Effect of NP Type on L2 Raising Acquisition
Jinsun Choe

This study investigates whether adult L2 learners of English (L1 Korean) comprehend raising constructions with an experiencer phrase (e.g., *John seems to Mary to be happy*), and finds better comprehension 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 results parallel the pattern of raising in child English and are consistent with a processing-based approach to intervention effects in both L1 and L2 acquisition.

The present paper is structured as follows. Section 1 introduces raising constructions in English and in Korean. Section 2 reviews previous acquisition studies on raising. Section 3 presents the experiment which tested Korean learners’ comprehension of English raising constructions. Lastly, section 4 discusses the findings and concludes the paper.

1. Background
1.1. Raising in English

English raising verbs like the verb ‘*seem*’ and ‘*appear*’ typically allow two variants: an unraised variant (1a) and a raising variant (1b):

(1) a. Unraised: It seems that John is smart.
    b. Raising: John seems to be smart.

In (1b), the NP *John* is semantically linked to the VP *to be smart* in the embedded clause but is syntactically realized as the subject of the matrix clause. Raising structures are said to involve an A-movement which raises the subject of the embedded non-finite clause to the subject position of the matrix clause (e.g., Postal, 1974; Rosenbaum, 1967).

Although many raising verbs do not permit an experiencer argument, a certain subset of these verbs do allow such an argument (e.g., *Mary* in (2)) to occur between the raising verb and the embedded clause.

(2) a. Unraised: It seems to Mary that John is smart.
    b. Raising: John seems to Mary to be smart.

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But it should be noted that with or without the experiencer, the thematic relation between John and the embedded clause to be smart remains the same. That is, in (2), Mary is the experiencer, and it is John who looks smart to her.

### 1.2. Raising in Korean

Similarly to English, subject-to-subject raising can take place in Korean, as evidenced by the subject-verb honorific agreement in (4), in which halapeci ‘grandfather’ agrees with the honorific marker -usi- on the matrix verb (Um, 2010), but note that there is no overt change in word order.

(3) Unraised: \[
\text{halapeci-kkeyse cip-ey ka-si-n] kes} \\
\text{grandfather-Hon.nom home-to go-Hon-Rel.pst kes} \\
\text{kath-ta. seem-Decl} \\
\text{‘It seems that grandfather went home.’} \quad (\text{kes: nominalizer})
\]

(4) Raised: \[
\text{halapeci-kkeyse [[ cip-ey ka-si-n] kes]} \\
\text{grandfather-Hon home-to go-Hon-Rel.pst kes} \\
\text{kath-usi-ta. seem-Hon-Decl} \\
\text{‘Grandfather seems to have gone home.’}
\]

However, unlike in English, Korean does not permit an experiencer in raising constructions, regardless of its position (Choe, 2018).

(5) *halapeci-kkeyse naykey [[ cip-ey ka-si-n] kes] \\
\text{grandfather-Hon I-Dat home-to go-Hon-Rel.pst kes} \\
\text{kath-usi-ta. seem-Hon-Decl} \\
\text{‘Grandfather seems to me to have gone home.’}

### 2. Previous research on acquisition of raising

Several studies (Hirsch, 2011; Hirsch, Orfitelli & Wexler, 2007; Hirsch & Wexler, 2007) have reported that English-speaking children have difficulty comprehending the raised variant (6b), but not the unraised variant (6a).

(6) a. Unraised: It seems to Mary that John is happy. 
   b. Raised: John seems to Mary _ to be happy.

To account for this finding, there have been numerous grammatical explanations, such as the Universal Phase Requirement (Wexler, 2004), Universal Freezing Hypothesis (Hyams & Snyder, 2005), and Argument Intervention Hypothesis (Orfitelli, 2012). However, it was found recently that children’s comprehension
improves when the experiencer is fronted (7a) and when it is a pronoun (7b), while a pronoun raised over a lexical NP (7c) remains challenging (Choe & Deen, 2016; Choe & O’Grady, 2017).

(7) a. To Mary, John seems to be happy.
    b. John seems to her to be happy.
    c. He seems to Mary to be happy.

According to Choe and O’Grady, these findings are reminiscent of intervention effects, typically observed in A’-movement, where children have difficulty with structures in which an NP intervenes between a filler and the gap (e.g., Friedmann, Belletti, & Rizzi, 2009). These structures include object relatives, object topicalizations, and object wh-questions.

