently rejected the LD antecedent in finite clauses, six out of seven did so in infinitive clauses, and all seven participants did so in bare infinitives. Hence, the results of individual analysis are totally compatible with the group results and fit with our expectation.

Next, let us see the results from L2 learners. They correctly accepted LOC contexts for all clause types, but as for LD contexts, there were differences between some clause types: The acceptance rates for LD contexts in finite and bare infinitive clauses were rather low, whereas that in infinitive clauses was higher than them. There was a significant difference between types, Friedman $\chi^2(n = 15) = 53.55$, $p < .05$ (Shapiro-Wilk normality test, $p < .05$). The Wilcoxon's signed rank test with Bonferroni-correction showed that there was a significant difference between Finite-LOC and Finite-LD (Z (n =15) = −3.309, two-tailed $p < .05$) and Bare Infinitive-LOC and Bare Infinitive-LD (Z (n =15) = −3.416, two-tailed $p < .05$). By contrast, no significant difference was found for Infinitive-LOC and Infinitive-LD (Z (n =15)

= −2.812, two-tailed p = .074).[2]

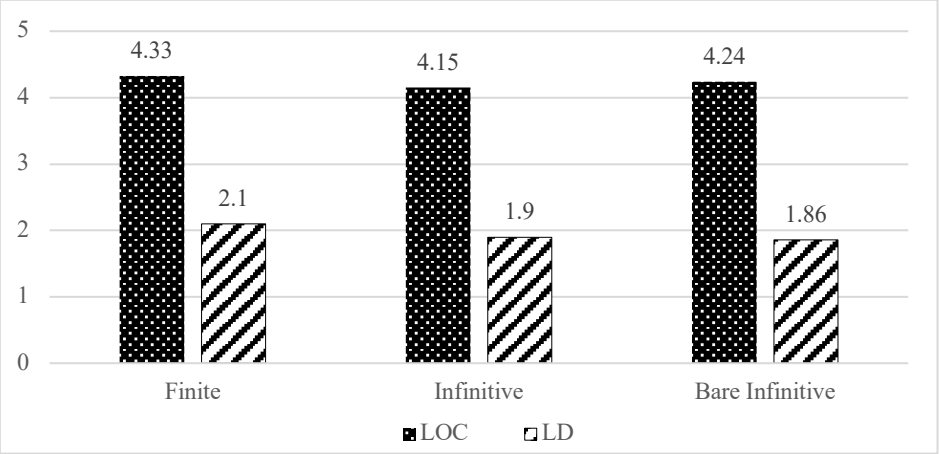

Figure 2. Mean acceptance rates (native controls)

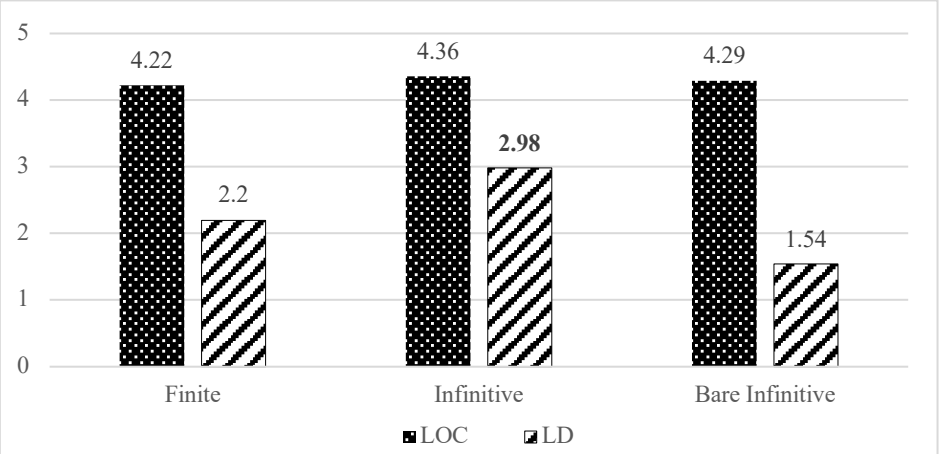

Figure 3. Mean acceptance rates (L2 learners)

5. Discussion

5.1 Uninterpretable Features?

Our results showed that JLEs only take an LOC antecedent in finite and bare

infinitive clauses but allow an LD antecedent in infinitive clauses. The fact that an LD antecedent was selected suggests that JLEs do not put uninterpretable φ-features on *v**. As given below, for LD binding to be possible, two VPs (matrix and embedded) must be non-phasal.

