THE FIRST AND SECOND LANGUAGE ACQUISITION OF
NEGATIVE POLARITY ITEMS IN ENGLISH AND KOREAN

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To our Lord, Jesus Christ and my parents
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ABSTRACT

This dissertation reports on five experimental studies investigating the first and second language acquisition of Negative Polarity Items (NPIs) in English and Korean. English-speaking children aged 3 to 5 and three English as a second language (ESL) groups participated in Experiments 1 and 2. The aim of these experiments was to investigate the use of *any*-type NPIs in simple sentences in English by means of an elicited production task.

Experiments 3 and 4 made use of an elicited production task to examine the production of Korean *amwu*-type NPIs in simple sentences by Korean-speaking children aged 3 to 6 and by three Korean as a second language (KSL) groups. Experiment 5 drew on an oral completion task to investigate the production of NPIs in four types of bi-clausal English sentences by three groups of Korean-speaking ESL learners.

The English-speaking children in Experiment 1 produced negative pronouns in subject position, but not a single NPI was produced there, whereas they produced negative pronouns as well as NPIs in object position. In Experiment 2, the ESL learners’ responses exhibited a subject/object asymmetry for NPIs in English. All three ESL groups produced over 50% NPIs in object position, indicating that they prefer NPIs over negative pronouns there.

In Experiment 3, Korean-speaking children as young as age 3 produced nearly as many NPIs in subject and object positions in Korean as native Korean-speaking adults.
did. Their responses exhibited no subject/object asymmetry. The KSL learners in Experiment 4 produced a roughly equal number of NPIs in subject and object positions in Korean. The more fluent the KSL learners were, the more frequently they produced NPIs. In addition, the KSL learners produced relative clause patterns instead of NPIs in subject and object positions, apparently as a way of avoiding NPIs.

The ESL learners' responses in Experiment 5 indicated that the less fluent they were, the less frequently they produced NPIs. Especially worthy of note is the fact that the ESL learners in EI and EII did not produce NPIs in subject and object positions in an embedded clause when a negative occurs in a matrix clause.
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LIST OF ABBREVIATIONS

The following abbreviations are used to label the linguistic terms employed in this dissertation.

ALP: Alternative Particle
ConP: Concessive Particle
HON: Honorific marker
POL: Polite speech level suffix or particle
IN: Indicative mood suffix
INF: Infinitive suffix
Acc: Accusative case marker
Nom: Nominative case marker
INT: Intimate speech suffix
Top: Topic-contrastive marker
Pres: Present tense suffix
Loc: Locative marker
PL: Plural marker
Que: Interrogative sentence-type suffix
Fut: Future tense marker
Prog: Progressive
Dat: Dative marker
Dec: Declarative sentence-type suffix
Comp: Complementizer
PR: Propositive sentence-type suffix
BEN: Benefactory particle

In this dissertation, Yale romanization system for Korean is used.
CHAPTER 1
INTRODUCTION

The aim of this dissertation is to investigate the first and second language acquisition of Negative Polarity Items (hereafter, NPIs) in English and Korean from a syntactic perspective.¹ NPIs are items that can be licensed by negatives or can occur only in limited contexts, such as questions, comparatives, the antecedents of a conditional, and so on. Words and phrases such as anyone, anything, ever, yet, lift a finger, a red cent, and so on, are NPIs in English.² Korean NPIs include words or phrases, such as celtaylo ‘by any means’, cokum-to ‘at all’ or ‘in the least’, amwuto ‘anyone’, pakkey ‘except for’, and the like.³ This dissertation examines only English any-type NPIs and Korean amwu-type NPIs that occur in an argument position along with a negative.⁴

Both English NPIs and Korean NPIs must be licensed by a negative word (e.g., not in English, an(i) in Korean), as shown in (1) and (2), respectively.

(1) English NPI

a. John did not love anyone.

b. *John loved anyone.

c. *Anyone did not love John.

¹ In this dissertation, the terms ‘acquisition’ and ‘learning’ are used interchangeably.
² See Linebarger (1987), Ladusaw (1982), and Progovac (1993) for the licensors and the list of NPIs in English. This dissertation focuses on the licensors, not in English and an(i) in Korean.
³ See Chung and Lee (1997) and Kim (2001) for the licensors and the list of NPIs in Korean.
⁴ Words containing any- can be used as Free-Choice items as well as NPIs. The former will not be discussed in this dissertation.
(2) Korean NPI

   -Nom anyone love-CI not.do-Past-Dec
   ‘John did not love anyone.’

   -Nom anyone love-Past-Dec
   ‘*John loved anyone.’

   anyone -Acc love-CI not.do-Past-Dec
   (Lit.) ‘*Anyone did not love John’
   ‘Nobody loved John.’

   anyone -Acc love-Past-Dec
   (Lit.) ‘*Anyone loved John.’

As seen above, (1a), (2a), and (2c) are grammatical because the English NPI
anyone and the Korean NPI amwuto occur with a negative word, not in English and an(i)
in Korean. However, (1b), (2b), and (2d) are not grammatical, because of the absence of
a negative word. In addition, as can be observed above, the English NPI and the Korean
NPI can occur in object position, as shown in (1a) and (2a). In contrast, the Korean NPI
amwuto occurs in subject position, as shown in (2c), whereas the English NPI anyone
cannot appear in that position, as shown in (1c). Instead, negative pronouns, such as
nobody, no one, nothing, and so on, must occur in subject position, as shown in (1e).
Negative pronouns can also occur in object position, as shown in (1d). The patterns
above indicate that there is a subject/object asymmetry in simple sentences in English, but not in Korean.

On the other hand, Korean requires that *amwu*-type NPIs be licensed by a negative in the same clause (the clausemate condition), as shown in (3), whereas *any*-type NPIs in English need only be c-commanded by a negative, as shown in (4).

(3) Korean

   -Top anyone apple -Acc love-CI not.do-Past-Dec-Comp think-Pres-Dec
   ‘John thinks that anyone did not buy apples.’
   ‘John thinks that nobody bought apples.’

   -Top anyone apple -Acc buy-Past-Dec-Comp think-CI not.do-Pres-Dec
   ‘John does not think that anyone bought apples.’

   -Top anyone apple -Acc buy-Past-Dec-Comp not think-Pres-Dec
   ‘John does not think that anyone bought apples.’

   -Nom -Nom anything not eat-Past-Dec-Comp think-Pres-Dec
   ‘John thinks that Mary did not eat anything.’

   -Nom -Nom anything eat-Past-Dec-Comp think-CI not.do-Pres-Dec
   ‘John does not think that Mary ate anything.’

   -Nom -Nom anything eat-Past-Dec-Comp not think-Pres-Dec
   ‘John does not think that Mary ate anything.’
In (3a) and (3d), the NPI *amwuto* occurs along with a negative in the same clause, regardless of its position. On the other hand, the sentences (3b), (3c), (3e), and (3f) are not grammatical, because the NPIs cannot be licensed by a tautoclausal negative.

In contrast, the NPI *anyone* in (4) is possible, irrespective of its position in the sentence, as long as it is c-commanded by the negative.

(4) English

a. Mary does not claim [that John hurt anyone].
b. John does not believe [that anyone is coming to the party].
c. Mary did not think [that James claimed [that Nancy had met anyone]].

This dissertation consists of five experiments, as shown below.\(^5\)

(i) First language acquisition of NPIs in simple sentences in English (Experiment 1)
(ii) Second language acquisition of NPIs in simple sentences in English (Experiment 2)
(iii) First language acquisition of NPIs in simple sentences in Korean (Experiment 3)
(iv) Second language acquisition of NPIs in simple sentences in Korean (Experiment 4)
(v) Second language acquisition of NPIs in bi-clausal sentences in English
    (Experiment 5)

\(^5\) The KSL learners and the ESL learners consented to participate in my study and the English-speaking children’s and the KSL children’s parents agreed to have their children take part.
The relevant responses for Experiments 1 and 2 are as follows:

(5) Relevant responses for Experiments 1 and 2

a. The monkey is not eating anything.
b. The monkey is eating nothing.
c. Nobody is eating bananas.
d. *Anyone is not eating bananas.

When NPIs are targeted in object position, there are two possible correct responses—one involving cases where NPIs occur in object position and are licensed by the negative *not*, as shown in (5a), and the other where negative pronouns occur in object position without an external negative, as shown in (5b). On the other hand, NPIs cannot co-occur in subject position—with or without a negative, as shown in (5d). Only negative pronouns can appear in that position, as shown in (5c).

The central question for Experiments 1 and 2 is whether the responses of English-speaking children and ESL learners exhibit the appropriate subject/object asymmetry.

In Experiments 3 and 4, the targeted positions are the same as in Experiments 1 and 2, except for the fact that the sentences are Korean.

(5) Relevant responses in Experiments 3 and 4

a. amwuto panana-ul an mek-ess-ta. (SFN)
   anyone -Acc not eat -Past-Dec
   ‘No one ate bananas.’ (Lit: ‘*Anyone did not eat bananas.’)

b. amwuto panana-ul mek-ci anh-ass-ta. (LFN)
   anyone -Acc eat-CI not.do-Past-Dec
   ‘No one ate bananas.’ (Lit: ‘*Anyone did not eat bananas.’)
In contrast to the sentences in (5) in English, the Korean NPIs in (6) can occur either in subject position or in object position as long as a short form negation or long form negative occurs in the same clause. The primary research question for Experiments 3 and 4 is whether Korean-speaking children and KSL learners produce NPIs in subject position as well as in object position, so that no subject/object asymmetry is manifested.

In Experiments 1 through 4, the relevant responses are related to simple sentences. However, the last experiment (Experiment 5) involves English bi-clausal sentences, for which there are four types of relevant responses, as illustrated in (7).

(7) Four types of relevant responses in Experiment 5

(i) Cases where the matrix clause includes a negative, and an NPI is expected in the subject position in the embedded clause (e.g., *I don’t think that anyone is eating bananas.*)
(ii) Cases where the matrix clause contains a negative, and an NPI is expected in the object position in the embedded clause (e.g., *I don’t think that the monkey is eating anything*.)

(iii) Cases where the embedded clause is negated, so a negative pronoun is expected in the subject position in the embedded clause (e.g., *I think that nobody is eating bananas.*)

(iv) Cases where the embedded clause is negated, so a negative pronoun or an NPI with an accompanying negative is expected in the object position in the embedded clause (e.g., *I think that the monkey is not eating anything* or *I think that the monkey is eating nothing.*)

The central issue for Experiment 5 is whether ESL learners’ responses show sensitivity to the distribution of NPIs across a clause boundary.

To assess children’s and second language learners’ competence, an elicited production task was used in Experiments 1 through 4. By this means, it will be shown that the participants know the licensing condition on NPIs because they have to produce as many as ten sentences targeting each subject and object position while being tested. An elicited production task has several advantages. Thornton (1996: 78-79) outlined the following strong reasons to use the elicited production technique.

One general advantage of production data is that they reveal the child’s grammar, without the need to make inferences from “yes” and “no” responses, as is necessary in a judgment task. In general, comprehension tasks that rely on “yes” versus “no” responses by children must take additional steps to ensure that these responses truly reflect children’s
grammatical knowledge. In the sense that the grammar does not need to be inferred from “yes” or “no” responses, elicited production data can be considered to more “directly” reflect the child’s grammar. It is highly unlikely that a child could put words together in a particular way accidentally. The consistent appearance of a particular sentence type in a child’s speech is strong evidence that the sentence is generated by the child’s grammar. This is especially true in cases where the child’s utterance is not evident in the adult input. ... Another virtue of the task is that it enables the experimenter to evoke sentence corresponding to complex syntactic structures, ones that occur only rarely, if at all, in children’s spontaneous speech (and possibly in adults’ speech as well). ... Also useful is the fact that the elicited production technique allows a robust data sample of the targeted structure to be gathered within a single experimental session. Sufficient data can be collected to draw solid conclusions about the child’s grammar at a particular point in time. By contrast, in database searches of transcripts from children’s spontaneous speech, this is often not possible.

I have chosen an oral sentence completion task in which matrix clauses, such as *she thinks that, she doesn’t think that, the monkey believes that, the monkey doesn’t believe that*, and so on, are provided at the bottom of test pictures. By providing the matrix clauses, the ESL learners are forced to produce four types of sentences. In addition, the presence of the complementizer *that* makes them produce an embedded clause containing a tense. Thus, their responses show that they know the syntactic relationship between a negative and an NPI across a clause boundary, which is called a c-command condition.

This dissertation is organized as follows. Chapter 2 concerns the issues surrounding the constructions with NPIs in English and Korean. Chapters 3 and 4 report on the acquisition of NPIs in simple sentences in English as a first language and as a second language, respectively. Chapters 5 and 6 investigate the acquisition of NPIs in simple sentences in Korean as a first language and as a second language, respectively. In
chapter 7, a study on NPIs in bi-clausal sentences in English as a second language is presented. Chapter 8 offers some concluding remarks.
CHAPTER 2
NPI CONSTRUCTIONS

2.0. Introduction

This chapter explores the constructions that are directly related to the present study. There are two types of Korean sentential negation—Short-Form Negation and Long-Form Negation. The characteristics of the Korean amwu-type NPIs and the English any-type NPIs are briefly mentioned. To license NPIs in Korean and English, the clausemate condition and the c-command condition are proposed, respectively. In terms of their licensing domain, the NPIs can be grouped into two types: local domain and long-distance domain. Korean belongs to the first and English to the second. Finally, the issue of a subject/object (a)symmetry for NPIs in Korean and English is discussed, respectively.

2.1. Korean negation

With regard to the position of negative morphemes such as an(i), there are two types of Korean sentential negation: Short-Form Negation (SFN), where a predicate is immediately preceded by a negative morpheme an, and Long-Form Negation (LFN), where a negative morpheme an follows the predicate stem+ci and immediately precedes the light verb ha ‘do’.
(1) Two types of Korean Negation Structure

a. Short Form Negation (SFN)

(i) Mary-ka John-ul an manna-ss-ta. 
   -Nom -Acc not meet-Past-Dec 
   ‘Mary did not meet John.’

(ii) *Mary-ka an John-ul manna-ss-ta. 
     -Nom not -Acc meet-Past-Dec 
     ‘Mary did not meet John.’

b. Long Form Negation (LFN)

(i) Mary-ka John-ul manna-ci anh-ass-ta¹ 
    -Nom -Acc meet-CI² not.do-Past-Dec 
    ‘Mary did not meet John.’

(ii) *Mary-ka an John-ul manna-ci hay-ss-ta 
     -Nom not -Acc meet-CI do-Past-Dec 
     ‘Mary did not meet John.’

(iii) *Mary-ka John-ul an manna-ci hay-ss-ta 
      -Nom -Acc not meet-CI do-Past-Dec 
      ‘Mary did not meet John.’

In the SFN (1a), the sentence (i) is grammatical because the negative morpheme an 
occurs immediately before the predicate manna-ss-ta ‘met’, but (ii) is not because it 
doesn’t occur immediately in the preverbal position. The LFN (1b) illustrates that the

¹ In the gloss, a contracted form anh for an ‘not’ + ha ‘do’ is used.
² The function of the suffix -ci is controversial. See Song (1979), Park (1998), and Sohn (1999). Therefore, 
   the suffix -ci is represented as CI in the glosses throughout this dissertation, without determining whether it 
   is a nominalizer or a complementizer.
grammaticality of the sentence depends on where the negative morpheme *an* occurs with the light verb *ha-ta* ‘do’.\(^3\)

The existential predicate *epsta* ‘not exist’ and the information verb *moluta* ‘not know’ are inherently negative verbs, with an incorporated [+Neg] feature (Sohn 1999), as shown in (2).

\[(2) \text{ a. chayk-i sang-ey eps-ess-ta.} \\
\text{ Book-Nom table-Loc not.exist-Past-Dec} \\
\text{ ‘The book was not on the table.’} \\
\text{ b. i sensayngnim-un John-ul molu-n-ta.} \\
\text{ This teacher -Top -Acc not.know-Pres-Dec} \\
\text{ ‘This teacher doesn’t know John.’}\]

2.2. Characteristics of *amwu*-type NPIs in Korean

The *amwu*-type NPI in Korean consists of *amwu* + Common Noun + -*to*. The particle -*to*, whose meaning is ‘even’, is a concessive marker.\(^4\) For example, when we refer to animals, we can say *amwu tongmwulto* ‘any animal’, when we refer to apples, we

\(^3\) I assume that the LFN in Korean consists of a monoclause because of the scope phenomenon, problems of Neg-Transportation, aspect/tense issues, and so on. With regard to the structure of LFN, see Lee (1970), Song (1971), Oh (1971) and Kim (1974) for the biclause analysis, and Han (1987), Kang (1988), Suh (1990), Choi (1993), Hong (1998), and Kim (2001) for the monoclause analysis. I will not discuss the details of the Korean negation structure because the purpose of this dissertation is to explore the issues regarding the NPIs, not negation. See Oh (1971), Song (1971), Cho (1975), Yang (1976), Song (1982, 1988), Kang (1988), Choi (1993), Park (1998), Kim (2001), and others for the issues on Korean negation.\(^4\) According to Im and Lee (1999), the marker -*to* leads to two different interpretations: ‘also’ and ‘even’. The marker -*to* indicates the meaning of concession when it is used as the meaning of ‘even’, whereas it has a meaning of ‘additional’ when it means ‘also’, as shown below.

\[\text{John-i sakwa-to mek-ess-ta.} \\
\text{-Nom apple-also eat-Past-Dec} \\
\text{ ‘John ate apples, too’.}\]
can say *amwu sakwato* ‘any apple’, and so on. When we refer to a generic thing, the word *amwukesto* ‘anything’ is used. The word *amwuto* without the presence of the common noun between *amwu* and –to is used only when the common noun is human.\(^5\)

The *amwu*-type NPIs in Korean can have neither a nominative case marker nor an accusative case marker, as illustrated in (3).

(3) Mary-ka aqwunes-to/ *amwukelo-ul-to / *amwukesto-lul an mek-ess-ta.
-Nom any-thing-even/any-thing-Acc-even/ any-thing-even-Acc not eat-Past-Dec

‘Mary did not eat anything.’

However, when a dative marker, such as -eykey or -hanthey, appears, it has to occur right before the marker -to, not after it, as shown in (4).

(4) John-un chayk-ul *amwu-haksayng-eykey-to / *amwu- haksayng-eykey-
-Top book -Acc any-student- to-even / any-student-even-to
cwu-ci anh-ass-ta.
give-CI not-do-Past-Dec

‘John did not give a book to any student.’

Without the particle –to in *amwu*-type NPIs, the sentences (5b) become unacceptable.\(^6\)

\(^5\) When the common noun is *salam* ‘human being’ or ‘person’, it can optionally be deleted. The sentence (5a) is grammatical.

Amwu (salam)to o-ci anh-ass-ta.
Any (person) even come-CI not.do-Past-Dec

‘Nobody came’.

\(^6\) There are some exceptions: *amwu sayngkak-(to) eps-i* ‘unintentionally’, *amwu kkatal-(to) eps-i* ‘without any reason’ or *amwu il-(to) eps-ess-ni?* ‘Hasn’t anything happened?’ In these cases, the particle –to is optional.
    Any-person-even come-CI not.do-Past-Dec
    ‘Nobody came.’

    Anybody come-CI not.do-Past-Dec
    ‘Nobody came.’

In Korean, in addition, Free Choice (henceforth, FC) amwulado is formed by attaching the particle -lato to the word amwu, which implies indefiniteness, as shown in (6).7

(6) Amwu-lato kukes-ul ha-lswu iss-ta.
    Anyone-ConP it-Acc do-be able be. Pres-Dec
    ‘Anyone can do it.’

    In sum, the word amwu can be used either as NPI, as in (5), or as FC, as in (6), depending on what kinds of particles are attached to it.

2.3. Characteristics of any-type NPIs in English

Any-type Noun Phrases (NPs) in English can be used as NPIs as well as FCs, as shown in (7) and (8), respectively.

(7) John doesn’t do anything.

(8) John can do anything.

7 The particle -lato denotes a concession.
In (7), anything is used as an NPI, so it occurs with the negative not, while anything in (8) involves FC, so the negative doesn’t co-occur with it.

Now consider the sentences, as shown in (9) and (10).

(9) *Anyone cannot do it.

(10) Anyone can do it.

The NPI anyone in (9) cannot occur in the subject position, but Free Choice anyone can occur there, as shown in (10). In English, negative (indefinite) pronouns such as nothing, nobody, and no one, must occur in subject position since the any-type NPIs cannot occur in that position (i.e., Nobody can do it). In contrast, there is no correspondent of English negative pronouns, such as nothing, no one and so on, in Korean because the NPIs in Korean can occur in subject and object positions.

2.4. Licensing conditions on NPIs in Korean and English

The any-type NPIs in English and the amwu-type NPIs in Korean are similar in that they occur with a licensing negative element, as illustrated in (11a) and (12a).

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8 This dissertation focuses on the any-type NPIs which occur with a negative. However, the any-type NPIs can be licensed by other licensors. See Ladusaw (1982), Progovac (1988, 1993, 1994), Linebarger (1987), Rullmann (1996), Hoeksema (2000) among others for other issues related to NPIs in English.

9 There are some exceptions. For example, the NPIs can occur in subject position in the matrix clause when an auxiliary verb contracted with a negative is inverted in front of a subject in (a) or when a negative adverb or some adverb phrases containing a negative element take place sentential-initially when an auxiliary verb is inverted along with it, as shown in (b) and (c).

(a) Hasn’t anyone come yet?
(b) Never did anyone play that piano.
(c) Not until yesterday did anybody change her mind.
(11) Korean

   -Nom anybody not meet -Past-Dec
   ‘John did not meet anybody.’

   -Nom anybody meet -Past-Dec
   ‘*John met anybody.’

c. Amwukesto sang-ey eps-ess-ta.
   Anything table-Loc not.exist-Past-Dec
   ‘Nothing was on the table.’

d. *Amwukesto sang-ey iss-ess-ta.
   Anything table-Loc exist-Past-Dec
   ‘*Anything was on the table.’

e. Amwuto John-ul moll-ass-ta.
   Anyone -Acc not.know-Past-Dec
   ‘Nobody knew John.’

   Anyone -Acc know-Past-Dec
   ‘*Anyone knew John.’

(12) English

a. John did not meet anybody.

b. *John met anybody.

c. John has never heard anything.

d. *John has ever heard anything.

The amwu-type NPIs in Korean can occur with a negative marker an in (11a), negative verbs eps-ta ‘not exist’ in (11c) and moluta ‘not know’ in (11e), because they serve as licensors. In contrast, the sentences (11b), (11d) and (11f) are ungrammatical since the
*amwu*-type NPIs occur without their potential licensers. On the other hand, any negative word can be a licenser in English, as illustrated in (12a) and (12c), but the absence of a negative word can produce ungrammatical sentences, as illustrated in (12b) and (12d). However, NPIs in Korean and in English differ in terms of how they are licensed. In the following section, the licensing conditions on NPIs in Korean and English are discussed.

2.4.1. Licensing condition on NPIs in Korean

The sentences in (13) and (14) illustrate various syntactic relationships between an NPI and a negative.

   -Nom -Nom anything not eat-Past-Dec-Comp say-Past-Dec
   ‘John said that Mary did not eat anything.’

      -Nom -Nom anything eat-Past-Dec-Comp say-CI not.do-Past-Dec
      ‘John did not say that Mary ate anything.’

      -Nom -Nom anything eat-Past-Dec-Comp not say-Past-Dec
      ‘John did not say that Mary ate anything.’

   Anybody -Nom book-Acc buy-Past-Dec-Comp think-CI not.do-Past-Dec
   ‘*Anybody didn’t think that Mary bought a book.’
   (Lit.) ‘Nobody thought that Mary bought a book.’

      Anybody -Nom book-Acc not buy-Past-Dec-Comp think-Past-Dec
      ‘*Anybody thought that Mary didn’t buy a book.’
The sentences (13a) and (14a) are grammatical because the NPIs *amwuto* and *amwukesto* occur in the same clause as the negative morpheme *an*. In (13a), the NPI *amwukesto* occurs with the negative morpheme *an* in the embedded clause. In (14a), the NPI *amwuto* and the negative morpheme *an* in the matrix clause enter into a clausemate relation. In contrast, sentences (13b), (13c) and (14b) are not acceptable because the NPIs in these sentences do not occur in the same clause as the negative morpheme *an* and are, therefore, not licensed by it. Choe (1988) claims that the negative quantifiers and their scope marker *an* must appear in the same clause. Following her proposal, the licensing condition on NPIs in Korean is formulated as follows:

(15) **CLAUSEMATE CONDITION**

*Amwu*-type NPIs must be licensed by a negative morpheme in the same clause.  

10 Consider the following sentence.


-Top anything eat-Inf attempt-ci not.do-Past-Dec

‘John didn’t attempt to eat anything.’

If we consider this sentence (a) to be bi-clause, it seems to violate the clausemate condition (15) because the NPI *amwukesto* is in the embedded clause, whereas the negative is in the matrix clause. However, it is acceptable. Choe (1988) claims that by combining with another verb, some classes of Korean verbs whose meanings have changed into the modal meaning can cause Korean V-to-V Reconstruction Rule (RR) effects, and the Korean RR effects cancel out the clausemate condition (15). See also Shi (1997).

In addition, Ho-Min Sohn (pers. comm.) suggests that this kind of phenomenon might be attributed to some Korean verbs in the process of grammaticalization that have gone through the functional and semantic shift.
This clausemate condition must be considered in light of the sentences shown in (16).

    -Top anyone apple -Acc buy-CI not.do-Past-Dec-Comp think-Pres-Dec
    ‘*John thinks that anyone did not buy apples.’

    -Top anyone apple -Acc buy-CI not.do-Past-Dec-Comp say-Past-Dec
    ‘*John said that anyone did not buy apples.’

    -Top anyone pretty-Dec-Comp think-CI not.do-Pre-Dec
    ‘John doesn’t think that anyone is pretty.’

    -Top anyone pretty-Dec-Comp say-CI not.do-Past-Dec
    ‘John did not say that anyone is pretty.’

All the NPIs in (16) seem to be realized as a subject in the embedded clause. In (16a) and (16b), the NPI amwuto and the negative morpheme an co-occur in the embedded clause, so the clausemate condition (15) is satisfied. However, (16c) is acceptable whereas (16d) is not. This raises the question of how (16c), where the NPI is in the subject position in the embedded clause, can be grammatical, whereas (16d) is not.

As mentioned in chapter 1, neither a nominative case marker nor an accusative case marker can attach to the amwuto-type NPIs in Korean. Thus, it is impossible to decide the position of the amwuto-type NPIs in (16), based on what we have seen above. It has been observed in Korean that a subject in an embedded clause can have either a nominative case or an accusative case, the latter pattern being an Exceptional Case Marking (ECM) construction. According to Chung (1993), BELIEVE-type verbs (e.g.,
mitta ‘believe’, sayngkahata ‘think’, and yekita ‘consider’) allow nominative/accusative case alternation in their complement, but SAY-type verbs (e.g., malhata ‘say’, and pokohata ‘report’) do not.

   -Top -Nom pretty-Dec-Comp think-Pres-Dec
   ‘John thinks Mary is pretty.’

   -Top -Ace pretty-Dec-Comp think-Pres-Dec
   ‘John thinks Mary to be pretty.’

   -Top -Nom pretty-Dec-Comp say-Past-Dec
   ‘John said Mary is pretty.’

   -Top -Ace pretty-Dec-Comp say-Past-Dec
   ‘*John said Mary to be pretty.’

It has been claimed that the NPI subject in the embedded clause in sentences such as (16c) is raised to a position in the matrix clause in the ECM construction (Kang 1986, Yoon 1996, Chung 1997, among others). To support this claim, Chung (1997) offers evidence as follows.

    -Nom anybody always good-Dec-Comp think-Cl not.do-Pres-Dec
    ‘Mary did not think that anybody is always good.’

   -Nom always anybody good-Dec-Comp think-Cl not.do-Pres-Dec
   ‘Mary did not think that anybody is always good.’

20
If an adverb that is intended to modify the embedded verb intervenes between the matrix subject and *amwuto*, the meaning of the sentence can be changed. This suggests that *amwuto* has in fact been raised to the matrix clause, which means that *hangsang* in (18b) is also in the matrix clause, contrary to the intended meaning of the sentence.

There is additional evidence for the proposal. According to R. Lee (1993), the ECM pattern is permitted in Korean only when the embedded predicate is stative, as illustrated in (19).

   -Nom -Nom happy-Comp believe-CI not do-Pres-Dec
   ‘Mary does not believe that John is happy.’ (R. Lee 1993: 397)

   -Nom -Acc happy-Comp believe-CI not do-Pres-Dec
   ‘Mary does not believe John to be happy.’

If the embedded predicate is not stative, however, a subject in the embedded clause can be assigned only a nominative case, not an accusative case, as shown in (20).

   -Nom -Nom/*-Acc -Acc see-Past-Dec-Comp believe-Pres-Dec
   ‘John believes that Mary saw Tom.’ (J. Lee 1991: 317)

In sentence (20), the embedded predicate *pota* ‘see’ is not stative, so only the nominative case, not the accusative case, can be assigned to *Mary*, which is the subject of the embedded clause.
Now let us return to sentence (16c), repeated as (21).

   -Top anyone pretty-Dec-Comp think-CI not.do-Pre-Dec
   ‘John doesn’t think that anyone is pretty.’

Based on evidence shown above, the NPI amwuto in the subject position in (21) raises to a higher clause when the predicate in the embedded clause is stative. Since it is in the matrix clause in the ECM construction, it can satisfy the clausemate condition. Therefore, (21) is acceptable in Korean.

The following sentence (22) is relevant to the ECM construction.

   -Nom anyone -Ace see-Past-Dec-Comp believe-CI not.do-Pre-Dec
   ‘John doesn’t believe that anyone saw Tom.’

The NPI amwuto cannot be raised to a higher clause, because the embedded predicate is not stative. It therefore fails to be licensed by the negative an, as required by the clausemate condition, and the sentence is unacceptable.

In the finite ECM construction, Yoon (1996) assumes that the subject in an embedded clause moves through SpecCP, where it is assigned an accusative case, and then moves to a nonthematic position in the higher clause. Following this assumption, let us assume that the subject NPI of an embedded clause whose predicate is stative can be raised through SpecCP to a position in the higher clause in order to be licensed by a negative.

22
2.4.2. Licensing condition on NPIs in English

*Any*-type NPIs in English behave differently from their Korean counterparts, as the following sentences show.

(23) *Jane knew anyone.*
(24) Jane did not know anyone.
(25) *Anyone did not know Jane.*

While (24) is grammatical, (23) and (25) are not. In (23), there is no negative to license the NPI anyone. In other words, sentences where the NPI stands alone in the absence of its potential licenser are ungrammatical. Sentence pairs like (24) and (25) show that the NPI anyone cannot appear in the subject position, whereas it can occur in the object position, as in (24). Put another way, there is a subject/object asymmetry in English with respect to the distribution of NPIs. To account for this contrast, the c-command condition on NPI licensing is stated as in (26).

(26) **c-command licensing condition on NPIs in English**

A negative polarity item X must be c-commanded by a negative.

(27) **c-command**

Node $\alpha$ c-commands node $\beta$ if the first node that dominates $\alpha$ dominates $\beta$, and $\alpha$ does not dominate $\beta$.  

(Reinhart 1983)

---

Sentence (23) is unacceptable because the NPI *anyone* in the object position is in an affirmative sentence, where it is not licensed by a negative *not*. In contrast, sentence (24) is acceptable because the NPI *anyone* is licensed by the c-commanding negative *not*, whereas sentence (25) is unacceptable since the NPI *anyone* is in subject position, where it cannot be c-commanded by the negative *not*.

2.5. Licensing domain of NPIs in English and Korean

NPIs can be classified into two types with respect to the domain in which they are licensed. In particular, there are local domain NPIs and long-distance domain NPIs. The former can be licensed by a tautoclausal licenser, while the latter is licensed when it is c-commanded by its licenser. Long-distance licensing is permissible in English, as in (28), but not in Korean, as illustrated in (29).

