

‘Control’-ed Raising: Misanalyses of Infinitival Clause Structures by L2 Learners*

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Abstract

This study investigates the acquisition of long-distance raising-to-subject (LD-RtS) in English (e.g., *Bill seems to Mary to [e] be happy*) by Japanese learners of English (JLEs). While native speakers of English regard *e* as a trace of subject (*Bill*) movement, previous studies have shown that JLEs incorrectly interpret the antecedent of *e* as the local NP (*Mary*). In this study, I conducted a truth-value judgement task and a picture-based acceptability judgement task and explored JLEs’ knowledge of LD-RtS. Based on the results obtained, I argue that incorrect antecedent choice by JLEs is attributed to a grammatical misanalysis.

Keywords

second language acquisition, infinitival clause, control, raising, A-movement

1. Introduction

In natural language, there exist various groups of constructions which look similar on the surface but have different underlying syntactic structures. *Raising* (1a) and *control* (1b) are representative examples. Both sentences embed an infinitive clause (TP) under the matrix verb and contain an empty category within them. However, the type of the empty category is distinct between the two. The raising structure involves a trace left by movement of a

subject, as shown in (1a), and the control structure contains a PRO, which is co-indexed with a subject, as in (1b).

- (1) a. $Bill_i$ seems [_{TP} to t_i be happy].
- b. $Bill_i$ wants [_{TP} to PRO_i be happy].

The gap between the surface strings and the underlying structure leads to a poverty of the stimulus problem, and these two are confused in L1 acquisition, as discussed by Becker (2006). Although this possibility has not yet been pursued actively in L2 acquisition, a similar confusion can naturally occur, possibly causing a divergence from the target grammar.

Previous studies in L1 and L2 acquisition have found an interesting phenomenon concerning *long-distance raising-to-subject (LD-RtS)*. In LD-RtS like (2a), the antecedent of the empty category is *Bill*, but not *Mary* in native speakers' grammar. However, it has been reported that English-acquiring children and adult Japanese- and Korean-L2 learners of English wrongly identify the antecedent of the empty category as the local NP, *Mary*, as in (2b) (see e.g., Hirsch & Wexler, 2007; Hirsch, 2011; Choe, 2012, 2015; Choe & Deen, 2016; Yoshimura et al., 2016; Yoshimura & Nakayama, 2017, 2019).

- (2) a. **Bill**_i seems to Mary to [e_i be happy]. native speakers' grammar
- b. Bill seems to **Mary**_i to [e_i be happy]. child & L2 grammars

One possibility that makes the unexpected local antecedent choice possible is that L1-acquiring children and L2 learners confuse raising with control, putting PRO in the place of e (cf. Hirsch & Wexler, 2007), a phenomenon I

call '*control'-ed raising*. This phenomenon is believed to bring important implications for the nature of L1 and L2 acquisition. By closely examining this phenomenon in the context of adult L2 acquisition, we will look at what happens in an interlanguage grammar under the poverty of the stimulus situation.

This paper is organized as follows. The next section gives a brief overview of the syntax of control, raising, and LD-RtS. Section 3 reviews previous studies on the L1 and L2 acquisition of LD-RtS. In that section, we will discuss previous findings and some accounts for them and argue that the possibility remains that the difficulty with the acquisition of LD-RtS is rooted in a grammatical deficit. Given this argument, section 4 describes the experiment and reports the results obtained. Then, we will interpret and discuss the results in section 5. Section 6 concludes the paper.

2. Syntax of control, raising, and LD-RtS

2.1 Control

Control constructions in English contain a null pronoun, PRO, in the embedded clause. By being bound by the subject, PRO identifies it as its antecedent, as shown below:

- (3) [John_i hopes to [PRO_i be a linguist]].

Control/PRO respects the Minimal Distance Principle (MDP) proposed by Rosenbaum (1967), according to which PRO singles out the closest DP as its antecedent.¹⁾

Japanese also has control/PRO and obeys the MDP, as shown in (4) (Fujii,

2006).

- (4) Taro_i-ga [PRO_i hon-o yomi] -hajime-ta.
 {-NOM} book-{ACC} read begin-_{PAST}
 ‘Taro began to read a book.’

Thus, Japanese and English are not different in this regard.

2.2 Raising

Raising is an instance of A-movement, and A-movement occurs for feature-checking in Minimalism (Chomsky, 2000, 2001, 2004, 2008).²⁾ In English, T requires φ -feature agreement and DPs must have a Case value to be spelled-out (Vergnaud, 1978; Chomsky, 1981). These two properties, φ -feature agreement and Case, are inextricably linked in executing A-movement. Case features on DP acquire values such as [Case: NOM(inative)] or [Case: ACC(usative)] via agreement against Case-assigning functional heads such as V and T (Chomsky, 2001). Given this, let us look at (5) and consider the derivation of raising. At the derivational step of (5a), there is no functional head that invokes agreement, so the Case value of the DP, *Bill*, remains unvalued. Then, the DP A-moves out of the small clause (SC) to Spec-TP (5b) in order to pick up a Case value (Bošković, 2007). Finally, Agree takes place between features on Spec-TP and T, and the unvalued φ -features on T and unvalued Case feature on DP are valued (5c), and the derivation converges.

- (5) a. [_{SC} Bill_{[Case: _], [φ : 3p, sgl]} be happy].

- b. [_{TP} Bill]_{[Case: _], [φ: 3p, sg]} [_T _[φ: _] [_{vP} seem [_{TP} to [_{SC} *t* be happy]]]]]
- c. [_{TP} Bill]_{[Case: NOM], [φ: 3p, sg]} [_T _[φ: 3p, sg] ...

In contrast to English, in Japanese, Case is marked via Merge of Case particles (e.g., Fukui, 1986; Kuroda, 1988; Saito, 2007, 2016). Case particles are heads of KP, which select NP, as in (6a) (Travis & Lamontagne, 1992), and they provide a value for the unvalued Case feature on NP, as in (6b).

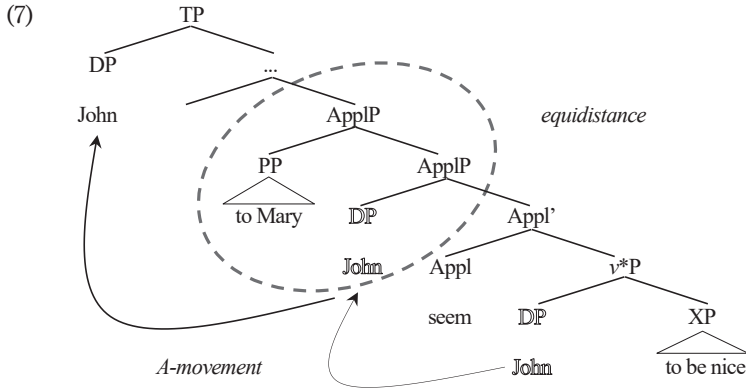
- (6) a. [_{KP} [_{NF} ringo]_[Case: _] [_K o]_[Case: ACC]]]]
- b. [_{KP} [_{NF} ringo]_[Case: ACC] [_K o]_[Case: ACC]]]]

This system makes A-movement for Case-feature-checking unnecessary, and KP stays in-situ (see e.g., Koizumi & Tamaoka, 2010; Saito, 2012).³⁾ KPs in Japanese optionally move to Spec-TP via scrambling.

