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Control constructions produced by Japanese speaking learners of English

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1. Introduction

The interpretation of PRO subjects has been a focus of several studies in the field of L1 acquisition since C. Chomsky (1969). One main finding was that subject control as in (1a) is acquired surprisingly late (no earlier than age 5), relative to object control as in (1b).¹

- (1) a. John_i promised Mary [PRO_i to study hard]. (Subject Control)
b. John persuaded Mary_j [PRO_j to study hard]. (Object Control)

However, little research has been done on control constructions in L2 acquisition. Previous research in L2 acquisition has long explored a principles-and-parameters approach to discuss how L1 affects L2 acquisition when the two languages are parametrically different from each other (Ellis 1993, Lardiere 2007, White 2003). However, little attention has been paid to what emerges in L2 acquisition when both L1 and L2 have PRO in the subject position of the infinitive, and is coreferential with the matrix subject or object. Such an investigation is of much interest because no significant parametric difference is assumed between L1 and

¹ Jackendoff (1972) considers that a verb determines a control relationship between an infinitive subject (PRO) and its argument. Subject control verbs make their subjects control the referents of PRO and object control verbs have their objects control the referents of PRO. Cf. For non-obligatory control, see Williams (1980).

L2, and the relevant principle uniformly applies to both languages.

To our knowledge, no studies have been reported on the acquisition of English control constructions by Japanese speaking learners of English (JSEs). Therefore, this study reports our investigation on whether JSEs can identify the antecedent of PRO in control structures in English. Particularly, the learners' L1 and L2 both subsume the grammar of control with the embedded PRO-subject being coreferential with the matrix subject in (1a) or the matrix object in (1b) in a similar fashion (Kishimoto 2005, Sakamoto 1995). We will address how the knowledge of PRO can be facilitated during the L2 acquisition of control in English (Martohardjono and Flynn 1995). We will consider whether a subject-object asymmetry (i.e., the delayed development of subject control) found in L1 acquisition (C. Chomsky 1969, Goodluck 2001) also obtains in L2 acquisition. In addition, we will examine whether JSEs obey Rosenbaum's (1967) Minimal Distance Principle (MDP) or Rizzi's (1990) Relativised Minimality (RM), a locality constraint on the relation between the PRO subject and its antecedent. These control sentences are also contrasted with the *want*-type construction in our experiment.

Results of the experiment reveal that correct response rates differed significantly by learner group, not by control type, and the lower proficiency group showed poorer performance than the intermediate/advanced groups in the case of the verb *force*. We conclude that (a) L1 knowledge can help L2 learners in the early acquisition of PRO in control constructions, (b) lexical learning is crucial for L2 learners' syntax-semantics mapping of the subject vs. object controller onto the PRO subject, and (c) MDP seems to be operative in their computation of the antecedent for PRO.

In what follows, first we briefly review basic facts about control and *want* constructions in English and Japanese equivalents, and then we discuss previous studies in section 3. Section 4 discusses our questionnaire experiment and its results. Finally, our discussion and concluding remarks are provided in section 5.

2. Control and *want* constructions

2.1. English

It has been pointed out in the literature that there are two linguistic factors involved in the obligatory control construction, one syntactic and one semantic. Syntactically, PRO is generated in the subject position of the complement infinitive clause, as shown in (1), and semantically, this PRO subject must be

co-referential with the matrix subject or the matrix object DP depending on the requirement of the matrix verb. For example, the matrix verb in (1a) is *promise*, thereby requiring the infinitive subject PRO to be compatible with the matrix subject *John*, i.e., subject control. On the other hand, the matrix verb in (1b) is *persuade*, thereby requiring the PRO subject to be coreferential with the matrix object *Mary*, i.e., object control.