(28) English

a. Mary does **not** claim [that John hurt *anyone*].

b. John does **not** believe [that *anyone* is coming to the party].

c. Mary did **not** think [that James claimed [that Nancy had met *anyone*]].

(29) Korean

(i) Long-distance licensing

   -Nom -Nom anything buy-Past-Dec-Comp believe not-do-Past-Dec
   ‘John did not believe that Mary bought anything.’

(ii) Local licensing

   -Nom -Nom anything not buy-Past-Dec-Comp believe-Past-Dec
   ‘John believed that Mary did not buy anything.’
Regardless of the depth of the embedded clauses and the position of NPIs in the sentence, the NPI *anyone* can be licensed by the negative *not* in the matrix clause, as shown in (28). That is, there is no subject/object asymmetry in the embedded clause when the negative is in the matrix clause. However, NPIs in the embedded clause in Korean cannot be licensed by a negative in the matrix clause, as shown in (29ia). In contrast, (29iia) is grammatical because the negative *an* co-occurs with the NPI in the embedded clause.

### 2.6. Summary

The main concern of this chapter has been the licensing conditions for NPIs in Korean and English. Korean requires the clausemate condition, stipulating that *amwu-*type NPIs must be licensed by a negative word in the same clause. In contrast, English has a c-command condition, requiring that *any*-type NPIs must be c-commanded by a negative word. In addition, Korean NPIs must be licensed in a local domain (the same minimal clause), whereas English NPIs permit long-distance licensing.

The following table summarizes this.

### Table 2.1. Comparison of NPIs in English and Korean

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Languages</th>
<th>English</th>
<th>Korean</th>
</tr>
</thead>
<tbody>
<tr>
<td>c-command requirement</td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Locality (clausemate) requirement</td>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
3.0. Introduction

This chapter reports on an experiment on English-speaking children's acquisition of NPIs (Experiment 1). The experiment investigates their use of NPIs in simple sentences in English by means of an elicited production task. The relevant responses are structures in which a negative pronoun occurs in subject position and those in which either an NPI accompanied by a negative or a negative pronoun occurs in object position.

The organization of this chapter is as follows. Section 3.1 introduces the relevant structures, followed by a summary of previous research in section 3.2. The research questions are addressed in section 3.3. Section 3.4 describes the participants, materials and procedures used in Experiment 1. The ways that the participants' responses are scored and analyzed are presented in section 3.5. The results from Experiment 1 are reported and discussed in sections 3.6 through 3.8. The last section offers a conclusion.

3.1. Relevant structures

As already discussed in chapter 2, there is an asymmetry between NPIs in subject and object positions in simple sentences in English: NPIs can occur in object position, as shown in (1a), but not in subject position, as shown in (1b).
(1) a. John didn’t read **anything**.

   b. *Anyone didn’t read that book.

   c. **Nobody** read that book.

   d. John read **nothing**.

Put another way, an NPI must be licensed by a c-commanding negative, as shown in (1a). If it is not, the sentence is not acceptable, as (1b) shows. A negative pronoun must appear in subject position, as shown in (1c), because the occurrence of NPIs in subject position is banned due to the violation of the c-command requirement. A negative pronoun is also possible in object position, as shown in (1d).

3.2. Previous research

Bellugi (1967) observed three children’s speech (Adam, Sarah, and Eve) and reported developmental stages in the use of negation. She claims that the indefinite form **some** should be changed into **any** in negative sentences, but when Adam was 38 months old and Eve was 26 months old, they used **some** in affirmative sentences as well as in negative ones.

(2) Adam’s sentences (Bellugi 1967: 134)

   Affirmative sentence: I need some cookies.

   Negative sentence: You don’t want some supper.

   I don’t want some.
(3) Eve’s sentences (Bellugi 1967: 135)

Affirmative sentence: I want some grape juice.
Negative sentence: Mama didn’t have some coffee.
I didn’t see something.

Bellugi reported that Adam and Eve used only the indefinite form *some*, regardless of the sentence type. When Sarah was in Period C (mean age: 44 months), however, she used *some* in affirmative sentences and *any* in negative sentences. Based on this evidence, Bellugi concluded that Sarah knew the syntactic relationship between *any* and negation. In addition, Bellugi reports that Sarah’s speech frequently displayed patterns of double negation (e.g., *I didn’t do nothing*) when she was in Period C (mean age: 44 months) through Period F (mean age: 58 months). Adam used only the indefinite form *some* in Period C (mean age: 38 months), irrespective of the sentence types except in a few cases. In his speech, in contrast, the NPI *any* occurred in object position and the negative pronoun *nobody* occurred in subject position in Period D (mean age: 42 months). However, *any* in Period E (mean age: 47 months) disappeared, so he produced double negation by replacing it with a negative pronoun. In Period F (mean age: 54 months), he frequently used sentences with multiple negation. The system of multiple negation remained until age 5.

In the course of investigating scope interaction between a *Wh*-phrase and a quantifier phrase, Kim (1995) gave a pretest to English-speaking children to investigate whether they can produce *nobody* as a possible answer by asking them who is sitting in the chair after two pictures were presented, as shown in Figure 3.1.

28
Table 3.1 shows the results produced by English-speaking children aged 2 to 8.

Table 3.1. Raw numbers for nobody answer in English pretest (Kim 1995: 178)

<table>
<thead>
<tr>
<th>Age</th>
<th># of subjects</th>
<th>Nobody</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>9</td>
<td>4/9 (44.4%)</td>
<td>5/9 (55.6%)</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>8/13(61.5%)</td>
<td>5/13 (38.5%)</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>12/12 (100%)</td>
<td>0/12 (0%)</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>8/8 (100%)</td>
<td>0/8 (0%)</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>7/7 (100%)</td>
<td>0/7 (0%)</td>
</tr>
<tr>
<td>7</td>
<td>10</td>
<td>10/10 (100%)</td>
<td>0/10 (0%)</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>8/8 (100%)</td>
<td>0/10 (0%)</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>57/67 (85.1%)</td>
<td>10/67 (14.9%)</td>
</tr>
</tbody>
</table>

Based on these results, Kim claims that English-speaking children can provide answers with the word nobody at age 4.

Another study done by Song (2000) examined whether native English-speaking children know the c-command condition on English NPIs. The data were collected at the Children’s Center at the University of Hawai‘i at Mānoa. The study used an elicited
production task in which a total of 40 pictures—20 designed to elicit affirmative sentences and 20 to elicit negative sentences—involves 18 English-speaking children aged 3;1 to 5;6, with a mean of 4;4, and 12 adults. The affirmative sentences were used as distractors and the negative sentences were divided into two subsets—ten sentences where a negative pronoun is expected to appear in subject position and ten where an NPI or a negative pronoun is expected in object position.

The purpose of the study was to provide answers to the following questions.

(i) Can children produce NPIs in a negative sentence?
(ii) Do they know that NPIs must be licensed by a c-commanding negative element?
(iii) Is their production of NPIs different from that of adults?
(iv) Do their responses show a subject-object asymmetry?

The types of responses they produced for test items in subject position are presented in Table 3.2.
Table 3.2. Types of responses for test items that target the subject (Song 2000:80)

<table>
<thead>
<tr>
<th>Types of Responses</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Children (N=18)</td>
</tr>
<tr>
<td>There is not anything...</td>
<td>1 (.56%)</td>
</tr>
<tr>
<td>There is nothing...</td>
<td>8 (4.47%)</td>
</tr>
<tr>
<td>Nothing is...</td>
<td>157 (87.71%)</td>
</tr>
<tr>
<td>Anything is not...</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>There is not nothing...</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Nothing.</td>
<td>2 (1.12%)</td>
</tr>
<tr>
<td>Other</td>
<td>11 (6.15%)</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
</tr>
</tbody>
</table>

There is a similarity between the children's responses and those of the adults in that the sentences containing the NPI *anything* in subject position were rare. However, there is a big difference in that the children strongly preferred the ‘Nothing is...’ structure (87.71%) (e.g., *Nothing is on the desk*), whereas the adults exhibited a strong preference for the ‘There is nothing...’ structure (76.47%) (e.g., *There is nothing on the desk*).

The results for the test items in object position are presented in Table 3.3.

Table 3.3. Types of responses for test items that target the direct object (Song 2000:81)

<table>
<thead>
<tr>
<th>Types of Responses</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Children (N=18)</td>
</tr>
<tr>
<td>...not...anything</td>
<td>29 (16.02%)</td>
</tr>
<tr>
<td>...nothing</td>
<td>115 (63.54%)</td>
</tr>
<tr>
<td>...not...nothing</td>
<td>9 (4.97%)</td>
</tr>
<tr>
<td>Nothing.</td>
<td>3 (1.66%)</td>
</tr>
<tr>
<td>Other</td>
<td>25 (13.81%)</td>
</tr>
<tr>
<td>Total</td>
<td>181</td>
</tr>
</tbody>
</table>

There is a big difference between the children's and the adults' responses. The adults exhibited a strong preference for sentences containing *not* and the NPI *anything* (83.47%)
(e.g., *He is not touching anything*), compared with sentences containing the negative pronoun *nothing* (14.05%) (e.g., *He is touching nothing*). In contrast, children showed a strong preference (63.54%) for negative pronoun *nothing* in object position (e.g., *He is touching nothing*), compared with the *not* plus NPI pattern (16.02%) (e.g., *He is not touching anything*). Nonetheless, they produced few double negation sentences (4.97%) (e.g., *The rabbit is not holding nothing*).

In sum, it was found that children could produce NPIs which are licensed by a c-commanding negative element. It was observed that there is a subject-object asymmetry in that they produced the NPI *anything* in object position, but not in subject position. In addition, children's responses differ from those of adults in that children prefer the use of the negative pronoun *nothing* to NPI *anything*. In contrast, adults strongly prefer the NPI *anything* in object position. In subject position, both children and adults produce the negative pronoun *nothing*, but the former strongly tend to use 'Nothing is ...' structures, while the latter are inclined to produce 'There is nothing...' structures. It was also noticed that children's responses included few double negation patterns (4.97%) in object position, and none in subject position at all.

However, there were a couple of problems with this study. The data were collected in Hawai‘i, and an anonymous reviewer pointed out that they might be biased because the children could be influenced by people speaking Hawai‘i Creole English (HCE). Another problem is that the 10 pictures designed to elicit the NPI in subject

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1 This study was published in University of Hawai‘i Working Papers in Linguistics. After two reviewers read it, one of them suggested that children’s responses might have been influenced by HCE. Although I had carefully selected the participants before testing them, I examined the children’s responses again and
position made them produce the verb *be*. The responses produced by the children and those produced by adults show a contrast in that the children prefer the *Nothing is...* structure, whereas the adults tend to use the *There is nothing...* structure. The third is that this study was not a cross-sectional study, so it provided no clue as to developmental stages. Finally, a concrete conclusion could not be made due to the lack of the number of participants.

### 3.3. Research questions

English-speaking children participated in Experiment 1. The methodology used in Experiment 1 involves a so-called ‘elicited production task’, which was designed to test whether English-speaking children have knowledge of the subject/object asymmetry for NPIs in English.

The research questions for Experiment 1 are as follows:

(i) Do NPI responses differ by position and by age group?

(ii) Do the possible correct responses differ by position and by age group?

(iii) Which is more productive in object position, NPIs or negative pronouns?

(iv) In which position are negative pronouns more productive, subject position or object position?

 talked to Prof. Michael Forman, who has knowledge of HCE, but no HCE influence was found. However, this is why all the data from English-speaking children in Experiment 1 were collected on the U.S. mainland.
3.4. Method

3.4.1. Participants

3.4.1.1. Participants for Comparison Group

A comparison group of the native English speakers consisted of twenty-five adults—ten females and fifteen males. All had native English-speaking parents and all were born and raised on the U.S. mainland (in Arizona, Washington, California, Michigan, Pennsylvania, Connecticut, New York, Alaska, or Maryland) and had lived there until at least the age 18. This group is designated EC. Their ages range from 18;7 to 64;2 with a mean age of 35;10.

3.4.1.2. Participants for Experiment 1

Three groups of children participated in this study: 3-year-olds (E3), 4-year-olds (E4), and 5-year-olds (E5). Each group consisted of 25 children, all of whom were born and raised on the U.S. mainland, and are monolingual English-speaking. Some children were excluded for the following reasons: three three-year-old children refused to participate in the study in the middle of the experiment because one of them felt bored, another wanted to go back to the playground, and the third had to join a Thanksgiving party with his parents. In addition, four children kept saying ‘I don’t know’ and three children did not produce sentences, just saying ‘nothing’, ‘nobody’ and so on, so I decided to stop testing because it was thought that they could not understand the task. Four months before I gave a test to these children who took part in the present study, furthermore, I tested about 13 children in the southern part of Fresno, CA. Even though I got the consent forms from their parents, I did not get information about them except their ages and names until I finished testing them. While testing them, I found that these children displayed double negation in subject position as well as in object position (i.e., Nobody is not eating bananas vs. The monkey is not eating nothing). After talking with their teachers, it was found that they were influenced by people speaking Spanish because one or both of their parents spoke Spanish or their grandparents whose language was Spanish were the primary caretakers while their parents were working in the daytime. Therefore, I discarded these data. Before

2 Each English-speaking group of 3-year-old children, 4-year-old children, and 5-year-old children is represented as E3, E4, and E5, respectively. EC stands for English native speakers who are adults as a comparison group.

3 Some children were excluded for the following reasons: three three-year-old children refused to participate in the study in the middle of the experiment because one of them felt bored, another wanted to go back to the playground, and the third had to join a Thanksgiving party with his parents. In addition, four children kept saying ‘I don’t know’ and three children did not produce sentences, just saying ‘nothing’, ‘nobody’ and so on, so I decided to stop testing because it was thought that they could not understand the task. Four months before I gave a test to these children who took part in the present study, furthermore, I tested about 13 children in the southern part of Fresno, CA. Even though I got the consent forms from their parents, I did not get information about them except their ages and names until I finished testing them. While testing them, I found that these children displayed double negation in subject position as well as in object position (i.e., Nobody is not eating bananas vs. The monkey is not eating nothing). After talking with their teachers, it was found that they were influenced by people speaking Spanish because one or both of their parents spoke Spanish or their grandparents whose language was Spanish were the primary caretakers while their parents were working in the daytime. Therefore, I discarded these data. Before
whose parents are not native speakers of English and those who can speak languages other than English were excluded from the experiment. Three out of twenty-five children in E3 had received home schooling. The rest of the three-year-olds and the twenty-five four-year-olds attended the Northside Christian Early Childhood Development Center in Fresno, California. All five-year-olds attended kindergarten at the Palm Crest Elementary School in La Cañada, California. The information about the participants is summarized in Table 3.4.

Table 3.4. Information about English-speaking children

<table>
<thead>
<tr>
<th>Age group</th>
<th>Mean age</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-year-old children (E3)</td>
<td>3;6</td>
<td>Female: 14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male: 11</td>
</tr>
<tr>
<td>4-year-old children (E4)</td>
<td>4;6</td>
<td>Female: 14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male: 11</td>
</tr>
<tr>
<td>5-year-old children (E5)</td>
<td>5;7</td>
<td>Female: 11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male: 14</td>
</tr>
</tbody>
</table>

3.4.2. Materials and Procedure

The experiment consists of an elicited production task, which was administered individually. Before the main session started, there was a vocabulary practice session as a pre-test. The participants were asked to identify the objects, animals, and actions in the pictures to ensure that there was no unknown or unfamiliar vocabulary. If they were not able to respond appropriately, there was a brief session to practice and learn them.

meeting the children who took part in this study, I ensured that all of them and their parents spoke English only and their language hadn’t been influenced by people speaking any other languages except for English.
For this study, verbs, such as *sit, stand, kick, throw, touch, eat, put, push,* and so on were chosen. The nouns included animals' names, such as *lion, rabbit, monkey, and bear,* and objects' names such as *airplane, apple, ball, chair, teddy bear, tree,* and the like. All these words are frequently used and are acquired early by English-speaking children and Korean-speaking children (Nelson 1973, Ingram 1989, Tomasello 1992, Gopnik and Choi 1995, Ha 2001).

The total number of pictures in the experiment was 35. To familiarize the participants with the task, a short training session in which two pictures were used to produce the affirmative sentences preceded the main test session.

In the main session, the pictures consisted of two sets—13 pictures designed to elicit affirmative sentences and 20 to elicit negative sentences. The pictures in the first set were used as distractors. As Jakubowicz (1996) states, their function is to prevent participants from getting the same types of pictures in a row and identifying the test pictures. Without distractors, there is a possibility that participants might produce responses without thinking. In other words, the participants' habituation effect can be avoided by using distractors, which have the additional advantage of increasing the naturalness of the task. The twenty pictures to elicit negative sentences were divided into two subsets—ten sentences where negative pronouns are expected to be produced in subject position and ten in which NPIs or negative pronouns are expected to occur in object position.
The task started with the following instructions.

**Instructions:** “Let’s play a game. Only you and I will see these pictures. The teacher (or participants’ friend) will be wondering what kind of pictures we are looking at. Maybe you could help her. Would you like to try one?”

Having given these instructions, the participant and the investigator looked at each picture together. The participant was asked to tell the third person about it. The expected interaction between the participant and the investigator is shown as follows:

(A) Interaction for negative pronouns in subject position

The participant and the investigator look at the picture together.

Figure 3.2. Sample picture for negative pronouns in subject position
Investigator: Tell her who is climbing the tree right now.

Participant: Nobody (or No one) is climbing the tree. (=>Expected response).

Investigator: You are really good (or just ‘Good’).

(B) Interaction for NPIs or negative pronouns in object position

The participant and the investigator look at the picture together.

Figure 3.3. Sample picture for NPIs or negative pronouns in object position

Investigator: Tell her what the monkey is touching right now.

Participant: The monkey is not touching anything (=>Expected response).

Investigator: You are really good.

If the participants didn’t produce a sentence, the investigator asked them to tell their teacher or friend who is doing what or emphasized the fact that he/she could not see the pictures and asked them to tell him/her again. If the participants produced sentences
pertaining to common nouns instead of using NPIs or negative pronouns, the investigator asked them whether they could see them in the pictures. If they said ‘No’, they were asked to try again. If they say ‘Yes’, the investigator let them proceed. If they didn’t speak clearly, they were asked to repeat.

All the items used for the main tests were arranged in random order. All sessions were tape-recorded for later transcription.

3.5. Analyses and Scoring

All responses were transcribed. The test items targeting affirmative sentences were discarded because they were used as distractors. The remaining twenty test sentences targeting negative sentences were divided into two sets—those in which negative pronouns were expected to occur in subject position and those in which the NPIs were expected to occur in object position. They were categorized with respect to the response types.

Correct answers included cases where a negative pronoun occurs in subject position (e.g., Nobody is eating bananas), cases where an NPI in object position has a c-commanding negative (e.g., The rabbit is not putting anything on the table), and cases involving a negative pronoun with no accompanying negative (e.g., The rabbit is putting nothing on the table). All other responses were counted as wrong (e.g., Nobody is not eating bananas or The rabbit is not putting apples on the table).
3.6. Results

3.6.1. Results for NPI responses in Experiment 1

Table 3.5 reports raw numbers for NPI responses in subject and object positions produced by English-speaking children groups (E3, E4, and E5) and EC.

Table 3.5. Raw numbers for NPI responses in subject position and object position for Experiment 1

<table>
<thead>
<tr>
<th></th>
<th>NPI in subject position</th>
<th>NPI in object position</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3</td>
<td>0/250</td>
<td>78/250</td>
</tr>
<tr>
<td>E4</td>
<td>0/250</td>
<td>113/250</td>
</tr>
<tr>
<td>E5</td>
<td>0/250</td>
<td>143/250</td>
</tr>
<tr>
<td>EC</td>
<td>0/250</td>
<td>240/250</td>
</tr>
</tbody>
</table>

The percentage of NPI responses in subject position and object position for the English-speaking children groups (E3, E4, and E5) and the English-speaking comparison group (EC) are graphically represented in Figure 3.4.
As seen in Figure 3.4, there is a big difference with regard to the NPI position. All four groups produced no NPI responses in subject position. In contrast, the production rates for NPI responses in object position vary across the four groups, with the older children producing more NPIs in object position.

Table 3.6 reports the mean (M) and the standard deviation (SD) for NPI responses in subject and object positions.
Table 3.6. Descriptive statistics for NPI responses in Experiment 1

<table>
<thead>
<tr>
<th>NPI Position</th>
<th>Groups</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>E3</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>E4</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>E5</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>EC</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>Object</td>
<td>E3</td>
<td>3.12</td>
<td>3.69</td>
</tr>
<tr>
<td></td>
<td>E4</td>
<td>4.52</td>
<td>4.37</td>
</tr>
<tr>
<td></td>
<td>E5</td>
<td>5.72</td>
<td>4.15</td>
</tr>
<tr>
<td></td>
<td>EC</td>
<td>9.60</td>
<td>.65</td>
</tr>
</tbody>
</table>

To answer the question of whether NPI responses are different across the groups with regard to the NPI position, a 2-way analysis of variance (ANOVA) with repeated-measures on the NPI position was conducted. The significance level was set at $p < .05$. The results show that there is a statistically significant difference with respect to the group ($F(3, 96) = 15.400, p < .001$). EC has the highest mean, followed by E5, E4 and E3, suggesting that the four groups do not share the same mean, as shown in Table 3.7.

Furthermore, the difference with respect to the NPI position is statistically significant ($F(1, 96) = 261.853, p < .001$), showing that the use of NPIs in object position is productive for all the groups considered together, compared to the use of NPIs in subject position, where no groups produced NPIs. The mean for each group and the mean for each NPI position are shown in Table 3.7.

Table 3.7. Mean for each group and mean for NPIs in each position in Experiment 1

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Positions</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3</td>
<td>1.56</td>
<td>Subject</td>
<td>.00</td>
</tr>
<tr>
<td>E4</td>
<td>2.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E5</td>
<td>2.86</td>
<td>Object</td>
<td>5.74</td>
</tr>
<tr>
<td>EC</td>
<td>4.80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

42
In addition, there is a statistically significant interaction effect between group and position \( (F(3, 96)=15.400, p<.001) \). This is schematically represented in Figure 3.5.

Figure 3.5. Interaction between group and position for NPI responses in Experiment 1

![Graph showing interaction between group and position for NPI responses in Experiment 1.](image)

Figure 3.5 shows that the frequency of NPIs in object position increases with age.

3.6.2. Results for the possible correct responses (Negative pronouns in subject position, and NPIs or negative pronouns in object position) in Experiment 1

Table 3.8 reports the raw numbers for the possible correct responses in two positions for the English-speaking children groups (E3, E4, and E5) and the English-speaking comparison group.
Table 3.8. Raw numbers for the possible correct responses in subject position and object position for Experiment 1

<table>
<thead>
<tr>
<th>Groups</th>
<th>Positions</th>
<th>Negative Pronouns in subject position</th>
<th>NPIs and negative pronouns in object position</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3</td>
<td></td>
<td>246/250</td>
<td>226/250</td>
</tr>
<tr>
<td>E4</td>
<td></td>
<td>250/250</td>
<td>234/250</td>
</tr>
<tr>
<td>E5</td>
<td></td>
<td>249/250</td>
<td>241/250</td>
</tr>
<tr>
<td>EC</td>
<td></td>
<td>241/250</td>
<td>250/250</td>
</tr>
</tbody>
</table>

The percentage scores for the possible correct responses in subject position and object position for the English-speaking children groups (E3, E4, and E5) and EC (English-speaking comparison group) are graphically depicted in Figure 3.6.

Figure 3.6. Percentage scores for the possible correct responses in subject position and object position for Experiment 1
As seen in Figure 3.6, all four groups produced more than 95% negative pronoun responses in subject position. The combined response rate for NPIs and negative pronouns in object position is also above 90%.

The mean (M) and the standard deviation (SD) for the possible correct responses in subject and object positions are summarized in Table 3.9.

Table 3.9. Descriptive statistics for the possible correct responses in Experiment 1

<table>
<thead>
<tr>
<th>Positions</th>
<th>Groups</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>E3</td>
<td>9.84</td>
<td>.37</td>
</tr>
<tr>
<td></td>
<td>E4</td>
<td>10.00</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>E5</td>
<td>9.96</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>EC</td>
<td>9.64</td>
<td>.99</td>
</tr>
<tr>
<td>Object</td>
<td>E3</td>
<td>9.04</td>
<td>1.51</td>
</tr>
<tr>
<td></td>
<td>E4</td>
<td>9.36</td>
<td>1.22</td>
</tr>
<tr>
<td></td>
<td>E5</td>
<td>9.64</td>
<td>.91</td>
</tr>
<tr>
<td></td>
<td>EC</td>
<td>10.00</td>
<td>.00</td>
</tr>
</tbody>
</table>

To determine whether the possible correct responses are different across the groups with regard to the NPI position, a 2-way analysis of variance (ANOVA) with repeated-measures on the NPI position was used. The significance level was set at $p<.05$. The results show that the difference with regard to the group is not statistically significant ($F(3, 96)= 2.182, p=.095$). Thus, the four groups share more or less the same mean, as shown in Table 3.10.

Furthermore, there is a statistically significant difference with respect to position ($F(1, 96)=8.226, p=.005$). The mean for each group and the mean for each position are shown in Table 3.10.
Table 3.10. Mean for each group and mean for each position for the possible correct responses in Experiment 1

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Positions</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3</td>
<td>9.44</td>
<td>Subject</td>
<td>9.86</td>
</tr>
<tr>
<td>E4</td>
<td>9.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E5</td>
<td>9.80</td>
<td>Object</td>
<td>9.51</td>
</tr>
<tr>
<td>EC</td>
<td>9.82</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Furthermore, the interaction between group and position is statistically significant ($F (3, 96)=4.430, p=.006$), as depicted in Figure 3.7.

Figure 3.7. Interaction between group and position for the possible correct responses in Experiment 1
The 2-way interaction indicates that the effect of position (object position vs. subject position) has a negative effect on the frequency of the possible correct responses for EC, but it has a positive effect on it for the three children groups, E3, E4, and E5.

In English, negative pronouns occur not only in subject position but also in object position. Table 3.11 shows the mean difference between negative pronouns in subject and object positions for the four groups.

Table 3.11. Mean difference between negative pronouns in subject and object positions in Experiment 1

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean of negative pronouns in subject position</th>
<th>Mean of negative pronouns in object position</th>
<th>$\bar{X}<em>{subj} - \bar{X}</em>{obj}$</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3</td>
<td>9.84</td>
<td>5.92</td>
<td>3.92</td>
<td>3.86</td>
</tr>
<tr>
<td>E4</td>
<td>10.00</td>
<td>4.84</td>
<td>5.16</td>
<td>4.58</td>
</tr>
<tr>
<td>E5</td>
<td>9.96</td>
<td>3.92</td>
<td>6.04</td>
<td>4.27</td>
</tr>
<tr>
<td>EC</td>
<td>9.64</td>
<td>0.40</td>
<td>9.24</td>
<td>1.16</td>
</tr>
</tbody>
</table>

The pattern in Table 3.11 indicates that the older the children are, the more often negative pronouns are in subject position, relative to object position. The children in E3, E4, and E5 produced negative pronouns in subject position (98.40% vs. 100% vs. 99.60%) and in object position (59.20% vs. 48.40% vs. 39.20%). The younger the children are, the more negative pronouns they produce in object position. Therefore, the difference between negative pronouns in subject and object positions is greater as the children are older.

Table 3.12 shows the group comparisons based on the mean difference between negative pronouns in subject and object positions.
Table 3.12. Group comparisons based on the mean difference (I-J) between negative pronouns in subject and object positions in Experiment 1

<table>
<thead>
<tr>
<th>(I) group</th>
<th>(J) group</th>
<th>E3</th>
<th>E4</th>
<th>E5</th>
</tr>
</thead>
<tbody>
<tr>
<td>E4</td>
<td>1.24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E5</td>
<td>2.12</td>
<td>.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC</td>
<td>5.32*</td>
<td>4.08*</td>
<td>3.20*</td>
<td></td>
</tr>
</tbody>
</table>

The significant difference between negative pronouns in subject and object positions exists between EC on the one hand and E3, E4, and E5 on the other hand. Even though the difference seems to increase with age, no statistically significant differences are found among E3, E4, and E5, as Table 3.12 shows.

In English, there are two acceptable alternatives in object position—NPIs and negative pronouns. There are more NPIs than negative pronouns in object position for certain age groups. Table 3.13 represents the mean difference between NPIs and negative pronouns in object position.

Table 3.13. Mean difference between NPIs and negative pronouns in object position in Experiment 1

<table>
<thead>
<tr>
<th>Groups</th>
<th>NPIs</th>
<th>Negative pronouns</th>
<th>( \bar{X}<em>{\text{NPI}} - \bar{X}</em>{\text{NEGPRON}} )</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3</td>
<td>3.12</td>
<td>5.92</td>
<td>-2.80</td>
<td>7.41</td>
</tr>
<tr>
<td>E4</td>
<td>4.52</td>
<td>4.84</td>
<td>-0.32</td>
<td>8.87</td>
</tr>
<tr>
<td>E5</td>
<td>5.72</td>
<td>3.92</td>
<td>1.80</td>
<td>8.30</td>
</tr>
<tr>
<td>EC</td>
<td>9.60</td>
<td>0.40</td>
<td>9.20</td>
<td>1.29</td>
</tr>
</tbody>
</table>
This pattern indicates that the younger the children are, the more negative pronouns they produce, relative to NPIs in object position. In contrast to 3 or 4-year-old children, 5-year-old children produced more NPIs than negative pronouns in object position.

The mean differences between NPIs and negative pronouns in object position for the different groups are tabulated in Table 3.14.

Table 3.14. Group comparison based on mean difference (I-J) between NPIs and negative pronouns in object position

<table>
<thead>
<tr>
<th>(I) group</th>
<th>(J) group</th>
<th>E3</th>
<th>E4</th>
<th>E5</th>
</tr>
</thead>
<tbody>
<tr>
<td>E4</td>
<td>E4</td>
<td>2.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E5</td>
<td>E5</td>
<td>4.60</td>
<td>2.12</td>
<td></td>
</tr>
<tr>
<td>EC</td>
<td>EC</td>
<td>12.00*</td>
<td>9.52*</td>
<td>7.40*</td>
</tr>
</tbody>
</table>

The statistically significant difference is found between EC on the one hand and E3, E4, and E5 on the other hand. Among the children’s groups, there is no statistical difference between NPIs and negative pronouns in object position.

3.7. Analyses of other responses

In Experiment 1, children made three types of errors, as exemplified in (I) through (III). Note that there are no responses with ‘there is’ plus a negative pronoun.

(I) Error Type 1 (T1): Cases where a negative pronoun is produced with a negative (double negation)

(e.g.) Nobody is not eating bananas.

The bear is not hitting nobody.
(II) Error Type 2 (T2): Cases where the participants used common nouns instead of using NPIs or negative pronouns

(e.g.) The rabbit is not putting apples on the table.

(III) Error Type 3 (T3): Other category

Cases where the participants dropped an argument or did not produce a sentence properly

(e.g.) The bear is not putting $\emptyset$.

Even when children produced a negative pronoun and a negative in the same clause (e.g., Nobody is not eating bananas (in subject position) vs. The bear is not hitting nobody (in object position)), none makes any errors in subject position. In contrast, E3, E4 and E5 showed T1 error rates of 7.60%, 6.00%, and 3.60% in object position, respectively.

With respect to T2, where the children used common nouns instead of using NPIs or negative pronouns, E3 made a few errors in object position (1.20%). Some children in E3 did not produce a sentence at all (1.60% in subject position, .80% in object position) whereas one child in E4 did not produce a sentence (.40% in object position) and one child in E5 did not (.40% in subject position).