Thus, subject raising is derived differently between English and Japanese.

2.3 LD-RtS

The syntax for LD-RtS has been examined by various researchers (McGinnis, 1998; Anagnostopoulou, 2003; Collins, 2006; Boeckx, 2008).⁴⁾ Researchers such as McGinnis (1998) and Anagnostopoulou (2003) argue that the subject of LD-RtS undergoes (successive-cyclic) A-movement. First, it moves out of *v**P to Spec-AppIP. Then, the experiencer is merged to Spec-AppIP. Since both the subject and the experiencer are in Spec-AppIP, they are equidistant to Spec-TP. Therefore, movement of the subject does not incur a violation of principles such as Relativized Minimality (Rizzi, 1990, 2001).



As for Japanese, an apparently equivalent sentence is grammatical (e.g., Takezawa, 1993, 2006).

- (8) Taro-ga Hanako-ni sutekini omoeta/mieta.
└_{NOM} └_{DAT} nice seemed/appeared
 ‘Taro seemed/appeared to Hanako to be nice.’

Nevertheless, since Japanese lacks A-movement for Case-feature-checking, it cannot have the same structure as LD-RtS in English. I assume, following Takezawa (1993, 2006), that apparent LD-RtS in Japanese is derived by scrambling. First, the experiencer phrase (*Hanako-ni*) undergoes movement to Spec-TP and the subject (*Taro-ga*) is fronted via scrambling, as represented below:

- (9) [_{TP} Taro-ga_i [_{TP} Hanako-ni_j [_{VP} t_j [_{TP} t_i sutekini omoeta/mieta]]]]

Thus, the Japanese construction that appears to resemble English LD-RtS is

derived in a way different from English LD-RtS.

2.4 Semantic Plurality in Raising and Control

Landau (2000, 2013) offers many pieces of evidence for the proposed structure of control and raising. First, consider the following sentence containing an expression *together*, which requires a syntactically and/or semantically plural subject. This sentence is ungrammatical because *together* needs to be licensed by a syntactically and/or semantically plural subject.

(10) ***John** cleaned the room *together*.

For the same reason, a sentence involving raising of a singular NP is incompatible with *together*:

(11) *John seems to be [t_{John} cleaning the room *together*].

On the other hand, the following sentence, whose subject is a singular NP, is grammatical.

(12) **John** hopes to clean the room *together*.

Since the surface string in (12) does not have a semantically plural subject, the acceptability of (12) implies the presence of an implicit argument, which does not appear on the surface. Landau (2000, 2013) suggests that PRO is present in the *v**P, and it can pick up a contextually salient individual as well as the binding antecedent, as in (13).⁵⁾ Due to the presence of PRO, *together*

is correctly licensed even though the subject in the surface string is in a singular form.

(13) John_i hopes to [_{v*P} **PRO**_{i+1} clean the room *together*].

Thus, semantic plurality reveals the nature of the silent argument within the embedded clause (i.e., trace vs. PRO).

3. Raising and LD-RtS in acquisition

3.1 L1 acquisition

It is well known that A-chains are difficult for children to acquire (Borer & Wexler, 1987, see Wexler (2004) for a revision under the phase theory of Chomsky (2000, 2001)). Partly for this reason, L1 acquisition researchers have actively worked on the acquisition of raising (e.g., Becker, 2006; Hyams & Snyder, 2005; Hirsch & Wexler, 2007; Choe, 2012; Choe & Deen, 2016). Particularly, a phenomenon of unexpected locality observed in LD-RtS has drawn researchers' attention. As reported by research cited above, children wrongly interpret a local NP as the antecedent for *e* in various tasks.

(14) Bill seems to **Mary**_i [_e_i be happy].

Previous accounts can roughly be divided into two: performance-based (e.g., Choe, 2012; Choe & Deen, 2016) and grammatical deficit views (e.g., Hyams & Snyder, 2005; Hirsch & Wexler, 2007; Hirsch, 2011). Choe (2012) and Choe and Deen (2016) provide several pieces of evidence for the performance-based account. One comes from reduced difficulty in the use of

a pronoun in place of an experiencer phrase, as in (15).

- (15) Donald seems to *him* to be short.

By replacing a lexical experiencer with a pronoun, the accuracy of children’s antecedent choice increased significantly. According to Gibson (1998) and Gordon et al. (2001), intervention effects become relaxed in processing if an intervening NP is replaced with a pronoun. The observation that the difficulty with LD-RtS decreases by using a pronoun led Choe (2012) and Choe and Deen (2016) to conclude that the difficulty with LD-RtS is rooted in performance-related limitations and should not be associated with a grammatical deficit.

In contrast, Hirsch and Wexler (2007) among others propose a grammatical deficit account. They argue that children treat *seem* as *think* (let us call it SEEM) and *e* as PRO, as in (16b).

- (16) a. Bill seems to Mary_i [*e*_i be wearing a hat].
 b. Bill SEEMs (= *thinks*) Mary_i [PRO_i is wearing a hat].

In summary, while the debate continues about which view is superior to the other, insights from L1 studies may benefit from considerations of L2 cases.

3.2 L2 acquisition

To my knowledge, Choe (2015) is the first to investigate LD-RtS in the area of L2 acquisition. In Korean, the equivalent of LD-RtS is ungrammatical.

- (17) *halapeci-kkeyse naykey [[_cip-ey ka-si-n] kes kath-usi-ta.
 grandfather_{-HON} I_{-DAT} home-to go_{-HON^TREL.PAST} *ke* seem_{-HON^TDECL}
 ‘Grandfather seems to me to have gone home.’ (Choe, 2015: (5))

Choe conducted a Truth-Value Judgment task to adult Korean-speaking learners of English, where participants were presented pictures with raised (18a) and unraised (18b) constructions and asked to judge whether the statement is true or false in the picture-based context.

- (18) a. At the end of the story, it still seems to Mickey that Donald is short.
 b. At the end of the story, Donald still seems to Mickey to be short.

The results showed that Korean-speaking learners of English had much more difficulty in judging LD-RtS (18b) (41.7% correct) in comparison to unraised constructions (18a) (83.3% correct). Choe associates the difficulty in acquiring LD-RtS with a cross-linguistic rarity of the construction (see Boeckx (2008) for discussion of the cross-linguistic facts). However, the cross-linguistic rarity cannot explain the difficulty: The typological fact that a certain phenomenon is not cross-linguistically common has no (direct) link to what happens in L2ers’ mental grammar.

