THE SYNTAX AND ACQUISITION OF NEGATIVE POLARITY ITEMS

IN HERITAGE KOREAN

By

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ABSTRACT

This dissertation investigates the syntax and acquisition of Korean negative polarity items (NPIs) in two groups of adult heritage Korean speakers: simultaneous heritage speakers and early sequential heritage speakers who speak Korean as a minority/heritage language in the United States.

The present study examines how heritage Korean speakers acquire the syntactic properties of negative polarity items (NPIs) in Heritage Korean. Korean NPIs have properties that they share with English NPIs, but also properties that are distinct from English NPIs. More specifically, Korean and English allow local licensing of object NPIs. However, unlike English, Korean has matrix subject NPIs. In addition, Korean does not allow long-distance licensing of embedded object NPIs.

I investigate the syntax and acquisition of NPIs in Heritage Korean, exploring the following research questions: (i) to what extent heritage Korean speakers maintain the shared property of local licensing of object NPIs, (ii) to what extent heritage Korean speakers maintain the Korean language-specific properties of subject NPI licensing and scrambling of NPIs, (iii) to what degree heritage Korean speakers show potential transfer effects from English in long-distance licensing of the embedded object NPIs, (iv) whether and how age of acquisition of English plays a role in the degree of acquisition of NPIs in Korean.

The properties of the Korean NPI, *amwuto* 'anyone' were investigated in two experiments. One is with a Grammaticality Judgment Task which tests object and subject NPI licensing. The other is with an Acceptability Judgment Task with contexts, which tests NPI

scrambling. The heritage speakers were at intermediate or advanced proficiency. Overall results showed that heritage speakers fully acquired the shared properties of NPI local licensing. Acceptability of heritage speakers was as high as that of native speakers. In addition, heritage speakers acquired the Korean-specific properties of subject NPI licensing and NPI scrambling. However, regardless of a mostly advanced level of proficiency, both heritage speaker groups demonstrated potential transfer in the English-specific property of long-distance licensing of embedded object NPIs. In comparison between both heritage speaker groups, age effects were not detected in object and subject NPI licensing and NPI scrambling.

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LIST of ABBREVIATIONS

ACC   accusative case

COMP   complimentizer

DEC   declarative sentence ending

GEN   genitive case

NEG   negation

NOM   nominative case

PRS   present tense

PST   past tense

Q   question sentence ending

TOP   topic marker

CHAPTER 1
Introduction

1.1 Overview and Significance

This dissertation investigates the syntax and acquisition of Korean negative polarity items (NPIs) by Korean-English bilinguals who are heritage speakers in the United States. I adopt Valdés' (2000) definition of a heritage speaker as a learner of a language "raised in a home where a non-English language is spoken, who speaks or merely understands the heritage language, and who is to some degree bilingual in English and the heritage language" (p. 1).

Specifically, I focus on potentially incomplete acquisition in a particular bilingual setting, i.e., heritage language circumstances. Even though potential incomplete acquisition is a characteristic of the developmental process from child first language (L1) and adult second language (L2), heritage language acquisition differs from both L1 and L2 acquisition in terms of interrupted and less input of the target language and early onset of their dominant language (see Montrul, 2008 for discussion of the characteristics of heritage language acquisition). In other words, I investigate the linguistic competence of the adult heritage speakers who grew up as bilinguals since early childhood from birth to middle childhood in a minority language environment. I compare two different heritage speaker groups based on their age of acquisition of the dominant language and examine whether and how they acquire age-appropriate levels of proficiency in the family language as compared to native language adult speakers in full command of their family language (Montrul, 2002, 2004, 2008; Polinsky, 1997, 2008; Benmamoun, Montrul, and Polinsky, 2010).

Little is known about the acquisition and syntax of NPI licensing and NPI scrambling in heritage language (or at least in Heritage Korean). Thus, the present study contributes to the research body of heritage language acquisition and grammar.

Unlike successful L1 acquisition by monolingual children, the acquisition of more than one language either by early bilinguals (i.e., simultaneous with or early sequential to their L1) or by late bilinguals (i.e., post-puberty L2) is quite different in that the outcomes of L2 and early bilingual acquisition are generally incomplete. Among various acquisition-related factors, there are two important factors that can account for the difference in L1 and bilingual acquisition (i.e., both heritage language and L2 acquisition): dominant language transfer (Montrul, 2010) and age effects (Montrul, 2002; J.-H. Kim 2007; Kim, Monrul, and Yoon, 2009). In addition to the issue of whether (in)accessibility to Universal Grammar (UG) plays a key role in the different outcomes of L2 acquisition, heritage (or target) language maintenance (or the acquisition of heritage language properties) in early bilingual/heritage language acquisition is another issue (J.-H. Kim 2007; Kim, Monrul, and Yoon, 2009).