(18) [$_{v*P}^{PH}$ **Bill$_i$** wants [$_{VP}^{NPH}$ **Tom$_j$** [$_{TP}^{NPH}$ to [$_{v*P}^{PH}$ love [$_{VP}^{NPH}$ **himself$_{i/j}$**]]]]].

If JLEs posited uninterpretable φ-features on *v**, reflexive binding would be local in any clause types, contrary to the fact. Therefore, uninterpretable φ-features are missing in JLEs' grammar.

5.2 GCP?

Next, consider the results from the perspective of the GCP. Recall that under the GCP, whether a clause has tense or not is crucial in the formation of the binding domain: The binding domain for finite clauses should be local, whereas that for (bare) infinitive clauses should be extended to the matrix clause. First, our results for finite clauses were compatible with the prediction made by the GCP.

(19) [Bill$_i$ thinks that ... [$_{TP[+TNS]}$ **Tom$_j$** loves **himself$_{*i/j}$**]].

Second, the results for infinitive clauses were also consistent with the prediction in that embedded tenseless clauses do not close the binding domain and an LD antecedent was considered to be a possible candidate.

(20) [$_{TP[+TNS]}$ Bill$_i$ wants ... [$_{TP[-TNS]}$ **Tom$_j$** love **himself$_{i/j}$**]].

Nevertheless, the GCP-based account cannot explain the fact that JLEs believe the binding domain of bare infinitives to be strictly local. As mentioned just above, bare infinitives lack tense, and the binding domain should be extended to the matrix

clause. Despite the fact that the embedded TP lacks tense, the binding domain in JLEs' grammar is closed at tenseless embedded TP, as in (21), contrary to the prediction by the GCP.

(21) [$_{TP[+TNS]}$ Bill$_i$ saw [$_{XP[-TNS]}$ **Tom$_j$** save **himself$_{i/j}$**]].

One may cast a doubt on our tacit assumption that infinitives and bare infinitives are tenseless in L2 grammar, a possibly problematic stipulation that has never been questioned. Therefore, I examined this possibility in an independent experiment, asking about leaners' intuitions on infinitives with manipulations of tenses. Control sentences have tense on matrix and embedded CPs/TPs, and hence, the presence of two mismatched temporal expressions is allowed (Landau 2000, Wurmbrand 2014).

(22) [$_{CP\ [+TNS]}$ [$_{TP}$ *Yesterday*, Bill hoped [$_{CP\ [+TNS]}$ [$_{TP}$ to buy a new car *tomorrow*]]].

Similarly, irrealis raising to object (RTO), by having tensed TP in the embedded clause, allows such a tense mismatch (*ibid*).

(23) [$_{CP\ [+TNS]}$ [$_{TP}$ *Yesterday*, Bill expected John [$_{TP\ [+TNS]}$ to buy a new car *tomorrow*]]].

By contrast, bare infinitives lack tense, and the verb in the embedded bare infinitive clause cannot be marked with tense.

(24) [$_{CP\ [+TNS]}$ [$_{TP}$ Yesterday, Bill saw$_{[PST]}$ [$_{XP\ [-TNS]}$ John kiss$_{(*[PST])}$ Mary]]]

Given this background, let us see Kimura's (2019) study. In Kimura (2019), I conducted a picture-based acceptability judgment task to eight native speakers of English, who lived in the U.S. or New Zealand and their age ranged from 18 to 51, $M = 31.1$ at the time of testing and 17 JLEs, who were 2nd- to 4th-year undergraduate students in various majors at Chuo University. Learners' proficiency was measured by Minimal English Test (Maki et al. (2010)). Scores ranged from 17 to 46 (max = 65, $SD = 9.04$), but I decided not to divide the learners into proficiency groups because it does not seem to be suggestive (I will show that proficiency scores and performance scores in the task are not correlated).