That being said, a study by Yoshimura et al. (2016) is in line with Choe’s (2015) proposal. As we have already seen, Japanese permits the equivalent of LD-RtS.

- (19) Taro-ga Hanako-ni sutekini omoeta/mieta.

^{-NOM} ^{-DAT} nice seemed/appeared
 'Taro seemed/appeared to Hanako to be nice.'

Given this fact, Yoshimura et al. assessed Japanese-speaking learners' knowledge of LD-RtS through a multiple-choice task, where participants were presented with pairs of a test sentence and a question with four answer options as below and were asked to select the appropriate option.

(20) Jake appeared to Steve to have fun on his business trip.

Q: Dare-ga shuchoo-no toki-ni tanoshisoo deshita ka.

'Who seemed to be having fun on his business trip?'

A: **1. Jake** 2. Steve 3. both 4. I don't know

Despite the fact that Japanese permits apparent LD-RtS, the results of the task showed that the learners chose correct answers only at 41.7%. Thus, we still cannot empirically discard the account that Choe (2015) raised.

In the study of this phenomenon, the debate in L1 studies between the grammatical deficit and performance-limitation accounts becomes important. Following Choe (2012) and Choe and Deen (2016), Yoshimura, Nakayama and Fujimori (2018) investigated whether Japanese learners of English (JLEs) experience reduced difficulty when replacing an NP with a pronoun. They conducted a Truth-Value Judgment task, where participants were presented with two types of LD-RtS sentences such as (21a, b), followed by a context sentence, and asked to judge the appropriateness of the target sentences (i.e., second sentence in (21a, b)).

(21) a. Joe thinks that Hanako is smarter than Ai.

Hanako seems to him to be smarter than Ai. (True)

b. Maria thinks that Kenny learns Japanese well.

He appears to Maria to learn Japanese well. (True)

The results showed that the percentages correct for sentences (21a, b) were not significantly different, meaning that the use of a pronoun does not make the interpretation of LD-RtS easier, contra the L1 acquisition case.

The results shown by Yoshimura et al. (2018) leave open a possibility that JLEs' difficulty with LD-RtS is associated with some kind of a grammatical deficit. In order to pursue this possibility, I tested JLEs' knowledge of the construction by using more reliable syntactic diagnostics, as we will see later.

3.3 Hypotheses and predictions

As we have reviewed, English and Japanese differ in their configurations of Case-features. Thus, JLEs need to reconfigure the feature structure or overcome a problem with feature reassembly (Lardiere 2008, 2009). It is shown by some researchers that intermediate L2ers face difficulty with feature reassembly processes, though it can eventually be overcome (e.g., Umeda, 2008; Choi, 2009; Kimura, 2022, *to appear b*).

Assuming that JLEs transfer the feature configuration from their L1, they will at first employ scrambling to raise a subject (22a), which cannot license *together* (22b).

(22) Raising under scrambling

a. Bill_i seems to Mary to t_i be happy.

- b. *John_i seems to be *t*_i cleaning the room *together*.

Another hypothesis is that L2ers do not transfer a structure from their L1 but create an interlanguage grammar in the sense of Selinker (1972), which looks like neither L1 nor the target language but is nevertheless under the sanction of UG (see e.g., Schwartz & Sprouse 1996; Westergaard, 2019). Indeed, various researchers have argued that there exist many cases where transfer of L1 syntax does not occur (see e.g., Wakabayashi, 1997, 2002; Yuan 2001, 2004; Kimura, 2013; Kimura & Wakabayashi, 2019). Furthermore, as noted at the outset of this paper, raising constructions resemble control constructions on the surface, though their underlying syntactic structures are different. Besides, English-acquiring children may be confused between the two constructions, as reviewed. If JLEs adopt the syntax of control for raising constructions, *together* should be licensed due to the presence of PRO:

(23) Raising under control (‘control’-ed raising)

- a. Bill seems to Mary_i to PRO_i be happy.
 b. John_i seems to be PRO_{i+1} cleaning the room *together*.

In the next section, we will review my experiments testing these hypotheses.

4. Experiments

4.1 Participants

Eight native speakers of English (NSEs) living in the U.S. at the time of testing and 17 JLEs in Japan participated in the study. The L2 group

consisted of second- to fourth-year undergraduate students who study English and/or English literature (their age ranged from 19 to 22 at the time of testing). No one in the L2 group had resided overseas. Proficiency was measured by the Minimal English Test (MET) developed by Maki et al. (2009). The maximum score is 65, and actual scores ranged from 17 to 46 ($M = 30.5$, $SD = 8.75$, $Range = 29$). Based on Hasebe's (2014) criterion using MET, ten out of 17 were intermediate learners (score range: 28–36), and the others were pre-intermediate learners.⁶⁾ As will be described later, the learners will be divided into two groups on the basis of their performance. The mean proficiency test scores of these two groups were not so divergent ($M = 34.25$ and 30 , respectively, $p > 0.05$), so that we will not divide learners into proficiency groups.

4.2 Tasks

I conducted two tasks, one of which targeted the antecedent choice in LD-RtS, and the other targeted semantic plurality.

4.2.1 Truth-Value Judgment Task (TVJT)

The Truth-Value Judgment Task (TVJT) was done to see which NP, either long-distance (LD) or local (LOC) NP, is chosen as the antecedent for the empty category existing within the infinitive clause. For this purpose, we gave two contexts represented as Figure 1 (LD-antecedent context) and Figure 2 (LOC-antecedent context) below, respectively. Each context type contained four tokens and 52 distractors were also included in the task. Target sentences like (24) were presented under pictures, and participants' task was to judge whether the test sentence is *True* (T) or *False* (F) under the context depicted by pictures. Adjectives used were *happy*, *nice*, *sad*, and *scary*.

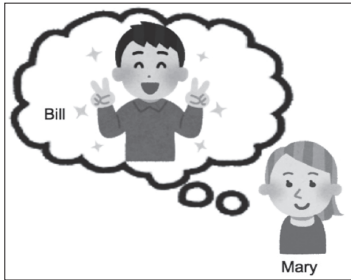


Figure 1. LD-antecedent context (T)

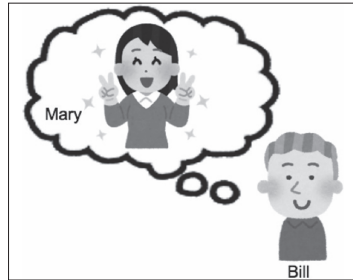


Figure 2. LOC-antecedent context (F)

(24) Bill seems to Mary to be happy.