3.8. Discussion

In Experiment 1, none of the children in any of the three groups produced NPIs in subject position, whereas the rates for NPIs in object position produced by E3, E4, and
E5 are 31.20%, 45.20%, and 57.20%, respectively. This suggests that the older the children are, the more NPIs they produce in object position. However, not all of the children in E3, E4, and E5 produced NPIs in object position. An examination of the performance of individual children revealed that 15 participants out of 25 in E3, 16 participants out of 25 in E4, and 21 participants out of 25 in E5 did produce NPIs in object position. This suggests that the production of NPIs in object position increases with age. More importantly, this indicates that the children’s responses exhibited a subject/object asymmetry for English NPIs, since they produced NPIs in object position but never in subject position.

Because of the inadmissibility of NPIs in subject position in English, negative pronouns, such as *nothing, nobody*, and *no one*, can occur in subject position. The children in E3, E4, and E5 produced negative pronouns in subject position (98.40%, 100%, 99.60%). According to Kim’s study (1995), 4 two-year-old children out of 9 (44.4%), 8 three-year-old children out of 13 (61.5%), and forty-five children aged 4 to 8 (100%) were able to provide *nobody* answers. In addition, Song (2000) reported that English-speaking children aged 3;1 to 5;6 (mean age: 4;4) produced negative pronoun in subject position. In contrast, not only NPIs but also negative pronouns can occur in object position.

If so, which one do the children prefer, negative pronouns or NPIs in object position? In Song’s study (2000), English-speaking children exhibit a strong preference for negative pronouns over NPIs (63.54% vs. 16.02%). In Experiment 1, it was found that the younger children prefer negative pronouns to NPIs in object position. The mean
differences between NPIs and negative pronouns in object position in E3, E4, E5, and EC are -2.80, -.32, 1.80 and 9.20, respectively. The pattern indicates that even though no statistically significant differences are found among E3, E4, and E5, as shown in Tables 3.13 and 3.14, the children use more NPIs as they are older. In object position, EC strongly prefers NPIs to negative pronouns.

Furthermore, the children’s mean differences between negative pronouns in subject and object positions in E3, E4, and E5 show that the younger the children are, the more negative pronouns they use in object position, relative to subject position (3.92 vs. 5.16 vs. 6.04). Even though there is no statistically significant difference among the groups, as shown in Table 3.12, the difference between negative pronouns in subject and object positions increases as the children grow older. This is also related to the finding that the younger children in Experiment 1 prefer more negative pronouns to NPIs in object position and that the older children produced more NPIs in object position than the younger ones did.

The children in E3, E4, and E5 produced more negative pronouns in subject position than the combined scores of negative pronouns and NPIs in object position, with scores of 98.40%, 100% and 99.60% in the former position, respectively, compared with 90.40%, 93.60%, and 96.40% in the latter position, respectively. There is no statistically significant difference with respect to group ($F (3, 96)=2.182, p=.095$). However, the contrast in terms of mean difference between negative pronouns in subject position and the combined responses of NPIs and negative pronouns in object position is statistically significant ($F (1, 96)=8.226, p=.005$). The difference between subject position and object
position for the possible correct responses is due to the fact that the children made more errors in object position than in subject position.

None of the three groups displayed patterns of double negation when negative pronouns were in subject position whereas they produced double negation when negative pronouns or NPIs occur in object position—7.60% for E3, 6.00% for E4, 3.60% for E5. These findings are consistent with Song’s findings (2000) in that English-speaking children (mean age: 4;4) produced no patterns of double negation when negative pronouns were in subject position, while 9 out of 181 (4.97%) responses involved double negation when NPIs or negative pronouns were in object position. According to Bellugi (1967), it was reported that the patterns of double negation were frequently found in Sarah’s speech at the age of 44 months to 58 months and Adam continued using these patterns until age 5. The younger the children in Experiment 1 are, the more sentences with double negation they produce. Furthermore, the patterns of double negation produced by the children last until the age 5.

However, these findings raise the question as to why English-speaking children produced double negation when negative pronouns or NPIs occur in object position whereas they never did so when negative pronouns occur in subject position. The answer seems to be related to two options in object position. When negative pronouns appear in subject position, there are no alternatives to choose from since an NPI cannot be licensed in this position. In contrast, there are two choices in object position—NPIs and negative pronouns. Even though young English-speaking children prefer negative pronouns in object position, they may come to realize that there is another way to express the
approximate meaning with the help of NPIs because they can hear people produce NPIs as well as negative pronouns in object position. Unlike negative pronouns, however, NPIs must occur with a negative element. I think that the period during which children produce double negation is an optional transitional stage from inherent licensing with negative pronouns to long-distance licensing of NPIs.

When the children produced sentences with a soft voice or there was a noise at the time of testing, I asked them to repeat, by saying "I am sorry, but I could not hear you. Can you say that again?". It was observed that some of the children who produced a sentence containing double negation (e.g., The monkey is not eating nothing) on the first trial changed into the adult-like sentences (e.g., The monkey is not eating anything) themselves.

3.9. Conclusion

In sum, there are various findings from Experiment 1. First, the English-speaking children did not produce any NPIs in subject position. Instead, negative pronouns were used in subject position. In contrast, they produced NPIs in object position. That is, their responses manifested a subject/object asymmetry for NPIs in English. Second, the production of NPIs in object position increases with age. The young children preferred negative pronouns over NPIs. Third, some children aged 3 to 5 exhibited double negation when negative pronouns were used in object position, but not when they were in subject position.

4 I asked them to repeat not only negative sentences but also affirmative sentences.
CHAPTER 4
THE SECOND LANGUAGE ACQUISITION OF NPIs
IN SIMPLE SENTENCES IN ENGLISH

4.0. Introduction

This chapter presents the results of an experimental investigation of English as a second language (ESL) learners' acquisition of NPIs in simple sentences in English (Experiment 2). The elicited production task used in this experiment was designed to elicit the structures in which a negative pronoun occurs in subject position and those in which either an NPI along with a negative or a negative pronoun appears in object position.

The organization of this chapter is as follows. Section 4.1 introduces the relevant structures. The research questions are addressed in section 4.2. Section 4.3 describes the participants, materials and procedure used in Experiment 2. The participants’ responses for Experiment 2 are scored and analyzed in the same manner as in Experiment 1, and summarized in section 4.4. Sections 4.5 through 4.7 report and discuss the results and the participants’ responses from Experiment 2. The last section provides a conclusion.

4.1. Relevant structures

As in Experiment 1, the relevant structures are those in which an NPI can occur in object position with an accompanying negative, but not in subject position as illustrated in (1).
(1) a. John didn’t read anything.
   b. *Anyone didn’t read that book.
   c. Nobody read that book.
   d. John read nothing.

The condition that an NPI must be licensed by a c-commanding negative must be satisfied in order for sentences to be grammatical. The NPI anything in object position is licensed by the c-commanding negative not, as shown in (1a). In contrast, the NPI anyone in subject position cannot be licensed because there is no c-commanding negative for it, as shown in (1b). Instead, a negative pronoun must appear in subject position, as shown in (1c). A negative pronoun is also permissible in object position, as shown in (1d).

4.2. Research questions

In Experiment 2, an elicited production task was used to test ESL learners’ knowledge of the subject/object asymmetry for NPIs in English.

The research questions for Experiment 2 are as follows:

(i) Do NPI responses differ by position and by learner group?
(ii) Do the possible correct responses differ by position and by learner group?
(iii) Which is more productive in object position, NPIs or negative pronouns?
(iv) In which position are negative pronouns more productive, subject position or object position?
4.3. Method

4.3.1. Participants

4.3.1.1. Participants for Comparison Group

The twenty-five English native speakers from Experiment 1 served as the comparison group.

4.3.1.2. Participants for Experiment 2

Three ESL groups took part in this experiment. Each group is composed of twenty-five adults. All of them who were born and raised in Korea until at least age 18, and all were living in the United States of America at the time of test.

Participants were divided into three approximately equal groups based on the highest Test of English as a Foreign Language (TOEFL) score that each participant received.

All participants in the experimental groups are Korean native speakers. If the participants had ever lived in an English-speaking country before age 18, they were not qualified to take part in this experiment. All participants had been taught English since they entered the middle school. Except for one participant who was an undergraduate student, all participants in EIII were students in a master's or doctorate program in America. EII consisted of the students in a master’s, undergraduate, or English language program in California or Hawai‘i. All participants in EI were enrolled in an English language program in California or Hawai‘i. ESL learners, who were majoring in

\footnote{EIII, EII and EI are represented as Advanced ESL group, Intermediate ESL group and Beginning ESL group, respectively.}
linguistics, Teaching English as a Second Language, or any fields related to languages, were not permitted to participate in this experiment. Relevant details about the three groups are summarized in Table 4.1.

Table 4.1. Information about ESL participants

<table>
<thead>
<tr>
<th>Groups of participants</th>
<th>TOEFL Score</th>
<th>Duration of stay in U.S.A</th>
<th>Age</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced ESL (EIII)</td>
<td>580-633</td>
<td>5ms to 8ys</td>
<td>23;10 to 37;2</td>
<td>Female: 9 Male: 16</td>
</tr>
<tr>
<td></td>
<td>(mean: 599.28)</td>
<td>(mean: 2;6)</td>
<td>(mean: 30;11)</td>
<td></td>
</tr>
<tr>
<td>Intermediate ESL (EIi)</td>
<td>517-573</td>
<td>4ms to 8ys</td>
<td>18;9 to 40;6</td>
<td>Female: 11 Male: 14</td>
</tr>
<tr>
<td></td>
<td>(mean: 542)</td>
<td>(mean: 3;4)</td>
<td>(mean: 26;1)</td>
<td></td>
</tr>
<tr>
<td>Beginning ESL (EI)</td>
<td>420-500</td>
<td>2ms to 4ys</td>
<td>19;11 to 33;0</td>
<td>Female: 9 Male: 16</td>
</tr>
<tr>
<td></td>
<td>(mean: 479.1)</td>
<td>(mean: 1;4)</td>
<td>(mean: 24;3)</td>
<td></td>
</tr>
</tbody>
</table>

4.3.2. Materials and Procedure

Experiment 2 was conducted on seventy-five ESL learners who are Korean and twenty-five adult native speakers of English with the help of an elicited production task, in which they were tested individually. The materials and procedure used in Experiment 2 are exactly the same as the ones employed in Experiment 1. See 3.4.2 for the details.

After a vocabulary practice session, and a brief training session with help of two pictures used to produce the affirmative sentences to help the participants understand the task, the main test session started with thirty-three pictures—13 pictures designed to elicit affirmative sentences and 20 to elicit negative sentences. The former pictures served as distractors in the present study. The twenty pictures to elicit negative sentences were divided into two subsets—ten sentences where negative pronouns are expected in subject position and ten in which NPIs or negative pronouns are expected in object position.
The same instructions given in Experiment 1 were provided for the participants in Experiment 2. After they were instructed in English, they were asked whether they understood the task or not. If they did not, they were also provided with the instructions in Korean, which are comparable to the English ones. Except in a few cases, most ESL learners understood what to do. Moreover, they were asked to produce sentences, not just words. The expected interaction between a participant and the investigator as well as the pictures used in Experiment 2 is the same as in Experiment 1. (See 3.4.2 for information.) All the items used for the main tests were arranged in random order. All sessions were tape-recorded for later transcription.

4.4. Analyses and Scoring

The manner in which all of the participants’ responses were categorized, analyzed, and scored for Experiment 2 is the same as for Experiment 1. See 3.5 for information.

4.5. Results

4.5.1. Results for NPI responses in Experiment 2

The raw numbers for NPI responses in subject position and object position for the ESL groups (EI, EII and EIII) and the English-speaking comparison group (EC) are given in Table 4.2.
Table 4.2. Raw numbers for NPI responses in subject position and object position for Experiment 2

<table>
<thead>
<tr>
<th></th>
<th>NPIs in subject position</th>
<th>NPIs in object position</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>0/250</td>
<td>130/250</td>
</tr>
<tr>
<td>EII</td>
<td>0/250</td>
<td>177/250</td>
</tr>
<tr>
<td>EIII</td>
<td>6/250</td>
<td>190/250</td>
</tr>
<tr>
<td>EC</td>
<td>0/250</td>
<td>240/250</td>
</tr>
</tbody>
</table>

Figure 4.1 schematically represents the percentage of NPI responses in subject position and object position for the ESL learner groups (EI, EII and EIII) and the English-speaking comparison group (EC).

Figure 4.1. Percentage of NPI responses in subject and object positions in Experiment 2
As seen in Figure 4.1, there is a great difference between the NPI responses in subject position and those in object position. Except for EIII, some of whose participants produced NPIs in subject position, all groups uniformly produced no NPI responses in subject position. In contrast, the NPI responses in object position are varied across all four groups.

The mean (M) and the standard deviation (SD) for NPI responses in subject position and object position for the ESL groups and EC are given in Table 4.3.

<table>
<thead>
<tr>
<th>Targeting positions</th>
<th>Groups</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>EI</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>EII</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>EIII</td>
<td>.24</td>
<td>.72</td>
</tr>
<tr>
<td></td>
<td>EC</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>Object</td>
<td>EI</td>
<td>5.20</td>
<td>3.67</td>
</tr>
<tr>
<td></td>
<td>EII</td>
<td>7.08</td>
<td>2.83</td>
</tr>
<tr>
<td></td>
<td>EIII</td>
<td>7.60</td>
<td>2.48</td>
</tr>
<tr>
<td></td>
<td>EC</td>
<td>9.60</td>
<td>.65</td>
</tr>
</tbody>
</table>

To determine whether the NPI responses differ by group and by position, a 2-way analysis of variance (ANOVA) with repeated-measures was performed. The significance level was set at \( p < .05 \). With regard to the groups, the difference is statistically significant \((F(3, 96)=11.313, p<.001)\). EC has the highest mean, followed by EIII, EII and EI. This suggests that the four groups do not share the same mean, as shown in Table 4.4.
With regard to position, the difference is statistically significant ($F(1, 96)=768.404, p<.001$), showing that the NPI responses are far more frequent in object position than in subject position for the groups considered together. The mean for each group and the mean for each position are shown in Table 4.4.

Table 4.4. Mean for each group and mean of NPIs for each position in Experiment 2

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Positions</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>2.60</td>
<td>Subject</td>
<td>.00</td>
</tr>
<tr>
<td>EII</td>
<td>3.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EIII</td>
<td>3.92</td>
<td>Object</td>
<td>7.37</td>
</tr>
<tr>
<td>EC</td>
<td>4.80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In addition, there is a statistically significant interaction effect between group and position ($F(3, 96)=11.686, p<.001$). As can be seen in Figure 4.2, the mean of NPI responses in subject position is 0. Figure 4.2 depicts the interaction effect.
The 2-way interaction indicates that the effect of position (object position vs. subject position) has an increasingly negative effect on the frequency of NPIs as proficiency in English increases.
4.5.2. Results for the possible correct responses in Experiment 2

The raw numbers for the possible correct responses in subject position and object position for the ESL learner groups (EI, EII and EIII) and EC are given in Table 4.5.

Table 4.5. Raw numbers for the possible correct responses in subject position and object position for Experiment 2

<table>
<thead>
<tr>
<th></th>
<th>Negative pronoun in subject position</th>
<th>NPIs and negative pronouns in object position</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>245/250</td>
<td>198/250</td>
</tr>
<tr>
<td>EII</td>
<td>245/250</td>
<td>225/250</td>
</tr>
<tr>
<td>EIII</td>
<td>238/250</td>
<td>238/250</td>
</tr>
<tr>
<td>EC</td>
<td>241/250</td>
<td>250/250</td>
</tr>
</tbody>
</table>

Figure 4.3 schematically represents the percentage of the possible correct responses in subject position and object position for the ESL learner groups (EI, EII and EIII) and the English-speaking comparison group (EC).
As seen in Figure 4.3, all groups produced over 95% negative pronouns in subject position, but the possible correct responses in object position are varied across the groups.

The mean (M) and the standard deviation (SD) for the possible correct responses in subject position and object position for the ESL groups and EC are given in Table 4.6.
Table 4.6. Descriptive statistics for the possible correct responses in Experiment 2

<table>
<thead>
<tr>
<th>Targeting positions</th>
<th>Groups</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>EI</td>
<td>9.80</td>
<td>.50</td>
</tr>
<tr>
<td></td>
<td>EII</td>
<td>9.80</td>
<td>.65</td>
</tr>
<tr>
<td></td>
<td>EI III</td>
<td>9.52</td>
<td>.96</td>
</tr>
<tr>
<td></td>
<td>EC</td>
<td>9.64</td>
<td>.99</td>
</tr>
<tr>
<td>Object</td>
<td>EI</td>
<td>7.92</td>
<td>2.36</td>
</tr>
<tr>
<td></td>
<td>EII</td>
<td>9.00</td>
<td>1.26</td>
</tr>
<tr>
<td></td>
<td>EI III</td>
<td>9.52</td>
<td>.71</td>
</tr>
<tr>
<td></td>
<td>EC</td>
<td>10.00</td>
<td>.00</td>
</tr>
</tbody>
</table>

To determine whether the possible correct responses are different across the groups with regard to position, a 2-way analysis of variance (ANOVA) with repeated-measures was carried out. The significance level was set at $p < .05$. With respect to the group, the difference is statistically significant ($F(3, 96) = 5.639, p = .001$). This suggests that the four groups do not share the same mean. EC has the highest mean scores, followed by EI III, EI II and EI, as shown in Table 4.7. Moreover, the results with respect to position show that there is a statistically significant difference ($F(1, 96) = 14.787, p < .001$), showing that the possible correct responses in subject position is more frequent than those in object position for the four groups considered together. The mean for each group and the mean of the possible correct responses in both positions are shown in Table 4.7.
Table 4.7. Mean for each group and mean for each position in Experiment 2

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Positions</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>8.86</td>
<td>Subject</td>
<td>9.69</td>
</tr>
<tr>
<td>EII</td>
<td>9.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EIII</td>
<td>9.52</td>
<td>Object</td>
<td>9.11</td>
</tr>
<tr>
<td>EC</td>
<td>9.82</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Furthermore, the interaction between group and position is statistically significant ($F(3, 96)=10.837, p<.001$). This is depicted in Figure 4.4.

Figure 4.4. Interaction between group and position in Experiment 2
The 2-way interaction indicates that the effect of position (object position vs. subject position) has an increasingly positive effect on the frequency of the possible correct responses as the ESL learners’ proficiency in English decreases, but has zero effect on it for EIII, and has a negative effect on it for EC.

In English, negative pronouns are allowed to occur in both subject and object positions. The mean differences between negative pronouns in subject position and those in object position produced by the ESL groups are shown in Table 4.8.

Table 4.8. Mean difference between negative pronouns in subject and object positions in Experiment 2

<table>
<thead>
<tr>
<th>Groups</th>
<th>Negative pronouns in subject position</th>
<th>Negative pronouns in object position</th>
<th>$\bar{X}<em>{\text{Sub}} - \bar{X}</em>{\text{Obj}}$</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>9.80</td>
<td>2.72</td>
<td>7.08</td>
<td>3.79</td>
</tr>
<tr>
<td>EII</td>
<td>9.80</td>
<td>1.92</td>
<td>7.88</td>
<td>2.77</td>
</tr>
<tr>
<td>EIII</td>
<td>9.52</td>
<td>1.92</td>
<td>7.60</td>
<td>2.43</td>
</tr>
<tr>
<td>EC</td>
<td>9.64</td>
<td>.40</td>
<td>9.24</td>
<td>1.16</td>
</tr>
</tbody>
</table>

In terms of the productivity of negative pronouns in subject and object positions, all the groups produced negative pronouns in subject position more than in object position. A statistically significant difference between negative pronouns in subject and object positions is found just between EI and EC. Except for this, there is no statistical difference among the groups, as shown in Table 4.9.
Table 4.9. Group comparisons based on the mean difference (I-J) between negative pronouns in subject and object positions in Experiment 2

<table>
<thead>
<tr>
<th>(I) group</th>
<th>EI</th>
<th>EII</th>
<th>EIII</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EII</td>
<td>.52</td>
<td>-.28</td>
<td></td>
</tr>
<tr>
<td>EIII</td>
<td></td>
<td></td>
<td>1.64</td>
</tr>
</tbody>
</table>

In object position, in addition, there are two possible correct responses—NPIs and negative pronouns. Table 4.10 summarizes the mean difference between NPIs and negative pronouns in object position.

Table 4.10. Mean difference between NPIs and negative pronouns in object position in Experiment 2

<table>
<thead>
<tr>
<th>Groups</th>
<th>NPIs in object position</th>
<th>Negative pronouns in object position</th>
<th>( \bar{X}<em>{NPI} - \bar{X}</em>{NEGPRON} )</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>5.20</td>
<td>2.72</td>
<td>2.48</td>
<td>7.15</td>
</tr>
<tr>
<td>EII</td>
<td>7.08</td>
<td>1.92</td>
<td>5.16</td>
<td>5.53</td>
</tr>
<tr>
<td>EIII</td>
<td>7.60</td>
<td>1.92</td>
<td>5.68</td>
<td>4.91</td>
</tr>
<tr>
<td>EC</td>
<td>9.60</td>
<td>.40</td>
<td>9.20</td>
<td>1.29</td>
</tr>
</tbody>
</table>

According to Table 4.10, all the groups tend to prefer NPIs to negative pronouns in object position. The pattern indicates that the more fluent in English the ESL learners are, the more NPIs in object position they produce, relative to negative pronouns. Put another way, the difference between NPIs and negative pronouns increases with the participants’ English proficiency level. When the groups are compared with respect to the mean
difference between NPIs and negative pronouns in object position, statistically significant differences are found between EC on the one hand and EI and EII on the other hand, as shown in Table 4.11.

Table 4.11. Group comparisons based on mean differences (I-J) between NPIs and negative pronouns in object position in Experiment 2

<table>
<thead>
<tr>
<th>(I) group</th>
<th>EI</th>
<th>EII</th>
<th>EIII</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>2.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EII</td>
<td></td>
<td>3.20</td>
<td>.52</td>
</tr>
<tr>
<td>EC</td>
<td>6.72*</td>
<td>4.04*</td>
<td>3.52</td>
</tr>
</tbody>
</table>

4.6. Analyses of other responses

In Experiment 2, the participants made one type of other response, as exemplified in (I), and five types of errors, as exemplified in (II) through (VI).

(I) Other Responses 1 (R1): Cases where the ‘There is (a negative pronoun)’ construction is used.

(e.g.) There is nobody climbing the tree.

(II) Error Type 1 (T1): Cases where NPIs are produced in subject position

(e.g.) Anyone is not kicking the ball.
(III) **Error Type 2 (T2)**: Cases where a negative pronoun is produced with a negative (double negation)

(e.g.) *Nobody* is not eating bananas.

The bear is not hitting *nobody*.

(VI) **Error Type 3 (T3)**: Cases where an NPI is produced without a negative

(e.g.) The monkey is $\emptyset$ cutting anything.

(V) **Error Type 4 (T4)**: Cases where the indefinite pronoun *something* is used instead of an NPI

(e.g.) The rabbit is not putting *something* on the table.

(VI) **Error Type 5 (T5)**: Cases where the participants used common nouns instead of using NPIs or negative pronouns

(e.g.) The rabbit is not putting *apples* on the table.

(VII) **Error Type 6 (T6)**: Other category

Cases where the participants dropped an argument or did not produce a sentence properly

(e.g.) The bear is not putting $\emptyset$. 
The other responses and errors in subject position in Experiment 2 are summarized in Table 4.12.

Table 4.12. Other responses and errors in subject position in Experiment 2

<table>
<thead>
<tr>
<th>Groups</th>
<th>R1</th>
<th>T1</th>
<th>T2</th>
<th>T6</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>1/250 (.40%)</td>
<td>0/250 (.00%)</td>
<td>4/250 (1.60%)</td>
<td>0/250 (.00%)</td>
</tr>
<tr>
<td>EII</td>
<td>0/250 (.00%)</td>
<td>0/250 (.00%)</td>
<td>5/250 (2.00%)</td>
<td>0/250 (.00%)</td>
</tr>
<tr>
<td>EIII</td>
<td>0/250 (.00%)</td>
<td>6/250 (2.40%)</td>
<td>5/250 (2.00%)</td>
<td>1/250 (.40%)</td>
</tr>
<tr>
<td>EC</td>
<td>9/250 (3.60%)</td>
<td>0/250 (.00%)</td>
<td>0/250 (.00%)</td>
<td>0/250 (.00%)</td>
</tr>
</tbody>
</table>

There is only one type of other response— involving a ‘There is (a negative pronoun)’ construction. Only one ESL learner in EI produced a ‘There is (a negative pronoun)’ construction only once (.40%) and three native speakers of English in EC did so three times each (3.60%). What is surprising here is that five ESL learners in EIII made T1 errors (2.40%) (i.e., Anyone is not kicking the ball). In addition, participants in all three experimental groups EI, EII and EIII produced double negation in the construction where negative pronouns in subject position co-occur with a negative—1.60%, 2.00%, and 2.00%, respectively.

Compared with the three types of errors in subject position, all three groups made various types of errors and more errors in object position, as summarized in Table 4.13.
Table 4.13. Errors in object position in Experiment 2

<table>
<thead>
<tr>
<th>Groups</th>
<th>Types</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
</tr>
</thead>
<tbody>
<tr>
<td>EII</td>
<td>6/250</td>
<td>2/250</td>
<td>1/250</td>
<td>7/250</td>
<td>9/250</td>
<td>3.60%</td>
</tr>
<tr>
<td></td>
<td>(2.40%)</td>
<td>(.80%)</td>
<td>(.40%)</td>
<td>(2.80%)</td>
<td>(3.60%)</td>
<td></td>
</tr>
<tr>
<td>EIII</td>
<td>5/250</td>
<td>6/250</td>
<td>0/250</td>
<td>1/250</td>
<td>0/250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.00%)</td>
<td>(2.40%)</td>
<td>(.00%)</td>
<td>(.40%)</td>
<td>(.00%)</td>
<td></td>
</tr>
<tr>
<td>EC</td>
<td>0/250</td>
<td>0/250</td>
<td>0/250</td>
<td>0/250</td>
<td>0/250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.00%)</td>
<td>(.00%)</td>
<td>(.00%)</td>
<td>(.00%)</td>
<td>(.00%)</td>
<td></td>
</tr>
</tbody>
</table>

All three groups, EI, EII, and EIII, produced double negation (T2) (4.80%, 2.40%, and 2.00%, respectively) and dropped a negative (4.80%, .80%, and 2.40%, respectively).

The cases where something is used instead of NPIs are extremely rare (.40% in EI). What is important here is that the ESL learners in EI and EII made a lot of T5 errors (8.80% vs. 2.80%) by using common nouns instead of NPI or negative pronouns. In addition, some of the ESL learners in EI and EII did not produce a sentence at all (2.00% vs. 3.60%).

4.7. Discussion

In Experiment 2, three Korean learners of English as a second language in EIII occasionally produced NPIs in subject position (6 out of 250: 2.40%), whereas no participants in EI and EII ever did. This raises the question as to why only a very few NPIs in subject position are produced by EIII, and why none at all are produced by EI and EII.

William O’Grady (pers. comm.) suggests, in addition, that the results are consistent with construction-by-construction learning. That is, ESL learners do not use...
NPIs in subject position because they don’t hear patterns in which there are NPIs in that position. In contrast, they use NPIs in object position because they hear patterns in which there are NPIs there. In other words, the input can play an important role. Even though no participants in EI and EII produced NPIs in subject position, the question as to why three participants in EIII, whose mean TOEFL scores are higher than those in two other groups, produced them there is mysterious.

One might wonder why there is no transfer effect. If learners treat NPIs in English as the counterpart of *amwut*-type NPIs in Korean, it is possible that they will produce them in subject position. However, they seemed to realize that negative pronouns should be used in subject position because they produced them in all but one or two out of ten tokens. Moreover, if this is related to a transfer effect, it should have been the case that the less fluent in English the ESL learner are, the more mistakes or errors they make. However, no ESL learners in EI and EII made such mistakes.

Another possibility is that there is an instructional effect. When the participants were taught English at junior high or high schools in Korea, they might have received the explicit instructions as follows:

(2) **Instructions**

Words, such as *any, anything, anyone* and so on must occur in negatives, conditionals, and questions, whereas words such as *some, something, and somebody* can...

---

2 After testing was done, I had a chance to talk with a lot of the participants in my study. Some of them asked me what is a correct response and told me why they produced those sentences and the types of instructions they had got. The instructions in (2) are written, based on what they told me and what some English teachers in Korea told me. In addition, I examined some English grammar books in Korea. They say the same thing as in (2).
be used in affirmative sentences. In addition, negative pronouns such as *no one*, *nobody* and so on must occur in subject position.

If the explicit rule instructions in (4) facilitate implicit learning, they might prevent ESL learners from producing NPIs in subject position.

On the other hand, EI, EII, and EIII all produced NPIs in object position—52.00%, 70.80%, and 76.00% of the time, respectively. This suggests that the higher proficiency level in English the ESL learners have, the more NPIs they produce in object position. What is worth noting is that all the participants in EIII and EII produced more than one NPI in object position, whereas five out of twenty-five participants in EI did not produce NPIs there.

Let us turn now to the possible correct responses (negative pronouns in subject position and NPIs and negative pronouns in object position). The ESL groups, EI, EII, and EIII produced 98.00%, 98.00%, and 95.20% negative pronouns in subject position, compared to 79.20%, 90.00%, and 95.20% negative pronouns and NPIs in object position. The mean for the possible correct responses in subject position and object position are 9.69 and 9.11, respectively, as shown in Table 4.7. The reason that the mean for negative pronouns in subject position is higher than that for the possible correct responses in object position is that except for EIII, the ESL learners produced more errors in object position than in subject position. The errors themselves will be discussed later in this discussion section.

As can be seen here, negative pronouns as well as NPIs can occur in object position. Which one do ESL learners prefer? My initial expectation was that the ESL
groups with a low proficiency in English would prefer negative pronouns to NPIs because the latter needs to be licensed by a negative, whereas the former does not. Surprisingly, however, all three ESL groups show a strong preference for NPIs over negative pronouns. Why do the ESL learners prefer NPIs to negative pronouns even though the former must be licensed by a negative whereas the latter does not need to be? The preference for the negative pronoun may be related to L1 influence. Consider the following sentences.

(5) English: The monkey is not touching anything.

Monster-Top anything touch-CI not.do-POL
'The monkey is not touching anything.'

Even though the word orders are different, the English structure where NPIs in object position occur with a negative is comparable with that in Korean in that there are the same elements such as subjects, NPIs as objects, negatives, and verbs. Instead of the construction pertaining to negative pronouns, the ESL learners seem to prefer the structures in L2 which are similar to those in L1. That’s why they produce more NPIs than negative pronouns in object position.

The mean differences between NPIs and negative pronouns are 2.48 for EI, 5.16 for EII, and 5.68 for EIII. This suggests that the higher English proficiency of the ESL learner, the stronger the preference for NPIs. In addition, EC on the one hand and EI and
EII on the other hand showed a statistically significant difference, but no statistically significant difference was found among the three ESL groups, as shown in Tables 4.10 and 4.11.

English permits negative pronouns in both subject and object position. An examination of the performance of ESL groups’ negative pronouns in both positions reveals that the mean differences for negative pronouns in subject position in EI, EII, and EIII are 9.80, 9.80, and 9.52, respectively, compared 2.72, 1.92, and 1.92, respectively, for object position. The EIII group produced fewer negative pronouns in subject position than the EII group because of three participants’ NPI responses in subject position. However, both groups share the same mean (1.92) for negative pronouns in object position. Therefore, the mean difference between negative pronouns in subject and object positions in EII is a little higher than in EIII. Among the three ESL groups, the mean difference between negative pronouns in subject and object position is not statistically significant, as shown in Tables 4.8 and 4.9.

As mentioned earlier, EIII displayed the same mean scores for negative pronouns and the possible correct responses between subject and object positions, whereas EI and EII exhibited a higher mean score for negative pronouns in subject position (9.80 vs. 9.80) than that for the possible correct responses in object position (7.92 vs. 9.00). The latter cases are due to the fact that the ESL learners in EI and EII made more errors in object position than in subject position.