Participants were presented pairs of a sentence (e.g., (25), (26)) and a picture providing a context. Four tokens were presented for each type (total $n = 16$) and 40 fillers were also included in the task material (total $n = 56$). Participants were asked to indicate their judgment by choosing from three answer options (1–*correct*, 0–*incorrect*, and *I don't know*).

(25) a. Yesterday, Mary hoped to solve the problem tomorrow. control
b. Yesterday, Carl expected Jun to pass the exam tomorrow. RTO

(26) a. Yesterday, Ken saw Aya scold Hanako. −TNS bare infinitives
b. *Yesterday, Jun saw Taro kicked Ken. +TNS bare infinitives

The results of the acceptability judgment task showed that native speakers of English (hereafter, NSs) accepted tense mismatches in control in (25a) at 46.4% and in irrealis RTO (25b) at 39.3%, concurring with the theoretical assumption adopted in this paper ($t(6) = 1.549$, two tailed $p = .172$) (see Figure 4). Likewise, they were accepted by JLEs (acceptance rates were 82.8% for control and 86.8% for RTO, respectively), and no significant difference was found between them (Shapiro-Wilk normality test, $p < .05$, Wilcoxon signed rank test $Z(n = 17) = –.426$, two tailed $p = .67$). Thus, they did not make a contrast between these two types, similarly to NSs.

A correlation was not found between proficiency test scores and performance (i.e., the mean difference between control and irrealis RTO conditions), Spearman's rho, $\rho(14) = -.043$, two tailed $p = .875$ (no correlation).

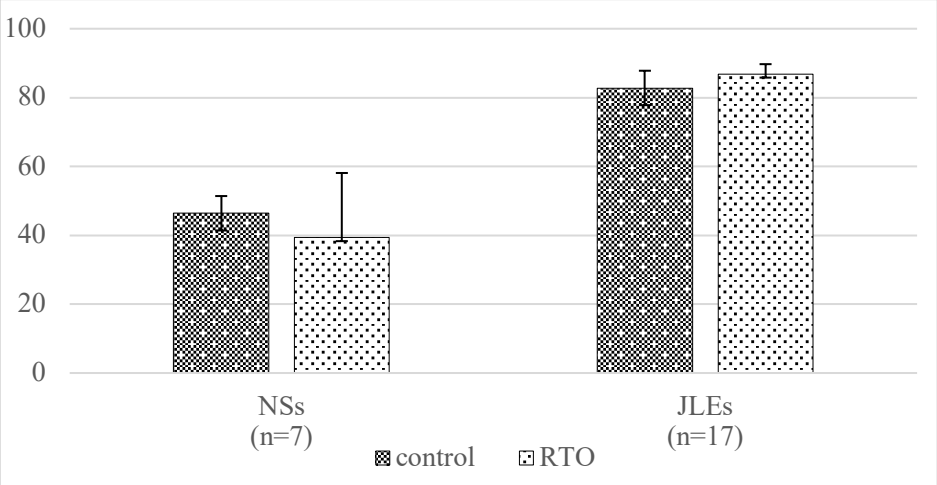

Figure 4. Acceptance of tense mismatches in control and RTO constructions (with error bars showing Standard Error of the Mean)

These group results were consistent with the individual analysis, where I counted the number of participants who consistently accepted each type (Table 1).

Table 1. The numbers of individuals who consistently accepted tense mismatches

	control	RTO	control-RTO contrast
NSs (*n*=7)	3 (43%)	3 (43%)	0 (0%)
JLEs (*n*=17)	14 (82%)	16 (94%)	1 (6%)

Furthermore, NSs accepted bare infinitives with a tenseless embedded verb at

94%, whereas they accepted a tensed embedded verb at only 28% (see Figure 5). Thus, the results from NSs were generally as expected by the theory. Then, let us move on to the results obtained from JLEs. They accepted bare infinitives with a tenseless embedded verb at 76%, but they also accepted those with a tensed embedded verb at 78%. Thus, they failed to make a desired contrast. A very weak negative correlation was found between proficiency test scores and performance (i.e., the mean difference between tenseless and tensed verbs in bare infinitives), Spearman's rho, $\rho(14) = -.325$, two tailed $p = .219$ (statistically non-significant), but we will not further discuss this issue.