The purpose of the present study is, thus, to examine these acquisition-related factors (i.e., dominant language transfer, age effects, and heritage language maintenance) in heritage Korean acquisition. The present study also contrasts Heritage Korean grammar to native Korean grammar, building up the generalizations of the grammatical properties in Heritage Korean.

More specifically, the present study investigates the properties of negative polarity items (NPIs) and scrambling of NPIs in Heritage Korean. NPIs and scrambling of ordinary DPs have played a role in the investigation of the aspects of both L1 and L2 language acquisition. Along with pioneering research on the position of the negative elements (i.e., Neg or NegP) in the acquisition of negation in L1 acquisition (Klima and Bellugi, 1966; McNeill and McNeill, 1968),

research on the acquisition of NPIs has mainly focused on two issues: licensing conditions of NPIs (Dutch and English: Van der Wal, 1996; Korean: Hahn, 1981) and (a)symmetry of subject and object NPIs (Korean: Song, 2003; L1 Korean/L2 English: Song, 2003). Research on the acquisition of scrambling of DPs has been mostly done on two types of scrambling. One is obligatory scrambling (Dutch: Schaeffer, 2000; Barbier, 2000; Unsworth, 2005; German: Schaeffer, 2000; L1 English/L2 Dutch: Unsworth, 2005). The other is non-obligatory scrambling in Japanese and Korean (Japanese: Murasugi and Kawamura, 2004; Otsu, 1994; Korean: B. Kang, 2005).

In the present study, I investigate both object NPI licensing and the presence of subject NPIs, and scrambling of NPIs in Heritage Korean. While English allows NPIs in both local and long-distance licensing domains, NPIs in Korean are subject to a locality condition in which NPIs and negative morphemes must co-occur within the same clause, the "Clausemate Condition" (Choe, 1988), as in (1a-b). The sentence in (1b) is ungrammatical because the NPI *amwuto* 'anyone' and the negator *an* 'not' do not co-occur in the same clause.

(1) a. na-nun **[John-i amwuto** mit-ci   **an-**h-ass-ta-ko**]**   sayngkak-ha-n-ta.
      I-TOP J-NOM   anyone   believe-CI NEG-do-PST-DEC-COMP   think-do-PRS-DEC
      'I think that John did not believe anyone.'

   b. ?*na-nun **[John-i amwuto** mit-ess-ta-ko**]**   sayngkak-ha-ci **an-**h-nun-ta.
      I-TOP   J-NOM   anyone   believe-PST-DEC-COMP think-do-CI   NEG-do-PRS-DEC
      'I do not think that John believed anyone.'

Unlike English, NPIs in Korean do not exhibit a subject-object asymmetry in matrix clauses. In other words, NPIs in Korean can occur in the subject position in matrix clauses as in (2a-b).

(2) a. **amwuto**   John-ul   manna-ci   **an**-h-ass-ta.
        anyone   J-ACC   meet-CI   NEG-do-PST-DEC
        'Nobody met John.'
        (Lit.) '*Anybody* didn't meet John.'

   b. **amwuto** [John-i sakwa-lul silhe-ha-n-ta-ko]   mit-ci   **an**-h-ass-ta.
        anyone   J-NOM apple-ACC dislike-do-PRS-DEC-COMP believe-CI NEG-do-PST-DEC
        'Nobody believed that John disliked an apple.'
        (Lit.) '*Anybody* did not believe that John disliked an apple.'

With regard to scrambling properties in NPIs, Korean allows scrambling of ordinary DPs and NPIs, while English does not allow any DP or NPI scrambling as in (3a-b).

(3) a. ***Anyone_i** John didn't hit **t_i**.
   b. **amwuto_k**   John-i   **t_k**   ttali-ci   **an**-h-ass-ta.
        anyone   J-NOM   hit-CI   NEG-do-PST-DEC
        'John didn't hit anyone.'
        (Intended) 'ANYONE, John didn't hit.'

Properties of NPI scrambling in Korean involve both the Clausemate Condition and reconstruction effects as in (4).