Importantly, while the object control in (1b) observes MDP (or RM) by establishing a locality relation between PRO and its controller, the subject control in (1a) seems to violate it because a relation between PRO and its controller is not local. Furthermore, the matrix object DP intervenes between PRO and its controller in the case of subject control whereas such an intervener is not involved in the case of object control (Belletti and Rizzi 2013). In (1b), for example, *Mary* is closer to PRO than *John*, but cannot be its antecedent; *Mary* is a blocking constituent for a link between PRO and its controller *John*.

We also included the *want*-type construction for comparison in this study. This construction is similar to the control construction on surface, but *want* behaves differently from control verbs (like *promise* in (1a) and *persuade* in (1b)). Consider (2) (Davies and Dubinsky 2004: (44)).

- (2) a. Leslie wants [_{CP} [_{IP} Lee to have a good day]].
 b. Leslie wants very much [_{CP} for [_{IP} Lee to have a good day]].

The embedded subject *Lee* is adjacent to *want* in (2a) and *for* is not necessary, as shown by the grammaticality of (2a), but as in (2b), the infinitive clause needs the prepositional complementizer *for* in order for the embedded subject *Lee* to receive Case, which otherwise would be excluded as a violation of the Case filter (Chomsky and Lasnik 1977, Riemsdijk and Williams 1981). As such, Chomsky (1981) suggests that *want* cannot trigger CP-deletion,² and the *for*-deletion takes place at PF.³ *Lee* is a constituent of the lower clause, and is not raised to the matrix object position, unlike *Lee* in the Exceptional Case Marking construction in (3).

- (3) a. Leslie believes [_{CP} that [_{IP} Lee is a student]].

² In the Government and Binding Theory, CP was S-bar.

³ This PF deletion makes the *want*-type look like the *expect*-type ECM structure; however, structurally, they are two distinct constructions.

b. Leslie believes [Lee_i] [t_j to be a student].

Thus, the *want*-type structure should be distinguished from the control verbs like *promise* and *persuade* in that the lexical subject (*Lee* in (2)) is part of the complement infinitive clause, not part of the matrix clause.

One reason for our inclusion is that, according to L1 acquisition literature, the *want*-(*DP*)-*to-V* construction is acquired earlier than the subject control construction. Another reason for its inclusion is that “*want to*” is introduced and quite often used in junior high school textbooks for Japanese learners of English, according to our textbook survey. We found 15 occurrences of the *want to* expression like ‘I want to go to a pastry shop’ in one textbook available for Japanese second year high school students learning English in Japan.

(4) is a structural summary of the three types of complement infinitives we investigated in the present study. (4a) is a subject control structure, (4b) an object control structure, and (4c) the *want*-type structure. Note that the object control structure has the matrix object DP, which is an antecedent for the infinitive PRO subject, whereas the *want*-type structure does not have such an extra object DP in the sentence. In the *want*-type construction (4c), the complement subject is PRO when it is compatible with the matrix subject.

- (4) a. DP_i V DP_j [_{CP}PRO_{i/*j} to VP] (subject control)
b. DP_i V DP_j [_{CP}PRO*_{i/j} to VP] (object control)
c. DP_i V [_{CP}PRO_i/DP_j to VP] (*want*-type)

As we saw above, whether the referent of PRO is compatible with the subject or the object depends upon the type of a matrix verb, either subject or object control verbs (like *promise* vs. *persuade*). In the case of *want*, the subject in question is PRO or lexical DP coreferential with the matrix subject. For the full interpretation (Chomsky 1995), the unpronounced infinitival subjects of control and *want* need to search for their identifiers in the structures.