Let us examine the types of errors that the learners made. The T1 pattern, where an NPI is produced in subject position along with a negative, has already been addressed.
As seen earlier, no English-speaking children produced double negation when negative pronouns occur in subject position. However, all three ESL groups exhibited the patterns of double negation in subject position (1.60% for EI, 2.00% for EII, and 2.00% for EIII) and in object position (4.80% for EI, 2.40% for EII, and 2.00% for EIII). An examination of individual participants' double negation patterns reveals that three ESL learners for each group produced double negation when negative pronouns occur in subject position. Seven ESL learners in EI, five in EII, and four in EIII produced double negation when the negative pronouns were in object position.

Another finding of interest is that the ESL learners in EI and EII used common nouns instead of NPIs or negative pronouns (8.80% vs. 2.80%) in object position. This type of error never happened in subject position. Why do the learners use common nouns in object position, but not in subject position? This study cannot provide solutions for the question. When the learners used common nouns instead of NPIs or negative pronouns, they were asked whether they could see those items in the pictures. Even though they were given another chance to change their responses if they say ‘No’, some ESL learners did not want to change their responses. In Experiment 5, this type of error will be discussed again.

4.8. Conclusion

In sum, the Korean learners of English in Experiment 2 did not produce NPIs in subject position except for a few cases produced by a couple of the ESL learners in EIII. However, they did produce NPIs in object position. This may be due to the fact that they
realize that there is a c-command requirement on NPIs in English, even though their L1 doesn’t exhibit this requirement. Another possibility seems to involve their input. Perhaps, they did not produce NPIs in subject position because they had never heard it there before and they did in object position because they heard patterns in which NPIs occur in object position. In addition, all the ESL groups showed a preference for NPIs over negative pronouns in object position.
CHAPTER 5
THE FIRST LANGUAGE ACQUISITION OF NPIs
IN SIMPLE SENTENCES IN KOREAN

5.0. Introduction

This chapter discusses an experimental study on Korean-speaking children’s acquisition of Korean *amwu*-type NPIs (Experiment 3) in simple sentences in Korean. This experiment, which consists of an elicited production task, is devised to elicit structures in which NPIs and negative *an* occur in subject and object positions.

The organization of this chapter is as follows. The relevant structures are introduced in section 5.1, previous studies are discussed in section 5.2 and the research questions are addressed in section 5.3. The methodology is discussed in section 5.4, followed by section 5.5 which describes the manner in which the responses produced by the participants are analyzed and scored. The results from Experiment 3 are then reported and discussed in sections 5.6 through 5.9. The last section contains concluding remarks.

5.1. Relevant structures

As noted in our discussion of the acquisition of *any*-type NPIs, there is a subject-object asymmetry in simple sentences in English with respect to the distribution of NPIs.
(1) a. John didn’t see anyone.
   b. *Anyone didn’t see John. (cf. No one saw John.)

   Now, let us turn to the amwuto-type NPIs in Korean. Consider the Korean sentences in (2).

(2) a. amwuto John-ul an manna-ss-ta. (SFN)
       anyone -Acc not meet -Past-Dec
       ‘No one met John.’ (Lit: ‘*Anyone did not meet John.’)

   b. amwuto John-ul manna-ci anh-ass-ta. (LFN)
       anyone -Acc meet -CI not.do-Past-Dec
       ‘No one met John.’ (Lit: ‘*Anyone did not meet John.’)

       anyone -Acc not meet -Past-Dec
       ‘*Anyone met John.’

   d. John-i amwuto an manna-ss-ta. (SFN)
       -Nom anyone not meet -Past-Dec
       ‘John did not meet anyone.’

   e. John-i amwuto manna-ci anh-ass-ta. (LFN)
       -Nom anyone meet -CI not.do-Past-Dec
       ‘John did not meet anyone.’

       -Nom anyone not meet -Past-Dec
       ‘John met anyone.’

Unlike English, Korean has no subject/object asymmetry in simple sentences in terms of licensing NPIs, regardless of whether the sentence contains Short Form Negation (SFN) or Long Form Negation (LFN). The Korean NPIs amwuto can occur in subject position,
as (2a) and (2b) show, or in object position, as shown in (2d) and (2e). The NPI *amwuto* and its licenser *an* co-occur in the same clause, as shown in (2a), (2b), (2d) and (2e). In contrast, the NPI *amwuto* in (2c) and (2f) cannot occur without the negative *an* because it cannot be licensed.

5.2. Previous research

There has been no previous research specifically targeting the acquisition of NPIs in Korean. However, one of Kim’s experiments (1995) incidentally involved NPIs in Korean because it required them as a possible answer in his task. When he examined the scope interaction between a *Wh* phrase and a quantifier phrase, he gave Korean children aged 2 to 8 a pretest to make sure that they had acquired the word *motunkes* ‘everything’. In that pretest, he showed them two pictures: one is a picture in which there is an empty chair and the other a picture in which there is a man who is sitting on the chair. Kim asked them who is sitting in the chair. He expected them to produce answers in Korean corresponding to *nobody* in English, which involves using an NPI, as illustrated in (3) and (4).

(3) *Amwuto an anc-a iss-eyo* or amwuto anc-a iss-ci anh-ayo.
   Anyone not sit-INF be-POL anyone sit-INF be-CI not.do-POL
   ‘Nobody is sitting.’

(4) amwuto eps-eyo.
   Anyone not.exist
   ‘There is nobody.’
Table 5.1 shows the raw numbers of NPI answers in the Korean pretest.

Table 5.1. Raw numbers for NPI answers in Korean pretest (Kim 1995: 179)

<table>
<thead>
<tr>
<th>Age</th>
<th># of subjects</th>
<th>NPI answer</th>
<th>Don't know</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>9</td>
<td>0/9 (0%)</td>
<td>-</td>
<td>9/9 (100%)</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>2/10 (20%)</td>
<td>1/10 (10%)</td>
<td>7/10 (70%)</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>2/10 (20%)</td>
<td>4/10 (40%)</td>
<td>4/10 (40%)</td>
</tr>
<tr>
<td>5</td>
<td>12</td>
<td>9/12 (75%)</td>
<td>1/12 (8%)</td>
<td>2/12 (17%)</td>
</tr>
<tr>
<td>6</td>
<td>10</td>
<td>10/10 (100%)</td>
<td>-</td>
<td>0/10 (0%)</td>
</tr>
<tr>
<td>7</td>
<td>10</td>
<td>10/10 (100%)</td>
<td>-</td>
<td>0/10 (0%)</td>
</tr>
<tr>
<td>8</td>
<td>10</td>
<td>10/10 (100%)</td>
<td>-</td>
<td>0/10 (0%)</td>
</tr>
<tr>
<td>Total</td>
<td>71</td>
<td>43/71 (60.6%)</td>
<td>6/71 (8.5%)</td>
<td>22/71 (30.9%)</td>
</tr>
</tbody>
</table>

Kim claims that in contrast to the single word *nobody* in English, using an NPI plus a negative in Korean is difficult. In addition, he concludes that Korean children do not have the ability to provide an NPI answer at age 4 and assumes that saying *I don't know* is another way to respond at that age.

In a longitudinal study, Hahn (1981) reports that her son produced *amettwo*—an immature form of adult *amwuketo* at age 3;1. She claims that he had never used the form *amettwo* in affirmative sentence, and seems to formulate a frame in which *amwuttwo* is followed by a negative *an* plus a verb. This is evidence that he realized that the NPI *amettwo* must be licensed by a negative.

5.3. Research questions

According to Kim (1997a, 1997b), Korean children start to use Short Form Negation (SFN) as early as 1;7 and Long Form Negation (LFN) emerges at around 3;3. Based on Kim’s claim, it can be assumed that the 3-year-old Korean children who
participated in the present experimental study can produce at least SFN and may have started using LFN. If the Korean-speaking children know Korean negation, one question we can ask is whether they know the NPIs, such as *amwuto* and *amwukesto*, and the conditions that license them, and that there is no subject/object asymmetry in simple sentences in Korean.

Therefore, the purpose of this experiment is to examine Korean-speaking children's production of Korean *amwu*-type NPIs in simple sentences. The research questions for Experiment 3 are as follows:

(2) (i) Do NPI responses differ by position and by age group?

(ii) Which is more frequently used, NPI responses in subject position or those in object position?

5.4. Method

5.4.1. Participants

5.4.1.1. Participants for Comparison Group

Twenty-five native speakers of Korean served as controls for Experiment 3—14 females and 11 males. All were born and raised in Korea and their parents are native Korean speakers. At the time of the testing, all the participants except one were undergraduate students at universities in Korea or graduates of various universities in Korea. All were living in Seoul, Korea. Their ages range from 20;5 to 39;9 with a mean age of 29;2. No one who had ever lived in a foreign country participated in this study.
5.4.1.2. Participants for Experiment 3

Four groups of children participated in this study: 25 three-year-olds (K3), 25 four-year olds (K4), 25 five-year-olds (K5), and 25 six-year-old children (K6). All are monolingual native speakers of Korean, born and raised in Korea, with monolingual Korean-speaking parents. None of them had ever lived in another country. All of the participants were attending preschools or kindergartens in Seoul, Korea, at the time the test was carried out. The relevant information about the participants is given in Table 5.2.

Table 5.2. Information about Korean-speaking children

<table>
<thead>
<tr>
<th>Participants</th>
<th>Mean Age</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-year-old children (K3)</td>
<td>3;8</td>
<td>Female: 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male: 10</td>
</tr>
<tr>
<td>4-year-old children (K4)</td>
<td>4;6</td>
<td>Female: 14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male: 11</td>
</tr>
<tr>
<td>5-year-old children (K5)</td>
<td>5;7</td>
<td>Female: 17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male: 8</td>
</tr>
<tr>
<td>6-year-old children (K6)</td>
<td>6;4</td>
<td>Female: 16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male: 9</td>
</tr>
</tbody>
</table>

5.4.2. Materials and Procedure

The method used for the present study involved an elicited production task. The materials and procedure for Korean experiments are exactly the same as the ones used for the English experiments discussed in chapters 3 and 4, except that the instructions were given to the participants in Korean. The participants were tested individually.
Prior to the actual experiment, the children had a vocabulary practice session to make sure that they could correctly identify the animals, objects, and actions which were used in the actual test. For example, the investigator pointed to the picture of a soccer ball and asked each participant a question like ‘What is this?’. The children were expected to say *chwukkwukong* ‘soccer ball’ or *kong* ‘ball’. None of the Korean children had any difficulty with these words.

After the brief vocabulary practice session was complete, two pictures were used to introduce the task. (These were two of the fifteen distractors used to elicit affirmative sentences.) The role of these two pictures is to make the participants understand the task.

In the main test session, thirty-three pictures were used. They consisted of two sets: 13 pictures devised to elicit affirmative sentences and 20 to elicit negative sentences. The former was used as distractors, in parallel with those in Experiments 1 and 2. The twenty pictures to elicit negative sentences were divided into two subsets—ten sentences where an NPI is expected in subject position and ten in which it is expected in object position.

The following instructions were given to each participant.

<INSTRUCTIONS>²

Well, let’s play a game with these picture.

---

¹ Even before a vocabulary practice session with children, a friendly atmosphere, in which the investigator introduced herself to each child and asked his/her name, his/her favorite things, interests and so on, was established.

² Korean has an honorific system, so some of the words and morphemes had been changed when these instructions were presented to the Korean native speakers as well as KSL learners.
Having given the instructions, the investigator presented each picture to the children.

After looking at each picture, the child was asked to tell the other person about it. The expected interaction between a participant and the investigator is shown as follows:
(A) Interaction for NPIs in subject position

The participant and the investigator look at the picture together.

Figure 5.1. Sample picture for NPIs in subject position

Investigator: Nwu-ka cikum panana-lul mek-ko iss-nu-n-ci
Who-Nom now banana-Acc eat- and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.³
friend-to tell-give-HON-POL
‘Please tell your friend who is eating bananas right now.’

Participant: (I) Expected response 1
Amwuto panana-lul an mek-ko iss-eyo. (SFN)
Anyone banana-Acc not eat-and be-POL
‘Nobody is eating bananas.’

³ The Korean progressive construction is made up of –ko iss ta ‘and be (exist) Dec’, which means ‘be –ing’.
OR (II) Expected response 2
Amwuto panana-lul mek-ko iss-ci anh-ayo (LFN)
Anyone banana-Acc eat-and be-CI not.do-POL
‘Nobody is eating bananas.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

(B) Interaction for NPIs in object position

The participant and the investigator look at the picture together.

Figure 5.2. Sample picture for NPIs in object position

Investigator: Thokki-ka cikum mwues-lul tenci-ko iss-nu-n-ci
rabbit-Nom now what-Acc throw-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-Dat tell-give-HON-POL
‘Tell your friend what the rabbit is throwing right now.’
When the children didn’t produce a sentence, they were asked to try again. If they used the sentence *amwuto epsta* ‘There is nobody’, they were asked to try again to use the same verbs that the investigator had used to ask the question. In addition, it is possible to drop a nominative case marker as well as an accusative case marker in Korean. Because the *amwu*-type NPIs cannot carry nominative or accusative case, the investigator should make sure of the positions of the NPIs in a sentence. Therefore, the investigator asked the children to try again or used *wh*-questions if they produced only the NPIs in object position with no accompanying subject or direct object.

The present study used the same words as in Experiments 1 and 2. These words were frequently used and acquired early by Korean-speaking children (Gopnik and Choi 1995, Ha 2001). All the items used for the main tests were arranged in random order. All sessions were tape-recorded for later transcription.
5.5. Response Analyses and Scoring

After all the responses were first transcribed, the test items targeting affirmative sentences were then discarded for the same reason as in Experiments 1 and 2. The remaining twenty test items targeting negative sentences were divided into two sets: those in which an NPI appeared in subject position and those in which it occurred in object position.

The responses were categorized with respect to types. As long as the sentences have the right form of the NPIs accompanied by a negative, they were counted as correct answers. Examples are shown in (3).

(3) Correct Answers for the sentence ‘Nobody is eating bananas.’

(i) amwuto panana-lul an mek-ko iss-eyo. (SFN)
   Anyone banana-Acc not eat-and be-POL
   (Lit: ‘*Anyone is not eating bananas.’)
   ‘Nobody is eating bananas.’

(ii) amwuto panana-lul mek-ko iss-ci anh-ayo. (LFN)
    Anyone banana-Acc eat-and be-CI not.do-POL
    (Lit: ‘*Anyone is not eating bananas.’)
    ‘Nobody is eating bananas.’

(iii) panana-lul mek-ko iss-nu-n salam-i amwuto eps-eyo.
     banana-Acc eat-and be-IN-RL person-Nom anyone not.exist-POL
     ‘There is nobody who is eating bananas.’

(iv) panana-lul mek-ko iss-nu-n salam-un amwuto eps-eyo.
     banana-Acc eat-and be-IN-RL person-Top anyone not.exist-POL
     ‘There is nobody who is eating bananas.’

4 The answer (3 iii) is related to the apposition and (3 iv) to the topicality.
Cases where the participants produced neither the particle \textit{–to} nor negation, or cases where they used the wrong particles or misused a negative were counted as wrong. Examples will be shown in section 5.7.

5.6. Results

The raw numbers and percentage of NPI responses in subject and object position for each group are tabulated in Table 5.3 and schematically represented in Figure 5.3.

Table 5.3. Raw numbers for NPI responses in subject and object positions in Experiment 3

<table>
<thead>
<tr>
<th>groups</th>
<th>positions</th>
<th>NPI in subject position</th>
<th>NPI in object position</th>
</tr>
</thead>
<tbody>
<tr>
<td>K3</td>
<td></td>
<td>249/250</td>
<td>246/250</td>
</tr>
<tr>
<td>K4</td>
<td></td>
<td>250/250</td>
<td>249/250</td>
</tr>
<tr>
<td>K5</td>
<td></td>
<td>247/250</td>
<td>250/250</td>
</tr>
<tr>
<td>K6</td>
<td></td>
<td>249/250</td>
<td>249/250</td>
</tr>
<tr>
<td>KC</td>
<td></td>
<td>245/250</td>
<td>249/250</td>
</tr>
</tbody>
</table>
Figure 5.3. Percentage of NPIs in subject and object positions in Experiment 3

As can be easily seen here, the NPI production rates for NPIs in object position as well as subject position are very high across all four groups.

The mean (M) and the standard deviation (SD) for NPI responses in subject position and object position are shown in Table 5.4.
Table 5.4. Descriptive statistics for Experiment 3

<table>
<thead>
<tr>
<th>Positions</th>
<th>Groups</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>K3</td>
<td>9.96</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>K4</td>
<td>10.00</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>K5</td>
<td>9.88</td>
<td>.33</td>
</tr>
<tr>
<td></td>
<td>K6</td>
<td>9.96</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>KC</td>
<td>9.80</td>
<td>.82</td>
</tr>
<tr>
<td>Object</td>
<td>K3</td>
<td>9.84</td>
<td>.47</td>
</tr>
<tr>
<td></td>
<td>K4</td>
<td>9.96</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>K5</td>
<td>10.00</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>K6</td>
<td>9.96</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>KC</td>
<td>9.96</td>
<td>.20</td>
</tr>
</tbody>
</table>

The research question (2i) is repeated as follows:

(4) Do the NPI responses differ by the NPI positions and the different groups?

A 2-way analysis of variance (ANOVA) with repeated-measures was performed, with the significance level set at \( p < .05 \). The results show that the difference among groups is not statistically different \((F(4, 120)=.573, \ p=.682)\), indicating that these groups share more or less the same mean. Furthermore, the performance with regard to position is not statistically different \((F(1, 120)=.400, \ p=.528)\), showing that NPIs in subject position and those in object position are used with equal frequency for the five groups considered together. The mean for each group and the mean for each NPI position are shown in Table 5.5.
Table 5.5. Mean for each group and mean for each NPI position for Experiment 3

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Positions</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>K3</td>
<td>9.90</td>
<td>Subject</td>
<td>9.920</td>
</tr>
<tr>
<td>K4</td>
<td>9.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K5</td>
<td>9.94</td>
<td>Object</td>
<td>9.944</td>
</tr>
<tr>
<td>K6</td>
<td>9.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KC</td>
<td>9.88</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In addition, there is no statistically significant interaction effect between group and position ($F(4, 120)=1.844, p=.125$). This means that NPIs in subject position and those in object position are used with equal frequency for the five different groups. The interaction between group and NPI position is shown in Figure 5.4.

Figure 5.4. Interaction between group and position in Experiment 3
The 2-way interaction indicates that the effect of position (object position vs. subject position) has a near zero effect on the frequency of NPIs for all five groups.

The pattern in Table 5.6, where the difference between NPI production rate in subject position and object position is shown, indicates that NPIs in object position and those in subject position are used with equal frequency for all the groups. In other words, an equal number of NPIs are produced in subject and object positions by the Korean children aged 3 to 6.

Table 5.6. Difference between subject and object positions for NPI responses in Experiment 3

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean of NPIs in subject position</th>
<th>Mean of NPIs in object position</th>
<th>(\bar{X}<em>{\text{obj}} - \bar{X}</em>{\text{subj}})</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>K3</td>
<td>9.96</td>
<td>9.84</td>
<td>-.12</td>
<td>.53</td>
</tr>
<tr>
<td>K4</td>
<td>10.00</td>
<td>9.96</td>
<td>-.04</td>
<td>.20</td>
</tr>
<tr>
<td>K5</td>
<td>9.88</td>
<td>10.00</td>
<td>.12</td>
<td>.33</td>
</tr>
<tr>
<td>K6</td>
<td>9.96</td>
<td>9.96</td>
<td>.00</td>
<td>.29</td>
</tr>
<tr>
<td>KC</td>
<td>9.80</td>
<td>9.96</td>
<td>.16</td>
<td>.62</td>
</tr>
</tbody>
</table>

5.7. Analyses of Other responses

In Experiment 3, there are two other responses worth noting—one involving a relative clause and the other involving the NPI *hana-to*, as given in (I) and (II). Some additional errors are examplified in (III) and (IV). Each response is illustrated along with an example below.
(I) **Other responses 1 (R1):** Cases where the relative clause is produced without using NPIs

(a) Subject position

**Investigator:**
Nwuka cikum phalan moc-a-lul kaci-ko iss-nu-n-ci sensayngnim-kkey
Who now blue cap-Acc have-and be-IN-RL-Comp teacher-Dat

malhay-cwu-s-eyo.
tell-give-Hon-POL
‘Tell the teacher who has the blue cap right now.’

**Participant:**
Phalan moc-a-lul kaci-ko iss-nu-n ay-ka eps-eyo.
Blue cap –Acc have-and be-IN-RL child-Nom not.exist-POL
‘There is no child who has the blue cap.’

(b) Object position

**Investigator:**
Wenswungi-ka cikum mwues-ul calu-ko iss-nu-n-ci
Monkey-Nom now what-Acc cut-and be-IN-RL-Comp

sensayngnim-kkey malhay-cwu-s-eyo.
teacher-Dat tell-give-Hon-POL
‘Tell the teacher what the monkey is cutting right now.’

**Participant:**
Wenswungi-ka cikum calu-(ko iss)-nu-n kes eps-eyo.
Monkey-Nom now cut–(and be)–IN-RL thing not.exist-POL
(Lit.) ‘There is nothing that the monkey is cutting.’
(II) **Other responses 2 (R2):** Cases where other NPIs such as *hana-to, or nwukwu-to* are used instead of using *amwuto.*

Investigator:
Ttokki-ka cikum mwues-ul ssis-ko iss-nu-n-ci sensayngnim-kkey
Rabbit-Nom now what-Acc wash-and be-IN-RL-Comp teacher-Dat
malhay-cwu-s-eyo.
tell-give-Hon-POL
‘Tell the teacher what the rabbit is washing right now.’

Participant:
Ttokki-ka hana-to an ssis-eyo.
Rabbit-Nom onne-even not wash-POL
‘The rabbit is not washing even a single one.’

(III) **Error Type 1(T1):** Cases where the particle *-to* is deleted with the presence of negation (including the cases where either a nominative case marker or an accusative case marker is used instead of the particle *-to*)

*amwu-Ø sangca wicy an anca iss-eyo.
Any-Ø box on-Loc not sit Prog-POL
‘Nobody is sitting on the box.’

*Amwu chinkwu-tul-i panana-lul an mek-eyo.
Any friend-PL-Nom banana-Acc not eat-POL
‘None of friends eats bananas.’

(IV) **Error Type 2 (T2):** Cases where the NPI *amwu* with or without the particle *-to* is used without negation

*Ttokki-ka amwukesto Ø ssis-ko iss-eyo.
Rabbit-Nom anything not wash-and be-POL
(Lit.) ‘*The rabbit is washing anything.*’
‘The rabbit is not washing anything.’

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In Experiment 3, there are only a few other responses or errors for each group. The incidence of each type of other responses produced by the children and errors is summarized in Table 5.7.

Table 5.7. Types of other responses and errors for Experiment 3

<table>
<thead>
<tr>
<th>positions</th>
<th>Types</th>
<th>K3</th>
<th>K4</th>
<th>K5</th>
<th>K6</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBJECT</td>
<td>R1</td>
<td>0/250</td>
<td>0/250</td>
<td>2/250</td>
<td>0/250</td>
</tr>
<tr>
<td></td>
<td>R2</td>
<td>0/250</td>
<td>0/250</td>
<td>0/250</td>
<td>1/250</td>
</tr>
<tr>
<td></td>
<td>T1</td>
<td>1/250</td>
<td>0/250</td>
<td>1/250</td>
<td>0/250</td>
</tr>
<tr>
<td></td>
<td>T2</td>
<td>0/250</td>
<td>0/250</td>
<td>0/250</td>
<td>0/250</td>
</tr>
<tr>
<td>OBJECT</td>
<td>R1</td>
<td>0/250</td>
<td>0/250</td>
<td>0/250</td>
<td>0/250</td>
</tr>
<tr>
<td></td>
<td>R2</td>
<td>2/250</td>
<td>1/250</td>
<td>0/250</td>
<td>0/250</td>
</tr>
<tr>
<td></td>
<td>T1</td>
<td>0/250</td>
<td>0/250</td>
<td>0/250</td>
<td>0/250</td>
</tr>
<tr>
<td></td>
<td>T2</td>
<td>2/250</td>
<td>0/250</td>
<td>0/250</td>
<td>1/250</td>
</tr>
</tbody>
</table>

5.8. Results with regard to negation

As discussed in chapter 2, there are two types of negation in Korean—short form negation (SFN) and long form negation (LFN). The types of negation produced by the participants while they were producing the NPIs are briefly reported in this section.

The Korean children aged 3 to 5 exhibited a strong preference for SFN. The Korean children at age 6 manifested a remarkable difference in terms of using LFN not only in subject position but also in object position. The results for negation are shown in Table 5.8.
Table 5.8. Types of Negation when NPIs were expected to occur in subject position and object position in Experiment 3

<table>
<thead>
<tr>
<th>Groups</th>
<th>NPIs in subject position</th>
<th></th>
<th></th>
<th>NPIs in object position</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SFN</td>
<td>$epsta$ (not.exist)</td>
<td>LFN</td>
<td>SFN</td>
<td>$epsta$ (not.exist)</td>
<td>LFN</td>
</tr>
<tr>
<td>K3</td>
<td>246</td>
<td>1</td>
<td>3</td>
<td>K3</td>
<td>249</td>
<td>0</td>
</tr>
<tr>
<td>K4</td>
<td>240</td>
<td>3</td>
<td>7</td>
<td>K4</td>
<td>241</td>
<td>0</td>
</tr>
<tr>
<td>K5</td>
<td>235</td>
<td>6</td>
<td>9</td>
<td>K5</td>
<td>241</td>
<td>0</td>
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<td>K6</td>
<td>184</td>
<td>8</td>
<td>58</td>
<td>K6</td>
<td>194</td>
<td>4</td>
</tr>
</tbody>
</table>

5.9. Discussion

According to Kim (1995), Korean-speaking children are not ready to provide an NPI answer in Korean until age 6. However, what was found in Experiment 3 seems inconsistent with his findings in that the Korean children aged 3 to 6 have no difficulty producing NPIs not only in subject position but also in object position. In addition, they produce an equal number of NPIs in subject and object positions. When Kim carried out the study, it was a part of a one-token pretest to examine children’s ability to provide nobody-type answers in Korean. Based on one token for each child, it was evidently premature to draw such a conclusion.

In Experiment 3, Korean-speaking children exhibited adult-like responses except for the form of negation that they produced. When they were asked to answer the questions in Experiment 3, many of them produced the sentence $awmuto epsta$ ‘Nobody exists’ or ‘There is nobody’ at first. The younger the Korean-speaking children are, the more likely they are to use the verb $epsta$ ‘not exist’. When the investigator emphasized
the targeted verb and asked them to tell the teacher or the friend again, they were in most cases able to use the verb that the investigator used and to negate it properly.

Children showed a very strong preference for SFN. This contrasts with LFN preferred by KC (adult native Korean speakers). Until age 5, the Korean-speaking children dominantly produced SFN. At age 6, the Korean-speaking children started to show more productivity in using LFN. Evidence that Korean children acquire SFN earlier than LFN can be found in various studies. According to Choi and Zubin (1985), the LFN did not emerge until age 3;5 in their longitudinal study of two Korean children. Kim (1997) reported that the LFN occurs in children’s speech at 3;3, whereas the SFN is produced as early as 1;7.

According to Kim (1997), Korean children make errors in misplacing negative *an* in the SFN until 3;5, as shown in (5).

(5) *an hakkyo ka. (Y 3;5)  (Kim 1997a:379)
   Neg school go
   ‘(I) don’t go to school.’
   (cf. Hakkyo an ka.)

What should be noted is that the Korean-speaking children aged 3 to 6 in Experiment 3 did not make a single error in producing the SFN, even though their responses involve more syntactically complicated sentences than (5). The following example is one of the three-year-old children’s responses.
In addition, the children seemed to know that the NPIs must be accompanied by negative *an* because they rarely made the mistake of not using this morpheme (a total of 3 out of 2000 (.15%) when there is an NPI in either position among all four groups). Based on a longitudinal study of her son, Hahn (1981) reported that the unanalyzed NPI form *amwuttwo*, which is comparable to the NPI *amwukesto* in adult grammar, emerges at 3;1 and that he uses it in negative sentences all the time. Further supporting evidence that children know the NPI licensing requirement comes from the fact that they are aware of the obligatory appearance of the particle *-to* in producing *amwu*-type NPIs in Korean. They dropped it in just two cases out of 2000 (.10%).

Some of the Korean-speaking children produced some sentences involving right dislocation of the subject in which an NPI in object position plus a negative precede a subject without a pause between *isseyo* and *ttokki-ka*, as shown in (7).

(7) *amwukesto* *an ssis-ko iss-eyo, ttokki-ka yo.*  
anything not wash-and be-POL rabbit-Nom POL  
'The rabbit is not washing anything.'

Based on the findings mentioned above, we can conclude that the children's responses show no subject/object asymmetry for Korean NPIs, even at the earliest stages at which negation and NPIs are found.
5.10. Conclusion

This chapter has dealt with Korean-speaking children’s acquisition of Korean NPIs. My study revealed that children aged 3 to 6 produced an equal number of NPIs in subject position and object position. There is no sign of a subject/object asymmetry, even very early in the language acquisition process. This is consistent with the properties of the adult language. In addition, the findings from Experiment 3 suggest that the Korean-speaking children as early as age 3 can produce NPIs in Korean.

However, this study cannot determine how early Korean-speaking children learn the clause mate condition on Korean NPI licensing since none of the test items were designed to elicit bi-clausal responses. This matter must therefore be left for future research.
CHAPTER 6
THE SECOND LANGUAGE ACQUISITION OF NPIs
IN SIMPLE SENTENCES IN KOREAN

6.0. Introduction

This chapter reports on an experiment on Korean as a second language (KSL) learners’ acquisition of Korean *amwu*-type NPIs (Experiment 4) in simple sentences. Experiment 4 consisted of an elicited production task designed to elicit structures in which an NPI occurs in subject or object position along with negative *an* in the same clause.

The organization of this chapter is as follows. Section 6.1 introduces the relevant structures, while the research questions are addressed in section 6.2. The methodology and the manner of analyzing and scoring the KSL learners’ responses used in Experiment 4 are the same as in Experiment 3, so only the differences between Experiment 3 and Experiment 4, such as the participants, the instruction and so on, are discussed in sections 6.3 and 6.4. The results from Experiment 4 are then reported and discussed in sections 6.5 through 6.8. The last section provides a conclusion.

6.1. Relevant structures

The relevant structures for Experiment 4 are the same as for Experiment 3, as shown in (1).
a. Sentences in which an NPI occurs in subject position along with Short Form Negation (SFN)

\[ \text{amwuto } \text{John-ul an manna-ss-ta.} \]
\[ \text{anyone} \quad \text{-Acc} \quad \text{not meet} \quad \text{-Past-Dec} \]
\[ \text{(Lit.)} \quad \text{‘Anyone did not meet John.’} \]
\[ \text{‘No one met John.’} \]

b. Sentences in which an NPI occurs in subject position along with Long Form Negation (LFN)

\[ \text{amwuto } \text{John-ul manna-ci anh-ass-ta.} \]
\[ \text{anyone} \quad \text{-Acc} \quad \text{meet} \quad \text{-CI} \quad \text{not.do-Past-Dec} \]
\[ \text{(Lit.)} \quad \text{‘Anyone did not meet John.’} \]
\[ \text{‘No one met John.’} \]

c. Sentences in which an NPI occurs in object position along with SFN

\[ \text{John-i amwukesto an sa-ss-ta.} \]
\[ \text{-Nom} \quad \text{anything} \quad \text{not buy-Past-Dec} \]
\[ \text{‘John did not buy anything.’} \]

d. Sentences in which an NPI occurs in object position along with LFN

\[ \text{John-i amwukesto sa-ci anh-ass-ta.} \]
\[ \text{-Nom} \quad \text{anything} \quad \text{buy} \quad \text{-CI} \quad \text{not.do-Past-Dec} \]
\[ \text{‘John did not buy anything.’} \]

As already discussed in 5.1, the Korean NPIs amwuto or amwukesto can occur in subject position, as in (1a) and (1b), or in object position, as shown in (1c) and (1d). Thus, there is no c-command requirement in terms of licensing NPIs in Korean. In other words, there is no subject/object asymmetry on NPIs in simple sentences in Korean.
6.2. Research questions

If KSL learners can produce Korean negation, we might ask whether they know NPIs such as *amwuto* and *amwukhesto*, the conditions that license them, and the fact that there is no subject/object asymmetry in simple sentences in Korean.

