

Asymmetric Effects of Pronouns on L2 Acquisition of Raising

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ABSTRACT

The Journal of Studies in Language 37.2, 213-225. This study investigates Korean-speaking learners' comprehension of raising constructions containing an experiencer phrase. Specifically, it examines whether the type of the intervening experiencer (pronoun, lexical NP) produces a similar asymmetric effect on L2 learners' comprehension as it does on children's. A picture-based truth-value judgment task was conducted with one hundred Korean-speaking adults to test the comprehension of different patterns of raising constructions. The results found that the learners' comprehension was better when a lexical NP is raised across a pronominal experiencer (e.g., *John seems to her to be happy*), compared to a pronoun raised across a lexical NP (e.g., *He seems to Mary to be happy*). These findings parallel the pattern of raising in child English and are consistent with a processing-based approach to intervention effects observed in both L1 and L2 acquisition across different constructions. (Korea University of Technology and Education)

Keywords: raising construction, pronoun, NP type, intervention, L2 acquisition



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본인이 투고한 논문은 다른 학술지에 게재된 적이 없으며 타인의 논문을 표절하지 않았음을 서약합니다. 추후 중복게재 혹은 표절된 것으로 밝혀질 시에는 논문게재 취소와 일정 기간 논문제출의 제한 조치를 받게 됨을 인지하고 있습니다.

1. Introduction

While the English subject-to-subject raising construction involving the verb *seem* has received considerable attention from syntacticians in terms of its analysis, the question still remains how this construction is acquired and developed in the first language (L1) children as well as in the second language (L2) learners. The general finding so far is that raising constructions pose a challenge not only to L2 learners but even to children (e.g., Hirsch and Wexler, 2007) - namely that both groups comprehend the unraised pattern (1a), but not its raised counterpart (1b).

- (1) a. Unraised pattern: It seems to Mary that John is happy.
- b. Raised pattern with an intervening experiencer: John seems to Mary to be happy.

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However, it was found that L1 children's comprehension of raising improves when the intervening experiencer is a pronoun (2a), while a pronoun raised over a lexical NP experiencer (2b) remains challenging (Choe and O'Grady, 2017).

- (2) a. John seems to her to be happy.
b. He seems to Mary to be happy.

Because this pronoun-lexical NP difference is a signature property of processing-based intervention effects, Choe and O'Grady (2017) claim that the reason for L1 children's difficulty with raising is essentially a processing limitation, rather than a grammatical deficit. The current study aims to extend the scope of this line of previous research by investigating L2 learners' comprehension of raising constructions containing an experiencer. By manipulating the type of the intervening experiencer, this study asks whether the L2 learners are subject to the same kind of intervention effects as L1 children's. The present paper is organized as follows. Section 2 provides a brief introduction to raising constructions in English and in Korean, and reviews the relevant findings of some previous acquisition research on raising. Section 3 then describes the design and the method of the experiment, followed by the results and a discussion of the findings in section 4. Finally, section 5 concludes the paper.

2. Literature Review

2.1 Raising Constructions

English raising constructions containing the verbs like *seem* or *appear* are known to display the two variants of the sentence, having the same truth-value: an unraised variant (3a), with a non-referring expletive *it* as the matrix subject, and a raising variant (3b), in which the NP *John* is semantically associated with the embedded VP *to be happy* but, nonetheless, is syntactically realized as the matrix subject of the sentence.

- (3) a. It seems that John is happy.
b. John seems [*t*] to be happy.

Such raising constructions in (3b) are to be analyzed as involving A-movement which raises the subject of the lower non-finite clause (marked as [*t*] in (3b)) to the subject position of the matrix clause (e.g., Postal, 1974; Rosenbaum, 1967). Although the majority of raising verbs (e.g., *tend*, *used to*, *be about*, *be going*) do not permit an experiencer argument, a subset of raising verbs, including *seem*, allow such an argument (*Mary* in (4b)) to occur between the raising verb and the embedded clause as in (4b), with its unraised counterpart, (4a).

- (4) a. It seems to Mary that John is happy.
b. John seems to Mary [*t*] to be happy.