2.2. Japanese

Does Japanese permit such control and *want*-type structures? And if so, do they observe similar syntactic and semantic factors in the language? According to Nishigauchi (1993), Kageyama (2001), and Kishimoto (2009), Japanese does indeed allow the two types of control to be generated, and it seems that they

behave syntactically and semantically exactly the same as their English counterparts in (1). The PRO subject is available in both the control and *hoshii* ‘want’-type structures in Japanese. Take a look at the examples in (5), for instance. In (5a), the matrix verb *yakusokusuru* ‘promise’ requires the embedded PRO subject to be coreferential with the matrix subject *Taro*. In (5b), the matrix verb *meireisuru* ‘order’ needs to have the embedded PRO subject compatible with the matrix object *Hanako*. This subject-object asymmetry in (5a) and (5b) is on par with that in (1). No null subjects are required in the *hoshii* structure in (5c).⁴

- (5) a. Taro_i-ga Hanako_j-ni [PRO_{i/*j} shinsha koonyuu]-o yakusokushita.
 Taro-NOM Hanako-DAT new car buying-ACC promised
 ‘Taro promised Hanako to buy a new car.’
- b. Taro_i-ga Hanako_j-ni [PRO_{*i/j} shinsha koonyuu]-o meireishita.
 Taro-NOM Hanako-DAT new car buying-ACC ordered
 ‘Taro ordered Hanako to buy a new car.’
- c. Taro-ga [Hanako-ni shiken-ni ukatte] hoshikatta.
 Taro-NOM Hanako-DAT exam in passing wanted
 ‘Taro wanted Hanako to pass the exam.’

Given these, we maintain that Japanese behaves quite similarly to English with respect to the syntactic-semantic relation between the infinitival subject (either explicit or implicit) and its antecedent in the structure. From an L1 transfer perspective, then, we predict that the interpretation of the PRO subject overall would not constitute a problem for JSEs from the onset of acquisition.

3. Previous Studies

We will take a brief look at some of the major findings on L1 acquisition before discussing L2 acquisition in this section.

3.1. Control and *want* in L1 and L2 Acquisition

As we mentioned earlier, in her pioneer work, C. Chomsky (1969) observed that the syntactic structure of subject control in English was acquired late (after age 6) relative to that of object control. She attributed this developmental delay to

⁴ Kishimoto (2005) assumes the existence of the PRO subject being linked with the matrix object in (5c) as well: *Taro-ga Hanako-ni* [PRO *shiken-ni ukatte*] *hoshikatta*.

young children's reliance on the MDP as a locality constraint on the linking between PRO and the controller.⁵ Wexler (1992) proposed that children might lack the category of PRO at an early stage (Borer and Wexler's (1987) maturation hypothesis). However, McDaniel, Cairns and Hsu (1990) found that young children (3;9 to 5;4) showed their knowledge of control in complements as in (6a) earlier than in adjuncts as in (6b).

- (6) a. Cookie Monster tells Grover PRO to jump into the water.
b. Cookie Monster touches Grover before falling into the water.

Another interesting study is that of Goodluck, Terzi, and Díaz (2001), a crosslinguistic study of young Greek and Spanish children acquiring the distribution of PRO in their L1. Their target verbs were *want* vs. *try* because they behave differently in the two languages. In Greek, *prospatho* 'try' requires the embedded null subject to refer to the matrix subject whereas *thelo* 'want' can have the matrix subject or the outside entity as its controller. On the other hand, in Spanish the embedded null subject must be construed with the matrix subject if the embedded sentence is infinitive, though it is not the case in subjunctives. Results of the experiments in contrast led them to conclude that young children aged four and older can understand the PRO subject. They speculate that control seems to be semantically based rather than syntactically based in child grammar.⁶ Relevant to this point is Pinker's (1993) basic view that the linking rules for mapping these arguments onto their syntactic positions can be part of the innate language acquisition mechanism. These studies on control have revealed that L1 English children undergo the three developmental stages—the initial lack of PRO, the earlier acquisition of object control, and the delayed development of subject control.

Unlike L1 acquisition studies, little research has been done on control in L2 acquisition. In particular, little attention has been paid to what emerges in L2 acquisition when both L1 and L2 have PRO in the subject position of the infinitive, and is coreferential with the matrix subject or object. Such an investigation is of much interest because there are no differences in the L1 and L2 grammars of control with the embedded PRO-subject being coreferential with the

⁵ See Cromer (1970) for a detailed follow-up discussion of Chomsky's original findings for the *tough* construction.