Therefore, Experiment 4 investigates KSL learners’ production of Korean *amwu-* type NPIs in simple sentences. The research questions for Experiment 4 are as follows:

(2) (i) Do NPI responses differ by position and by learner group?

(ii) Which is more frequently used, NPI responses in subject position or those in object position?

6.3. Method

6.3.1. Participants

6.3.1.1. Participants for Comparison Group

The twenty-five native Korean speakers from Experiment 3 serve as a comparison group in Experiment 4. See 5.4.1.1 for details.

6.3.1.2. Participants for Experiment 4

There were three groups of university students who were learning Korean at the time of the testing: twenty-five advanced KSL learners (KIII), twenty-five intermediate KSL learners (KII) and twenty-five beginning KSL learners (KI). Six KSL learners from KI, four KSL learners from KII, and 2 KSL learners from KIII were students at
University of Hawai‘i; the remainder were students at the University of California, San Diego at the time of the testing. The division of these KSL learners into three groups was problematic because there was no official test to determine their proficiency levels of Korean. KSL learners at both universities must take a placement test to be assigned to classes. Based on the class levels and the instructors' opinions about their students' proficiency in Korean at the University of California, San Diego, the grouping was done first. The students in KI had been studying Korean for almost one year at the time of the testing. The twelve students from the three different Korean classes at the University of Hawai‘i at Mānoa were tested and assigned to a level after talking to the instructors.

Table 6.1 shows the relevant information about the participants.

Table 6.1. Information about KSL learners

<table>
<thead>
<tr>
<th>Groups of Participants</th>
<th>Mean Age</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced KSL (KIII)</td>
<td>21;1</td>
<td>Female: 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male: 10</td>
</tr>
<tr>
<td>Intermediate KSL (KII)</td>
<td>21;7</td>
<td>Female: 16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male: 9</td>
</tr>
<tr>
<td>Beginning KSL (KI)</td>
<td>22;3</td>
<td>Female: 11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male: 14</td>
</tr>
</tbody>
</table>

The KSL learners have very different backgrounds in terms of their birthplace and the language(s) in which their parents speak to them, as shown in Tables 6.2. and 6.3.
Table 6.2. Birthplace for KSL groups

<table>
<thead>
<tr>
<th>Birthplace</th>
<th>Groups</th>
<th>KI</th>
<th>KII</th>
<th>KIII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>3</td>
<td>11</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>U.S.A.</td>
<td>21</td>
<td>12</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1 (Japan)</td>
<td>2 (Canada, Brazil)</td>
<td>1 (Samoa)</td>
<td></td>
</tr>
</tbody>
</table>

Half of the KSL learners who were born in Korea came to America before age 5 and the other half immigrated to USA in the early grades (1st, 2nd grades) of elementary school.

Table 6.3. Languages that KSL learners’ parents speak to them

<table>
<thead>
<tr>
<th>Lang.</th>
<th>Groups</th>
<th>KI</th>
<th>KII</th>
<th>KIII*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Father (F)</td>
<td>Mother (M)</td>
<td>Father (F)</td>
<td>Mother (M)</td>
</tr>
<tr>
<td>Korean</td>
<td>9</td>
<td>7</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>English</td>
<td>7</td>
<td>7</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Both Korean &amp; English</td>
<td>7</td>
<td>10</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Japanese</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Three KSL learners in KIII did not provide this information.

The total number of parents who speak Korean to their children is 16 fathers and 17 mothers in KI, 22 fathers and 23 mothers in KII, and 21 fathers and 19 mothers in KIII.

6.3.2. Materials and Procedure

To elicit structures in which an NPI occurs with a negative an in subject and object positions in Korean, an elicited production task was carried out. The materials and
procedure employed in Experiment 4 are exactly the same as the ones used in Experiment 3. The task was administered individually. See 5.4.2 for more information.

Before the main test was given, the KSL learners received exactly the same vocabulary practice session as the Korean-speaking children did in order to ensure that they could correctly name animals, objects, and actions which were used in the actual test. While no Korean children had any difficulty with these words, some of the beginning KSL learners needed to practice them a couple of times because they didn’t know some words, such as *kom* ‘bear’, *wenswungi* ‘monkey’, *saca* ‘lion’, *chata* ‘kick’, and so on.¹

After two pictures were used to help them understand the task, the participants were presented with thirty-three pictures in the main test session—13 pictures devised to elicit affirmative sentences and 20 to elicit negative sentences. The former served as distractors. The latter consisted of two subsets—ten sentences in which an NPI is expected in subject position and ten in which it is expected in object position.

¹ Before I went to University of California, San Diego to collect the data, the Korean instructor in charge of the Korean program there told me that she taught the NPIs to all the KSL learners to make sure that they were exposed to the NPI construction and lexical item. I asked her not to teach the NPIs just before the test so as not to bias the data.
The following instructions were given to each participant.

<INSTRUCTIONS>²

"Ca, cikumpwuthie ce hako i kulim-ul kaciko keyim-ul hay-yo.
Well, now-from I(HON) with this picture-Acc with game-Acc do-POL
Well, let's play a game with these picture.

Ceki iss-nu-n chinkwu-nun i kulim-(tul)-ul pol-swu-eps-eyo.
Over there be-IN-RL friend-Top this picture-(PL)-Acc see-able-not-POL
The friend over there cannot see these pictures.

wuli-man i kulim-ul pol-swu-iss-eyo.
we- only this picture-Acc see-able-be-POL
Only you and I will see these pictures.

ceki iss-nu-n chinkwu-nun wuli-ka mwusun kulim-ul
over there be-IN-RL friend -Top we-Nom what picture
The teacher sitting over there will wonder what kinds of pictures we are

po-ko iss-nu-n-ci kwungkumhayha-keyss-cyo?
see-and be-IN-RL-Comp wonder -think-Que
looking at, won't she?

kulim-ul cal po-ko chinkwu-hantey mwusun kulim-ul
picture-Acc well see-and friend-to what picture-Acc
After looking at these pictures, please tell your teacher what kind of picture

po-ko iss-nu-n-ci cal iyakihay-cwu-sey-yo. Sicakha-I-kkayo?”
see-and be-IN-RL-Comp well tell-give-Hon-POL start-Fut-Que
you are looking at. Can we start? (or Are you ready?)'
These instructions were given to all the participants in Korean, but the KSL learners were also instructed in English, if necessary, after the investigator asked them whether they understood the procedure or not in order to ensure that they understood what they should do. After the instructions were provided, the investigator presented each picture to the participants. After the participant and the investigator looked at each picture together, the participant was asked to tell the other person about it. The expected interaction between the participant, the investigator, and the pictures used in Experiment 4 are the same as in Experiment 3. See 5.4.2 for the information about them.

When the KSL learners didn’t produce a sentence, they were asked to try again. If they used the sentence *amwuto epsta* ‘There is nobody’, they were asked to try again to use the same verbs that the investigator had used to ask the question. In addition, it is possible to drop a nominative case marker as well as an accusative case marker in Korean. Because the *amwuto*-type NPIs cannot carry nominative or accusative case, the investigator should make sure of the positions of the NPIs in a sentence. Therefore, the investigator asked the participants to try again or used *wh*-questions if they produced only NPIs in object position with no accompanying subject or direct object.

The words used in Experiment 4 were the same words as in Experiment 3. All the items used for the main tests were arranged in random order. All sessions were tape-recorded for later transcription.
6.4. Response Analyses and Scoring

The analyses for all responses in Experiment 4 are the same as for Experiment 3. See 5.5 for analyzing and scoring the KSL learners’ responses.

6.5. Results

The raw numbers for NPI responses in subject and object positions for the KSL groups (KI, KII and KIII) and the Korean-speaking comparison group are given in Table 6.4.

Table 6.4. Raw numbers for NPIs in subject and object positions for Experiment 4

<table>
<thead>
<tr>
<th>groups</th>
<th>positions</th>
<th>NPIs in subject position</th>
<th>NPIs in object position</th>
</tr>
</thead>
<tbody>
<tr>
<td>KI</td>
<td></td>
<td>92/250</td>
<td>107/250</td>
</tr>
<tr>
<td>KII</td>
<td></td>
<td>187/250</td>
<td>203/250</td>
</tr>
<tr>
<td>KIII</td>
<td></td>
<td>219/250</td>
<td>239/250</td>
</tr>
<tr>
<td>KC</td>
<td></td>
<td>245/250</td>
<td>249/250</td>
</tr>
</tbody>
</table>

Figure 6.1 graphically depicts percentage of NPI responses in subject and object positions for the KSL groups (KI, KII and KIII) and the Korean-speaking comparison group (KC).
As shown in Figure 6.1, there seems to be no big difference between NPIs in subject position and those in object position within each group. However, the patterns of responses across the groups are remarkably different with regard to NPIs in subject position and those in object position.

The mean ($M$) and the standard deviation (SD) of the NPI responses targeting subject and object positions for KSL groups and the KC group are displayed in Table 6.5.
Table 6.5. Descriptive Statistics for NPI responses in Experiment 4

<table>
<thead>
<tr>
<th>Positions</th>
<th>Groups</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>KI</td>
<td>3.68</td>
<td>4.15</td>
</tr>
<tr>
<td></td>
<td>KII</td>
<td>7.48</td>
<td>3.48</td>
</tr>
<tr>
<td></td>
<td>KIII</td>
<td>8.76</td>
<td>2.09</td>
</tr>
<tr>
<td></td>
<td>KC</td>
<td>9.80</td>
<td>.82</td>
</tr>
<tr>
<td>Object</td>
<td>KI</td>
<td>4.28</td>
<td>4.45</td>
</tr>
<tr>
<td></td>
<td>KII</td>
<td>8.12</td>
<td>3.07</td>
</tr>
<tr>
<td></td>
<td>KIII</td>
<td>9.56</td>
<td>1.29</td>
</tr>
<tr>
<td></td>
<td>KC</td>
<td>9.96</td>
<td>.20</td>
</tr>
</tbody>
</table>

As in Experiment 3, a 2-way analysis of variance (ANOVA) with repeated-measures on the NPI positions was performed. The significance level was set at $p < .05$. The result in Table 6.5 shows that KC had the highest mean, followed by KIII, KII and KI, with a statistically significant difference among these groups ($F(3, 96)=23.788$, $p<.001$).

With regard to NPI positions, the small difference between subject position and object position is statistically significant ($F(1, 96)=8.414$, $p=.005$), indicating that NPIs are used more frequently in object position than in subject position for the four groups considered together. The mean for each group and the mean for each NPI position are shown in Table 6.6.

Table 6.6. Mean for each group and mean for each NPI position for Experiment 4

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Positions</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>KI</td>
<td>3.98</td>
<td>Subject</td>
<td>7.43</td>
</tr>
<tr>
<td>KII</td>
<td>7.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KIII</td>
<td>9.16</td>
<td>Object</td>
<td>7.98</td>
</tr>
<tr>
<td>KC</td>
<td>9.88</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In contrast, the interaction effect between group and position is not statistically significant ($F (3,96)=.522, p=.668$). This is schematically represented in Figure 6.2.

Figure 6.2. Interaction between group and position in Experiment 4

![Diagram showing interaction between group and position in Experiment 4]

The 2-way interaction indicates that the effect due to position is almost uniform for the four Korean proficiency groups. The fact that Figure 6.2 has parallel lines between subject and object positions for all the groups reflects this lack of interaction.

The pattern in Table 6.7 indicates that all four groups do not manifest a large difference in terms of position.
Table 6.7. Difference between object and subject positions for NPI responses in Experiment 4

<table>
<thead>
<tr>
<th>Groups</th>
<th>NPI responses in object position</th>
<th>NPI responses in subject position</th>
<th>$\bar{X}<em>{obj} - \bar{X}</em>{subj}$</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>KI</td>
<td>4.28</td>
<td>3.68</td>
<td>.60</td>
<td>2.52</td>
</tr>
<tr>
<td>KII</td>
<td>8.12</td>
<td>7.48</td>
<td>.64</td>
<td>2.16</td>
</tr>
<tr>
<td>KIII</td>
<td>9.56</td>
<td>8.76</td>
<td>.80</td>
<td>1.73</td>
</tr>
<tr>
<td>KC</td>
<td>9.96</td>
<td>9.80</td>
<td>.16</td>
<td>.62</td>
</tr>
</tbody>
</table>

Notice that the difference between the mean number of NPI responses in object position and the mean number of NPI responses in subject position is less than 1 for all four groups.

An examination of the performance of individual KSL learners in KIII and KII who got more than 7 out of 10 correct responses in object position reveals that 9 KSL learners in KII and 13 in KIII produced an equal number of NPIs in subject and object positions. Furthermore, 7 participants in KII and 4 in KIII had a difference of just 1 between the NPIs responses in subject position and those in object position. In addition, 2 participants in KII and 4 participants in KIII produced 2 more NPIs in subject position than in object position or vice versa. Table 6.8 represents the number of KSL learners depending on the differences between their NPI responses in subject and object positions.
Table 6.8. The number of KSL learners depending on the differences between their NPI responses in subject position and those in object position*

<table>
<thead>
<tr>
<th></th>
<th>KII</th>
<th>KIII</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># total # of NPIs in object position—total # of NPIs in subject position</td>
<td># total # of NPIs in object position—total # of NPIs in subject position</td>
</tr>
<tr>
<td>0</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

* Four out of twenty-five KSL learners in KIII were excluded in Table 6.8 because one of them got 4 out of 10 in object position and three of them have more than 5 in terms of the difference between NPIs in subject position and object positions.

The patterns in Table 6.8 suggest that 18 out of 25 KSL learners in KII and 21 out of 25 KSL learners in KIII realize that there is no c-command requirement on NPI in Korean, because they produced a nearly equal number of NPIs in subject and object positions.

6.6. Analyses of Other responses

Only one type of other response in Experiment 4 involves a relative clause, as exemplified in (I). In addition, five types of errors made by KSL learners are exemplified in (II) through (VI).
(I) **Other responses 1 (R1):** Cases where the relative clause without using NPIs is produced

(a) Subject position

Investigator:
Nwuka cikum phalan moca-lul kaci-ko iss-nu-n-ci sensayngnim-kkey
Who now blue cap-Acc have-and be-IN-RL-Comp teacher-Dat
'Tell the teacher who has the blue cap right now.'

malhay-cwu-s-eyo.
tell-give-Hon-POL

Participant:
Phalan moca-lul kaci-ko iss-nu-n ay-ka eps-eyo.
Blue cap -Acc have-and be-IN-RL child-Nom not.exist-POL
'There is no child who has the blue cap.'

(b) Object position

Investigator:
Wenswungi-ka cikum mwues-ul calu-ko iss-nu-n-ci
Monkey-Nom now what-Acc cut-and be-IN-RL-Comp
'Tell the teacher what the monkey is cutting right now.'

sensayngnim-kkey malhay-cwu-s-eyo.
teacher-Dat tell-give-Hon-POL

Participant:
Wenswungi-ka cikum calu-(ko iss)-nu-n kes eps-eyo.
Monkey-Nom now cut -(and be)-IN-RL thing not.exist-POL
'There is not a thing that the monkey is cutting.'

(II) **Error Type 1(T1):** Cases where the particle *to* is deleted with the presence of negation (including the cases where either a nominative case marker or an accusative case marker is used instead of the particle *to*)
*amwu-Ø sangca wiey an anca iss-eyo.
Any- Ø box on-Loc not sit Prog-POL
‘Nobody is sitting on the box.’

*Amwu chinkwu-tul-i panana-lul an mek-eyo.
Any friend-PL-Nom banana-Acc not eat-POL
‘No friends are eating bananas.’

(III) Error Type 2 (T2): Cases where the NPI amwu with or without the particle -to is used without negation

*Ttokki-ka amwukesto Ø ssis-ko iss-eyo.
Rabbit-Nom anything not wash-and be-POL
(Lit.) ‘The rabbit is washing anything.’
‘The rabbit is not washing anything.’

*Amwu salam-Ø panana Ø mekko iss-eyo.
Any person banana not eat be-POL
(Lit.) ‘Anyone is eating bananas.’
‘Nobody is eating bananas.’

(IV) Error Type 3 (T3): Cases where the NPI occurs with double negation

Amwuto panana an mekko iss-ci anh-ayo.
Anyone banana not eat be-CI not.do-POL
(Lit.) ‘Nobody is not eating bananas.’

(V) Error Type 4 (T4): Cases where the NPI amwu occurs with the particle -na or -nato

*Saca-ka cikum amwuke-na/nato an cha-ko iss-eyo.
Lion-Nom now any not kick-and be-POL
‘The lion is not kicking anything right now.’
(VI) **Error Type 5 (T5): Other category**

Other cases have nothing to do with the cases described above, such as dropping an argument which the participant was asked to produce, using the words *salam* ‘person’, *nwukwu*(*na*) ‘who’, or *mwues-ul* ‘what-Acc’ instead of using the appropriate NPIs, or producing just a sentence fragment. The following subsections introduce the kinds of errors or other responses each group has made and how many times they were made. A couple of examples are shown below.

**Investigator:**

*Nwuka cikum kong-ul cha-ko iss-nu-n-ci sensayngnim-kkey malhay-cwu-s-eyo.*

*Who now ball-Acc kick-and be-IN-RL-Comp teacher-Dat tell-give-Hon-POL*  
*Tell the teacher who is kicking the ball right now.*

*Salam-i kong-ul an cha-yo.*  
*Person-Nom ball-Acc not kick-POL*  
*‘A person is not kicking the ball.’*

**OR**

*Ø kong-ul an cha-yo.*  
*Ø ball-Acc not kick-POL*  
*‘(A person) is not kicking the ball.’*

In Experiment 4, aside from one type of other response, there are four types of errors when NPIs were expected in subject and object positions. These errors and other response are schematically represented in Figures 6.3 and 6.4 along with the data table.
Figure 6.3. Other responses and errors in subject position for Experiment 4

![Graph of other responses and errors in subject position for Experiment 4.]

<table>
<thead>
<tr>
<th>Types of Responses</th>
<th>R1</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T5</th>
</tr>
</thead>
<tbody>
<tr>
<td>KI</td>
<td>27.20%</td>
<td>7.20%</td>
<td>3.60%</td>
<td>0.40%</td>
<td>24.80%</td>
</tr>
<tr>
<td>KII</td>
<td>14.00%</td>
<td>4.80%</td>
<td>2.40%</td>
<td>0.00%</td>
<td>4.00%</td>
</tr>
<tr>
<td>KIII</td>
<td>11.60%</td>
<td>0.00%</td>
<td>0.40%</td>
<td>0.40%</td>
<td>0.00%</td>
</tr>
<tr>
<td>KC</td>
<td>2.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

Figure 6.4. Other responses and errors in object position for KSL

![Graph of other responses and errors in object position for KSL.]

<table>
<thead>
<tr>
<th>Types of Responses</th>
<th>R1</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T5</th>
</tr>
</thead>
<tbody>
<tr>
<td>KI</td>
<td>16.00%</td>
<td>3.60%</td>
<td>0.00%</td>
<td>4.80%</td>
<td>32.80%</td>
</tr>
<tr>
<td>KII</td>
<td>8.00%</td>
<td>2.00%</td>
<td>2.80%</td>
<td>3.60%</td>
<td>2.40%</td>
</tr>
<tr>
<td>KIII</td>
<td>3.60%</td>
<td>0.40%</td>
<td>0.40%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>KC</td>
<td>0.40%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

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What is interesting here is that the participants in each group use the relative clause to express the sentences targeting the NPIs, as shown in (3).

     Anyone red shoes-Acc wear-and be-CI not.do-POL
     ‘Nobody is wearing red shoes.’

Relative clause: [ _____ ppalkan sin-ul sin-u-n ] salam-i eps-eyo.
     red shoes-Acc wear-IN-RL person-Nom not.exist-POL
     ‘There is no one who is wearing red shoes.’

Furthermore, the less fluent the group is, the stronger is the preference for using relative clauses. In addition, all the groups produced the relative clause sentences more in subject position than in object position. Based on Error Type 1, the groups with low proficiency of Korean have a tendency to be careless in using the particle –to. In addition, all the groups made more errors in subject position, relative to those in object position.

With regard to Error Type 2, the KSL learners in KI occasionally dropped a negative word in subject position (3.60% of the time), whereas they never did in object position. The group KI produced double negation (Error Type 3) in subject position only. The groups KI and KII used the wrong particles attached to the word amwup in object position only. This is due to the confusion between amwukesina ‘anything’ and amwukesto ‘anything’, or the word amwukelato ‘anything’. \(^3\) Some participants in KI and

\(^3\) amwukelato can be used as a free choice item in Korean. The words in Korean sometimes depend on the meaning of the particles. According to Yang (1973), the delimiter –na means ‘rather, at least’, indicating the alternative, and the delimiter –lato has the meaning of ‘at the last recourse’. The particle –lato implies the close choice, whereas the particle –na the open choice. Regarding these two particles, Yang (ibid.) states as follows:
KII produced *amwukenato*, which is non-existent in Korean. What is interesting is that the group KI produced the word *salam* ‘person’, or the names of the animals in the pictures or dropped an argument they had been asked to produce.

Moreover, all the participants in KIII produced NPIs in subject position as well as in object position. One participant in KII did not produce any NPIs in subject position or object position, and another participant in the same group did not produce any NPIs in subject position. However, we cannot say that these participants don’t know the NPI at all, because the first one produced *amwu* with a case marker once, rather than the particle-*to*, as shown in (4), and with the wrong particles six times, but accompanied by negation, as shown in (5).

(4) Example of *amwu* with a case maker, rather than the particle-*to*

* wenswungi-ka amwu salam-tul-i an ccochaka-yo.
  Monkey-Nom any person-PL-Nom not chase-POL
  ‘The monkey is not chasing any people.’

Semantics of *na* (Yang 1973: 106)
Presupposition: (i) The choice is potentially still open.
(ii) The *na*-attached element is the sample to show a certain degree.
Assertion: The *na*-attached element compensates for the ideal primary choice which is not available.
Implication: The *na*-attached element is neither the best choice nor the last recourse.
(i.e., The *na*-attached element is the second best choice.)

Semantics of *lato* (Yang ibid.: 117)
Presupposition: (i) The choice is closed except for the last recourse.
(ii) Some act or event is necessarily required.
Assertion: The *lato*-attached element substitutes the ideal choice which is not available.
Implication: Elements except for the last recourse are not available.
Expected response: Wenswungi-ka amwu\textbf{to} an ccochaka-yo.
monkey-Nom anyone not chase-POL
‘The monkey is not chasing anyone.’

(5) Example involving wrong particles

(i) *ttokki-ka amwukena-lul \textbf{an} ssis-ko iss-eyo.
Rabbit-Nom anything-Acc not wash-and be-POL
‘The rabbit is not washing anything.’

Expected response: ttokki-ka amwukesto \textbf{an} ssis-ko iss-eyo.
rabbit-Nom anything not wash-and be-POL
‘The rabbit is not washing anything.’

(ii) *wenswungi-ka amwukenato \textbf{an} manci-ko iss-eyo.
monkey-Nom anything not touch-and be-POL
‘The monkey is not touching anything.’

Expected response: wenswungi-ka amwukesto \textbf{an} manci-ko iss-eyo.
monkey-Nom anything not touch-and be-POL
‘The monkey is not touching anything.’

The second participant produced the word \textit{amwu} without the particle-\textit{to} along with the negative word. In KI, in addition, twelve out of twenty-five participants did not produce any NPIs in subject position. The eleven participants out of twelve participants who did not produce any NPIs in subject position did not produce any NPIs in object position, either. Their responses are tabulated in Table 6.9.
Table 6.9. Types of other responses and errors produced by the participants in Kl who did not produce the negation and NPIs as correct

<table>
<thead>
<tr>
<th>Participant</th>
<th>Position</th>
<th>Types of responses</th>
<th>Subject</th>
<th>Object</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>R1</td>
<td>T1</td>
<td>T2</td>
</tr>
<tr>
<td>A</td>
<td></td>
<td>8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>E</td>
<td></td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>G</td>
<td></td>
<td>0</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>H</td>
<td></td>
<td>8</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td></td>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>J</td>
<td></td>
<td>8</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>K</td>
<td></td>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>L</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*Since the participant C produced NPIs in object position, his/her other responses and errors are not reported in Table 6.9.*

Error types T1, T2, T3, and T4 are related to NPIs. T1 and T4 involve the error of dropping the particle -to and using the wrong particles, respectively, as shown in (6).

(6) Example for Error T1: *amwu-Ø sangca wiey an anca iss-eyo.*

   Any- Ø box on-Loc not sit Prog-POL

   ‘Nobody is sitting on the box.’

Example for Error T4:* Saca-ka cikum amwuke-na/nato an cha-ko iss-eyo.

   Lion-Nom now any not kick-and be-POL

   ‘The lion is not kicking anything right now.’
On the other hand, T2 and T3 are related to the problem of using negation, as shown in (7). In the cases of T1, T2, T3 and T4, what is important is that the participants used or at least tried to use the words *amwu or amwuto*. Only six participants whose responses are highlighted above did not produce answers involving any NPIs in object position or subject position.

(7) Example for T2: occurrence of NPIs without a negative element

*Ttokki-ka amwukesto Φ ssis-ko iss-eyo.
Rabbit-Nom anything not wash-and be-POL
(Lit.) ‘*The rabbit is washing anything.’
‘The rabbit is not washing anything.’

Example for T3 (double negation):

Amwuto panana an mekko iss-ci anh-ayo.
Anyone banana not eat be-CI not.do-POL
(Lit.) ‘Nobody is not eating bananas.’

6.7. Results with regard to negation

In Korean, there are two types of negation—short form negation (SFN) and long form negation (LFN). The results of negation produced by the KSL learners while producing the NPIs are briefly reported in this section.

In Experiment 4, the KSL learners showed different patterns of negation, as illustrated in Table 6.10 and Table 6.11. If we compare the LFNs when NPIs were expected to occur in subject position and those when NPIs were expected to occur in object position, the difference is not remarkable. However, there is a huge difference between KIII on one hand and KI and KII on the other hand regarding the use of LFNs, even though KIII produced half as many LFNs as KC did.
Table. 6.10. Types of negation in cases where NPIs were expected to occur in subject position in Experiment 4

<table>
<thead>
<tr>
<th>Groups</th>
<th>SFN</th>
<th>epsta (not exist)</th>
<th>LFN</th>
<th>No Negation</th>
<th>Double Negation</th>
<th>Wrong form</th>
</tr>
</thead>
<tbody>
<tr>
<td>KI</td>
<td>140</td>
<td>81</td>
<td>16</td>
<td>12</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>KII</td>
<td>147</td>
<td>52</td>
<td>44</td>
<td>6</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>KIII</td>
<td>89</td>
<td>35</td>
<td>124</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>KC</td>
<td>6</td>
<td>17</td>
<td>227</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table. 6.11. Types of negation in cases where NPIs were expected to occur in object position in Experiment 4

<table>
<thead>
<tr>
<th>Groups</th>
<th>SFN</th>
<th>epsta (not exist)</th>
<th>LFN</th>
<th>No Negation</th>
<th>Wrong form</th>
</tr>
</thead>
<tbody>
<tr>
<td>KI</td>
<td>177</td>
<td>47</td>
<td>16</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>KII</td>
<td>182</td>
<td>25</td>
<td>36</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>KIII</td>
<td>103</td>
<td>12</td>
<td>134</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>KC</td>
<td>2</td>
<td>1</td>
<td>247</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

All four groups prefer the inherently negative verb *epsta* 'not exist' when NPIs are in subject position more than in object position. In addition, all three KSL groups show a stronger preference for SFN when NPIs were expected to occur in object position than in subject position. Furthermore, the participants in KI dropped a negative more frequently when NPIs were expected to occur in subject position than in object position.

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4 The inherently negated verb *epsta* 'not exist' is one of the verbs to which KSL learners are exposed at the beginning of learning Korean.
6.8. Discussion

The first thing to note here is that there is a big difference among these KSL groups with regard to the production rate of the NPIs. The percentages of NPIs in subject position for KI, KII, and KIII are 36.80%, 74.80%, and 87.60%, respectively and those in object position for KI, KII, and KIII are 42.80%, 81.20%, and 95.60%, respectively. As the learners' fluency in Korean increases, the rate of NPIs increases. What causes this kind of difference?

To answer this question, it seems necessary to examine the use of negation produced by each group and the kinds of errors or other responses each group makes. Only KIII group exhibits near native-like responses (87.60% in subject position and 95.60% in object position for KIII vs. 98.00% in subject position and 99.60% in object position for KC), relative to the other two groups. In addition, errors by the KSL learners in KIII are extremely rare, as shown in Figures 6.3 and 6.4. The only difference between KIII and KC comes from the fact that KIII exhibits a strong preference for the relative clause responses, compared with KC (11.60% vs. 2.00% in subject position, and 3.60% vs. .40% in object position). It is intriguing that the KSL learners in KIII produce the relative clauses in subject position nearly three times as often as those in object position (11.60% vs. 3.60%). The groups KI and KII also adopt the relative clause strategy to attempt to express the meaning that can otherwise be expressed by an NPI plus a negative, as shown in (8).
In parallel to the responses produced by KIII, the groups KI and KII produce more relative clauses in subject position than those in object position (27.20% vs. 16.00% for KI, 14.00% vs. 8.00% for KII).

An issue that arises with respect to NPI licensing is related to the use of the particle \(-to\), which is attached to the word \textit{amwu} ‘any’. The particle \(-to\) plays an important role in licensing the NPIs in Korean because its absence makes sentences ungrammatical. First, let us examine T1, which is exemplified in (9).

(9) Example for Error T1: \textit{*amwu-Ø sangca wiey an anca iss-eyo.}  
\text{Any-Ø box on-Loc not sit Prog-POL}  
\text{‘Nobody is sitting on the box.’}

The T1 error rates made by KI are 7.20% (18 out of 250) in subject position vs. 3.60% (9 out of 250) in object position, whereas those made by KII are 4.80% (12 out of 250) in subject position vs. 2.00% (5 out of 250) in object position. What is more surprising is that one KSL learner in KII is responsible for 11 out of the 17 errors in both positions, whereas the errors made by KI are attributed to several KSL learners.

With respect to T2, as shown in (10), there is no difference at all between subject position and object position in KII and KIII. However, the KSL learners in KI never made errors in object position, whereas they sometimes dropped the negative \textit{an} when the NPI was in subject position (3.60%).
(10) Example for T2: occurrence of NPIs without a negative element
*Tokki-ka amwukesto Ø ssis-ko iss-eyo.
   Rabbit-Nom anything not wash-and be-POL
   (Lit.) ‘*The rabbit is washing anything.’
   Expected meaning: ‘The rabbit is not washing anything.’

T4 in object position occurred when the KSL learners in KI and KII used the wrong particle or failed to produce the correct form of amwukesto, as exemplified in (11).

     Lion-Nom now any not kick-and be-POL
     ‘The lion is not kicking anything right now.’

The existing word amwukena ‘anything’ in Korean can be used in affirmative sentences as well as in negative sentences. Some participants produced the nonexistent word amwukeno by attaching the particle -to to the word amwukena. In addition, the KSL learners in KI made a lot of T5 errors because it seemed that they didn’t know the NPI lexical items and therefore used common nouns instead, as shown in (12).

(12) Example for T5: Salam-i kong-ul an cha-yo.
     Person-Nom ball-Acc not kick-POL
     ‘A person is not kicking the ball.’
     OR
     Ø kong-ul an cha-yo.
     Ø ball-Acc not kick-POL
     ‘(A person) is not kicking the ball.’
Expected Response: amwuto kong-ul an cha-yo.
    anyone ball-Acc not kick-POL
    'Nobody is kicking the ball.'

So far, it can be noted that there is a significant difference among the three groups because the less fluent the KSL learners are, the more often they use the relative clause strategy and the more errors they make. As mentioned earlier, KSL learners in all the groups produced more NPIs in object position than in subject position.