Just as with English, Korean also has a raising verb *-kath-ta* ‘seem’ that allows the subject-to-subject movement, as evidenced by the subject-verb honorific agreement in (5), in which *halapeci* ‘grandfather’ agrees with the honorific marker *-usi* – on the matrix verb (Um, 2010):

- (5) a. Unraised: [[halapeci-kkeyse cip-ey ka-si-n] kes] kath-ta.
 grandfather-Hon.nom home-to go-Hon-Rel.pst Nml seem-Decl
 ‘It seems that grandfather went home.’
- b. Raising: **halapeci**-kkeyse [[[t] cip-ey ka-si-n] kes] kath-**usi**-ta.
grandfather-Hon.nom home-to go-Hon-Rel.pst Nml seem-**Hon**-Decl
 ‘Grandfather seems to have gone home.’

However, the raising sentence in Korean differs from its English counterpart in two ways: First, there is no overt change in word order between before and after the movement (5a) and (5b). Second, whereas English permits raising constructions with either an intervening or a fronted experiencer, the Korean raising verb does not allow an experiencer in raising constructions regardless of its position (6) (Choe, 2018).

- (6) a. Raising with an intervening experiencer:
 *kyoswunim-kkeyse na-hanthey pikonhasi-n kes kath-usi-ta.
 professor-Hon.nom I-Dat tired-Hon-Rel.pst Nml seem-Hon-Decl
 ‘The professor seems to me to be tired.’
- b. Raising with a fronted experiencer:
 *na-hanthey kyoswunim-kkeyse pikonhasi-n kes kath-usi-ta.
 I-Dat professor-Hon.nom tired-Hon-Rel.pst Nml seem-Hon-Decl
 ‘To me, the professor seems to be tired.’

2.2 Previous Acquisition Studies

Previous research has shown that English-speaking children are delayed in comprehension of the raising construction involving an intervening experiencer (7a), but not its unraised counterpart (7b) (Hirsch, 2011; Hirsch et al., 2007; Hirsch and Wexler, 2007).

- (7) a. It seems to Mary that John is happy.
 b. John seems to Mary [t] to be happy.

To account for such developmental patterns, several grammatical explanations have been put forward, such as the Universal Phase Requirement (Wexler, 2004), Universal Freezing Hypothesis (Hyams and Snyder, 2005), and Argument Intervention Hypothesis (Orfitelli, 2012). However, more recent studies noticed that children’s comprehension improves when the intervening experiencer is fronted to the beginning of the raising construction (8a), and when the experiencer is a pronoun (8b), while a pronoun raised over a lexical noun phrase (8c) remains challenging (Choe and Deen, 2016; Choe and O’Grady, 2017).

- (8) a. To Mary, John seems [*t*] to be happy.
b. John seems to her [*t*] to be happy.
c. He seems to Mary [*t*] to be happy.

According to Choe and O’Grady (2017), these patterns are reminiscent of intervention effects, typically observed in the acquisition of A’-movement, in which children have difficulty acquiring structures where a noun phrase intervenes between a filler and the gap (e.g., Friedmann et al., 2009). Such structures include the following: object relatives (9a), object topicalizations (9b), and object *wh*-questions (9c):

- (9) a. Object relative: The boy who the girl kissed [*t*]
b. Object topicalization: The boy the girl kissed [*t*]
c. Object *wh*-question: Which boy did the girl kiss [*t*]?

Furthermore, a signature property of this kind of intervention effects is that a pronoun seems to mediate this difficulty. That is, when there is a pronominal intervener, it induces far less of an intervention effect than when there is a lexical NP intervener. For example, Arnon (2010) has found that Hebrew-speaking children were significantly better at comprehending object relatives with pronominal interveners, as in (10a), than ones with lexical NP interveners, as in (10b).

- (10) a. The nurse that **I** am drawing [*t*]
b. The nurse that **the girl** is drawing [*t*]

These findings are consistent with a processing-based explanation to intervention effects, referred to as the Dependency Locality Theory (DLT; Gibson, 1998, 2000), which draws attention to the referential accessibility of the intervening NP when processing a long-distance dependency. Under this approach, processing cost is said to increase with the number of “new discourse referents” that intervene between the element that make up a dependency. As such, since the referent of the pronoun is already present in the discourse, exhibiting a high level of accessibility, pronominal interveners are expected to incur less processing cost than lexical NP interveners.