⁶ Goodluck et al. emphasize that this speculation should be pursued in future research.

matrix subject in (1a, 5a) or the matrix object in (1b, 5b) (Kishimoto 2005, Sakamoto 1995). We conducted an experiment on control to address the following research questions.

3.2. Research Questions

Given these major L1 acquisition findings together with similar behaviors between English and Japanese regarding the control and *want*-type constructions, we raised the following two research questions about L2 English:

(7) Research questions

- a. Can JSEs correctly identify the antecedent of the PRO subject in each structure of (4), i.e. subject control with *promise*-type verbs as in (1a), object control with *persuade*-type verbs as in (1b), and the *want*-type as in (2a)?
- b. Do JSEs show their obedience to the MDP in searching for the antecedent of the PRO subject in the control structures?

Relevant to these questions is our further inquiry about the presence or absence of a similar subject-object asymmetry in the choice of the antecedent for the PRO subject among JSEs, as found in L1 acquisition by English children.

4. Experiment

In order to consider the research questions above, we conducted an experiment with a multiple choice questionnaire.

4.1. Design and procedure

The questionnaire consisted of 11 test sentence pairs of the three complement infinitives (four Type I=*want*-type sentences⁷, four Type II=subject control, and three Type III=object control), as in (8). The questionnaire also contained 11 filler sentences; the test sentences were given in English whereas questions and answers were given in Japanese. Each participant was asked to choose one from among three possible answers by answering who would do, does, or did what to whom. The expected answers are in bold below.

⁷ Type I included three sentences with *want* and one sentence with *expect*. As discussed above, *want*- and *expect*-types are different, technically speaking, but we grouped them together as they are neither subject nor object control sentences.

(8) Stimulus sentence-answer pair examples

Type I (*want*-type construction)

Tom's parents wanted Bill to keep their dog for a week.

Q: 「誰が犬を1週間あずかることになるの」.

‘Who would keep the dog for a week?’

A: 1. Tom's parents 2. **Bill** 3. I don't know

Type II (*promise*-type, subject control construction)

Jim promised his parents to solve the problem.

Q: 「だれがその問題を解決するのでしょうか？」

‘Who would solve the problem?’

A: 1. **Jim** 2. his parents 3. I don't know

Type III (*persuade*-type, object control construction)

May asked Susan to return home as soon as possible.

Q: 「だれがすぐ家にかえることになるの」

‘Who would return home soon?’

A: 1. May 2. **Susan** 3. I don't know

Sixty-two students participated in the experiment: They were divided into three groups based on their TOEIC-IP scores. Thirty participants in the Low group were high school students, and their average TOEIC scores were 336.8. Eighteen participants in the Intermediate group (TOEIC: 548.6) and 14 participants in the Advanced group (TOEIC: 756.4) were all college students, as stated in Table 1.

Table 1 Participant groups by English proficiency

Group (<i>n</i> =)	Level	Average TOEIC
Low (30)	High School	336.8
Intermediate (18)	College Intermediate	548.6
Advanced (14)	College Advanced	756.4

An ANOVA reveals that the average TOEIC scores of these three groups were significantly different ($F(2, 679)=2091.6, p<.000$). Furthermore, a post-hoc analysis Bonferroni indicated that all groups were significantly different from each other at the .001 level, which suggests that they were at three distinct developmental stages.

4.2. Results

Results are summarized in Table 2. The overall percentages of correct responses by group are as follows: 78% for the Low group, 94% for the Intermediate group, and 95% for the Advanced group. The three groups' performances were significantly different ($F(2,673)=23,238, p<.000$). The overall percentages of the correct responses by sentence type are as follows: 89% for Type I, 87% for Type II, and 83% for Type III. They did not significantly differ ($F(2,673)=0.593, p<.553$). There was a significant interaction between the groups and the sentence types ($F(4,673)=3.111, p<.015$).