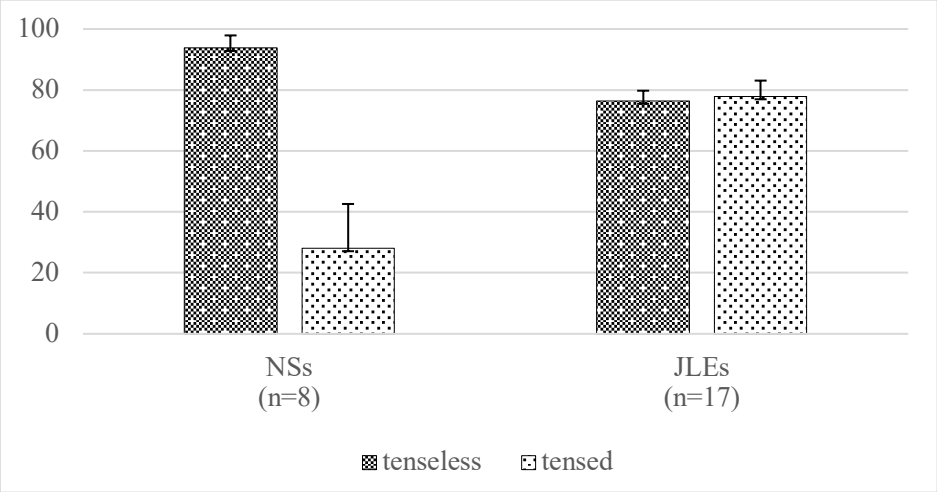

Figure 5. Mean acceptance of tenseless/tensed verbs in bare infinitives (error bars indicate the Standard Error of the Mean)

I also conducted an individual analysis for tenseless and tensed conditions. As shown in Table 2, majority of NSs made a contrast between these two conditions, whereas most of the JLE participants failed to do so.

Table 2. The numbers of individuals who consistently accepted tenseless/tensed verbs in bare infinitives

	tensed	tenseless	tensed-tenseless contrast
NSs (*n*=8)	8 (100%)	2 (25%)	6 (75%)
JLEs (*n*=17)	12 (71%)	13 (76%)	3 (18%)

These results complicate our discussion on the GCP-based account developed so far. They suggest that JLEs put tense on infinitives and bare infinitives, as shown below:

(27) [$_{CP\ [+TNS]}$ [$_{TP}$ Bill expects John [$_{TP\ [+TNS]}$ to buy a new car]]].

(28) [$_{CP\ [+TNS]}$ [$_{TP}$ Bill saw [$_{XP\ [+TNS]}$ John kiss Mary]]].

Given above, the GCP-based account would predict that both infinitives and bare infinitives require local binding, as in (29) and (30), respectively. However, these revised predictions are not supported by the results obtained for infinitives.

(29) [$_{CP\ [+TNS]}$ [$_{TP}$ Bill$_i$ wants [$_{TP\ [+TNS]}$ John$_j$ to love himself$_{*i/j}$]]]

(30) [$_{CP\ [+TNS]}$ [$_{TP}$ Bill$_i$ saw [$_{XP\ [+TNS]}$ John$_j$ save himself$_{*i/j}$]]]

Thus, the binding domain of reflexive pronouns in JLEs' grammar must not be defined by the presence/absence of tense, contrary to what the GCP-based accounts propose.

5.3 (Inherent) Phases?

Lastly, let us discuss the results in light of the phase-based account. First of all,

the locality of binding in finite clauses can be explained by the intervention by two phases (embedded *v**P and CP) between the reflexive pronoun and the matrix NP.

(31) [Bill$_i$ ... [$_{CP}{}^{PH}$ that [$_{v*P}{}^{PH}$ **Tom**$_j$ loves **himself**$_{*i/j}$]]].

Second, the locality of binding in bare infinitive clauses is also explained in terms of the mediation of phases between the reflexive pronoun and the matrix NP.

(32) [Bill$_i$ saw [$_{XP}{}^{PH}$ [$_{v*P}{}^{PH}$ **Tom**$_j$ save **himself**$_{*i/j}$]]].