Turning to the matter of negation, as shown in Tables 6.10 and 6.11, KI and KII—but not KIII—predominantly produced SFN. However, it should be noted that all three groups frequently produced the inherently negated verb epsta ‘not.exist’ and that they produced it when the NPI was in subject position significantly more than when it was in object position. This might be related to the frequency of using more relative clauses in subject position than in object position since all the relative clauses produced in Experiment 4 co-occur with the verb epsta. When they use the relative strategy along with the verb epsta, it might be much easier for them to answer because they can use the chunks of structure that the investigator produced (in bold below) when she asked questions of them, as shown in (14), and don’t need to negate the verbs if they use the verb epsta.

(14) Investigator:
    nwu-ka cikum panana-lul mek-ko iss-nu-n-ci chinkwu-eykey malhay-cwu-sey-yo.
    Who-Nom now banana-Acc eat-and be-IN-RL-COMP friend-to tell-give-HON-POL
    'Tell your friend (friend’s name) who is eating bananas right now.'
6.9. Conclusion

In sum, there are several things to be noted in the KSL study. First of all, there is a big difference in terms of the NPI responses across the three groups. The KSL learners’ responses in KIII are similar to the responses of those in KC, compared with the other two groups. In addition, a lot of the KSL learners in KIII and KII produced a nearly equal number of NPIs in subject and object positions. This finding suggests that they may know that there is no c-command requirement on NPIs in Korean. What is interesting is that all the KSL groups exhibit a stronger preference for the NPIs in object position than for those in subject position. Instead of using the NPIs in Korean, the KSL groups applied a strategy of using a relative clause, especially in subject position.
7.0. Introduction

This chapter reports on an experiment investigating ESL learners’ acquisition of NPIs in bi-clausal English sentences (Experiment 5). In this experiment, an oral completion sentence task is used to elicit four types of sentences.

The organization of this chapter is as follows. The relevant structures are introduced in section 7.1. Section 7.2 addresses the research questions, followed by a description of the participants, materials, and procedure used in Experiment 5 in section 7.3. Section 7.4 describes the scoring and analyses of the participants’ responses. The results and the types of the participants’ responses from this experiment are reported and discussed in sections 7.5 through 7.7. Section 7.8 offers a conclusion.

7.1. Relevant structures

As discussed in chapter 2, Korean and English differ in terms of licensing NPIs: the former requires that amwu-type NPIs be licensed by a negative in the same clause, and the latter requires that any-type NPIs be c-commanded by a negative. Long-distance licensing is permissible in English, as shown in (1), whereas local licensing is required in Korean, as exemplified in (2).
(1) English

a. John thinks that Mary did not see anything.
b. John does not think that Mary saw anything.

(2) Korean

   -Top   -Nom anything do-Cl not.do-Past-Dec-Comp think-Pres-Dec
   "John thinks that Mary did not do anything."

   -Top   -Nom anything do-Past-Dec-Comp think-CI not.do-Pre-Dec
   "John doesn’t think that Mary did anything."

As shown in (1), English NPIs can be licensed as long as there is a c-commanding negative. In contrast, Korean NPIs require a negative in the same clause, as shown in (2a). If NPIs in Korean do not have a tautoclausal negative licenser, the sentence is not acceptable, as illustrated in (2b).

English NPIs or negative pronouns can occur in subject or object position, and a negative can appear in the matrix clause or in the embedded clause. With respect to the positions of NPIs or negative pronouns and the locations of a negative, the four types of English sentences are related to Experiment 5, as shown in (3).
(3) Relevant structures

a. I think that nobody is eating bananas. (ENS)
b. I think that the monkey is not eating anything. (ENO)
c. I don’t think that anybody is eating bananas. (MNS)
d. I don’t think that the monkey is eating anything. (MNO)

7.2. Research questions

As mentioned above, the Korean language has a clausalmate condition on NPI licensing. All ESL learners who participated in Experiment 5 were Korean. The participants were given a complete sentence production task in which they would complete sentences orally using a written matrix clause provided with each picture. The task was designed to investigate whether the ESL learners who have the clausalmate condition and local domain on NPI licensing in Korean know the c-command condition on NPIs and allow a long-distance domain for NPIs in an embedded clause in English when a negative occurs in the matrix clause. When the embedded clause is negated, only negative pronouns can appear in subject position, as in simple sentences, whereas NPIs and negative pronouns are possible in object position. In contrast, NPIs in an embedded

1 The abbreviations, ENS, ENO, MNS, and MNO represent the following.
ENS: Sentences in which the embedded clause is negated, so negative pronouns occur in subject position in the embedded clause
ENO: Sentences in which the embedded clause is negated, so negative pronouns occur in object position in the same clause, or NPIs occur in object position in the embedded clause when a negative occurs in the same clause
MNS: Sentences in which a negative occurs in the matrix clause and NPIs occur in subject position in the embedded clause
MNO: Sentences in which a negative occurs in the matrix clause and NPIs occur in object position in the embedded clause
clause can occur in both subject and object positions when a negative occurs in a matrix clause.

The location of a negative and the position of NPIs or negative pronouns in the clauses are important factors in producing sentences targeting NPIs. The relevant research questions for Experiment 5 are as follows:

(i) Do NPI responses differ by clause, by position, and by group?
(ii) Do the possible correct responses differ by clause, by position, and by group?
(iii) Which is more productive in object position in an embedded clause when it is negated, NPIs or negative pronouns?
(iv) In which position are negative pronouns in an embedded clause more widely used, subject position or object position?

7.3. Method

7.3.1. Participants

A total of four groups took part in Experiment 5—a comparison group of twenty-five native speakers of English, and three experimental groups, each of which consisted of twenty-five ESL learners who are Korean. The ESL learners in Experiment 5 are the same participants as those in Experiment 2.
7.3.2. Materials and Procedure

Experiment 5 made use of an oral sentence completion task. The participants had already been familiarized with the vocabulary because of the vocabulary session and main session in Experiment 2, so there was no vocabulary practice phase. In the pretest phase, one picture to elicit an affirmative sentence was used to help the participants understand the task.

In the main test phase, the pictures consisted of two sets: 19 pictures designed to elicit affirmative sentences and 40 to elicit negative sentences. The former served as distractors. The forty sentences to elicit negative sentences were divided into two sets: twenty sentences where an NPI or a negative pronoun was expected to be produced in subject position in an embedded clause and twenty in which it was expected to occur in object position in an embedded clause. Each set was divided into two subsets: ten sentences containing *not* in the matrix clause and ten without *not* in the matrix clause. In other words, ten sentences included *not* in the matrix clause and the other ten included it in the embedded clause. The sentences in (4) were expected responses from the participants.

(4) Five Types of Expected responses

a. I think that the monkey is touching the ball. (distractor)
b. I think that nobody is touching the ball. (ENS)
c. I don’t think that anyone is touching the ball. (MNS)
d. I think that the monkey is not touching anything. (ENO)
e. I don’t think that the monkey is touching anything. (MNO)
Each picture included the **MATRIX CLAUSE** typed at the bottom of each picture, as is shown in Figures 7.1 through 7.4. The reason that the matrix clauses were provided is that two different patterns were being targeted—one involving sentences containing a negative in the matrix clause and the other involving sentences containing a negated embedded clause. If matrix clauses are not given to the participants, it is possible that they will produce only one type of sentence depending on their preference. The words used in Experiment 5 were the same as those in Experiments 1 and 2 in order to have the participants concentrate on the structures, without having difficulty with the lexical items. The matrix verbs *think* and *believe* were used.

### 7.3.3. Procedure

The procedure was the same as for Experiment 1. However, the instructions were modified a bit. The experiment started with the following instructions.

**INSTRUCTIONS:** “Only you and I will see these pictures. Your friend will be wondering what kind of pictures we are looking at. Maybe you could help him/her. Tell him/her what the people in the pictures are thinking. Are you ready (or Would you like to try one)?”

Once these instructions were provided, the participant and the investigator looked at each picture together. The participant was asked to tell the third person about the picture. The expected interaction between a participant and the investigator was as follows:
(A) Interaction for negative pronouns in subject position when the embedded clause is negated (ENS)

The participant and the investigator looked at the picture together.

Figure 7.1. Sample picture for ENS

The lion believes that ________________

Investigator: S/he is wondering who is climbing the tree right now.

This lion may know.

Tell her what the lion believes.

Participant: The lion believes that ________________.

Investigator: Good. / You are really good.
(B) Interaction for NPIs in subject position when a negative occurs in the matrix clause

(MNS)

The participant and the investigator looked at the picture together.

Figure 7.2. Sample picture for MNS

Investigator: S/he is wondering who is climbing the tree right now.

This lion may know.

Tell her what the lion believes.

Participant: The lion doesn't believe that ________________________.

Investigator: Good. / You are really good.
The participant and the investigator looked at the picture together.

Figure 7.3. Sample picture for ENO

Investigator: S/he is wondering who (whom) the bear is pushing right now. This monkey may know. Tell her what the monkey believes.

Participant: The monkey believes that _____________________________.

Investigator: Good. / You are really good.
D) Interaction for NPIs in object position when a negative occurs in matrix clause

(MNO)
The participant and the investigator looked at the picture together.

Figure 7.4. Sample picture for MNO

The monkey doesn’t believe that ____________________________

Investigator: S/he is wondering who (whom) the bear is pushing right now.

This monkey may know.

Tell her what the monkey believes.

Participant: The monkey doesn’t believe that ____________________________.

Investigator: Good. / You are really good.
While the participants were producing sentences, the investigator pointed out the written matrix clauses with a ball-point pen so that they would notice the location of the negative. Before they were engaged in the experiment, the investigator made no reference to the location of the negative. When they did not say the right matrix clause for a particular picture, they were asked to try again. If the ESL learners had a difficult time figuring out the interrogative pronoun who used for a grammatical object, the investigator asked the questions again by replacing who with the interrogative pronoun whom. For example, if a participant did not understand who when the investigator said ‘S/he is wondering who the bear is pushing right now’, the investigator said ‘S/he is wondering whom the bear is pushing right now’.

All the items used for the main test were arranged in random order. All sessions were tape-recorded for later transcription.

7.4. Analyses and Scoring

All the responses were transcribed. The twenty test sentences targeting affirmative sentences were set aside. Depending on the location of the negative and the expected position of NPIs or negative pronouns, the remaining forty test sentences were divided into four types as follows.

(i) First subset: 10 sentences in which the matrix clause contains a negative, and NPIs must be used in subject position in the embedded clause. (MNS)
(ii) Second subset: 10 sentences in which the matrix clause contains a negative, and NPIs must be used in object position in the embedded clause. (MNO)

(iii) Third subset: 10 sentences in which the embedded clause is negated, and a negative pronoun must be used in subject position in the same clause. (ENS)

(iv) Fourth subset: 10 sentences in which the embedded clause is negated, and negative pronouns must occur in object position in the same clause or in which a negative occurs in the embedded clause, and NPIs occur in object position in the same clause. (ENO)

Each response was categorized with respect to the participants’ response types.

Correct answers included cases where a negative occurred in the matrix clause and NPIs were produced in subject position in the embedded clause (MNS), cases where a negative occurred in the matrix clause and NPIs were produced in object position in the embedded clause (MNO), cases where negative pronouns were produced in subject position when the embedded clause was negated (ENS), and cases where a negative pronoun was produced in object position in the embedded clause when the embedded clause was negated or an NPI accompanied by a tauto-clausal negative was produced in object position in the embedded clause (ENO), as tabulated in Table 7.1 along with an example for each type.
Table 7.1. Expected answers and examples for each type of sentence

<table>
<thead>
<tr>
<th>Location</th>
<th>Matrix clause</th>
<th>Embedded clause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>MNS</td>
<td>ENS</td>
</tr>
<tr>
<td>(e.g.)</td>
<td>The lion doesn’t believe that anyone is climbing the tree.</td>
<td>(e.g.) The lion believes that nobody is climbing the tree.</td>
</tr>
<tr>
<td>Object</td>
<td>MNO</td>
<td>ENO</td>
</tr>
<tr>
<td>(e.g.)</td>
<td>The monkey doesn’t believe that the bear is pushing anyone.</td>
<td>(i) The monkey believes that the bear is not pushing anyone. (ii) The monkey believes that the bear is pushing nobody.</td>
</tr>
</tbody>
</table>

*When the embedded clause is negated, negative pronouns in subject and object position must occur in the same clause without a negative because negative pronouns contain an inherently Neg feature. However, an NPI in object position must co-occur with a negative in the embedded clause, as shown in (i) in the ENO pattern.

All other responses were counted as wrong.

7.5. Results

7.5.1. Results for NPI responses in Experiment 5

The raw numbers for NPI responses in subject and object positions for each clause containing a negative produced by the three ESL groups (EI, EII and EIII) and EC are given in Table 7.2.
Table 7.2. Raw numbers of NPI responses in Experiment 5

<table>
<thead>
<tr>
<th></th>
<th>MNS</th>
<th>MNO</th>
<th>ENS</th>
<th>ENO</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>248/250</td>
<td>247/250</td>
<td>0/250</td>
<td>232/250</td>
</tr>
<tr>
<td>EllI</td>
<td>177/250</td>
<td>167/250</td>
<td>14/250</td>
<td>166/250</td>
</tr>
<tr>
<td>EllI</td>
<td>46/250</td>
<td>61/250</td>
<td>1/250</td>
<td>174/250</td>
</tr>
<tr>
<td>EI</td>
<td>10/250</td>
<td>39/250</td>
<td>0/250</td>
<td>134/250</td>
</tr>
</tbody>
</table>

Figure 7.5 schematically represents the percentage of NPI responses in subject position and object position in each clause containing a negative for the ESL groups (EI, EllI and EllII) and an English-speaking comparison group (EC).

Figure 7.5. Percentage of NPI responses in Experiment 5
As seen in Figure 7.5, the participants’ NPI response rates vary with regard to clause, position and group. In the case of ENS, all groups produced few or no NPIs. When the negative occurred in the matrix clause, EI and EII did not frequently produce NPIs in subject (MNS) and object positions (MNO), compared with EIII and EC. The participants in all three learner groups produced over 50% NPIs in object position when the negative occurred in the embedded clause (ENO), but the rate of NPIs for EI, EII and EIII is far lower than for EC.

Table 7.3 provides the mean (M) and the standard deviation (SD) for NPI responses in subject position and object position for each clause containing a negative for ESL groups and EC.

Table 7.3. Descriptive statistics for NPI responses in Experiment 5

<table>
<thead>
<tr>
<th>Clauses containing Neg</th>
<th>Positions</th>
<th>Groups</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matrix Clause</td>
<td>Subject</td>
<td>EI</td>
<td>.40</td>
<td>1.41</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EII</td>
<td>1.84</td>
<td>3.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EIII</td>
<td>7.08</td>
<td>3.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC</td>
<td>9.92</td>
<td>.28</td>
</tr>
<tr>
<td></td>
<td>Object</td>
<td>EI</td>
<td>1.56</td>
<td>2.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EII</td>
<td>2.44</td>
<td>2.93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EIII</td>
<td>6.68</td>
<td>3.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC</td>
<td>9.88</td>
<td>.44</td>
</tr>
<tr>
<td>Embedded Clause</td>
<td>Subject</td>
<td>EI</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EII</td>
<td>.00</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EIII</td>
<td>.56</td>
<td>1.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>Object</td>
<td>EI</td>
<td>5.36</td>
<td>3.58</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EII</td>
<td>6.96</td>
<td>3.54</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EIII</td>
<td>6.64</td>
<td>3.08</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC</td>
<td>9.28</td>
<td>1.95</td>
</tr>
</tbody>
</table>
To determine whether the NPI responses differ by group, by position and by clause, a 3-way analysis of variance (ANOVA) with repeated-measures was performed. The significance level was set at $p < .05$. With respect to the groups, the difference is statistically significant ($F(3, 96) = 56.800, p < .001$). EC has the highest mean, followed by EIII, EII and EI. This suggests that the four groups do not share the same mean, as shown in Table 7.4.

With regard to clauses, there is a statistically significant difference ($F(1, 96) = 28.607, p < .001$), indicating that NPI responses are more frequent when a negative occurs in the matrix clause than when a negative occurs in the embedded clause for all the groups considered together, as shown in Table 7.4.

In addition, the difference is statistically significant, with respect to position ($F(1, 96) = 389.939, p < .001$), showing that NPI responses are used more frequently in object position than in subject position for all four groups considered together, as shown in Table 7.4.

Table 7.4. Mean for each group, mean for NPI responses for each clause, mean for NPI responses for each position in Experiment 5

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Clauses</th>
<th>Mean</th>
<th>Positions</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>1.83</td>
<td>Cases where matrix clauses contain a negative</td>
<td>4.975</td>
<td>Subject</td>
<td>2.48</td>
</tr>
<tr>
<td>EII</td>
<td>2.82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EIII</td>
<td>5.24</td>
<td>Cases where embedded clauses contain a negative</td>
<td>3.605</td>
<td>Object</td>
<td>6.10</td>
</tr>
<tr>
<td>EC</td>
<td>7.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Let us now turn to the interaction effect. There is a statistically significant interaction effect between clause and group \( (F(3, 96) = 45.290, p < .001) \), indicating that NPI responses are more frequent when a negative occurs in the matrix clause than when the embedded clause is negated for EIII and EC, but EI and EII exhibit the opposite pattern, as shown in Table 7.5 (Group * Clause).

In addition, the interaction between position and group is significantly different \( (F(3, 96) = 4.358, p = .006) \). This suggests that NPI responses are more frequent in object position than in subject position for the four groups, as shown in Table 7.5 (Group * Position).

The interaction effect between clause and position is also statistically significant \( F(1, 96) = 331.160, p < .001 \), suggesting that NPI responses are more frequent in object position than in subject position for the two types of clauses, as shown in Table 7.5 (Clause * Position).

Table 7.5. Mean for NPI responses for interaction effect in Experiment 5

<table>
<thead>
<tr>
<th>Group * Clause</th>
<th>Group * Position</th>
<th>Clause * Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>Clause</td>
<td>Mean</td>
</tr>
<tr>
<td>EI</td>
<td>1</td>
<td>.98</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2.68</td>
</tr>
<tr>
<td>EII</td>
<td>1</td>
<td>2.14</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3.50</td>
</tr>
<tr>
<td>EIII</td>
<td>1</td>
<td>6.88</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3.60</td>
</tr>
<tr>
<td>EC</td>
<td>1</td>
<td>9.90</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4.64</td>
</tr>
</tbody>
</table>

*Clause 1: cases when the negative is in the matrix clause; Clause 2: cases when the embedded clause is negated; Position 1: cases where NPIs occur in subject position; Position 2: cases where NPIs occur in object position
What is more important is that there is a statistically significant difference with regard to interaction between clause, position, and group \((F (3, 96)= 8.445, p<.001)\).

Tables 7.6 and 7.7 show the difference between NPIs in the matrix clause and those in the embedded clause when they occur in subject position and object position, respectively. Each interaction effect for subject and object position is schematically depicted in Figures 7.6 through 7.7.

Table 7.6. Effect of clause when NPIs occur in subject position in Experiment 5

<table>
<thead>
<tr>
<th>Group</th>
<th>Clause</th>
<th>Mean in matrix clause</th>
<th>Mean in embedded clause</th>
<th>Difference (matrix clause-embedded clause)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td></td>
<td>9.92</td>
<td>.00</td>
<td>9.92</td>
</tr>
<tr>
<td>EIII</td>
<td></td>
<td>7.08</td>
<td>.56</td>
<td>6.52</td>
</tr>
<tr>
<td>EII</td>
<td></td>
<td>1.84</td>
<td>.00</td>
<td>1.84</td>
</tr>
<tr>
<td>EI</td>
<td></td>
<td>.40</td>
<td>.00</td>
<td>.40</td>
</tr>
</tbody>
</table>

Table 7.7. Effect of clause when NPIs occur in object position in Experiment 5

<table>
<thead>
<tr>
<th>Group</th>
<th>Clause</th>
<th>Mean in matrix clause</th>
<th>Mean in embedded clause</th>
<th>Difference (matrix clause-embedded clause)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td></td>
<td>9.88</td>
<td>9.28</td>
<td>.60</td>
</tr>
<tr>
<td>EIII</td>
<td></td>
<td>6.68</td>
<td>6.64</td>
<td>.04</td>
</tr>
<tr>
<td>EII</td>
<td></td>
<td>2.44</td>
<td>6.96</td>
<td>-4.52</td>
</tr>
<tr>
<td>EI</td>
<td></td>
<td>1.56</td>
<td>5.36</td>
<td>-3.80</td>
</tr>
</tbody>
</table>
Figure 7.6. Interaction for NPI responses for subject position in Experiment 5

Figure 7.7. Interaction for NPI responses for object position in Experiment 5
The 3-way interaction effect reflects the fact that clause type (main clause versus embedded clause) has a consistent, but decreasingly negative effect on the frequency of NPIs in subject position as the participants' proficiency in English decreases, whereas it has a near zero effect on the frequency of NPIs in object position when the participants' proficiency of English is relatively high, and a notable positive effect on the frequency of NPIs when the participants' proficiency in English is relatively low.

7.5.2. Results for possible correct responses in Experiment 5

The possible correct responses encompass the following cases.

(a) NPI responses in subject and object positions in the embedded clause when a negative occurs in the matrix clause

(b) Negative pronoun responses in subject position without an accompanying negative in the embedded clause

(c) Negative pronoun responses in object position without an accompanying negative in the embedded clause, or NPI responses in object position if a negative occurs in the same clause

The raw numbers for the possible correct responses in subject position and object position for each clause containing negation for the ESL groups (El, EII and EIII) and the English-speaking comparison group (EC) are given in Table 7.8.
Table 7.8. Raw numbers for all possible correct answers in Experiment 5

<table>
<thead>
<tr>
<th></th>
<th>MNS</th>
<th>MNO</th>
<th>ENS</th>
<th>ENO</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>248/250</td>
<td>247/250</td>
<td>245/250</td>
<td>250/250</td>
</tr>
<tr>
<td>EIII</td>
<td>177/250</td>
<td>167/250</td>
<td>232/250</td>
<td>223/250</td>
</tr>
<tr>
<td>EII</td>
<td>46/250</td>
<td>61/250</td>
<td>234/250</td>
<td>218/250</td>
</tr>
<tr>
<td>EI</td>
<td>10/250</td>
<td>39250</td>
<td>233/250</td>
<td>193/250</td>
</tr>
</tbody>
</table>

Figure 7.8 schematically represents the percentage of the possible correct responses in subject position and object position in each clause containing a negative for the ESL groups (EI, EII and EIII) and EC.

Figure 7.8. Percentage of possible correct responses in subject and object positions in Experiment 5
As shown in Figure 7.8, all four groups produced over 90% negative pronouns in subject position in the embedded clause (ENS). As mentioned earlier, NPI response rates produced by EI and EII are relatively low in subject (MNS) and object positions (MNO) when the negative occurs in the matrix clause, compared with EIII and EC. Furthermore, all the groups produced over 75% NPI or negative pronoun responses in object position when the embedded clause was negated (ENO).

The mean (M) and the standard deviation (SD) for the possible responses in subject position and object position for matrix clauses containing a negative and for negated embedded clauses for the ESL groups and EC are given in Table 7.9.

Table 7.9. Descriptive statistics for possible correct responses in Experiment 5

<table>
<thead>
<tr>
<th>Clauses containing Neg</th>
<th>Positions</th>
<th>Groups</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matrix Clause</td>
<td>Subject</td>
<td>EI</td>
<td>.40</td>
<td>1.41</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EII</td>
<td>1.84</td>
<td>3.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EIII</td>
<td>7.08</td>
<td>3.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC</td>
<td>9.92</td>
<td>.28</td>
</tr>
<tr>
<td></td>
<td>Object</td>
<td>EI</td>
<td>1.56</td>
<td>2.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EII</td>
<td>2.44</td>
<td>2.93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EIII</td>
<td>6.68</td>
<td>3.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC</td>
<td>9.88</td>
<td>.44</td>
</tr>
<tr>
<td>Embedded Clause</td>
<td>Subject</td>
<td>EI</td>
<td>9.32</td>
<td>1.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EII</td>
<td>9.36</td>
<td>1.58</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EIII</td>
<td>9.28</td>
<td>1.90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC</td>
<td>9.80</td>
<td>.71</td>
</tr>
<tr>
<td></td>
<td>Object</td>
<td>EI</td>
<td>7.72</td>
<td>1.97</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EII</td>
<td>8.72</td>
<td>1.57</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EIII</td>
<td>8.92</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC</td>
<td>10.00</td>
<td>.00</td>
</tr>
</tbody>
</table>
A 3-way analysis of variance (ANOVA) with repeated-measures was used in order to determine whether the possible correct responses differ by group, by position and by clause. The significance level was set at $p < .05$. There is a statistically significant difference with regard to group ($F(3, 96)= 84.017, p<.001$). EI has the lowest mean for the possible correct responses, followed by EII, EIII and EC. This confirms that the four groups do not share the same mean, as shown in Table 7.10.

With respect to clause, the difference is statistically significant ($F(1, 96)= 240.655, p<.001$), indicating that the possible correct responses are more frequent in a negated embedded clause than in a matrix clause containing a negative for all the groups considered together, as shown in Table 7.10.

Furthermore, the difference is not statistically significant with regard to position ($F(1, 96)= 1.449, p=.232$), showing that the possible correct responses in subject and object positions share more or less the same mean for the four groups considered together, as shown in Table 7.8.

Table 7.10. Mean for each group, mean for the possible correct responses for each clause, mean for the possible correct responses for each position in Experiment 5

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Clauses</th>
<th>Mean</th>
<th>Positions</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>4.75</td>
<td>Cases where matrix clauses contain a negative</td>
<td>4.975</td>
<td>Subject</td>
<td>7.125</td>
</tr>
<tr>
<td>EII</td>
<td>5.59</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EIII</td>
<td>7.99</td>
<td>Cases where embedded clauses is negated</td>
<td>9.140</td>
<td>Object</td>
<td>6.990</td>
</tr>
<tr>
<td>EC</td>
<td>9.90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
With respect to the interaction between clause and group, the difference is statistically significant \((F(3, 96)= 46.244, p<.001)\). This reflects the fact that the possible responses are more frequent in a negated embedded clause than in a matrix clause containing a negative for all the groups, except for EC, which has the same mean for both cases, as shown in Table 7.11 (Group * Clause).

However, the interaction effect between position and group is not statistically significant \((F(3, 96)= .839, p=.476)\), indicating that the difference between the possible correct responses in subject and object positions can be set aside for all the groups, as shown in Table 7.11 (Group * Position).

With regard to interaction between clause and position, on the other hand, the difference is statistically significant \((F(1, 96)= 9.830, p=.002)\), as shown in Table 7.9. This reflects the fact that the possible correct responses in object position are more frequent than in subject position in a matrix clause containing a negative, whereas the opposite pattern is found in a negated embedded clause (Clause * Position).
Table 7.11. Mean for the possible correct responses for interaction effect in Experiment 5*

<table>
<thead>
<tr>
<th>Group * Clause</th>
<th>Group * Position</th>
<th>Clause * Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>Clause</td>
<td>Mean</td>
</tr>
<tr>
<td>EI</td>
<td>1</td>
<td>.98</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>8.52</td>
</tr>
<tr>
<td>EII</td>
<td>1</td>
<td>2.14</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>9.04</td>
</tr>
<tr>
<td>EIII</td>
<td>1</td>
<td>6.88</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>9.10</td>
</tr>
<tr>
<td>EC</td>
<td>1</td>
<td>9.90</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>9.90</td>
</tr>
</tbody>
</table>

* Clause 1: cases when a negative is in the matrix clause; Clause 2: cases when the embedded clause is negated; Position 1: cases where NPIs in the matrix clause and negative pronouns in the embedded clause occur in subject position; Position 2: cases where NPIs occur in object position when a negative occurs in the matrix clause and NPIs or negative pronouns occur in object position when a negative occurs in the embedded clause

With regard to the interaction between clause, position, and group, the difference is statistically significant ($F(3, 96)= 5.451, p=.002$). Tables 7.12 and 7.13 show the difference between the possible correct responses in subject position and those in object position in the matrix clause containing a negative and in the negated embedded clause, respectively. The interaction effect for subject and object position is schematically depicted in Figures 7.9 through 7.10.
Table 7.12. Effect of clause when the possible correct responses occur in subject position in Experiment 5

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean in matrix clause</th>
<th>Mean in embedded clause</th>
<th>Difference (matrix clause-embedded clause)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>9.92</td>
<td>9.80</td>
<td>.12</td>
</tr>
<tr>
<td>EIII</td>
<td>7.08</td>
<td>9.28</td>
<td>-2.20</td>
</tr>
<tr>
<td>Ell</td>
<td>1.84</td>
<td>9.36</td>
<td>-7.52</td>
</tr>
<tr>
<td>EI</td>
<td>.40</td>
<td>9.32</td>
<td>-8.92</td>
</tr>
</tbody>
</table>

Table 7.13. Effect of clause when the possible correct responses occur in object position in Experiment 5

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean in matrix clause</th>
<th>Mean in embedded clause</th>
<th>Difference (matrix clause-embedded clause)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>9.88</td>
<td>10.00</td>
<td>-.12</td>
</tr>
<tr>
<td>EIII</td>
<td>6.68</td>
<td>8.92</td>
<td>-2.24</td>
</tr>
<tr>
<td>Ell</td>
<td>2.44</td>
<td>8.72</td>
<td>-6.28</td>
</tr>
<tr>
<td>EI</td>
<td>1.56</td>
<td>7.72</td>
<td>-6.16</td>
</tr>
</tbody>
</table>
Figure 7.9. Interaction for the possible correct responses for subject position in Experiment 5

Clauses containing a negative or Neg feature
In Tables 7.12 and 7.13, the clause effect seems to exhibit the same pattern for both subject position and object position. In addition, the clause effect made hardly any difference when the participants' proficiency in English is relatively high, whereas the difference between the possible correct responses in matrix clauses containing a negative and those in negated embedded clauses increased noticeably when the participants' proficiency of English is relatively low. However, the effect of clause is more pronounced in subject position than in object position because the difference is greater in subject position (9.04) than in object position (6.04).

As in simple sentences in English, negative pronouns occur not only in subject position but also in object position when the embedded clause is negated. Table 7.14
shows the mean difference between negative pronouns in subject and object positions in the embedded clause for the four groups.

Table 7.14. Mean difference between negative pronouns in subject and object positions in embedded clause in Experiment 5

<table>
<thead>
<tr>
<th>Groups</th>
<th>mean of negative pronouns in subject position</th>
<th>mean of negative pronouns in object position</th>
<th>$\bar{x}<em>{\text{subj}} - \bar{x}</em>{\text{obj}}$</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>9.32</td>
<td>2.36</td>
<td>6.96</td>
<td>3.49</td>
</tr>
<tr>
<td>EII</td>
<td>9.36</td>
<td>1.76</td>
<td>7.60</td>
<td>3.51</td>
</tr>
<tr>
<td>EIII</td>
<td>9.28</td>
<td>2.28</td>
<td>7.00</td>
<td>3.11</td>
</tr>
<tr>
<td>EC</td>
<td>9.80</td>
<td>.72</td>
<td>9.08</td>
<td>2.00</td>
</tr>
</tbody>
</table>

Table 7.14 shows that all four groups produced negative pronouns more frequently in subject position than in object position in embedded clauses. The ESL learners in EI, EII, and EIII produced negative pronouns in subject position (93.20% vs. 93.60% vs. 92.80%) and in object position (23.60% vs. 17.60% vs. 22.80%). The difference in the use of negative pronouns among the three ESL groups is not as great.