Therefore, Choe and O’Grady (2017) assert that the source of the difficulty that L1 English-speaking children have with raising constructions is essentially related to a processing limitation, rather than a grammatical deficit. Along this line of their argument, the present study aims to explore whether the type of intervening experiencer (whether it is a pronoun or a lexical NP), produces the same asymmetric effect on L2 learners’ comprehension as it does on children’s. If the L2 learners’ difficulty with raising is due to the very same limitation as children, manipulating the type of intervening experiencer should have a similar effect on their comprehension. But before we proceed with the current experiment, let us review some L2 studies of raising constructions.

There have been only a few studies that concern how L2 learners acquire and comprehend English raising constructions with an experiencer. The general finding is that raising poses a challenge to L2 learners as well (Choe, 2015, 2016; Yoshimura and Nakayama, 2019; Yoshimura et al., 2017; Yoshimura et al., 2016). With respect to L1

Korean, Choe (2015, 2016) used a picture-based truth-value judgment task to test Korean learners of English on English raising constructions and found that the L2 learners' performance parallels that of L1 English-speaking children. That is, while the L2 learners also had difficulty comprehending constructions involving raising constructions with an intervening experiencer, as in (11a), their comprehension significantly improved when they were tested with raising constructions involving a fronted experiencer, as in (11b).

- (11) a. Donald seems to Mickey [*t*] to be short.
 b. To Mickey, Donald seems [*t*] to be short.

Based on the previous findings that Korean is a language that does not allow an experiencer argument in raising constructions (as mentioned above), it is argued in Choe (2016) that L2 learners' difficulty with English raising comes from the presence of an intervening argument blocking the dependency, demonstrating intervention effects in L2 acquisition.

Similar findings were observed with L1 Japanese learners of English as well. For example, Yoshimura et al. (2016) examined the acquisition of raising constructions (12a), together with subject control (12b) and object control constructions (12c) and had thirty Japanese high school students answer the story-based question-answer pairs using the 'yes' or 'no' forced-choice question. The results showed that raising constructions with an intervening experiencer were much more difficult (correct response rate: 41.7%) than subject control (70.8%) or object control constructions (85.8%). Based on these findings, coupled with the presence of subject control and the absence of raising movement in Japanese, it was claimed that the learners' difficulty was attributed to the negative transfer of L1.

- (12) a. John appears to Mary to be happy.
 b. John promised Mary to study hard.
 c. John persuaded Mary to study hard.

Furthermore, Yoshimura and Nakayama (2019) found that Japanese learners performed better on English raising sentences with a fronted experiencer (13b) and with a pronominal experiencer (13c) than those with an intervening experiencer (13a).

- (13) a. Hanako seems to Jennifer to be smarter than Ai.
 b. To Ai, Takashi seems to be happier than Rui.
 c. Yui seems to him to be happy.

Therefore, these results indicate that there is a pronoun advantage for L2 adults as well – another parallel findings with L1 children. But, in order to identify the source of this difficulty it is necessary to test the L2 learners on the reverse case of the pattern in (13c), namely the pattern of the raising construction in which a pronoun is raised across a lexical NP experiencer (e.g., *He seems to John to be happy*).

3. Experiment: Method

3.1 Participants

A total of one hundred native Korean speakers participated in the experiment. They were recruited from a university in Seoul, Korea (age 20-24, mean = 20.6). Their majors varied, and none of the participants lived or stayed in the English-speaking countries for more than six months.

3.2 Procedure

The present study employed a Truth-Value Judgment Task (TVJT; Crain and McKee, 1985; Crain and Thornton, 1998). Participants were presented with illustrated stories on a laptop computer. At the end of each story, a teddy bear character appeared on the screen and made a one-sentence statement about what he thought had happened in the story. (Participants were told in advance that the study was originally designed for and presented to child participants, and thus, it included child-friendly characters such as the teddy bear and Disney characters.) After the statement of the teddy bear, participants were asked to judge whether the statement was true or false according to the presented story, and to provide justifications in writing for their choice, either in Korean or in English. After the main experiment session, they were asked to complete a language background questionnaire and the C-test (Schulz, 2006) which was independently created to measure the L2 learners' English proficiency. The C-test contained two paragraphs, each of which involved twenty blanks, and thus a total of forty blanks, where each blank corresponded to one English word. The first letter of the target English word was given, and the participants were asked to complete the rest of the word in the blank. The C-test scores were used to divide participants into two different groups in order to see the effect of English proficiency on the main task. The whole experiment took less than thirty minutes for each participant.