4.2.2 Picture-based Acceptability Judgment Task (P-AJT)

Test sentences were presented with a picture, which sets a context, as seen in Figure 3. Participants were asked to judge whether the sentences were grammatically *Correct* or *Incorrect*. If they had no intuition about the acceptability of the sentence, they marked *Not Sure*.

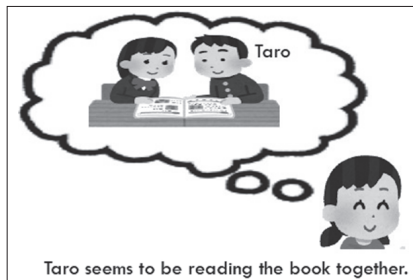


Figure 3. Sample of P-AJT

Target sentence types are listed below. The predicates used for these item types were *solve the problem*, *clean the room*, *eat lunch*, and *read the book*. The control verb in Type 2 was *hope*, and the raising verb in Type 3 was *seem (to*

bē).

(25) Type 1: **Together* in simple sentences

e.g., *Bill solved the problem together.

Type 2: Control with *together*

e.g., Bill hopes to solve the problem together.

Type 3: *Raising with *together*

e.g., *Bill seems to be solving the problem together.

Each type contained four tokens and 44 fillers were also included, and the total number of test items amounts to 56. We are mainly interested in learners' behaviors for Raising (Type 3).

4.3 Results

The figure below represents mean acceptance rates for local (LOC) and long-distance (LD) antecedents in the TVJT. The results showed that although NSEs preferred LD antecedents over LOC ones, JLEs exhibited the opposite pattern.

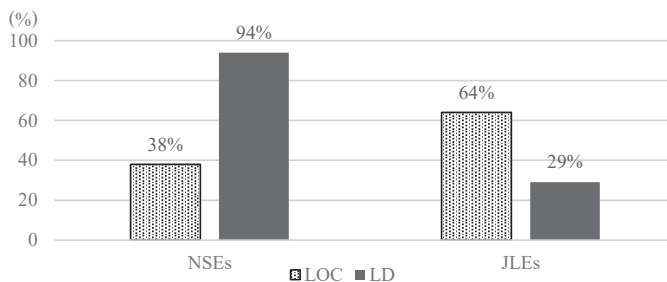


Figure 4. Mean acceptance rates in the TVJT

To estimate the effects of distance of antecedents on the responses (antecedent choices), response data were submitted to a logistic mixed-effects model analysis, where binomial responses were a response variable, types were fixed effects, and random intercepts and slopes for participants and items were included as random effects. The maximal random-effects structure was gradually simplified by a backward stepwise reduction method. As for NSEs, the effect of types was significant ($\beta = 3.808$, $SE = 1.047$, $z = 3.638$, $p < 0.001$), and a significant effect of types was also found for JLEs ($\beta = -1.476$, $SE = 0.431$, $z = -3.427$, $p < 0.001$), although the pattern was in the opposite direction between the two groups.

Next, let us discuss the figures below, which represent the results of the AJT.

To estimate the effects of type on the responses (judgments), response data were submitted to a logistic mixed-effects model analysis (for the procedure, see above). As for NSEs, only one participant accepted simple / raising sentences with *together* and the others rejected all of them; I did not

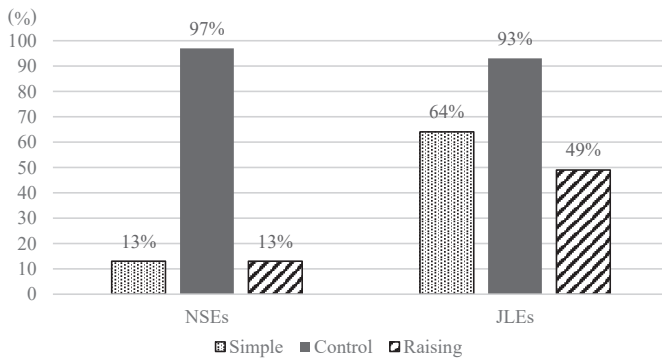


Figure 5. Mean acceptance rates in the P-AJT

submit NSEs' data to the statistic model (i.e., the acceptance rate was 0% for both simple and raising after elimination of data from the one participant). Concerning JLEs' data, significant differences were obtained in all the comparisons: Types 1 & 2 ($\beta = 3.19$, $SE = 0.835$, $z = 3.821$, $p < .001$); Types 1 & 3 ($\beta = -0.947$, $SE = 0.447$, $z = -2.117$, $p = .003$); Types 2 & 3 ($\beta = -4.136$, $SE = 0.865$, $z = -4.78$, $p < .0001$).

In general, most previous L2 studies report averaged data and give discussions based on them. However, such collections of data conceal various important individual patterns, especially in the case that mean acceptance rates are around 50%, which is indeed found in our Raising type (see White, 2003; Hawkins et al., 2006). What is important for examining internal grammar is to see whether a particular pattern/contrast is found within each individual grammar (White, 2003, see also den Dikken et al. (2007) for discussion). Hence, we will examine whether individual results show particular patterns.

Prior to conducting individual analyses, I excluded results from participants who accepted all the tokens in the Simple type and who rejected

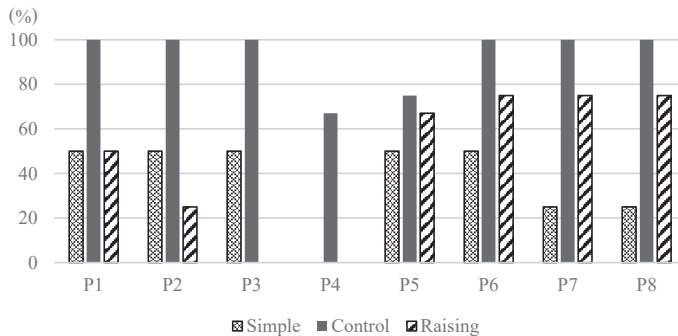


Figure 6. Mean acceptance rates by participant

all the sentences with *together*. The reason for this exclusion process is to examine learners' syntactic knowledge of more complex sentences, namely, raising and control. Figure 6 reports the mean acceptance rates by participant in the JLE group.