As we showed earlier, an embedded bare infinitive clause has a tense of its own in L2. Since *v**P cannot have a tense feature, an additional category should be present just above *v**P and function as a phase. I speculate that learners assume that the bare infinitive clause is a full-fledged sentence containing TP and CP. Hence, I suggest that JLEs should postulate a structure like (33) for bare infinitives.[3]

(33) [Bill$_i$ saw [$_{CP}{}^{PH}$ [$_{TP}$ [$_{v*P}{}^{PH}$ **Tom**$_j$ save(d) **himself**$_{*i/j}$]]]].

Why do JLEs construct a structure like above for bare infinitives? The first possibility is associated with learners' misanalysis. Since the embedded part of a bare infinitive clause has a subject, object and tensed verb in JLEs' grammar, the surface string does not look distinct from full-fledged CP-clauses. Thus, learners should easily misanalyze bare infinitives as full-fledged sentences. Another possibility comes from L1 influence. As given in (11c) repeated below as (34), in bare infinitive clauses in Japanese, the agent (*Tom*) is marked with a nominative Case particle (*-ga*). Given that nominative Case can be assigned iff C is present (Chomsky 2001, 2008), the embedded clause in (34) must have CP.[4]

(34) Bill-wa Tom-ga karezisin-o kizutukeru no-o mita.
-TOP -NOM himself-ACC hurt NMLZ-ACC saw
'Bill saw Tom hurt himself.'

If JLEs transfer the structure of (34) to the English counterpart, they would have (33) for bare infinitives in their Japanese-English bare infinitives.

Next, let us turn to infinitives, which tolerate LD binding. I suggest that only *v**Ps are phases, and the intermediate TP is not, and the binding domain is extended to the matrix clause.

(35) [$_{v*P}^{PH}$ **Bill$_i$** wants [$_{TP}$ Tom to [$_{v*P}^{PH}$ $t_{\mathbf{Tom}_j}$ love **himself**$_{i/j}$]]].[5]

Differently from bare infinitives, the embedded infinitive clause (*Tom to love himself*) does not look like a full-fledged sentence. In English speakers' grammar, the embedded part is clearly not CP. As shown in (36a), it cannot be a sentential subject, in contrast to CP (36b).

(36) a. *[[$_{TP}$ *John to solve the problem*] surprised everyone].
b. [[$_{CP}$ *That John solved the problem*] surprised everyone].
cf. [[$_{CP}$ *PRO to solve the problem*] is not easy].

Kuribara (2003) showed that JLEs (who scored 480+ on TOEFL) correctly and consistently (at higher than 90%) rejected sentences like (36a) in her acceptability judgement task. If they believed that (36a) has CP, they would wrongly accept it (cf. (36b)). Therefore, we can conclude that JLEs' grammar resists positing CP in infinitives and the non-local binding in infinitives is attributable to the lack of the phase (CP).[6]

6. Conclusion

In this paper, I have provided a phase-based account of asymmetry of reflexive binding between finite and infinitive clauses in Japanese-English interlanguage. Assuming that intermediate JLEs have not acquired uninterpretable φ-features, I have argued that they determine the binding domain of reflexive pronouns on the basis of phases. The proposed analysis implies that the domain of reflexive binding is independent of the presence/absence of tense, as opposed to Finer and Broselow (1986), Hirakawa (1990), Finer (1991), Watanabe et al. (2008) among others.

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Notes

1) NMLZ = nominalizer

2) There was no significant difference between Finite-LD and Bare Infinitive-LD (Z (n =15) = −2.222, two-tailed p = .394), Finite-LD and Infinitive-LD (Z (n =15) = −1.639, two-tailed p = 1.52), and Finite-LD and Bare Infinitive-LD (Z (n =15) = −2.598, two-tailed p = 0.14).

3) Although this possibility seems plausible, it is a stipulation for the time being.

4) I thank Etsuro Shima for raising this possibility.

5) It might be possible that *Tom* is base-generated and binds *pro* as in Japanese (Taguchi 2009). Adoption of this assumption does not affect our present argument.

6) The reason for the avoidance of the use of CP in infinitives might come from economy in the sense of Bošković (1996), according to which a category that does not seem to be necessary is not projected for the sake of an economy principle. At any rate, further research is needed to draw a solid conclusion.

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