3.3 Design and Materials

Participants were equally divided between two conditions (between-participants with two levels): Fifty participants were assigned to (i) the Lexical NP-Pronoun condition, which tested raising constructions where a lexical NP is raised across a pronominal experiencer as in (14a) and the other fifty to (ii) the Pronoun-Lexical NP condition, which involved constructions where a pronoun is raised across a lexical NP experiencer, as in (14b). The unraised counterparts of each raising construction served as a control item (within-participants with two levels: unraised and raised), and thus, the study was a mixed design, using both within-participants variables.

- (14) a. Lexical NP-Pronoun condition: John seems to him [*t*] to be smart.
b. Pronoun-Lexical NP condition: He seems to Bill [*t*] to be smart.

In each between-participants condition (Lexical NP-Pronoun condition or Pronoun-Lexical NP condition), each participant was presented with ten stories in total: two practice items, two fillers, and the remainder were critical items, divided into Unraised and Raised patterns, after which the participant judged the truth-value of a teddy bear's statement.

For example, for the Raised pattern in the Lexical NP-Pronoun condition, a lexical NP was raised across a pronominal experiencer, as in *Donald seems to him to be short*. In the Pronoun-Lexical NP condition, a pronoun was raised across a lexical NP experiencer, as in *He seems to Mickey to be short*. The ratio of the true/false response was controlled by having three match items where the target response was ‘true’, and another three mismatch items where the target response was ‘false’. The critical items were counterbalanced across four different lists in order to minimize any item effects. The complete script of a sample context is presented in (15), and the associated set of critical sentences for each condition (match) is shown in (16).

(15) This is a story about three friends: Donald, Daisy, and Mickey. One day, Donald and Daisy are playing outside, digging a big hole. Just then, Mickey appears and comes close to Donald and Daisy. Mickey sees Donald who is inside the hole and thinks that Donald is very short. Mickey says, “Hey, Donald, I thought you and I are the same height, but I was wrong.” Without looking at Mickey, Donald says, “What do you mean? We are the same height.” Then, Mickey says, “No, you are so short!” Daisy, who is standing next to Donald says, “No, that’s because you are looking at him from up there. Donald is not short.” But Mickey says, “What do you mean? Donald is so short.” Still without looking at Mickey, Donald says, “Well, if I’m short, then you are short, too.” Mickey says, “Yeah? Turn around and look then.” Donald turns around to look at Mickey, and Donald says, “Uh-oh, you are not short. I was wrong.” Mickey says, “See? We are not the same height, after all. You are so short, haha.”

- (16) a. Lexical NP-Pronoun, Unraised: It seems to him that Donald is short.
 b. Lexical NP-Pronoun, Raised: Donald seems to him to be short.
 c. Pronoun-Lexical NP, Unraised: It seems to Mickey that he is short.
 d. Pronoun-Lexical NP, Raised: He seems to Mickey to be short.

In order to ensure the naturalness in using the pronoun in the target sentence and also to enhance the topicality of the intended referent of the pronoun, the experimenter’s prompt, such as (17), and the teddy bear puppet’s lead-in sentence, such as (18), were presented after the story, immediately before the test sentence (19).

(17) Experimenter’s prompt (provided after the context in (14)): That was a fun story about Donald and his friends. He (*the experimenter pointing to Donald*) is playing with Daisy, and then Mickey comes along. Hey, puppet, can you tell us what happens next?

(18) Teddy bear puppet’s lead-in sentence: Donald is in a hole. He’s playing down there, and ...

- (19) Test sentence
 a. Unraised: ... it seems to Mickey that he is short.
 b. Raised: ... he seems to Mickey to be short.