By close inspection of individual results, I found two patterns of responses⁷⁾: i) the pattern where raising with *together* was consistently rejected (at 75% or more) (participants 2, 3, and 4); ii) the pattern where it was consistently accepted (at 75% or more) (participants 6, 7, and 8). The group result, namely, the acceptance rate of 49% for raising, appears to have resulted from these individual variations. Note that these participants generally rejected simple sentences with *together* and accepted Control sentences with *together* correctly. Behaviors by participants 1 and 5 appear to be less determinate about raising with *together*. For ease, I will call each of these patterns Group 1 (participants 2–4) and Group 2 (participants 6–8), respectively.⁸⁾ Notably, the selected participants clearly preferred LOC antecedents (mean acceptance rate: 82%) to LD antecedents (mean acceptance rate: 19%). However, responses to the remaining types were systematically different between the groups; while Group 1 made a sharp contrast between raising and control, Group 2 failed to make the contrast between them. Thus, the behavior of each group can be summarized as follows:

(26) Behavior by NSEs

- | | |
|--|-------------------|
| a. Bill _i seems to Mary to e _i be happy. | antecedent choice |
| b. *John cleaned the room <i>together</i> . | simple transitive |
| c. [✓] John hopes to clean the room <i>together</i> . | control |
| d. *John seems to be cleaning the room <i>together</i> . | raising |

(27) Behavior by Group 1

- a. Bill seems to **Mary**_i to **e**_i be happy. antecedent choice
- b. *John cleaned the room *together*. simple transitive
- c. ✓John hopes to clean the room *together*. control
- d. *John seems to be cleaning the room *together*. raising

(28) Behavior by Group 2

- a. Bill seems to **Mary**_i to **e**_i be happy. antecedent choice
- b. *John cleaned the room *together*. simple transitive
- c. ✓John hopes to clean the room *together*. control
- d. ✓John seems to be cleaning the room *together*. raising

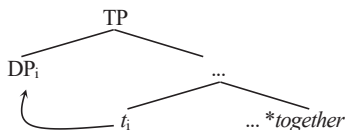
In the next section, we will discuss each group's syntactic knowledge.

5. Discussion

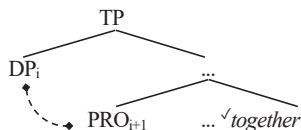
5.1 Grammar of NSEs

NSEs generally behaved as expected by the theory. They correctly chose a non-local antecedent for LD-RtS and made a contrast between raising and control with respect to the licensing of *together*. This suggests that they assume a trace for raising and PRO for control, as in (29a) and (29b), respectively.

(29) a. *raising*



b. *control*



Thus, NSs’ grammar derives LD-RtS by A-movement. In what follows, we will discuss the two L2 grammars in order.

5.2 Grammar of JLEs

JLEs generally had problems with rejecting simple sentences with *together* such as (30a). A possible reason for this is the availability of argument ellipsis from Japanese. In Japanese, arguments can be dropped, as in (30b), and the dropped antecedents can be recovered from context. In the present experiment, salient arguments who do some action were given in pictures. They might be interpreted as dropped arguments by JLEs, having raised the acceptability of sentences such as (30a).

- (30) a. *Bill solved the problem together.
 b. Bill-wa ∅ isshoni mondai-o kaiketushita.
 Bill-_{TOP} together problem-_{ACC} solved

As already noted, the behavior by those who correctly rejected sentences such as (30a) can be divided into two kinds, which I will discuss in turn below.

5.2.1 Grammar of Group 1

The pattern we found for Group 1 is given below. First, the local antecedent was chosen for *e* in LD-RtS. Next, *together* was judged to be compatible with a singular subject in LD-RtS.

- (31) Behaviors of Group 1
 a. Bill seems to **Mary**_i to **e**_i be happy.

- b. \checkmark John seems to be e_{i+1} cleaning the room *together*.

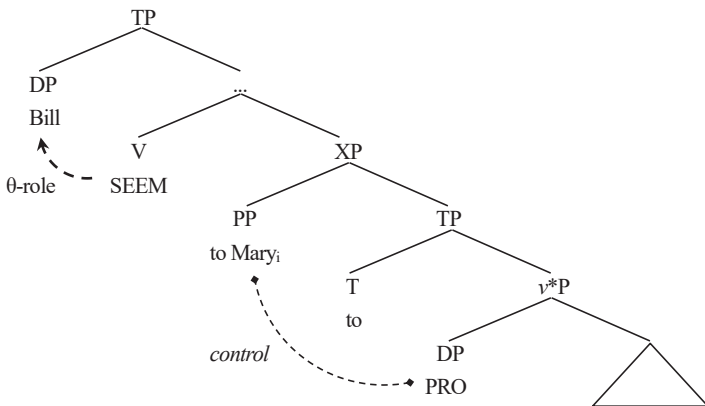
Looking at (31a, b), the nature of e seems to be analogous to the property of PRO, as repeated as (32a, b).

(32) Predictions under control

- a. Bill seems to **Mary_i** to **PRO_i** be happy.
 b. \checkmark John_i seems to be [**PRO_{i+1}** cleaning the room *together*].

Thus, it seems that they postulate PRO, as shown in (33), which I refer to as ‘control’-ed raising. By postulating PRO in the embedded clause, the matrix subject cannot receive a θ -role, as it stands. Then, the grammar regards *seem* as SEEM (an analogue to *think*), which assigns a θ -role to the matrix subject, as discussed by Hirsch and Wexler (2007) for child grammar.

(33) ‘control’-ed raising analysis of LD-RtS



By assuming this structure, the local NP (*Mary* in (33)) is interpreted as the antecedent of *e* and *together* is permitted because PRO can pick up an additional salient individual in a given context.

Then, why do the learners in Group 1 adopt the ‘controlled raising’ strategy? One possibility is that the grammar that Group 1 adopts is based on the *principle of economy of derivation* (Chomsky, 1993, 1995, 2000), according to which Merge is preferred to Move.⁹ It has been argued that L2 grammars respect some sorts of economy principles (e.g., Wakabayashi, 2021) and that L1 influence is restricted in L2 acquisition (cf. Vainikka & Young-Scholten, 1994, 1996; Wakabayashi, 1997, 2002; Yuan, 2001, 2004; Kimura, 2013; Kimura & Wakabayashi, 2019). The learners in Group 1 do not rely (heavily) on relevant L1 properties but on the genetically endowed principles of UG.

5.2.2 Grammar of Group 2

The behavior based on the grammar of Group 2 is described in (34).

(34) Behavior of Group 2

- a. Bill seems to **Mary**_{*i*} to *e*_{*i*} be happy.
- b. ***John**_{*i*} seems to be *e*_{*i+1*} cleaning the room *together*.

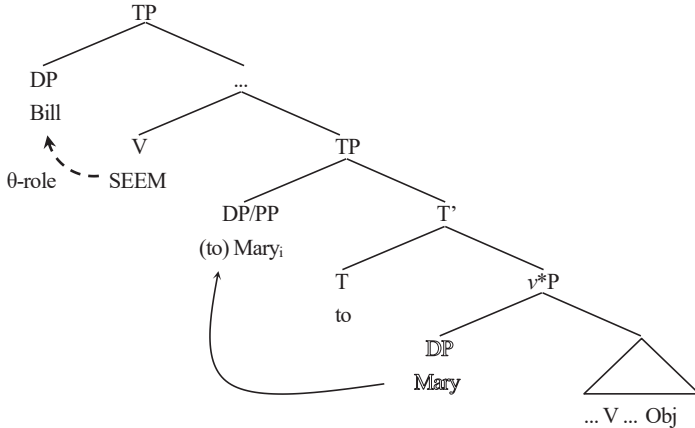
They are harmonious with the predictions that can be made under a short-distance movement or scrambling analysis, repeated below:

(35) Predictions under short-distance movement (scrambling)

- a. Bill seems to **Mary**_{*i*} to *t*_{*i*} be happy.
- b. ***John**_{*i*} seems to be [*t*_{*i*} cleaning the room *together*].