(8) a. Object relative: The boy who the girl kissed _
    b. Object topicalization: The boy the girl kissed _
    c. Object wh-question: Which boy did the girl kiss _?

Furthermore, a signature property of this kind of performance-based intervention effects is that there is a pronoun advantage. That is, pronominal interveners induce far less of an intervention effect than lexical NP interveners. For example, Arnon (2010) has shown that Hebrew-speaking children’s comprehension of object relatives improves significantly when the intervening NP is a pronoun, as in (9a), rather than a lexical NP, as in (9b).

(9) a. The nurse that I am drawing _
    b. The nurse that the girl is drawing _

Such findings are consistent with the Dependency Locality Theory (DLT; Gibson, 1998, 2000), a processing-based approach to intervention effects, which states that the processing cost is determined by the referential accessibility of the intervening noun phrase. According to this account, pronominal interveners are expected to incur less processing cost (than lexical NP interveners), since the referent of the pronoun is already present in the discourse, and so, it exhibits a high level of accessibility.

Thus, Choe and O’Grady argue that the source of the difficulty in raising constructions is essentially a processing limitation, rather than a grammatical deficit. The present study examines whether the type of intervening experiencer (pronoun vs. lexical NP) produces the same (asymmetric) effect on L2ers’ comprehension as it does on children’s. If L2ers’ 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 experiment, let us turn to the review of L2 acquisition studies.

Only a few studies have been conducted concerning how L2 learners acquire and comprehend raising sentences. The general finding is that raising poses a
challenge to L2 learners as well. Using the picture-based truth-value judgment task, Choe (2015, 2016) tested Korean learners of English on English raising constructions and found that the learners’ performance parallels the results of L1 children. That is, the L2ers had difficulty comprehending constructions involving raising across an experiencer (10a), but they showed better performance in understanding raising structures with a fronted experiencer (10b) than (10a), as did L1 English-speaking children.

(10)  
   a. Donald seems to Mickey to be short.  
   b. To Mickey, Donald seems to be short.

Given that Korean does not permit an experiencer argument in raising construction, Choe argues that L2ers’ difficulty with raising comes from the presence of intervention effects in L2 acquisition.

A similar finding was also observed with L1 Japanese leaners of English in Yoshimura et al. (2016) who conducted a multiple-choice questionnaire with thirty Japanese high school students and showed that the L2ers had trouble understanding the raising structures with an intervening experiencer (11a) Furthermore, Yoshimura and Nakayama (2017) found that Japanese L2ers of English perform better on raising sentences with a fronted experiencer (11b) and with a pronominal experiencer (11c) than those with an intervening experiencer (11a).

(11)  
   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.

Thus, 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 L2ers on the reverse case of the pattern in (11c), namely the raising pattern in which a pronoun is raised across a lexical NP experiencer (e.g., He seems to John to be happy).

3. Method
3.1. Participants

A hundred native speakers of Korean who learned English as a second language were recruited from a university in Korea (age 20-24, mean = 20.6).

3.2. Procedure

A Truth-Value Judgment task (Crain & McKee, 1985; Crain & Thornton, 1998) was used in this study. Participants were presented with illustrated stories via a laptop computer. At the end of each story, a teddy bear puppet appeared on the screen and made a one-sentence statement about what he thought happened in the
story. (Participants were told in advance that the study was originally designed to
test children, and thus, it involved child-friendly characters such as the teddy bear.)
Participants were asked to decide whether the statement was true or false and to
provide justifications for their choice, either in Korean or in English. After the
experiment session, they were asked to complete a background questionnaire and
the C-test which was an independent measure of their English proficiency. The
whole experiment took no more than thirty minutes for each participant.

3.3. Design and materials

Participants were assigned to one of the two conditions: (i) the Lexical NP-
Pronoun condition (50 participants), which tested structures where a lexical NP is
raised across a pronominal experiencer, and (ii) the Pronoun-Lexical NP condition
(50 participants), which examined structures where a pronoun is raised across a
lexical NP experiencer. The unraised counterpart of the raising construction was
also included as controls (within-participants with two levels: unraised and raised).