(4) ?✓**amwuto_k** na-nun [John-i   **t_k** ttayli-ci **an**h-ass-ta-ko]   mit-nun-ta.
        anyone I-TOP J-NOM   hit-CI   NEG-do-PST-DEC-COMP believe-PRS-DEC
        'I believe that John did not hit anyone.'
        (Intended) 'ANYONE, I believe that John did not hit.'

The scrambled NPI *amwuto* 'anyone' in (4) reconstructs to the original position at D-structure, while the scrambled NPI *amwuto* 'anyone' does not co-occur with the negator *an* 'not' on the surface.

Since NPIs and scrambling properties are instantiated in different ways in the target language (i.e., Korean) and the dominant language (i.e., English), the task of learning NPIs and scrambling (of NPIs) by heritage language speakers is complicated by the parametric differences

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between two languages. Thus, this study concerns how Heritage Korean licenses NPIs similarly or differently in comparison with the target language and the dominant language. The study is conducted by experimental design which investigates the degree of acquisition and the syntax of Korean NPIs and scrambling of NPIs by Korean heritage speakers.

The present study has significance for the acquisition and syntax of heritage language as well as syntax and L2 acquisition in general. This study contributes to the body of research on (i) bilingual grammars, (ii) acquisition of NPIs, and (iii) acquisition of scrambling (of NPIs). While a sound body of research exists on the L1 and L2 acquisition of NPIs (L1: Van der Wal, 1996; M. S. Song, 2003, L2: M. S. Song, 2003) and DP scrambling (L1: Schaeffer, 2000; Unsworth, 2005; B. Kang, 2005; Otsu, 1994; L2: Unsworth 2005), there is very little research on the acquisition and syntax of NPIs and scrambling of NPIs in a heritage language (at least in Heritage Korean). More specifically, there are some studies which discuss Heritage Korean (J.-H. Kim, 2007; Kim, Montrul, and Yoon, 2009), revealing the age effect in binding in Heritage Korean.[1] But, it is true that little is known about the acquisition and syntax of NPI licensing and NPI scrambling in Heritage Korean. I expand the line of research by J.-H. Kim (2007) and Kim et al. (2009), and seek for potential age effects in Heritage Korean, specifically focusing on the acquisition of NPI licensing and NPI scrambling. I investigate whether there is a significant difference between two different heritage speaker groups in the acquisition of NPI properties.[2]

To the best of my knowledge, the present study is one of the first experimental studies of the acquisition of Korean NPIs and scrambling of NPIs in the field of heritage language

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[1] The studies of age effects by J.-H. Kim (2007) and J.-H. Kim et al. (2009) show that there were significant differences between simultaneous and late sequential heritage language speakers (AOA, 11-19) as well as between simultaneous and adult L2 speakers.

[2] In the present study, potential age effects are examined between two groups of the heritage Korean speakers (i.e., "simultaneous" heritage Korean speakers (AOA, 0-2) and "early sequential" heritage Korean speakers (AOA, 7-10)).

acquisition. The study consists of two components: experimental investigations and theoretical accounts of NPIs and scrambling of NPIs in structural descriptions in Heritage Korean. Since the experiments include native Korean speakers, the study also contributes to an experimental account of Korean NPIs and scrambling of NPIs.

1.2 Organization of the Dissertation

The organization of the dissertation is as follows. Chapter 1 provides an overview of heritage language acquisition and discusses theoretical background on negative polarity items (NPIs) and NPI scrambling. Chapter 1 then reviews the acquisition of negation, NPIs, and scrambling (of ordinary DPs). Chapter 2 presents methods. Chapter 3 reports results and presents discussion of Experiment I. Chapter 4 reports results and presents discussion of Experiment II. Chapter 5 concludes the present study with theoretical implications and directions of future research.

1.3 Overview of Heritage Language Acquisition

1.3.1 Types of Heritage Language Speakers

Montrul (2008) classifies the types of bilingualism by age and sequence of acquisition: simultaneous, early sequential, and late sequential bilingual acquisition. Specifically, bilingual acquisition is classified into two: simultaneous bilingualism (age of acquisition, AOA, birth-3) and sequential bilingualism (AOA, after 4). Sequential bilingual acquisition is subdivided into two: early sequential bilingualism (i.e., child L2 acquisition; childhood) and late sequential bilingualism (i.e., adult L2 acquisition; post puberty and adulthood). Finally, early sequential bilingual acquisition is subdivided into two: early child bilingualism (AOA, 4-6: pre-school) and

late child L2 acquisition (AOA, 7-12: elementary school) (Montrul, 2008, p. 18). Figure 1.1 below summarizes the types of bilingualism by age and sequence of acquisition (Montrul, 2008, p. 18).