Table 2 Percentages of correct responses by group and sentence type

GROUP	TYPE I	TYPE II	TYPE III
	want/expect	promise	ask/instruct/force
Low	83	83	68
Intermediate	97	89	96
Advanced	93	96	98

Post-hoc Bonferroni comparisons revealed that in the Low group both Types I and II were significantly different from Type III ($p<.004$). We will return to this difference in more detail. In Type I (*want*-type infinitives), the Low and the Intermediate groups were significantly different ($p<.008$) while in Type II (*promise*-type subject control sentences) the Low and the Advanced groups were significantly different ($p<.026$). In Type III (*persuade*-type object control sentences) both the Intermediate and the Advanced groups were significantly different from the Low group ($p<.000$). We will return to this shortly.

5. Discussion

Let us now look at our findings from the viewpoint of the two factors involved in the control constructions. First, the results indicate that JSEs understand from the early stages of learning English that the infinitive clause must have a subject, overt or covert, i.e., their sensitivity to the syntax of control. Second, the results suggest that JSEs make developmental progress towards the end state that the PRO-subject must obligatorily refer to the matrix subject or object depending on the matrix verb, i.e., their sensitivity to the lexical semantics of the relevant verb or the argument structure. We argue that two factors are crucial for the early

understanding of the PRO subject in L2 English infinitive constructions: their innate knowledge of the EPP (Extended Projection Principle) (Chomsky 1981)⁸, and L1 knowledge of the PRO subject in the infinitive construction, as discussed in section 2.2. These are manifested as positive L1 transfer. More important for the present discussion is the finding that unlike L1 children, overall JSEs did not show a serious MDP effect because no significant differences emerged between Types II (87%) and III (83%): Otherwise, the link between PRO and *Mary* should have been blocked, thereby causing their delayed interpretation of the null infinitive subject only in the case of (1a), not (1b). We assume that the absence of subject vs. object control asymmetry can be explained based on JSEs' L1 knowledge of the subject control structure. Particularly, we suppose that JSEs already learned that they must avoid an MDP effect when they interpret the PRO subject in the subject control constructions in Japanese. As they start to understand that *promise* is compatible with *yakusokusuru* 'promise', they learn to apply their L1 knowledge properly to the interpretation of the PRO subject in English.

Note that Frazier, Clifton, and Randall (1983) tested English control structures among adult native speakers of English to determine strategies for identifying the antecedent of PRO and supported the Most Recent Filler strategy (MRF), i.e., a recency factor in identifying the proper antecedent in sentence processing. Sakamoto (1995, 1996, 2002) tested this MRF strategy in Japanese control sentences and found that it applied to Japanese as well among adult native speakers.⁹ Basically, this MRF is the same as the MDP or the RM showing the intervention phenomenon of Belletti and Rizzi (2013), though it is a performative strategy. In the present context, if this strategy were at work, we should have found subject-object asymmetry. However, we found that such subject-object asymmetry did not emerge in the Intermediate and Advanced groups, and surprisingly, the subject control sentences were easier than the object control sentences in the Lower group. The former indicates that JSEs' interpretation of the PRO subject is not affected by MRF (or MDP/RM).

Regarding the latter, a closer look at their results shows that there was an apparent lexical discrepancy. The *ask/instruct sentences* evoked correct responses 86% of the time while the *force* sentence in (9) had correct responses only 33% of

⁸ EPP is a syntactic requirement that clauses must have a subject.

⁹ In other words, the dative DP *his parents* does not block the PRO subject from being linked with *Jim*, the matrix subject in Type II in (7).

the time.

(9) Type III Ben forced James to smile in front of their classmates.

Q: 「誰がクラスメートの前で無理やりスマイルしたの」
‘Who forcibly smiled in front of the classmates?’