Since the empty category is a trace that is co-indexed with the matrix singular subject, *together* is not licensed. The structure should look like (36).

(36) *short-raising (scrambling) analysis of LD-RtS*



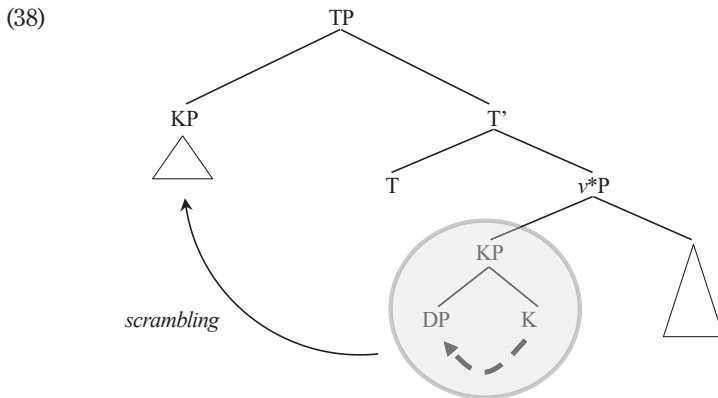
5.3 Implications and further discussions

If our argument is on the right track and there are learners who use scrambling to derive raising in English, a theoretically important problem arises. As shown in (36), the experiencer phrase is analyzed as a subject DP, landing at embedded Spec-TP (or Spec of any other phrase). In English, phrases must land at a position where agreement can happen between Spec and Head (Chomsky 2013, 2015). Otherwise, the structure is illicit at the interfaces. However, the experiencer DP moved to Spec-TP cannot agree with infinitival T, which lacks Case-agreement features, and the resulting structure should crash. The fact that the sentence is acceptable suggests that something rescues the structure. According to Saito (2016, 2018),

scrambling is permitted due to the presence of a particle. As shown below, scrambling of the object DP is possible owing to the presence of the accusative Case particle (*-o*). This is because a particle renders the structure legitimate without Agree (see Saito, 2016, 2018 for details).

- (37) [Sono hon-o [gakusei-ga t yonda]].
 the book_{ACC} student_{NOM} read
 'The book, the student read.'

This leads us to suggest that the grammaticality of movement of the experiencer DP to infinitival Spec-TP is tolerated by the presence of a phonologically null Case particle. Extending this possibility more generally, it might be the case that JLEs' grammar marks Case not via Agree but via Merge of a phonologically null Case particle (K-head), and the subject moves to Spec-TP by scrambling, as represented below:



This suggests that JLEs transfer feature structures from their L1, providing support for the Feature Reassembly Hypothesis of Lardiere (2008, 2009) (see also Kimura, 2022, *to appear b*). Moreover, that Case particles are transferred from Japanese to a Japanese–English interlanguage is consistent with Kimura (2022, *to appear b*), who showed that JLEs transfer a question particle such as *ka* or *mo* to *wh*-operators in English.

Furthermore, in the proposed interlanguage representations, *seem* is wrongly treated as SEEM (an analogue to *think*), which assigns a θ -role. Thus, acquiring the semantically vacuous property of *seem* may be one of the keys to the acquisition of raising.

6. Conclusion

This paper investigated the syntactic structure underlying (LD-)RTS in Japanese–English interlanguage. The results of the experiments revealed two kinds of grammars: one with ‘control’-ed raising and one with short movement (scrambling). The former option implies that L2 learners use genetically endowed resources, PRO and the economy principle, to derive a construction not present in their L1. The latter option suggests that JLEs transfer a similar structure from their L1. Given that scrambling is possible due to the presence of KP (Saito, 2016), JLEs appear to transfer KP to construct DP in their interlanguage grammar of English. The existence of such grammar supports Lardiere (2008, 2009) and Kimura (2022, *to appear b*).

* This study was presented at *Generative Approaches to Language Acquisition – North America 8* held at Indiana University in 2018. I would like to thank the

audience there for their helpful questions and comments. I would also like to thank two anonymous reviewers for their invaluable comments.

Notes

- 1) One may wonder how MDP explains subject control, where a non-local NP is selected as the antecedent for PRO. Belletti and Rizzi (2013) argue that subject control is derived by a special way of structure-building called smuggling (Collins, 2005, 2006).
- 2) In a more recent theory of labeling (Chomsky, 2013, 2015), movement is not triggered by feature-checking, but it is required for labeling (agreement leads to the label $\langle \varphi, \varphi \rangle$).
- 3) It is known that Japanese has scrambling, which is arguably a variant of A-movement. However, as Saito (2003) and others argue, scrambling is not feature-driven.
- 4) Another mainstream analysis is smuggling. However, smuggling violates a freezing constraint (Wexler & Culicover, 1980). As shown by Wexler and Culicover (1980), extraction from within a moved phrase is banned. The freezing ban can be voided when the movement chain is string-vacuous (Sabbagh, 2007; Kimura, *to appear a*). However, smuggling is not applied string-vacuously.
- 5) This is only possible with a subtype of control, dubbed *partial control* (Landau, 2000). A verb like *hope* is one instance. The other type of control, called exhaustive control, resists licensing of semantic plurality. According to Grano (2015), these differences are attributable to distinct syntactic structures.
- 6) Hasebe (2014) called them 'Beginners', but the learners' scores were not much lower than those of intermediates', so I decided to call them 'pre-intermediate' learners to avoid misunderstanding.
- 7) As correctly pointed out by a reviewer, the final number of participants is not many and the number of tokens ($n=4$) was too small to draw a solid conclusion, but the clear patterns individuals exhibited must not be accidental.
- 8) As noted earlier, the proficiency scores of these two groups were not divergent. It might be possible that these different patterns are related to developmental factors, but it is not necessarily so. There is no reason to believe that learners at the same proficiency stage have a uniform grammar.

- 9) Move has been believed to be a complex operation (i.e., Copy + Remerge). This conception of economy does not work if we consider that Move is an instance of (internal) Merge (Chomsky, 2004). However, it is true that Move creates two instances of copies, which is more complex for phonological/semantic interpretation.