Bilingual Acquisition

Simultaneous
(birth-age 3)

Sequential (= L2 acquisition)

Early (= child L2 acquisition)
(childhood)

Early child L2 acquisition
(4-6: pre-school)

Late child L2 acquisition
(7-12: elementary school)

Late (= adult L2 acquisition)
(post puberty and adulthood)
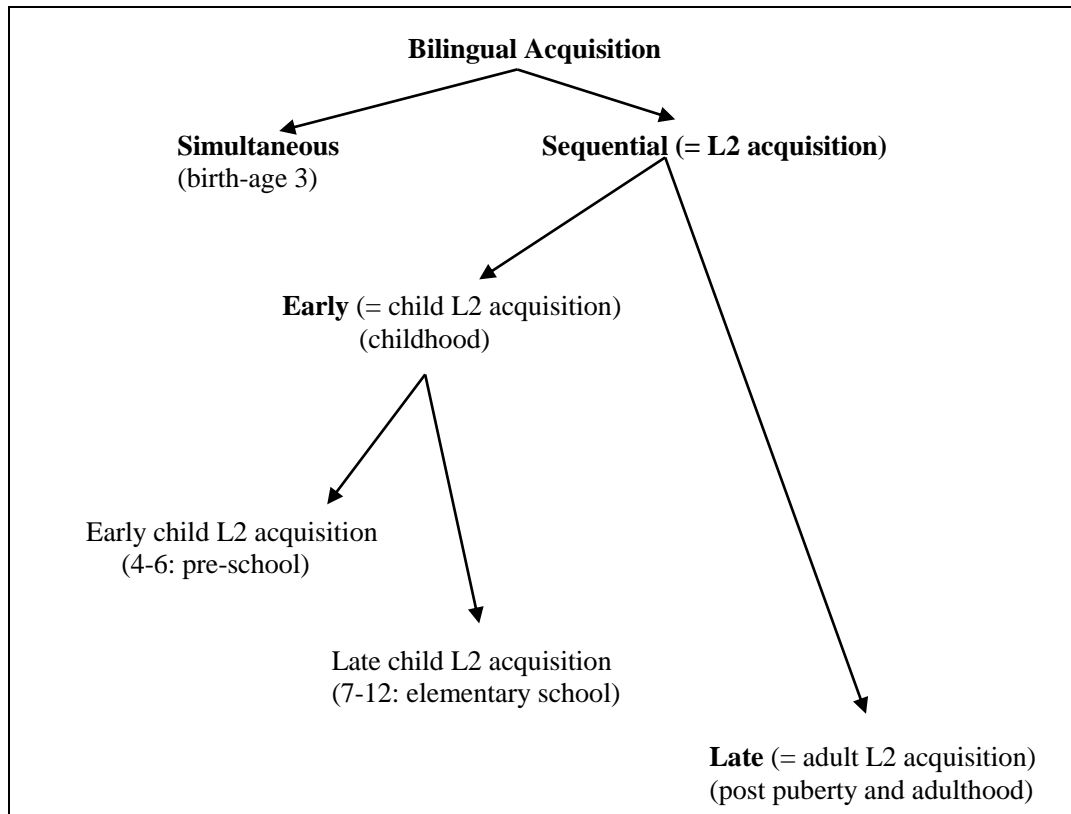
Figure 1.1. Types of bilingualism by age and sequence of acquisition (Montrul, 2008, p. 18)

The focus of the present study is on the investigation of the two types of bilinguals: simultaneous bilinguals and early sequential bilinguals (i.e., late child L2 bilingualism). In addition to a study of simultaneous bilingualism, the study of early sequential bilingualism is also of interest because unlike simultaneous bilinguals, early sequential bilinguals mostly acquired their L1 before the age of onset of the dominant language (English). Thus, it is worthwhile to compare the two heritage groups to see whether they pattern similarly or

differently in heritage language acquisition. For the purpose of the present study, employing Valdés' (2000) definition of the term, "heritage speaker", I refer to simultaneous bilinguals as "simultaneous heritage speakers" and to early sequential bilinguals as "early sequential heritage speakers".