A: 1. Ben 2. **James** 3. I don’t know

Out of 30 Low group students, only 10 students correctly answered *James* did the smiling, and 20 students (67%) wrongly took *Ben* as the antecedent of the PRO subject. In the case of *ask/instruct*, they correctly selected the object DP for the antecedent of PRO. We suppose that the low-proficiency HS students were unable to understand the structural constraint *force* semantically imposed on the controller for the PRO subject because it was an unfamiliar verb at the time of the experiment. Put differently, what happened to their interpretation in (9) seems to be the following: They know that the lexical semantics of verbs must select the syntactic structure of complement infinitives, and when they do not know for sure about the lexical meaning of a particular verb, they tend to depend on the semantics of its L1 counterpart. In the case of *force*, Japanese does not have an equivalent verb, but rather expresses its meaning with an adverb *muriyarini* ‘forcibly,’ as seen in the translation. Under this account, we assume that a lexical mismatch of the relevant verb between L1 and L2 leads to a structural misunderstanding, thereby causing an error in interpreting the controller for the PRO subject in L2. As such, we can postulate that like the Intermediate and Advanced groups, the Low group did indeed understand the PRO subject in the object control as well as the subject control structures in English.

Also included were the following *try/shout for* sentences in the questionnaire, though they were not included as the test sentences analyzed here. The Low group showed some lexical differences. For instance, the *try for* sentence like (10) evoked only 17% correct, but they understood *shout for* in *Bill shouted for Susan to come downstairs* 70% of the time.

(10) *try/shout for: Jack tried for Marilyn to borrow a bicycle from the store.*

Q: 「誰が店から自転車を借りたかったの」

Who wished to borrow a bicycle from a store?

A: 1. Jack 2. Marilyn 3. I don’t know

The Low group’s poor performance was unexpected because the verb *try* has a

syntactically and semantically similar counterpart in Japanese. A possible explanation is that they were unable to understand that the argument of *for* must be the subject of the embedded infinitive. This is attributed to the Japanese translation of *for* in *try for* as in *Marilyn-no tameni* ‘for the sake of Marilyn’, i.e. negative lexical transfer. L2 acquisition of the control construction is not like L1 acquisition and the knowledge of PRO can be facilitated through lexical learning. Apparently, the Low group had more lexical issues than other groups, but this is expected as they are high school students and their English exposure was limited.

Now let us discuss our research questions in (7). The results of the present study can answer “yes” to our first research question (7a) because the participants could identify the controller of PRO, regardless of the infinitive type. However, the answer to our second research question (7b) is “no” because they could obtain the correct interpretation of subject control without a serious MDP effect. Unlike L1 children, this must be due to their previous learning of the Japanese object control structure like (4b).

In conclusion, acquiring control in English is not difficult for Japanese speaking learners of English because they understand that the EPP requires grammar to have a subject, overt or null, in the infinitival subject position and because they already have the knowledge of the lexical-structural requirements of control imposed on the controller of PRO. L1 knowledge can help L2 learners in the early acquisition of PRO in control constructions. If L1 permits a similar subject control structure, control in L2 seems to be able to avoid a serious MDP effect in L2. L2 acquisition seems to have a way of overcoming a potential blocking factor in the subject control structure, unlike L1 acquisition. Lexical learning is crucial for L2 learners’ syntax-semantic mapping of the subject vs. object controller onto the PRO subject in L2 control.

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本研究は、日本語を母語とする英語学習者がコントロール構文の主語として生成する PRO の先行詞を適切に解釈できるかどうかを実証的に調査し、理論的に解明しようとする試みである。高校生と大学生を対象に行った実験では、PRO の先行詞選択において、英語の子供たちに見られるような「主語」対「目的語」について有意差はなく、初級・中級・上級の学習者グループ間のみ有意差が見られた。分析では、日本語のコントロール構文にも PRO 主語が存在する点を踏まえ、母語の文法知識が「拡大投射原理」(EPP)・「最少距離原理」(MDP) と共に第二言語の構造習得の手がかりとして役立つ一方、両言語間に意味構造のミスマッチがある場合、英語の動詞からの項情報を構造にマッピングするのに時間を要すると文法理論と母語転移の観点から説明する。