Table 7.15 demonstrates the group comparisons based on the mean difference between negative pronouns in subject and object positions in embedded clauses.
Table 7.15. Group comparisons based on the mean difference (I-J) between negative pronouns in subject and object positions in Experiment 5

<table>
<thead>
<tr>
<th>(I) group</th>
<th>EI</th>
<th>EII</th>
<th>EIII</th>
</tr>
</thead>
<tbody>
<tr>
<td>EII</td>
<td>.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EIII</td>
<td>.04</td>
<td>-.60</td>
<td></td>
</tr>
<tr>
<td>EC</td>
<td>2.12</td>
<td>1.48</td>
<td>2.08</td>
</tr>
</tbody>
</table>

No significant difference between negative pronouns in subject and object positions was found among any of the four groups.

There are two options in object position when the embedded clause is negated: NPIs and negative pronouns. Table 7.16 displays the mean difference between NPIs and negative pronouns in object position when the embedded clause is negated.

Table 7.16. Mean difference between NPIs and negative pronouns in object position in negated embedded clauses in Experiment 5

<table>
<thead>
<tr>
<th>Groups</th>
<th>NPIs</th>
<th>Negative pronouns</th>
<th>$\bar{X}<em>{NPI} - \bar{X}</em>{NEGPRON}$</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>5.36</td>
<td>2.36</td>
<td>3.00</td>
<td>6.97</td>
</tr>
<tr>
<td>EII</td>
<td>6.96</td>
<td>1.76</td>
<td>5.20</td>
<td>6.82</td>
</tr>
<tr>
<td>EIII</td>
<td>6.64</td>
<td>2.28</td>
<td>4.36</td>
<td>6.06</td>
</tr>
<tr>
<td>EC</td>
<td>9.28</td>
<td>.72</td>
<td>8.56</td>
<td>3.90</td>
</tr>
<tr>
<td>Total</td>
<td>7.06</td>
<td>1.78</td>
<td>5.28</td>
<td>6.32</td>
</tr>
</tbody>
</table>
All three ESL groups produced below 70% NPI responses and below 25% negative pronoun responses, compared with over 90% NPI response and below 10% negative pronoun responses in EC. In addition, even though the difference is not great, EII produced more NPIs and fewer negative pronouns than EIII.

The mean differences between NPIs and negative pronouns in object position in an embedded clause for the four groups are summarized in Table 7.17.

Table 7.17. Group comparison based on mean difference (I-J) between NPIs and negative pronouns in object position in negated embedded clauses

<table>
<thead>
<tr>
<th>(I) group</th>
<th>(J) group</th>
<th>EI</th>
<th>EII</th>
<th>EIII</th>
</tr>
</thead>
<tbody>
<tr>
<td>EII</td>
<td></td>
<td>2.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EIII</td>
<td></td>
<td>1.36</td>
<td>-.84</td>
<td></td>
</tr>
<tr>
<td>EC</td>
<td></td>
<td>5.56*</td>
<td>3.36</td>
<td>4.20</td>
</tr>
</tbody>
</table>

The difference between NPIs and negative pronouns in object position in an embedded clause is statistically significant for EC and EI only. Among other ESL groups, there is no statistically significant difference between NPIs and negative pronouns in object position.

7.6. Analyses of other responses for Experiment 5

One other response and eight types of errors occurred in Experiment 5. An example for the former is given in (I) and the latter are exemplified in (II) through (VIII).
(I) **Other response 1 (R1):** Cases where the ‘*There is* (a negative pronoun or a negative plus an NPI)’ construction

(e.g.) The lion thinks that *there isn’t anybody* brushing their teeth.
    The boy thinks that *there is no one* sitting on the box.

(II) **Error Type 1 (T1):** Cases where a negative pronoun is produced when a negative occurs in the matrix clause

(e.g.) The bear *doesn’t* think that *no one* has a blue cap.
    The rabbit *doesn’t* believe that the monkey is cutting *nothing*.

(III) **Error Type 2 (T2):** Cases where a negative pronoun is produced with a negative in the same clause

(e.g.) The lion doesn’t believe that *no one* is *not* kicking the ball.
    The monkey doesn’t believe that the bear is *not* pushing *nobody*.
    She thinks that *nobody* is *not* eating bananas.
    The monkey believes that the bear is *not* pushing *nobody*.

(IV) **Error Type 3 (T3):** Cases where an NPI in subject position is followed by a negative in the embedded clause or an NPI in object position is produced with a negative when another negative occurs in matrix clause

(e.g.) The boy *doesn’t* think that *anybody* is *not* sitting on the box.
    The monkey *doesn’t* believe that the bear is *not* pushing *anyone*.
(V) **Error Type 4 (T4):** Cases where an NPI occurs without a negative when it occurs in the same embedded clause

(e.g.) The lion believes that *anybody* is climbing the tree.

(In target structure, the underlined *anybody* should be replaced with *nobody.*)

The monkey thinks that the rabbit is Ø holding *anything*.

(VI) **Error Type 5 (T5):** Cases where an indefinite pronoun such as *somebody* or *something* is used instead of an NPI or a negative pronoun

(e.g.) The lion doesn’t believe that *somebody* is climbing the tree.

The monkey doesn’t think that the rabbit is holding *something*.

The lion thinks that the bear is not hitting *somebody*.

(VII) **Error Type 6 (T6):** Cases where common nouns (definite things) are used, instead of an NPI

(e.g.) The lion *doesn’t* think that *the rabbit* is climbing the tree.

The monkey *doesn’t* believe that the bear is pushing *the lion*.

The lion believes that the rabbit *doesn’t* put *his hands* on the table.

(VIII) **Error Type 7 (T7):** Cases where an NPI in subject position is followed by a negative in embedded clause

(e.g.) The bear believes that *anybody* is not wearing red shoes.
(VIII) **Error Type 8 (T8): Other category**

Cases where there is no NPI or negative pronoun and there is no negative, where an argument is missing, where a negative is produced in the wrong place along with common nouns instead of NPIs, and so on

(e.g.) The monkey believes that the bear is pushing the lion.

The lion believes that the rabbit is putting $\emptyset$ on the table.

The monkey doesn’t believe that the bear is not pushing the rabbit.

The errors and other responses in Experiment 5 are schematically depicted in Figures 7.11 through 7.14.

Figure 7.11 Other response and errors in MNS
Let us examine the errors and other responses for cases where a negative occurs in the matrix clause and an NPI is expected in subject position in the embedded clause (MNS). With regard to Error Type 1, the participants in all ESL groups produced negative pronoun responses instead of NPIs in subject position in MNS patterns (78.00% for EI, 50.40% for EII, and 14.00% for EIII), while nobody in EC did so. This suggests that the less fluent in English they are, the more frequently they use negative pronouns.

Only a couple of the ESL learners in EI and EII displayed a double negation pattern (.80% vs. 1.20%) (e.g., *The lion doesn't believe that no one is not kicking the ball*) or misplaced a negative (.40% vs .40%) (e.g., *The boy doesn't think that anybody is not sitting on the box*).

With respect to T5, the ESL learners in EII and EIII produced *somebody* or *someone* instead of NPIs more often than in EI. What is surprising is that T6 is the second most frequent error among six error types. All three groups produced definite common nouns instead of NPIs. The EI and EII groups made more errors of this type than EIII.

The following figure summarizes errors made by the participants when they produced NPIs in object position in embedded clauses when the negative occurred in the matrix clause (MNO).
Even in object position, the participants in EI and EII produced negative pronouns in place of NPIs very frequently (22.40% vs. 10.00%), compared to those in EIII (2.00%).

With respect to Error Type 2, learners in the EI and EIII groups produced just a few cases where a negative pronoun was used along with another negative in an embedded clause when a negative occurred in matrix clause (.80% vs .40%).

In addition, participants in all three groups made Error Type 3 more than any other error type, producing an additional negative in the embedded clause along with an NPI when a negative occurred in the matrix clause.

Furthermore, the participants in EII and EIII produced indefinite pronouns, such as someone and somebody, instead of NPIs (Error Type 5) very frequently, relative to EI.
As shown in the results for the MNS pattern, the participants in EI, EII, and EIII frequently used common nouns instead of NPIs in object position (22.00% vs. 15.20% vs. 7.20%).

Figure 7.13 represents other responses and errors in cases when a negative pronoun occurs in subject position in the embedded clause when there is no negative in the matrix clause (ENS).

Figure 7.13. Other responses and errors in ENS

![Graph](image)

<table>
<thead>
<tr>
<th>Types of responses</th>
<th>EI</th>
<th>EII</th>
<th>EIII</th>
<th>EC</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>0.00%</td>
<td>0.40%</td>
<td>0.00%</td>
<td>1.20%</td>
</tr>
<tr>
<td>T2</td>
<td>1.20%</td>
<td>4.40%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>T4</td>
<td>4.80%</td>
<td>0.40%</td>
<td>5.60%</td>
<td>0.00%</td>
</tr>
<tr>
<td>T7</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>T8</td>
<td>0.80%</td>
<td>1.20%</td>
<td>1.20%</td>
<td>0.80%</td>
</tr>
</tbody>
</table>

One important thing that we can see right away is that few errors were made in ENS, compared with the previous sentence types (MNS and MNO). With respect to the use of the ‘There is (a negative pronoun or a negative plus an NPI)’ pattern, only one case was
found in EII (.40%) and just three cases occurred in EC (1.20%). As mentioned in Chapter 4, this type of response was categorized as an “other” response because *there*, not an NPI or a negative pronoun, is the subject in this construction.

Only EI and EII showed double negation (T2) (1.20% vs. 4.40%). The ESL learners in EIII produced with 5.60% frequency cases where an NPI rather than a negative pronoun occurs in subject position with an accompanying negative when the embedded clause is negated (T7), compared to just one case in EII.

In addition, the ESL learners in EI used an NPI without a negative at a rate of 4.80%, while only one such case was found in the EIII group (.40%) and none at all in the EII group. With regard to T8 (other category), only a few cases were found in all the groups.

Five types of errors were found in cases where an NPI with an accompanying negative or a negative pronoun occurs in object position in an embedded clause when no negative appears in the matrix clause (ENO).
Only the ESL learners in EI produced double negation (1.60%). Even though there was no negative in the matrix clause, an NPI occurs in object position without a negative for all three ESL groups (9.20% for EI; 1.60% for EII; 4.00% for EIII). The use of common nouns instead of an NPI or a negative pronoun is the most frequent error in ENO for all ESL groups (8.80% for EI; 7.20% for EII; 4.40% for EIII). Moreover, the ESL learners in EI, EII and EIII made the T8 (other category) error 3.20%, 3.60%, and 1.60% of the time, respectively.
7.7. Discussion

Let us first examine the frequency of NPIs for four sentence types (MNS, MNO, ENS, and ENO). When a negative occurs in the embedded clause (ENO type), all three ESL groups produced more than 50% NPIs in object position (53.60% for EI; 69.60% for EII; 66.40% for EIII), even though the frequency of NPIs did not reach native-like responses (92.80% for EC). When the embedded clause is negated, NPIs cannot occur in subject position (ENS type). However, four ESL learners in EIII, one of whom was responsible for 8 out 14 NPI responses, produced NPIs in subject position.

When a negative occurs in the matrix clause, there is a big difference with respect to NPI responses across the four groups. The participants in EIII and EC produced NPIs in subject position 70.80% and 99.20% of the time and NPIs in object position 66.80% and 98.80% of the time, respectively. In contrast, the ESL learners in EI produced NPIs just 4.00% of the time in subject position and 15.60% of the time in object position. The learners in EII produced NPIs 18.40% of the time in subject position and 24.40% of the time in object position. This suggests two things. On the one hand, the higher proficiency level in English the ESL learners have, the more NPIs they produce, regardless of the position of NPIs. On the other hand, many ESL learners who have relatively low proficiency in English appear not to know that long-distance licensing is permissible in English. In other words, they apparently have difficulty applying the c-command condition across a clause boundary.

At this point, however, it is impossible to know with any certainty why Korean ESL learners avoid NPIs that are licensed by a negative in a higher clause. Possible
explanations include the input (long-distance NPIs may be rare), instruction (the pedagogical materials may not mention long-distance NPIs), transfer (as we have seen, Korean does not allow true long-distance NPIs), misapplication of their grammatical knowledge (the NPI cannot occur in subject position in simple sentences in English) or processing considerations (licensing by a distant negative may place an overly great strain on working memory). Regretfully, I must leave consideration of these matters for future research.

If the ESL learners could not produce NPIs in subject or object positions, what kinds of errors did they make? The most common error that they made was the T1 pattern, in which negative pronouns are used instead of NPIs in the embedded clause when the negative occurs in the matrix clause (78.00% for EI; 50.40% for EII; 14.00% for EIII in subject position vs. 22.40% for EI; 10.00% for EII; 2.00% for EIII) (e.g., The bear doesn't think that no one has a blue cap or The rabbit doesn't believe that the monkey is cutting nothing). Negative pronouns were produced in subject position more than three times as often as those in object position.

In addition, the ESL learners in EII and EIII used something or somebody instead of an NPI (Error Type 5) in subject (9.60% vs. 9.60%) or object positions (12.00% vs. 14.00%) (e.g., The lion doesn't believe that somebody is climbing the tree or The monkey doesn't think that the rabbit is holding something). After being tested, they reported that the reason they did this is because they had been taught that they should use something or somebody in affirmative sentences and thought that the embedded clause is an affirmative sentence.

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Moreover, all three groups made Error Type 3 (T3), where NPIs occur in object position with an accompanying negative in the same clause when another negative occurs in the matrix clause (35.20% for EI; 27.60% for EII; 8.00% for EIII) (e.g., *The monkey doesn’t believe that the bear is not pushing anyone*).

One of the most common errors in subject and object positions involves T6, in which the ESL learners used definite common nouns (14.80% for EI; 18.40% for EII; 5.20% for EIII in subject position vs. 22.00% for EI; 15.20% for EII; 7.20% for EIII in subject position) (e.g., *The lion doesn’t think that the rabbit is climbing the tree or The monkey doesn’t believe that the bear is pushing the lion*).

In cases where the embedded clause is negated (ENS type), all four groups produce negative pronouns in subject position more than 90% of the time (93.20% for EI; 93.60% for EII; 92.80% for EIII; 98.00% for EC). However, the combined responses of NPIs and negative pronouns in object position in the embedded clause (ENO type) are relatively low (77.20% for EI; 87.20% for EII; 89.20% for EIII), compared to those for EC (100%). This is due to two error types that the ESL learners frequently made. One is Error Type 4 (T4), in which NPIs occur without a negative in the same embedded clause (e.g., *The monkey thinks that the rabbit is Ø holding anything*). The ESL learners in EI, EII and EIII produced this error 9.20%, 1.60%, and 4.00% of the time, respectively. The other is Error Type 6 (T6), in which common nouns are used instead of NPIs (8.80% for EI; 7.20% for EII; 4.40% for EIII) (e.g., *The lion believes that the rabbit doesn’t put his hands on the table*).
The ESL learners made T6 errors in all sentence types except for ENS, where negative pronouns occur in subject position in the embedded clause when it is negated. See Figures 7.11, 7.12, and 7.14.

7.8. Conclusion

The most important finding from Experiment 5 is that the ESL learners with relatively low proficiency in English rarely permitted long-distance licensing for NPIs in English. They knew the c-command condition within a clause, but they could not apply it across a clause boundary. Instead of using NPIs in subject and object positions when a negative occurred in the matrix clause, many ESL learners produced negative pronouns.

With regard to NPI responses, the rate of NPIs that is expected to occur increases as the ESL learners’ proficiency in English increases. In addition, they have relatively less difficulty with local licensing of NPIs in English based on their responses when the embedded clause is negated, compared with long-distance licensing for NPIs in English.

In this dissertation, unfortunately, possible explanations as to why second language learners did not produce NPIs in an embedded clause when a negative occurs in the matrix clause cannot be provided. This problem may be due to multiple factors. With help of well-defined and refined methodology, we may eventually be able to figure out which factor is the most crucial for second language learners to permit long-distance licensing for NPIs in English.
8.1. Summary of Major Findings

This dissertation investigates the first and second language acquisition of NPIs in English and Korean with the help of five experimental studies. The main findings from each experiment are as follows.

Experiment 1 elicited negative pronouns in subject position and NPIs in object positions in simple sentences in English. It was found that English-speaking children aged 3 to 5 produced negative pronouns in subject position, but not a single NPI was produced there. On the other hand, NPIs and negative pronouns were produced in object position. Thus, the children’s responses exhibited a subject/object asymmetry for NPIs in English. In addition, the responses showed that the younger the children were, the more they preferred negative pronouns to NPIs, even though the rates of NPI responses produced by 5-year-old children could not reach the rates of NPI responses produced by native English-speaking adults.

Three ESL groups consisting of seventy-five Korean-speaking ESL learners participated in Experiment 2, which investigated whether they produced NPIs in subject and object positions in simple sentence in English. Their responses manifested a subject/object asymmetry for NPIs in English, even though there is no subject/object asymmetry in Korean. All three groups produced over 50% NPIs in object position, indicating that they prefer NPIs over negative pronouns in object position in English.
The rates for negative pronouns in subject position produced by the three ESL groups and by native English-speaking adults did not differ significantly.

Experiment 3 investigated the ability of Korean-speaking children to produce NPIs in subject and object positions in simple sentences in Korean. Children as young as three produced nearly as many NPIs in subject position and object position in Korean as native Korean-speaking adults did. No subject/object asymmetry was found in their responses.

Experiment 4 elicited NPIs in subject and object positions in simple Korean sentences from English-speaking learners of Korean as a second language. The learners produced a roughly equal number of NPIs in subject position and in object position, suggesting that they have no subject/object asymmetry. In addition, the more fluent the KSL learners were, the more frequently they produced NPIs. In particular, group KI produced fewer than 50% NPIs in both subject and object positions, compared to the other two KSL groups, KII and KIII. It is worth noting that KSL learners produced relative clause patterns instead of NPIs in subject and object positions—a strategy that was adopted in more test items targeting subject position than object position.

Experiment 5 investigated four types of bi-clausal sentences in the speech of Korean-speaking ESL learners. A big difference was found in terms of the use of NPIs across the four groups, including a comparison group. The responses suggest that the less fluent the ESL learners were, the less frequently they produced NPIs. An especially important finding is that the ESL learners in EI and EII did not produce NPIs in subject and object positions when the negative occurs in the matrix clause. In other words, they
showed a strong preference for local licensing over long-distance licensing. However, the responses of the ESL learners in EIII suggest that more advanced learners have come to realize that NPIs can be licensed across a clause boundary.

8.2. Suggestions for Future Research

As far as I know, there has been no study focusing just on the acquisition of NPIs in Korean and English. In this dissertation, I have reported on the results of five experimental studies only descriptively, without using any particular theoretical framework. This was because the methodology employed in this dissertation was not designed to choose among explanations for why the participants show particular patterns of responses.

We cannot know from these experiments how Korean-speaking children learn the clausemate condition on Korean NPI licensing and whether KSL learners learn it, too, since no test items were designed to elicit bi-clausal responses in Korean. As mentioned in chapter 2, the grammaticality judgments for NPIs especially in subject position are somewhat controversial, so we should design the test items very carefully to implement this type of experiment.

To decide where there are limits pertaining to structural distance in the licensing of NPIs, we could investigate a variety of sentence types in English. For instance, we could design the test items from small clauses to more than two embedded clauses. In addition, after making sure that children can read matrix clauses and understand the task, as in Experiment 5, we could do the same study with English-speaking children to
examine whether they permit long-distance licensing of NPIs in English and figure out how early they know it.

In addition, we could do cross-linguistic studies. For example, we can test second language learners who speak languages other than Korean or English and children who speak languages other than Korean and English in which NPIs obey different principles.

In the case of Experiment 5, we could not provide any concrete explanations for why ESL learners avoid NPIs that are licensed by a negative in a matrix clause. It might be useful to examine the input that they received to determine whether their responses are affected by its properties. However, we must take into consideration the types of input and/or the corpus we are going to look at. Textbooks that second language learners use in Korea, the interaction in the classroom, the materials available for them and so on should all be examined. We can also inquire whether learning of NPIs can be affected by instruction.

It is hoped that these problems and related issues can be pursued in the future with help of refined or new methodology.
APPENDIX A: EXPECTED RESPONSES FOR EXPERIMENTS 1 AND 2

INSTRUCTIONS: "Let’s play a game. Only you and I will see these pictures. The teacher (or participants’ friend) will be wondering what kind of pictures we are looking at. Maybe you could help her. Would you like to try one?"

A. Interaction between an investigator and a participant for test item targeting a subject in simple sentences in English

1. Investigator: Tell her who is eating bananas right now.
   Participant: Nobody is eating bananas. (⇒Expected response).
   Investigator: You are really good (or just ‘Good’).

2. Investigator: Tell her who has a blue cap right now.
   Participant: No one has the blue cap. (⇒Expected response).
   Investigator: You are really good (or just ‘Good’).

3. Investigator: Tell her who is kicking a ball right now.
   Participant: Nobody is kicking the ball. (⇒Expected response).
   Investigator: You are really good (or just ‘Good’).

4. Investigator: Tell her who is hugging a teddy bear right now.
   Participant: Nobody is hugging the teddy bear. (⇒Expected response).
   Investigator: You are really good (or just ‘Good’).

5. Investigator: Tell her who is sleeping in the bed right now.
   Participant: No one is sleeping in the bed. (⇒Expected response).
   Investigator: You are really good (or just ‘Good’).

6. Investigator: Tell her who is climbing the tree right now.
   Participant: Nobody is climbing the tree. (⇒Expected response).
   Investigator: You are really good (or just ‘Good’).

7. Investigator: Tell her who is wearing (a pair of) red shoes right now.
   Participant: No one is wearing red shoes. (⇒Expected response).
   Investigator: You are really good (or just ‘Good’).

8. Investigator: Tell her who is standing on the chair right now.
   Participant: Nobody is standing on the chair. (⇒Expected response).
   Investigator: You are really good (or just ‘Good’).

9. Investigator: Tell her who is brushing his teeth right now.
   Participant: No one is brushing their teeth. (⇒Expected response).
   Investigator: You are really good (or just ‘Good’).
10. Investigator: Tell her who is sitting on the box right now.
Participant: No one is sitting on the box. (=>Expected response).
Investigator: You are really good (or just ‘Good’).

B. Interaction between an investigator and a participant for test item targeting an object in simple sentences in English

1. Investigator: Tell her what the rabbit is throwing right now.
Participant: The rabbit is not throwing anything. (=>Expected response).
Investigator: You are really good (or just ‘Good’).

2. Investigator: Tell her what the rabbit is holding right now.
Participant: The rabbit is not holding anything. (=>Expected response).
Investigator: You are really good (or just ‘Good’).

3. Investigator: Tell her what the monkey is cutting right now.
Participant: The monkey is not cutting anything. (=>Expected response).
Investigator: You are really good (or just ‘Good’).

4. Investigator: Tell her who(m) the bear is pushing right now.
Participant: The bear is not pushing anybody. (=>Expected response).
Investigator: You are really good (or just ‘Good’).

5. Investigator: Tell her what the rabbit is putting on the table right now.
Participant: The rabbit is not putting anything on the table. (=>Expected response).
Investigator: You are really good (or just ‘Good’).

6. Investigator: Tell her what the monkey is touching right now.
Participant: The monkey is not touching anything. (=>Expected response).
Investigator: You are really good (or just ‘Good’).

7. Investigator: Tell her what the lion is kicking right now.
Participant: The lion is not kicking anything. (=>Expected response).
Investigator: You are really good (or just ‘Good’).

8. Investigator: Tell her who(m) the monkey is chasing right now.
Participant: The monkey is not chasing anybody. (=>Expected response).
Investigator: You are really good (or just ‘Good’).

9. Investigator: Tell her who(m) the bear is hitting right now.
Participant: The bear is not hitting anyone. (=>Expected response).
Investigator: You are really good (or just ‘Good’).
10. Investigator: Tell her what the rabbit is washing right now.
   Participant: The rabbit is not washing anything. (=>Expected response).
   Investigator: You are really good (or just 'Good').

C. Interaction between an investigator and a participant for sentences which served as distractors in simple sentences in English

1. Investigator: Tell her what the rabbit is throwing right now.
   Participant: The rabbit is throwing a book. (=>Expected response).
   Investigator: You are really good (or just ‘Good’).

2. Investigator: Tell her who is sleeping in the bed right now.
   Participant: A bear is sleeping in the bed. (=>Expected response).
   Investigator: You are really good (or just ‘Good’).

3. Investigator: Tell her what the monkey is eating right now.
   Participant: The monkey is eating a banana. (=>Expected response).
   Investigator: You are really good (or just ‘Good’).

4. Investigator: Tell her who(m) the monkey is chasing right now.
   Participant: The monkey is chasing a rabbit. (=>Expected response).
   Investigator: You are really good (or just ‘Good’).

5. Investigator: Tell her who is kicking the ball right now.
   Participant: A boy is kicking the ball. (=>Expected response).
   Investigator: You are really good (or just ‘Good’).

6. Investigator: Tell her who is brushing his teeth right now.
   Participant: A rabbit is brushing his teeth. (=>Expected response).
   Investigator: You are really good (or just ‘Good’).

7. Investigator: Tell her what the rabbit is washing right now.
   Participant: The rabbit is washing apples. (=>Expected response).
   Investigator: You are really good (or just ‘Good’).

8. Investigator: Tell her who is hugging a teddy bear right now.
   Participant: A girl is hugging the teddy bear. (=>Expected response).
   Investigator: You are really good (or just ‘Good’).

9. Investigator: Tell her who is wearing a pair of red shoes right now.
   Participant: A girl is wearing the red shoes. (=>Expected response).
   Investigator: You are really good (or just ‘Good’).
10. Investigator: Tell her who is standing on the chair right now.
   Participant: A monkey is standing on the chair. (=>Expected response).
   Investigator: You are really good (or just ‘Good’).

11. Investigator: Tell her what the monkey is cutting right now.
    Participant: The monkey is cutting a flower. (=>Expected response).
    Investigator: You are really good (or just ‘Good’).

12. Investigator: Tell her what the monkey is touching right now.
    Participant: The monkey is touching an airplane. (=>Expected response).
    Investigator: You are really good (or just ‘Good’).

13. Investigator: Tell her who(m) the bear is hitting right now.
    Participant: The bear is hitting a rabbit. (=>Expected response).
    Investigator: You are really good (or just ‘Good’).

14. Investigator: Tell her who(m) the bear is pushing right now.
    Participant: The bear is pushing a lion. (=>Expected response).
    Investigator: You are really good (or just ‘Good’).

15. Investigator: Tell her who is climbing the tree right now.
    Participant: The monkey is climbing the tree. (=>Expected response).
    Investigator: You are really good (or just ‘Good’).
APPENDIX B: EXPECTED RESPONSES FOR EXPERIMENTS 3 AND 4

INSTRUCTIONS:

"Ca, cikumpwuthe na hako i kulim-ul kaciko keyim-ul ha-ca. Well, now-from I with this picture-Acc with game-Acc do-PR 'Well, let’s play a game with these picture.

Ceki keysin sensayngnim-un i kulim-tul-ul pol-swu-eps-eyo. Over there be(HON) teacher-Top this picture-PL-Acc see-able-not-POL The teacher over there cannot see these pictures.

wuli-man i kulim-ul pol-swu-iss-e. we-only this picture-Acc see-able-be-INT Only you and I will see these pictures.

ceki keysin sensayngnim-un wuli-ka mwusun kulim-ul over there be (HON) teacher-Top we-Nom what picture The teacher sitting over there will wonder what kinds of pictures we are

po-ko iss-nu-n-ci kwungkumhayha-si-keyss-ci? see-and be-IN-RL-Comp wonder -Hon-think-Que looking at, won’t she?
kulim-ul cal po-ko sensayngnim-kkey mwusun kulim-ul picture-Acc well see-and teacher-to what picture-Acc After looking at these pictures, please tell your teacher what kind of picture

po-ko iss-nu-n-ci cal iyakahay-cwu-sey-yo. sicakha-l-kkayo?” see-and be-IN-RL-Comp well tell-give-HON-POL start-Fut-Que you are looking at. Can we start? (or Are you ready?)’

A. Interaction between an investigator and a participant for test item targeting a subject in simple sentences in Koran

1. Investigator: Nwu-ka cikum panana-lul mek-ko iss-nu-n-ci Who-Nom now banana-Acc eat- and be-IN-RL-Comp chinkwu-hanthey malhay-cwu-sey-yo. friend-to tell-give-HON-POL ‘Please tell your friend who is eating bananas right now.’

1 When the instructions above were given to the KSL learners, some words had been changed because of the honorific system in Korean. See section 6.3.2.
Participant: (I) Expected response 1
Amwuto panana-lul an mek-ko iss-eyo. (SFN)
Anyone banana-Acc not eat-and be-POL
‘Nobody is eating bananas.’

OR (II) Expected response 2
Amwuto panana-lul mek-ko iss-ci anh-ayo (LFN)
Anyone banana-Acc eat-and be-CI not.do-POL
‘Nobody is eating bananas.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

2. Investigator: Nwu-ka cikum palan moca-lul kaci-ko iss-nu-n-ci
Who-Nom now blue cap-Acc have-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-to tell-give-HON-POL
‘Please tell your friend who has a blue cap right now.’

Participant: (I) Expected response 1
Amwuto palan moca-lul an kac-ko iss-eyo. (SFN)
Anyone blue cap-Acc not have-and be-POL
‘Nobody has the blue cap.’

OR (II) Expected response 2
Amwuto palan moca-lul kac-ko iss-ci anh-ayo (LFN)
Anyone blue cap-Acc have-and be-CI not.do-POL
‘Nobody has the blue cap.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

3. Investigator: Nwu-ka cikum kong-lul cha-ko iss-nu-n-ci
Who-Nom now ball-Acc kick-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-to tell-give-HON-POL
‘Please tell your friend who is kicking a ball right now.’

Participant: (I) Expected response 1
Amwuto kong-lul an cha-ko iss-eyo. (SFN)
Anyone ball-Acc not kick-and be-POL
‘Nobody is kicking the ball.’
OR (II) Expected response 2
Amwuto kong-lul cha-ko iss-ci anh-ayo (LFN)
Anyone ball-Acc kick-and be-CI not.do-POL
‘Nobody is kicking the ball.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

4. Investigator: Nwu-ka cikum kom inhyeng-lul an-ko iss-nu-n-ci
Who-Nom now bear doll-Acc hug-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-to tell-give-HON-POL
‘Please tell your friend who is hugging a teddy bear right now.’

Participant: (I) Expected response 1
Amwuto kom inhyeng-lul an an-ko iss-eyo. (SFN)
Anyone bear doll-Acc not hug-and be-POL
‘Nobody is hugging the teddy bear.’

OR (II) Expected response 2
Amwuto kom inhyeng-lul an-ko iss-ci anh-ayo (LFN)
Anyone bear doll-Acc hug-and be-CI not.do-POL
‘Nobody is hugging the teddy bear.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

5. Investigator: Nwu-ka cikum chimtay-eyse ca-ko iss-nu-n-ci
Who-Nom now bed-Loc sleep-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-to tell-give-HON-POL
‘Please tell your friend who is sleeping in the bed right now.’

Participant: (I) Expected response 1
Amwuto chimtay-eyse an ca-ko iss-eyo. (SFN)
Anyone bed-Loc not sleep-and be-POL
‘Nobody is sleeping in the bed.’

OR (II) Expected response 2
Amwuto chimtay-eyse ca-ko iss-ci anh-ayo (LFN)
Anyone bed-Acc sleep-and be-CI not.do-POL
‘Nobody is sleeping in the bed.’
Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

6. Investigator: Nwu-ka cikum namwu-wi-lo ollaka-ko iss-nu-n-ci
Who-Nom now tree-up-Dir climb-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-to tell-give-HON-POL
‘Please tell your friend who is climbing the tree right now.’

Participant: (I) Expected response 1
Amwuto namwu-wi-lo an ollaka-ko iss-eyo. (SFN)
Anyone tree-up-Dir not climb-and be-POL
‘Nobody is climbing the tree.’

OR (II) Expected response 2
Amwuto namwu-wi-lo ollaka-ko iss-ci anh-ayo (LFN)
Anyone tree-up-Dir climb-and be-CI not.do-POL
‘Nobody is climbing the tree.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

7. Investigator: Nwu-ka cikum ppalkan sinpal-ul sin-ko iss-nu-n-ci
Who-Nom now red shoes -Acc wear-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-to tell-give-HON-POL
‘Please tell your friend who is wearing a pair of red shoes right now.’