For example, in the Pronoun-Lexical NP condition, only the intended referent of the pronoun, *Donald*, is explicitly mentioned in the first sentence of the experimenter's prompt (17). Furthermore, in the second sentence, a pronoun is used to refer to the same referent, while the experimenter points to the picture of *Donald*. Then, the puppet also mentions the intended referent, *Donald*, as its name in the lead-in sentence (18), making *Donald* the undisputed topic of the discourse, which should lead participants to choose *Donald* as the antecedent of the pronoun in the test sentence (19) regardless of whether it appears in the unraised or raised variant of the test sentence (19).

Lastly, in half of the critical items, the referents of the raised NP and the experiencer NP had the same gender, as in (20), while in the other half, they had different genders, as in (21).

- (20) a. Donald seems to him to be short.
b. He seems to Mickey to be short.

- (21) a. Lisa seems to him to be studying.
b. She seems to Bart to be studying.

4. Results and Discussion

4.1 Whole Group Analysis Results

The data of seven participants were removed from the analysis as they failed to respond correctly to all the filler items. The results from the remaining ninety-three participants are shown in Figure 1 below in the form of the mean correct response rate for each condition.

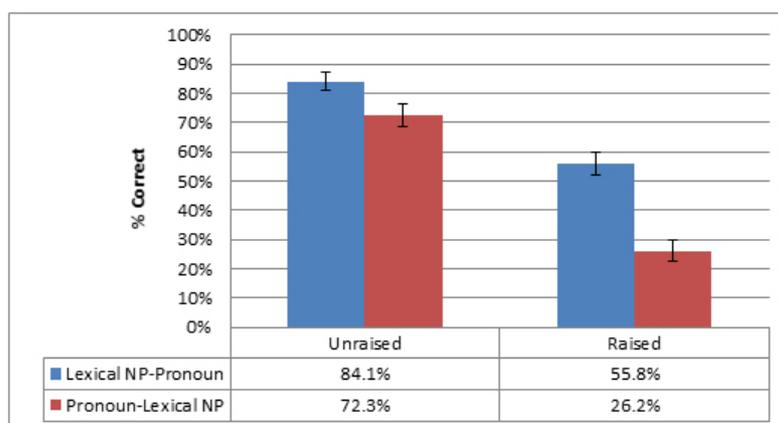


Fig. 1. Mean correct response rates in each condition

To statistically evaluate the impact of Condition (Lexical NP-Pronoun vs. Pronoun-Lexical NP across participants) and Pattern (Unraised vs. Raised within participants), the results were analyzed using a mixed model 2 x 2 ANOVA. The main effect of Pattern was significant ($F(1, 91) = 136.65, p < .001$), showing that the learners were better at

comprehending unraised patterns than raised patterns. There was also a main effect of Condition ($F(1,91) = 26.34, p < .001$), suggesting that the learners showed better performance with the constructions containing a pronominal experiencer, compared to those containing a lexical NP experiencer. Additionally, there was a significant interaction between Condition and Pattern ($F(1,91) = 7.86, p = .006$). Following up on this interaction effect, a post-hoc multiple comparison was performed by two independent samples t -tests. The results showed that the L2 learners' comprehension of raised patterns was significantly better in the Lexical NP-Pronoun condition (55.8%) relative to the Pronoun-Lexical NP condition (26%; $t(91)=5.66, p < .001$). However, although somewhat weaker, there was a statistically significant difference even on the unraised patterns between the two conditions (84.1% vs. 72.3%; $t(91) = 2.33, p = .02$).

Regarding the unraised pattern in the Pronoun-Lexical NP condition, this was an unexpected finding, since the unraised pattern was included as control items, and it has been observed in previous studies that L2 learners perform quite well on the unraised patterns (Choe, 2015, 2016). Therefore, these results were further analyzed by looking at the mean response rates of the forty-six participants (Lexical NP-Pronoun condition: $N = 27$, Pronoun-Lexical NP condition: $N = 19$) who scored 100% on unraised patterns, thus ensuring that these learners did not have trouble comprehending the verb *seem* itself and correctly understood its meaning. The results are shown in Figure 2.