References

- Anagnostopoulou, E., *The Syntax of Ditransitives: Evidence from Clitics*. Berlin: Mouton de Gruyter, 2003.
- Becker, M., “There Began to be a Learnability Puzzle”, *Linguistic Inquiry*, Vol. 37, 2006, pp. 441–456.
- Belletti, A & L. Rizzi., “Ways of Avoiding Intervention: Object Relatives, Passive and Control”, *Rich Grammars from a Poor Input*, Ed. R. Berwick & M. P. Palmarini, Oxford: Oxford University Press, 2013, pp. 115–126.
- Boeckx, C., “Raising across Experiencers Cross-linguistically”, *Aspects of the Syntax of Agreement*, Ed. C. Boeckx, London: Routledge, 2008, pp. 150–161.
- Borer, H & K. Wexler., “The Maturation of Syntax”, *Parameter Setting*, Ed. T. Roeper & E. Williams, Dordrecht: Reidel, 1987, pp. 123–172.
- Bošković, Ž., “On the Locality and Motivation of Move and Agree: An Even More Minimal Theory”, *Linguistic Inquiry*, Vol. 38, pp. 589–644.
- Choi, M-H., “Acquiring Korean *Wh*-in-situ Constructions by Native English Speakers”, *Language Research*, Vol. 45, 2009, pp. 349–392.
- Choe, J., *Children Seem to Know Raising: Raising and Intervention in Child Language*. PhD dissertation, University of Hawai‘i at Mānoa. 2012.
- Choe, J., Raising over an Experiencer in English L2 Acquisition. Ms. Hankuk University of Foreign Studies, 2015.
- Choe, J & K. Deen., “Children’s Difficulty with Raising: A Performance Account”, *Language Acquisition*, Vol. 23, 2016, pp. 112–141.
- Chomsky, N., *Lectures on Government and Binding*. Dordrecht: Foris, 1981.
- Chomsky, N., “A Minimalist Program for Linguistic Theory”, *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger*, Ed. K. Hale & S. J. Keyser, Cambridge, Mass.: MIT Press, 1993, pp. 1–52.
- Chomsky, N., *The Minimalist Program*. Cambridge, MA: MIT Press, 1995.
- Chomsky, N., “Minimalist Inquiries: The Framework”, *Step by Step: Essays on*

- Minimalist Syntax in Honor of Howard Lasnik*, Ed. R. Martin, D. Michaels & J. Uriagereka, Cambridge, MA: MIT Press, 2000, pp. 89–155.
- Chomsky, N., “Derivation by Phase”, *Ken Hale: A Life in Language*, Ed. M. J. Kenstowicz, Cambridge, MA: MIT Press, 2001, pp. 1–52.
- Chomsky, N., “Beyond Explanatory Adequacy”, *Structures and beyond: The Cartography of Syntactic Structures*, Ed. A. Belletti, Oxford: Oxford University Press, 2004, pp. 104–131.
- Chomsky, N., “On Phases”, *Foundational Issues in Linguistic Theory: Essays in Honor of Jean-Roger Vergnaud*, Ed. R. Freidin, C. Peregrin & M. L. Zubizarreta, Cambridge: MIT Press, 2008, pp. 133–166.
- Chomsky, N., “Problems of Projection”, *Lingua*, Vol. 130, 2013, pp. 33–49.
- Chomsky, N., “Problems of Projection: Extensions”, *Structures, strategies and beyond*, Ed. E.D. Domenico, C. Hamann & S. Matteini, Amsterdam: John Benjamins, 2015, pp. 1–16.
- Collins, C., “A Smuggling Approach to the Passive in English”, *Syntax*, Vol. 8, 2005, pp. 81–120.
- Collins, C., “A smuggling approach to raising in English”, *Linguistics Inquiry*, Vol. 36, 2006, pp. 289–298.
- den Dikken, M, J. Bernstein, C. Tortora & R. Zanuttini., “Data and Grammar: Means and Individuals”, *Theoretical Linguistics*, Vol. 33, 2007, pp. 335–352.
- Fujii, T., *Some Theoretical Issues in Japanese Control*. PhD Dissertation, University of Maryland, College Park, 2006.
- Fukui, N., *A Theory of Category Projection and Its Applications*. PhD dissertation, MIT, Cambridge: MA, 1986.
- Gibson, E., “Linguistic Complexity: Locality and Syntactic Dependencies”, *Cognition*, Vol. 68, 1998, pp. 1–76.
- Gordon, P. C., R. Hendrick & M. Johnson., “Memory Interference during Language Processing”, *Journal of Experimental Psychology: Learning, Memory, and Cognition*, Vol. 27, 2001, pp. 1411–1423.
- Grano, T., *Control and Restructuring*. Oxford: Oxford University Press, 2015.
- Hasebe, M., *The Acquisition of the Wh-movement Operation in English by Japanese EFL Learners*. PhD dissertation, Yokohama National University, 2014.
- Hawkins, R, S. Al-Eid, I. Almahboob, P. Athanasopoulos, R. Chaengchenkit, J. Hu, M. Rezai, C. Jaensch, Y. Jeon, A. Jang, Y-KI. Leung, K. Matsunaga, M. Ortega, G. Sarko, N. Snape, & K. VelascoZárate., “Accounting for English Article

- Interpretation by L2 Speakers”, Ed. S. Foster-Cohen, M. Krajnovic & J. Djigunović, *EUROSLA Yearbook 6*, Amsterdam: John Benjamins, 2006, pp. 7–25.
- Hirsch, C & K. Wexler., “The Late Acquisition of Raising: What Children Seem to Think about *Seem*”, *New horizons in the analysis of control and raising*, Ed. W.D. Davies & S. Dubinsky, New York: Springer, 2007, pp. 35–70.
- Hirsch, C., *The Acquisition of Raising*. PhD dissertation, MIT, Cambridge, MA, 2011.
- Hyams, N & W. Snyder., “Young Children Never Smuggle: Reflexive Clitics and the Universal Freezing Hypothesis”, Paper presented at the *30th Annual Boston University Conference on Language Development*, Boston University, Boston, MA, 2005.
- Kimura, T., *The Development of Noun Phrase Structure in L2 Acquisition*. Unpublished BA thesis. Chuo University, Tokyo, 2013.
- Kimura, T., *Feature Selection, Feature Reassembly, and the Role of Universal Grammar: The Acquisition of Wh-questions by Japanese and Chinese Learners of English*. Unpublished PhD dissertation. Chuo University, Tokyo, 2022.
- Kimura, T., “Movement and Islands in Right Node Raising”, *Linguistic Inquiry*, to appear a.
- Kimura, T., “Explaining the Difficulty with the L2 Acquisition of Scope Interpretation by Speakers of a Scope-rigid Language”, *Generative SLA in the age of Minimalism: Features, interfaces and beyond*, John Benjamins: Amsterdam, to appear b.
- Kimura, T & S. Wakabayashi., “Articles and Telicity: The Grammar of Early and Intermediate L2 Learners of English”, *Second Language*, Vol. 18, 2019, pp. 89–103.
- Koizumi, M & K. Tamaoka., “Psycholinguistic Evidence for the VP-internal Subject Position in Japanese”, *Linguistic Inquiry*, Vol. 41, 2010, pp. 663–680.
- Kuroda, S-Y., “Whether We Agree or Not”, *Linguisticae Investigationes* Vol. 12, 1988, pp. 1–47.
- Landau, I., *Elements of Control: Structure and Meaning in Infinitival Constructions*. Dordrecht: Kluwer, 2000.
- Landau, I., *Control in Generative Grammar: A Research Companion*. Cambridge: Cambridge University Press, 2013.
- Lardiere, D., “Feature Assembly in Second Language Acquisition”, *The Role of Formal Features in Second Language Acquisition*, Ed. J. M. Liceras, H. Zobl &