For each main condition (Lexical NP-Pronoun condition or Pronoun-Lexical
NP condition), each participant was presented with ten stories in total: two warm-
ups, two fillers, and the remainder were critical items, divided into
Unraised/Raised patterns, after which they judged the truth-value of a puppet’s
statement. 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. There were three match
items where the target response is ‘true’, and three mismatch items, where the
target response is ‘false’. The critical items were counterbalanced across four
different lists in order to minimize any item effects. The complete script of a
sample story is presented in (12), and a sample set of test sentences for each
condition is also presented in Table 1.

(12) 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”
Table 1. A sample set of test items in each condition (match)

<table>
<thead>
<tr>
<th></th>
<th>Lexical NP-Pronoun</th>
<th>Pronoun-Lexical NP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unraised</td>
<td>It seems to him that Donald is short.</td>
<td>It seems to Mickey that he is short.</td>
</tr>
<tr>
<td>Raised</td>
<td>Donald seems to him to be short.</td>
<td>He seems to Mickey to be short.</td>
</tr>
</tbody>
</table>

In order to increase the naturalness in using the pronoun in the target sentence and also to increase the topicality of the intended referent of the pronoun, the experimenter’s prompt, such as (13), and the puppet’s lead-in sentence, such as (14), were presented after the story, immediately before the test sentence (15).

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

(14) Puppet’s lead-in: Donald is in a hole. He’s playing down there, and …

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

For example, for the Pronoun-Lexical NP condition, only the intended referent Donald is explicitly mentioned in the first sentence of the experimenter’s prompt (13). Then, 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 in the lead-in sentence (14), making Donald the undisputed topic, which should lead participants to choose Donald as the antecedent of the pronoun in the test sentence (15).

In half of the six critical items, the referents of the raised NP and the experiencer NP had the same gender, as in (16), while in the other half, they had different genders, as in (17).

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

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

3.4. Results

Data from seven participants were excluded from the subsequent analysis as the participants failed to respond correctly to all the filler items. The results from the remaining ninety-three participants are presented in Figure 1 in the form of the mean correct percentage for each condition.
The results showed that L2ers’ 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, their mean accuracy on unraised patterns reached only 72.3% in the Pronoun-Lexical NP condition. This was an unexpected pattern of the results, as the unraised condition was included as controls, and it has been observed in previous studies that L2 learners perform quite well on the unraised patterns (Choe, 2015, 2016).

For further data analysis, the results were divided into two groups based on their English proficiency (their scores on the C-test). The high-level group comprised learners with a score higher than 24 (\(N = 21\) for the Lexical NP-Pronoun condition, \(N = 24\) for the Pronoun-Lexical NP condition), and the low-level group included those whose scores were between 15 and 24 (\(N = 25\) for the Lexical NP-Pronoun condition, \(N = 23\) for the Pronoun-Lexical NP condition). These results are illustrated in Figures 2 and 3, for the Lexical NP-Pronoun condition and the Pronoun-Lexical NP condition, respectively.
As illustrated in Figures 2 and 3, 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 two proficiency groups was prominent on the unraised pattern in the Pronoun-Lexical NP condition, indicating that this pattern was challenging especially for low-level learners (59.7%). I will return to this issue in the next section.

4. Discussion

The present study investigated L1-Korean L2-English learners’ comprehension of English raising constructions with an experiencer. In particular, it compared their comprehension of raising patterns (i) in which a lexical NP is
raised across a pronominal experiencer, as in (18a), and (ii) in which a pronoun is raised across a lexical NP, as in (18b).

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

The results from the comprehension experiment with adult L2ers of English revealed that the learners performed significantly better on the Lexical NP-Pronoun condition which tested patterns like (18a), relative to the Pronoun-Lexical NP condition, which involved patterns like (18b). 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 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., Friedmann 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.

As for the low performance on unraised patterns in the Pronoun-Lexical NP condition (it seems to Mickey that he is short), it was hypothesized, based on L2ers’ justifications for their T/F answers, that the L2 learners had difficulty choosing the intended referent of the pronoun (Donald), as the referent of the pronoun is ambiguous: Mickey or Donald in the story. But it should be noted that this study adopted the same prompt and puppet’s lead-in sentence used in Choe & O’Grady (2017) in which the 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.

References