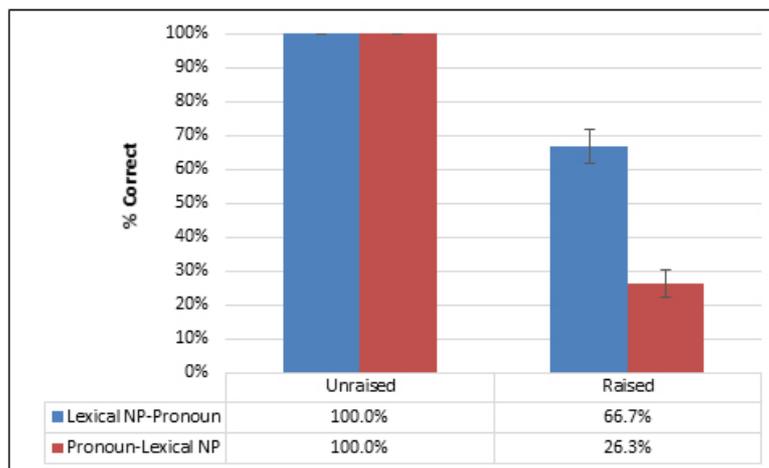


Fig. 2. Mean correct response rates of learners who scored 100% on Unraised

As illustrated in Figure 2, the difference in performance between the two conditions regarding the raised pattern becomes even sharper, with an accuracy rate of 66.7% on raised patterns in the Lexical NP-Pronoun condition, compared to just 26.3% in the Pronoun-Lexical NP condition ($t(44) = 5.83, p < .001$).

To sum up, the results show that the L2 learners performed better on the raising construction where a lexical NP is raised across a pronominal experiencer, while they still had difficulty comprehending the reverse pattern where a pronoun is raised across a lexical NP experiencer. In other words, a pronoun advantage was observed only when a pronoun was intervening within the dependency. This kind of asymmetric effect parallels the findings in L1 acquisition studies with English-speaking children, suggesting that L2 learners' difficulty with raising can be reduced to a processing-based intervention effects of the kind observed in L1 acquisition. That is, both groups of learners – L1 children and L2 learners – seem to be influenced by the same factor, called the intervention effects. As intervention

effects have been widely discussed regarding other patterns like object relatives in both L1 and L2 comprehension studies (e.g., Friedman et al., 2009 for L1; Eckman et al., 1988 for L2), the findings of the present study add further support to the idea that the intervention effect is not limited to a single structure, but may extend to other patterns like raising constructions, as long as there exists an intervener within the interpretive dependency created in the sentence.

4.2 Subgroup Analysis Results: by Proficiency

To explore the effect of English proficiency level on comprehension of raising constructions, ninety-three participants were divided into two groups based on their performance on the C-test ($N = 46$ for the Lexical NP-Pronoun condition, $N = 47$ for the Pronoun-Lexical NP condition). As shown in Tables 1 and 2, the high-level group comprised learners with a C-test score higher than 24, and the low-level group included those whose C-test scores were between 15 and 24. These learners' mean correct response rates on each pattern are given in Figures 3 and 4, for the Lexical NP-Pronoun condition and the Pronoun-Lexical NP condition, respectively.

Table 1. Results of C-test scores for the Lexical NP-Pronoun condition

| Group | N | C-test scores (max = 40) | | |
|------------------|----|--------------------------|------|-------|
| | | M | SD | Range |
| Low-level group | 25 | 21.0 | 2.45 | 15-24 |
| High-level group | 21 | 29.0 | 3.52 | 25-37 |

Table 2. Results of C-test scores for the Pronoun-Lexical NP condition

| Group | N | C-test scores (max = 40) | | |
|------------------|----|--------------------------|------|-------|
| | | M | SD | Range |
| Low-level group | 23 | 20.0 | 2.52 | 15-24 |
| High-level group | 24 | 29.0 | 3.39 | 25-35 |