Participant: (I) Expected response 1
Amwuto ppalkan sinpal-ul an sin-ko iss-eyo. (SFN)
Anyone red shoes-Acc not wear-and be-POL
‘Nobody is wearing red shoes.’

OR (II) Expected response 2
Amwuto ppalkan sinpal-ul sin-ko iss-ci anh-ayo (LFN)
Anyone red shoes-Acc wear-and be-CI not.do-POL
‘Nobody is wearing red shoes.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’
8. Investigator: Nwu-ka cikum uyca-wi-ey se iss-nu-n-ci
Who-Nom now chair-on-Loc stand be-IN-RL-Comp
chinkwuh-hanthey malhay-cwu-sey-yo.
friend-to tell-give-HON-POL
‘Please tell your friend who is standing on the chair right now.’

Participant: (I) Expected response 1
Amwuto uyca-wi-ey an se iss-eyo. (SFN)
Anyone chair-on-Loc not stand be-POL
‘Nobody is standing on the chair.’

OR (II) Expected response 2
Amwuto uyca-wi-ey se iss-ci anh-ayo (LFN)
Anyone chair-on-Loc stand be-CI not.do-POL
‘Nobody is standing on the chair.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

9. Investigator: Nwu-ka cikum i-lul takk-ko iss-nu-n-ci
Who-Nom now teeth-Acc brush-and be-IN-RL-Comp
chinkwuh-hanthey malhay-cwu-sey-yo.
friend-to tell-give-HON-POL
‘Please tell your friend who is brushing his teeth right now.’

Participant: (I) Expected response 1
Amwuto i-lul an takk-ko iss-eyo. (SFN)
Anyone teeth-Acc not brush-and be-POL
‘Nobody is brushing their teeth.’

OR (II) Expected response 2
Amwuto i-lul takk-ko iss-ci anh-ayo (LFN)
Anyone teeth-Acc brush-and be-CI not.do-POL
‘Nobody is brushing their teeth.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’
10. Investigator: Nwu-ka cikum sangca-wi-ey anc-a iss-nu-n-ci
Who-Nom now box-on-Loc sit-INF be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-to tell-give-HON-POL
‘Please tell your friend who is sitting on the box right now.’

Participant: (I) Expected response 1
Amwuto sangca-wi-ey an anc-a iss-eyo. (SFN)
Anyone box-on-Loc not sit-INF be-POL
‘Nobody is sitting on the box.’

OR (II) Expected response 2
A mwuto sangca-wi-ey anc-a iss-ci anh-ayo (LFN)
Anyone box-on-Loc sit-INF be-CI not.do-POL
‘Nobody is sitting on the box.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

B. Interaction between an investigator and a participant for test item targeting an object in simple sentences in Korean

1. Investigator: Thokki-ka cikum mwues-lul tenci-ko iss-nu-n-ci
rabbit-Nom now what-Acc throw-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-Dat tell-give-HON-POL
‘Please tell your friend what the rabbit is throwing right now.’

Participant: (I) Expected response 1
Thokki-ka amwukesto an tenci-ko iss-eyo. (SFN)
Rabbit-Nom anything not throw-and be-POL
‘The rabbit is not throwing anything.’

OR (II) Expected response 2
Thokki-ka amwukesto tenci-ko iss-ci anh-ayo (LFN)
Rabbit-Nom anything throw-and be-Comp not.do-POL
‘The rabbit is not throwing anything.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’
2. Investigator: Thokki-ka cikum mwues-lul son-ey cwi-ko iss-nu-n-ci rabbit-Nom now what-Acc hand-Loc hold-and be-IN-RL-Comp chinkwu-hanthey malhay-cwu-sey-yo. friend-Dat tell-give-HON-POL ‘Please tell your friend what the rabbit is holding right now.’

Participant: (I) Expected response 1
Thokki-ka amwukesto son-ey an cwi-ko iss-eyo. (SFN) Rabbit-Nom anything hand-Loc not hold-and be-POL ‘The rabbit is not holding anything.’

OR (II) Expected response 2
Thokki-ka amwukesto son-ey cwi-ko iss-ci anh-ayo (LFN) Rabbit-Nom anything hand-Loc hold-and be-Comp not. do-POL ‘The rabbit is not holding anything.’

Investigator: Cham cal hay-ss-eyo. Really well do-Past-POL ‘You are really good.’

3. Investigator: Wenswungi-ka cikum mwues-lul calu-ko iss-nu-n-ci monkeu-Nom now what-Acc cut-and be-IN-RL-Comp chinkwu-hanthey malhay-cwu-sey-yo. friend-Dat tell-give-HON-POL ‘Please tell your friend what the monkey is cutting right now.’

Participant: (I) Expected response 1
Wenswungi-ka amwukesto an calu-ko iss-eyo. (SFN) monkey-Nom anything not cut-and be-POL ‘The monkey is not cutting anything.’

OR (II) Expected response 2
Wenswungi-ka amwukesto calu-ko iss-ci anh-ayo (LFN) Monkey-Nom anything cut-and be-Comp not. do-POL ‘The monkey is not cutting anything.’

Investigator: Cham cal hay-ss-eyo. Really well do-Past-POL ‘You are really good.’
4. Investigator: Kom-i cikum nwukwu-lul mil-ko iss-nu-n-ci 
bear-Nom now who-Acc push-and be-IN-RL-Comp 
chinkwu-hanthey malhay-cwu-sey-yo. 
friend-Dat tell-give-HON-POL 
‘Please tell your friend who(m) the bear is pushing right now.’

Participant: (I) Expected response 1 
Kom-i amwuto an mil-ko 
bear-Nom anyone not push-and 
iss-eyo. (SFN) 
be-POL 
‘The bear is not pushing anyone.’

OR (II) Expected response 2 
Kom-i amwuto mil-ko 
bear-Nom anyone push-and 
iss-ci anh-ayo (LFN) 
be-Comp not. do-POL 
‘The bear is not pushing anyone.’

Investigator: Cham cal hay-ss-eyo. 
Really well do-Past-POL 
‘You are really good.’

5. Investigator: Thokki-ka cikum theyipul-wi-ey mwues-lul ollyenoh-ko 
rabbit-Nom now table-on-Loc what-Acc put-and 
iss-nu-n-ci chinkwu-hanthey malhay-cwu-sey-yo. 
be-IN-RL-Comp friend-Dat tell-give-HON-POL 
‘Please tell your friend what the rabbit is putting on the table right now.’

Participant: (I) Expected response 1 
Thokki-ka amwukesto theyipul-wi-ey an ollyenoh-ko iss-eyo. (SFN) 
Rabbit-Nom anything table-on-Loc not put-and 
be-POL 
‘The rabbit is not putting anything on the table.’

OR (II) Expected response 2 
Thokki-ka amwukesto theyipul-wi-ey ollyenoh-ko iss-ci anh-ayo. (LFN) 
Rabbit-Nom anything table-on-Loc put-and be-Comp not. do-POL 
‘The rabbit is not putting anything on the table.’

Investigator: Cham cal hay-ss-eyo. 
Really well do-Past-POL 
‘You are really good.’
6. Investigator: Wenswungi-ka cikum mwues-lul manci-ko monkey-Nom now what-Acc touch-and iss-nu-n-ci chinkwu-hanthey malhay-cwu-sey-yo. be-IN-RL-Comp friend-Dat tell-give-HON-POL ‘Please tell your friend what the monkey is touching right now.’

Participant: (I) Expected response 1
Wenswungi-ka amwukesto an manci-ko iss-eyo. (SFN) monkey-Nom anything not touch-and be-POL ‘The monkey is not touching anything.’

OR (II) Expected response 2
wenswungi-ka amwukesto manci-ko iss-ci anh-ayo (LFN) Rabbit-Nom anything touch-and be-Comp not. do-POL ‘The monkey is not touching anything.’

Investigator: Cham cal hay-ss-eyo. Really well do-Past-POL ‘You are really good.’

7. Investigator: Saca-ka cikum mwues-lul cha-ko iss-nu-n-ci lion-Nom now what-Acc kick-and be-IN-RL-Comp chinkwu-hanthey malhay-cwu-sey-yo. friend-Dat tell-give-HON-POL ‘Please tell your friend what the lion is kicking right now.’

Participant: (I) Expected response 1
saca-ka amwukesto an cha-ko iss-eyo. (SFN) lion-Nom anything not kick-and be-POL ‘The lion is not kicking anything.’

OR (II) Expected response 2
saca-ka amwukesto cha-ko iss-ci anh-ayo (LFN) lion-Nom anything kick-and be-Comp not. do-POL ‘The lion is not kicking anything.’

Investigator: Cham cal hay-ss-eyo. Really well do-Past-POL ‘You are really good.’
8. Investigator: Wenswungi-ka cikum nwukwu-lul cocaka-ko monkey-Nom now who-Acc chase-and iss-nu-n-ci chinkwu-hanthey malhay-cwu-sey-yo. be-IN-RL-Comp friend-Dat tell-give-HON-POL ‘Please tell your friend who(m) the monkey is chasing right now.’

Participant: (I) Expected response 1
Wenswungi-ka amwuto an cocaka-ko iss-eyo. (SFN) monkey-Nom anyone not chase-and be-POL ‘The monkey is not chasing anyone.’

OR (II) Expected response 2
wenswungi-ka amwuto cocaka-ko iss-ci anh-ayo (LFN) Rabbit-Nom anyone chase-and be-Comp not. do-POL ‘The monkey is not chasing anyone.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL ‘You are really good.’

9. Investigator: Kom-i cikum nwukwu-lul ttayli-ko iss-nu-n-ci bear-Nom now who-Acc hit-and be-IN-RL-Comp chinkwu-hanthey malhay-cwu-sey-yo. friend-Dat tell-give-HON-POL ‘Please tell your friend who(m) the bear is hitting right now.’

Participant: (I) Expected response 1
Kom-i amwuto an ttayli-ko iss-eyo. (SFN) bear-Nom anyone not hit-and be-POL ‘The bear is not hitting anyone.’

OR (II) Expected response 2
Kom-i amwuto ttayli-ko iss-ci anh-ayo (LFN) bear-Nom anyone throw-and be-Comp not. do-POL ‘The bear is not hitting anyone.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL ‘You are really good.’
10. Investigator: Thokki-ka cikum mwues-lul ssis-ko iss-nu-n-ci
rabbit-Nom now what-Acc wash-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-Dat tell-give-HON-POL
‘Please tell your friend what the rabbit is washing right now.’

Participant: (I) Expected response 1
Thokki-ka amwukesto an ssis-ko iss-eyo. (SFN)
Rabbit-Nom anything not wash-and be-POL
‘The rabbit is not washing anything.’

OR (II) Expected response 2
Thokki-ka amwukesto ssis-ko iss-ci anh-ayo (LFN)
Rabbit-Nom anything wash-and be-Comp not. do-POL
‘The rabbit is not washing anything.’

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

C. Interaction between an investigator and a participant for sentences which served as
distractors in simple sentences in Korean

1. Investigator: Thokki-ka cikum mwues-lul tenci-ko iss-nu-n-ci
rabbit-Nom now what-Acc throw-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-Dat tell-give-HON-POL
‘Please tell your friend what the rabbit is throwing right now.’

Participant: Thokki-ka chayk-ul tenci-ko iss-eyo.
Rabbit-Nom book-Acc throw-and be-POL
‘A rabbit is is throwing a book.’ (=>Expected response)

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

2. Investigator: Nwu-ka cikum chimtay-eyse ca-ko iss-nu-n-ci
Who-Nom now bed-Loc sleep-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-to tell-give-HON-POL
‘Please tell your friend who is sleeping in the bed right now.’
Participant: Kom-i chimtay-eyse ca-ko iss-eyo.
Bear-Nom bed-Loc sleep-and be-POL
‘A bear is sleeping in the bed.’ (=>Expected response)

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

3. Investigator: Wenswungi-ka cikum mwues-lul mek-ko iss-nu-n-ci
rabbit-Nom now what-Acc throw-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-Dat tell-give-HON-POL
‘Please tell your friend what the monkey is eating right now.’

Monkey-Nom banana-Acc eat-and be-POL
‘A monkey is eating a banana.’ (=>Expected response)

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

4. Investigator: Wenswungi-ka cikum nwukwu-lul cocaka-ko iss-nu-n-ci
monkey-Nom now who-Acc chase-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-Dat tell-give-HON-POL
‘Please tell your friend who(m) the monkey is chasing right now.’

Monkey-Nom rabbit-Acc chase-and be-POL
‘The monkey is chasing a rabbit.’ (=>Expected response)

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

5. Investigator: Nwu-ka cikum kong-ul cha-ko iss-nu-n-ci
Who-Nom now ball-Acc kick-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-to tell-give-HON-POL
‘Please tell your friend who is kicking the ball right now.’
Participant: sonyen-i (or namca ai-ka) kong-ul cha-ko iss-eyo.  
boy-Nom (male child-Nom) ball-Acc kick-and be-POL  
‘A boy is kicking the ball.’ (=>Expected response)

Investigator: Cham cal hay-ss-eyo.  
Really well do-Past-POL  
‘You are really good.’

6. Investigator: Nwu-ka cikum i-lul takk-ko iss-nu-n-ci  
Who-Nom now teeth-Acc brush-and be-IN-RL-Comp  
chinkwu-hanthey malhay-cwu-sey-yo.  
friend-to tell-give-HON-POL  
‘Please tell your friend who is brushing his teeth right now.’

Participant: Thokki-ka i-lul takk-ko iss-eyo.  
boy-Nom teeth-Acc brush-and be-POL  
‘A rabbit is brushing his teeth.’ (=>Expected response)

Investigator: Cham cal hay-ss-eyo.  
Really well do-Past-POL  
‘You are really good.’

7. Investigator: Thokki-ka cikum mwues-lul ssis-ko iss-nu-n-ci  
rabbit-Nom now what-Acc wash-and be-IN-RL-Comp  
chinkwu-hanthey malhay-cwu-sey-yo.  
friend-Dat tell-give-HON-POL  
‘Please tell your friend what the rabbit is washing right now.’

Participant: Thokki-ka sakwa-ul ssis-ko iss-eyo.  
Monkey-Nom apple-Acc eat-and be-POL  
‘The rabbit is washing apples.’ (=>Expected response)

Investigator: Cham cal hay-ss-eyo.  
Really well do-Past-POL  
‘You are really good.’

8. Investigator: Nwu-ka cikum kom inhyeng-ul an-ko iss-nu-n-ci  
Who-Nom now bear doll-Acc brush-and be-IN-RL-Comp  
chinkwu-hanthey malhay-cwu-sey-yo.  
friend-to tell-give-HON-POL  
‘Please tell your friend who is hugging a teddy bear right now.’
Participant: sonye-ka (or yeca ai-ka) kom inhyeng-ul an-ko iss-eyo. girl-Nom (female child-Nom) bear doll-Acc hug-and be-POL 'A girl is hugging the teddy bear.' (=>Expected response)

Investigator: Cham cal hay-ss-eyo. Really well do-Past-POL 'You are really good.'

9. Investigator: Nwu-ka cikum ppalkan sinpal-ul sin-ko iss-nu-n-ci Who-Nom now red shoes-Acc wear-and be--IN-RL-Comp chinkwu-hanthey malhay-cwu-sey-yo. friend-to tell-give-HON-POL 'Please tell your friend who is wearing a pair of red shoes right now'.

Participant: sonye-ka (or yeca ai-ka) ppalkan sinpal-ul sin-ko iss-eyo. girl-Nom (female child-Nom) red shoes-Acc wear-and be-POL 'A girl is wearing red shoes.' (=>Expected response)

Investigator: Cham cal hay-ss-eyo. Really well do-Past-POL 'You are really good.'

10. Investigator: Nwu-ka cikum uyca-wl-ey se iss-nu-n-ci Who-Nom now chair-on-Loc stand be--IN-RL-Comp chinkwuhanthey malhay-cwu-sey-yo. friend-to tell-give-HON-POL 'Please tell your friend who is standing on the chair right now.'

Participant: wenswungi-ka uyca-wl-ey se iss-eyo. Monkey-Nom chair-on-Loc stand be-POL 'A monkey is standing on the chair.' (=>Expected response)

Investigator: Cham cal hay-ss-eyo. Really well do-Past-POL 'You are really good.'

11. Investigator: Wenswungi-ka cikum mwues-lul calu-ko iss-nu-n-ci monkey-Nom now what-Acc cut-and be--IN-RL-Comp chinkwuhanthey malhay-cwu-sey-yo. friend-Dat tell-give-HON-POL 'Please tell your friend what the monkey is cutting right now.'
Monkey-Nom flower-Acc cut-and be-POL
‘The monkey is cutting a flower.’ (=>Expected response)

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

12. Investigator: Wenswungi-ka cikum mwues-lul manci-ko iss-nu-n-ci
monkey-Nom now what-Acc touch-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-Dat tell-give-HON-POL
‘Please tell your friend what the monkey is touching right now.’

Monkey-Nom airplane-Acc touch-and be-POL
‘The monkey is touching an airplane.’ (=>Expected response)

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

13. Investigator: Kom-i cikum nwukwu-lul ttayli-ko iss-nu-n-ci
bear-Nom now who-Acc hit-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-Dat tell-give-HON-POL
‘Please tell your friend who(m) the bear is hitting right now.’

Participant: Kom-i thokki-lul ttayli-ko iss-eyo.
bear-Nom rabbit-Acc hit-and be-POL
‘The bear is hitting a rabbit.’ (=>Expected response)

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
‘You are really good.’

14. Investigator: Kom-i cikum nwukwu-lul mil-ko iss-nu-n-ci
bear-Nom now who-Acc hit-and be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-Dat tell-give-HON-POL
‘Please tell your friend who(m) the bear is pushing right now.’
Participant: Kom-i saca-lul mil-ko iss-eyo.
bear-Nom lion-Acc hit-and be-POL
'The bear is pushing a lion.' (=>Expected response)

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
'You are really good.'

15. Investigator: Nwu-ka cikum namwu-wi-lo ollaka-ko iss-nu-n-ci
Who-Nom now tree-up-Dir climb be-IN-RL-Comp
chinkwu-hanthey malhay-cwu-sey-yo.
friend-to tell-give-HON-POL
'Please tell your friend who is climbing the tree right now.'

Monkey-Nom tree-up-Dir climb be-POL
'A monkey is climbing the tree.' (=>Expected response)

Investigator: Cham cal hay-ss-eyo.
Really well do-Past-POL
'You are really good.'
APPENDIX C: EXPECTED RESPONSES FOR EXPERIMENT 5

INSTRUCTIONS: “Only you and I will see these pictures. Your friend will be wondering what kind of pictures we are looking at. Maybe you could help her. Tell him/her what the people in the pictures are thinking. Are you ready (or Would you like to try one)?”

A. Interaction between an investigator and a participant for MNS pattern in bi-clausal sentences in English

1. Investigator: S/he is wondering who is eating bananas right now. This girl may know. Tell her what she thinks. Participant: She doesn’t think that anyone is eating bananas. Investigator: Good. / You are really good.

2. Investigator: S/he is wondering who is sitting on the box right now. This boy may know. Tell her what the boy thinks. Participant: The boy doesn’t think that anyone is sitting on the box. Investigator: Good. / You are really good.

3. Investigator: S/he is wondering who is brushing his teeth right now. This lion may know. Tell her what the lion thinks. Participant: The lion doesn’t think that anyone is brushing his teeth. Investigator: Good. / You are really good.

4. Investigator: S/he is wondering who is standing on the chair right now. This bear may know. Tell her what the bear believes. Participant: The bear doesn’t believe that anyone is standing on the chair. Investigator: Good. / You are really good.

5. Investigator: S/he is wondering who has a blue cap right now. This bear may know. Tell her what the bear thinks. Participant: The bear doesn’t think that anybody is wearing the blue cap. Investigator: Good. / You are really good.
6. Investigator: S/he is wondering who is kicking the ball right now.
   This monkey may know.
   Tell her what the monkey believes.
Participant: The monkey doesn’t believe that anyone is kicking the ball.
Investigator: Good. / You are really good.

7. Investigator: S/he is wondering who is sleeping in the bed right now.
   This boy may know.
   Tell her what the boy thinks.
Participant: The boy doesn’t think that anyone is sleeping in the bed.
Investigator: Good. / You are really good.

8. Investigator: S/he is wondering who is hugging the teddy bear right now.
   This lion may know.
   Tell her what the lion believes.
Participant: The lion doesn’t believe that anyone is hugging the teddy bear.
Investigator: Good. / You are really good.

9. Investigator: S/he is wondering who is wearing a pair of red shoes right now.
   This bear may know.
   Tell her what the bear believes.
Participant: The bear doesn’t believe that anyone is wearing red shoes.
Investigator: Good. / You are really good.

10. Investigator: S/he is wondering who is climbing the tree right now.
    This lion may know.
    Tell her what the lion believes.
Participant: The lion doesn’t believe that anyone is climbing the tree.
Investigator: Good. / You are really good.

B. Interaction between an investigator and a participant for MNO pattern in bi-clausal sentences in English

1. Investigator: S/he is wondering who(m) the monkey is chasing right now.
   This bear may know.
   Tell her what the bear thinks.
Participant: The bear doesn’t think that the monkey is chasing anyone.
Investigator: Good. / You are really good.
2. Investigator: S/he is wondering who(m) the bear is pushing right now.
   This monkey may know.
   Tell her what the bear believes.
Participant: The monkey doesn’t believe that the bear is pushing anybody.
Investigator: Good. / You are really good.

3. Investigator: S/he is wondering what the rabbit is washing right now.
   This girl may know.
   Tell her what she thinks.
Participant: She doesn’t think that the rabbit is washing anything.
Investigator: Good. / You are really good.

4. Investigator: S/he is wondering what the rabbit is holding right now.
   This monkey may know.
   Tell her what the monkey thinks.
Participant: The monkey doesn’t think that the rabbit is holding anything.
Investigator: Good. / You are really good.

5. Investigator: S/he is wondering what the rabbit is putting on the table right now.
   This lion may know.
   Tell her what the lion believes.
Participant: The lion doesn’t believe that the rabbit is putting anything on the table.
Investigator: Good. / You are really good.

6. Investigator: S/he is wondering what the monkey is cutting right now.
   This rabbit may know.
   Tell her what the rabbit believes.
Participant: The rabbit doesn’t believe that the monkey is cutting anything.
Investigator: Good. / You are really good.

7. Investigator: S/he is wondering what the lion is kicking right now.
   This bear may know.
   Tell her what the bear believes.
Participant: The bear doesn’t believe that the lion is kicking anything.
Investigator: Good. / You are really good.

8. Investigator: S/he is wondering what the rabbit is throwing right now.
   This boy may know.
   Tell her what the boy thinks.
Participant: The boy doesn’t think that the rabbit is throwing anything.
Investigator: Good. / You are really good.
9. Investigator: S/he is wondering what the monkey is touching right now. This lion may know.
   Tell her what the lion believes.
Participant: The lion doesn't believe that the monkey is touching anything.
Investigator: Good. / You are really good.

10. Investigator: S/he is wondering who(m) the bear is hitting right now. This lion may know.
    Tell her what the lion thinks.
Participant: The lion doesn't think that the bear is hitting anyone.
Investigator: Good. / You are really good.

C. Interaction between an investigator and a participant for ENS pattern in bi-clausal sentences in English

1. Investigator: S/he is wondering who has a blue cap right now. This bear may know.
   Tell her what the bear thinks
Participant: The bear thinks that no one has the blue cap.
Investigator: Good. / You are really good.

2. Investigator: S/he is wondering who is eating bananas right now. This girl may know.
   Tell her what she thinks
Participant: She thinks that nobody is eating bananas.
Investigator: Good. / You are really good.

3. Investigator: S/he is wondering who is standing on the chair right now. This bear may know.
   Tell her what the bear believes
Participant: The bear believes that no one is standing on the chair.
Investigator: Good. / You are really good.

4. Investigator: S/he is wondering who is wearing a pair of red shoes right now. This bear may know.
   Tell her what the bear believes
Participant: The bear believes that no one is wearing the red shoes.
Investigator: Good. / You are really good.
5. Investigator: S/he is wondering who is climbing the tree right now.  
   This lion may know.  
   Tell her what the lion believes.  
Participant: The lion believes that no one is climbing the tree.  
Investigator: Good. / You are really good.

6. Investigator: S/he is wondering who is hugging a teddy bear right now.  
   This lion may know.  
   Tell her what the lion believes.  
Participant: The lion believes that no one is holding the teddy bear.  
Investigator: Good. / You are really good.

7. Investigator: S/he is wondering who is sleeping in the bed right now.  
   This boy may know.  
   Tell her what the boy thinks.  
Participant: The boy thinks that no one is sleeping in the bed.  
Investigator: Good. / You are really good.

8. Investigator: S/he is wondering who is brushing his teeth right now.  
   This lion may know.  
   Tell her what the lion thinks.  
Participant: The lion thinks that nobody is brushing their teeth.  
Investigator: Good. / You are really good.

9. Investigator: S/he is wondering who is kicking a ball right now.  
   This monkey may know.  
   Tell her what the monkey believes.  
Participant: The monkey believes that no one is kicking the ball.  
Investigator: Good. / You are really good.

10. Investigator: S/he is wondering who is sitting on the box right now.  
    This boy may know.  
    Tell her what the boy thinks.  
Participant: The boy thinks that no one is sitting on the box.  
Investigator: Good. / You are really good.
D. Interaction between an investigator and a participant for ENO pattern in bi-clausal sentences in English

1. Investigator: S/he is wondering what the rabbit is throwing right now. This boy may know. Tell her what the boy thinks. Participant: The boy thinks that the rabbit is not throwing anything. Investigator: Good. / You are really good.

2. Investigator: S/he is wondering who(m) the bear is hitting right now. This lion may know. Tell her what the lion thinks. Participant: The lion thinks that the bear is not hitting anybody. Investigator: Good. / You are really good.

3. Investigator: S/he is wondering what the monkey is touching right now. This lion may know. Tell her what the lion believes. Participant: The lion believes that the monkey is not touching anything. Investigator: Good. / You are really good.

4. Investigator: S/he is wondering what the rabbit is washing right now. This girl may know. Tell her what she thinks. Participant: She thinks that the rabbit is not washing anything. Investigator: Good. / You are really good.

5. Investigator: S/he is wondering what the rabbit is holding right now. This monkey may know. Tell her what the monkey thinks. Participant: The monkey thinks that the rabbit is not holding anything. Investigator: Good. / You are really good.

6. Investigator: S/he is wondering who(m) the monkey is chasing right now. This bear may know. Tell her what the bear thinks. Participant: The bear thinks that the monkey is not chasing anyone. Investigator: Good. / You are really good.

7. Investigator: S/he is wondering what the rabbit is putting on the table right now. This lion may know. Tell her what the lion believes. Participant: The lion believes that the rabbit is not putting anything on the table. Investigator: Good. / You are really good.
8. Investigator: S/he is wondering what the monkey is cutting right now.  
   This rabbit may know.  
   Tell her what the rabbit believes.  
Participant: The rabbit believes that the monkey is not cutting anything.  
Investigator: Good. / You are really good.

9. Investigator: S/he is wondering what the lion is kicking right now.  
   This bear may know.  
   Tell her what the bear believes.  
Participant: The bear believes that the lion is not kicking anything.  
Investigator: Good. / You are really good.

10. Investigator: S/he is wondering who(m) the bear is pushing right now.  
    This monkey may know.  
    Tell her what the monkey believes.  
Participant: The monkey believes that the bear is not pushing anyone.  
Investigator: Good. / You are really good.

E. Interaction between an investigator and a participant for sentences used as distractors
    in bi-clausal sentences in English

1. Investigator: S/he is wondering what the rabbit is washing right now.  
   This girl may know.  
   Tell her what she thinks.  
Participant: She thinks that the rabbit is washing apples.  
Investigator: Good. / You are really good.

2. Investigator: S/he is wondering who is wearing a pair of red shoes right now.  
   This bear may know.  
   Tell her what the bear believes.  
Participant: The bear believes that a girl is wearing the red shoes.  
Investigator: Good. / You are really good.

3. Investigator: S/he is wondering who has a blue cap right now.  
   This bear may know.  
   Tell her what the bear thinks.  
Participant: The bear thinks that the monkey has a blue cap.  
Investigator: Good. / You are really good.
4. Investigator: S/he is wondering who is standing on the chair right now.  
   This bear may know.  
   Tell her what the bear believes.  
Participant: The bear believes that the monkey is standing on the chair.  
Investigator: Good. / You are really good.

5. Investigator: S/he is wondering what the monkey is touching right now.  
   This lion may know.  
   Tell her what the lion believes.  
Participant: The lion believes that the monkey is touching an airplane.  
Investigator: Good. / You are really good.

6. Investigator: S/he is wondering who(m) the bear is pushing right now.  
   This monkey may know.  
   Tell her what the monkey believes.  
Participant: The monkey believes that the bear is pushing a lion.  
Investigator: Good. / You are really good.

7. Investigator: S/he is wondering what the rabbit is holding right now.  
   This monkey may know.  
   Tell her what the monkey thinks.  
Participant: The monkey thinks that the rabbit is holding a pencil.  
Investigator: Good. / You are really good.

8. Investigator: S/he is wondering who is climbing the tree right now.  
   This lion may know.  
   Tell her what the lion believes.  
Participant: The lion believes that a monkey is climbing the tree.  
Investigator: Good. / You are really good.

9. Investigator: S/he is wondering who(m) the bear is hitting right now.  
   This lion may know.  
   Tell her what the lion thinks.  
Participant: The lion thinks that the bear is hitting a rabbit.  
Investigator: Good. / You are really good.

10. Investigator: S/he is wondering what the monkey is cutting right now.  
    This rabbit may know.  
    Tell her what the rabbit believes.  
Participant: The rabbit believes that the monkey is cutting a flower.  
Investigator: Good. / You are really good.
11. Investigator: S/he is wondering who is sitting on the box right now.
   This boy may know.
   Tell her what the boy thinks.
Participant: The boy thinks that a rabbit is sitting on the box.
Investigator: Good. / You are really good.

12. Investigator: S/he is wondering what the rabbit is putting on the table right now.
   This lion may know.
   Tell her what the lion believes.
Participant: The lion believes that the rabbit is putting a flower on the table.
Investigator: Good. / You are really good.

13. Investigator: S/he is wondering who is brushing his teeth right now.
    This lion may know.
    Tell her what the lion thinks.
Participant: The lion thinks that a rabbit is brushing his teeth.
Investigator: Good. / You are really good.

14. Investigator: S/he is wondering who is kicking a ball right now.
    This monkey may know.
    Tell her what the monkey believes.
Participant: The monkey believes that a boy is kicking the ball.
Investigator: Good. / You are really good.

15. Investigator: S/he is wondering who is eating a banana right now.
    This girl may know.
    Tell her what the girl thinks.
Participant: She thinks that a monkey is eating the banana.
Investigator: Good. / You are really good.

16. Investigator: S/he is wondering who is hugging a teddy bear right now.
    This lion may know.
    Tell her what the lion believes.
Participant: The lion believes that a girl is hugging the teddy bear.
Investigator: Good. / You are really good.

17. Investigator: S/he is wondering who(m) the monkey is chasing right now.
    This bear may know.
    Tell her what the bear thinks.
Participant: The bear thinks that the monkey is chasing a rabbit.
Investigator: Good. / You are really good.
18. Investigator: S/he is wondering what the rabbit is throwing right now. This boy may know. Tell her what the boy thinks. Participant: The boy thinks that the rabbit is throwing a book. Investigator: Good. / You are really good.

19. Investigator: S/he is wondering who is sleeping in the bed right now. This boy may know. Tell her what the boy thinks. Participant: The boy thinks that a bear is sleeping in the bed. Investigator: Good. / You are really good.

20. Investigator: S/he is wondering what the lion is kicking right now. This bear may know. Tell her what the bear believes. Participant: The bear believes that the lion is kicking a ball. Investigator: Good. / You are really good.
REFERENCES