- H. Goodluck, London/New York: Lawrence Erlbaum Associates, 2008, pp. 106–140.
- Lardiere, D., “Some Thoughts on the Contrastive Analysis of Features in Second Language Acquisition”, *Second Language Research*, Vol. 25, 2009, pp. 173–227.
- Maki, H., Sarenqimuge, J. Yoshimura, Y. Makino, M. Hasebe, K. Goto, T. Ito, Y. Yumoto, S. Oku, M. Hamasaki, Y. Ueda, K. Nagasue, H. Kasai, T. Munakata & J. Dunton., “The Minimal English Test: A Revised Version, *KOTESOL Proceedings 2009*, Ed. Korea TESOL, 2010, 225–232.
- McGinnis, M., *Locality in A-movement*. PhD dissertation, MIT, Cambridge, MA, 1998.
- Rizzi, L., *Relativized Minimality*. Cambridge, MA: MIT Press, 1990.
- Rizzi, L., “Relativized Minimality Effects”, *The Handbook of Contemporary Syntactic Theory*, Ed. M. Baltin & C. Collins, Oxford: Blackwell, 2001, pp. 89–110.
- Rosenbaum, P. S., *The Grammar of English Predicate Constructions*. Cambridge, MA: MIT Press, 1967.
- Sabbagh, J., “Ordering and Linearizing Rightward Movement”, *Natural Language & Linguistic Theory*, Vol. 25, 2007, pp. 349–401.
- Saito, M., “A Derivational Approach to the Interpretation of Scrambling Chains”, *Lingua*, Vol. 113, 2003, pp. 481–518.
- Saito, M., “Notes on East Asian Argument Ellipsis”, *Language Research*, Vol. 43, 2007, pp. 203–227.
- Saito, M., “Case Checking/Valuation in Japanese: Move, Agree or Merge?”, *Nanzan Linguistics*, Vol. 8, 2012, pp. 109–127.
- Saito, M., “(A) Case for Labeling: Labeling in Languages without ϕ -feature Agreement”, *The Linguistic Review*, Vol. 33, 2016, pp. 129–175.
- Saito, M., “Kase as a Weak Head”, *McGill Working Papers in Linguistics*, Vol. 25, 2018, pp. 382–391.
- Schwartz, B.D & R.A. Sprouse., “L2 Cognitive States and the Full Transfer/Full Access Model”, *Second Language Research*, Vol. 12, 1996, pp. 40–72.
- Selinker, L., “Interlanguage”, *International Review of Applied Linguistics*, Vol. 10, 1972, pp. 209–231.
- Takezawa, K., “A Comparative Study of *Omo* and *Seem*”, *Argument Structure: Its Syntax and Acquisition*, Ed. H. Nakajima & Y. Otsu, Tokyo: Kaitakusha, 1993, pp. 75–95.
- Takezawa, K., “Eigo kara nihongo o kangae, nihongo kara eigo o toraenaosu: Seisei

- togoron no houhou [Considering Japanese from English and reconsidering English from Japanese: A generative syntax approach]", *Nihongogaku*, Vol. 25, 2006, pp. 46–55.
- Travis, L & G. Lamontagne., "The Case Filter and licensing of empty K", *Canadian Journal of Linguistics*, Vol. 37, 1992, pp. 157–174.
- Umeda, M., *Second Language Acquisition of Japanese Wh-constructions*. Ph.D. dissertation, McGill University, 2008.
- Vainikka, A & M. Young-Scholten., "Direct Access to X'-theory: Evidence from Turkish and Korean Adults Learning German", *Language acquisition studies in generative grammar*, Ed. T. Hoekstra & B.D. Schwartz, Amsterdam: John Benjamins, 1994, pp. 265–316.
- Vainikka, A & M. Young-Scholten., "Gradual Development of L2 Phrase Structure", *Second Language Research*, Vol. 12, 1996, pp. 7–39.
- Wakabayashi, S., *The Acquisition of Functional Categories by Learners of English*. Ph.D. dissertation, University of Cambridge, 1997.
- Wakabayashi, S., "The Acquisition of Non-null Subjects in English: A Minimalist Account", *Second Language Research*, Vol. 18, 2002, pp. 28–71.
- Wakabayashi, S., "A Principle of Economy in Derivation in L2 Grammar: Do Everything in Narrow Syntax", *Second Language Research*, Vol. 37, 2021, pp. 521–545.
- Westergaard, M., "Microvariation in Multilingual Situations: The Importance of Property-by-Property Acquisition", *Second Language Research*, 2019.
- Wexler, K., "Theory of Phasal Development: Perfection in Child Grammar", *MIT Working Papers in Linguistics*, Vol. 48, 2004, pp. 159–209.
- Wexler, K & P. W. Culicover. *Formal Principles of Language Acquisition*. Cambridge, MA: MIT Press, 1980.
- White, L., *Second Language Acquisition and Universal Grammar*. Cambridge: Cambridge University Press, 2003.
- Yoshimura, N & M. Nakayama., "Intervention Meets Transfer in Raising Constructions", Poster presented at *Generative Approaches to Language Acquisition 13*, 2017.
- Yoshimura, N & M. Nakayama., "Subjects of "A-movement" Construction in Japanese EFL Learners' Grammar", Paper presented at the *Japan Second Language Association 2019*, 2019.
- Yoshimura, N., M. Nakayama & A. Fujimori., "Syntactic Asymmetry in L2 Learners'

- Comprehension of Raising Constructions”, Paper presented at the *Japan Second Language Association 2018*, 2018.
- Yoshimura, N., M. Nakayama, A. Fujimori & H. Shimizu., “Control and Raising Constructions in Early English L2 Acquisition”, *Second Language*, Vol. 15, 2016, pp. 53–76.
- Yuan, B., “The Status of Thematic Verbs in Second Language Acquisition of Chinese: Against the Inevitability of Thematic Verb-raising in L2 Acquisition”, *Second Language Research*, Vol. 17, 2001, pp. 248–272.
- Yuan, B., “Negation in French–Chinese, German–Chinese and English–Chinese Interlanguages”, *Transactions of the Philological Society*, Vol. 102, 2004, pp. 169–97.