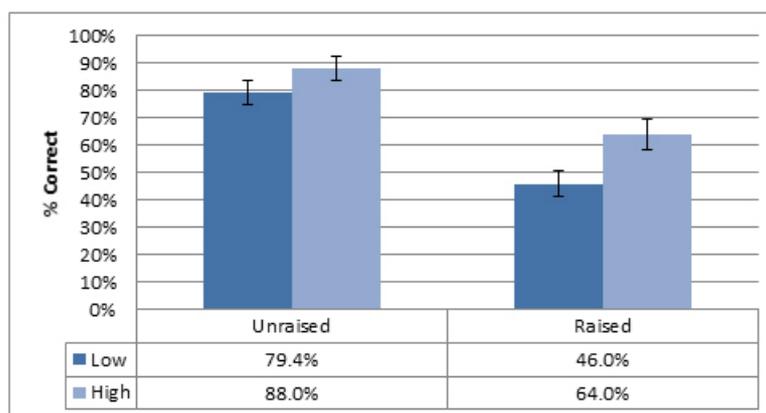


Fig. 3. Lexical NP-Pronoun condition: Mean correct response rates by proficiency

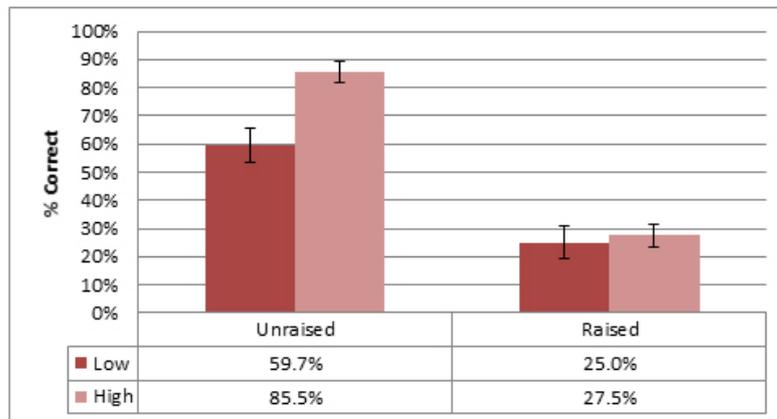


Fig. 4. Pronoun-Lexical NP condition: Mean correct response rates by proficiency

As illustrated in Figures 3 and 4, the results show that high-level learners have better comprehension of the unraised pattern and raised pattern than low-level learners in both of the main conditions. In particular, the difference between the proficiency groups was prominent on the unraised pattern in the Pronoun-Lexical NP condition, as in (22), indicating that this pattern was challenging especially for low-level learners (59.7%).

(22) It seems to Mickey that he is short.

As for such low performance on unraised patterns, we hypothesize that, based on the learners' written justifications for their true/false responses, the L2 learners had difficulty choosing the intended referent of the pronoun (*Donald*), as the referent of the pronoun is, in fact, ambiguous: *Mickey* or *Donald* in the story. But it should be noted that this study adopted the same prompt of the experimenter and puppet's lead-in sentence used in Choe and O'Grady's (2017) TVJT experiment where the English-speaking L1 children were fairly successful in choosing the intended referent. Thus, these results raise a possibility that L2 learners differ from L1 children in terms of their sensitivity to discourse structure in pronoun interpretation. While it was not possible to directly explore this possibility with the present study, these issues should be investigated in future studies.

5. Conclusion

The present study investigated adult native Korean speakers' comprehension of English raising constructions with an experiencer argument. In particular, it compared their comprehension of raising patterns (i) in which a lexical NP is raised across a pronominal experiencer, as in (23a), and (ii) in which a pronoun is raised across a lexical NP, as in (23b).

- (23) a. Donald seems to him to be happy.
 b. He seems to Mickey to be happy.

The results from the comprehension experiment with L2 learners of English revealed that the learners performed significantly better on the Lexical NP-Pronoun condition which tested patterns like (23a), than on the Pronoun-Lexical NP condition, which involved patterns like (23b). Such an asymmetric effect with a pronoun is reminiscent of the findings in L1 acquisition studies of raising and is predicted by the DLT-based account of intervention effects, which appeals to the discourse status of the intervening NP. Since the DLT is a theory that relates sentence processing to the available computational resources (Gibson, 2000), it, in turn, suggests that L1 children and L2 learners' difficulty with raising can be attributed to a performance limitation, rather than a grammatical deficit. Thus, future studies should approach this issue using online tasks in order to examine how L1 children and L2 learners process the raising construction in real time.

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