1.3.2 Heritage Language Acquisition

As is expected, heritage language acquisition exhibits characteristics of both L1 and L2 acquisition. Heritage language acquisition is similar to L1 acquisition in that the onset of heritage language acquisition is very early (i.e., since birth) and heritage language acquisition undergoes developmental errors like L1 acquisition as shown in the studies of bilingualism in early childhood[3]. On the other hand, heritage language acquisition is different from L1 acquisition since heritage language results in incomplete grammar in many cases (e.g., phonology: Godson, 2004; morphology: Polonsky, 1997; syntax: Montrul, 2004), similar to the cases in L2. Like L1, heritage language is acquired in naturalistic setting, taking advantage of auditory input in very early life. Heritage language also achieves a good control of features acquired in early childhood, e.g., phonology, lexicon, and some structural features, whereas proficiency by heritage language speakers varies depending on potential transfer from the dominant language, amount of input, and socio-linguistic factors like motivation, attitudes, and heritage language populations in the speech community, etc. (Montrul, 2008).

While the population of bilinguals has previously been widely investigated from sociolinguistic and pedagogical perspectives, focusing on the L2 dominant language attainment

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[3] Like monolingual child language acquisition, bilingualism in early childhood is also guided by Universal Grammar. Simultaneous bilingual children progress the same developmental milestones as monolingual children (Montrul, 2008, p. 96).

of the children of immigrants as adults, the population of heritage speakers has been investigated from ethnographical, sociolinguistic and pedagogical perspectives, focusing on the L1 minority language maintenance/loss of the children of immigrants both as children and adults (Kondo-Brown, 2003, 2006a, 2006b).

With respect to heritage language grammar, reduction and simplification of grammatical features are the characteristics of heritage language grammar (e.g., Polinsky, 1997: reanalysis of neuter as feminine nouns and overuse of overt subjects in the discourse by Russian heritage speakers; Montrul, 2004: incomplete knowledge of animate/specific direct object marking by Spanish heritage speakers; J.-H Kim, 2007: preference of local binding to long-distance binding by Korean heritage speakers).

Thus, the grammar of heritage language undergoes significant reanalysis of the grammars of the dominant language and the target language, leading to the reduced and simplified heritage language grammar, compared to the grammar of the target language.

1.3.3 Aspects of Heritage Language Acquisition

In order to investigate the aspects of the acquisition and the grammatical properties of heritage language, research on language transfer and age effects in incomplete acquisition of heritage language has been done in heritage language acquisition as well as second language acquisition.

1.3.3.1 Language Transfer

Since Lado (1957) in his "contrastive analysis" of the grammars of two different languages, the notion of language transfer has played one of the key concepts in L2 research and

bilingualism. The similarities and differences between L1 and L2 can serve as an inhibitor (i.e., negative transfer) or a facilitator (i.e., positive transfer) in L2 acquisition. L2 studies on the role of L1 transfer have been done in various areas of the grammar such as the null subject parameter (Haznedar, 1997; White, 1985), binding interpretations (Hirakawa, 1990; Yuan, 1998; Kim, Montrul, and Yoon, 2005; J.-H. Kim, 2007), aspect (Slabakova, 2000; Gabriele 2009), and verb-raising (Trahey and White, 1993; White, 1992; Eubank and Grace, 1998).

Transfer in heritage language acquisition has also been studied by way of transfer from the dominant (or "stronger") language to the minority (or "weaker") language (Cook, 2003; Pavlenko, 2003). Transfer effects have been shown in various aspects of the grammatical features of heritage languages, such as in phonology (Seliger and Vago, 1991), morphology (Seliger and Vago, 1991; Montrul, 2002, 2011; Montrul, Foote, and Perpinñán, 2008; Montrul and Bowles, 2010; Polinsky, 2008), morpho-syntax (Montrul, 2004, 2010), and binding (J.-H. Kim, 2007; Kim, Montrul, and Yoon, 2005; Kim, Montrul, and Yoon, 2009).

1.3.3.2 Age Effects

Age effects in bilingualism are generally concerned with the *Critical Period Hypothesis* (Penfield and Roberts, 1959; Lenneberg, 1967), a hypothesis that there is a specific time (i.e., "window of opportunity") from birth to puberty for language acquisition, after which language acquisition to native-like levels is difficult or even impossible. The evidence for the hypothesis in L1 acquisition has shown that late L1 learners could not reach full range of native proficiency (Curtiss, 1977).

The Critical Period Hypothesis has also been tested in L2 research.[4] Results have come out in two opposite directions: some supporting the hypothesis (Johnson and Newport, 1989, 1991; Dekeyser, 2000) and others not supporting the hypothesis (Bialystok, 1997; Bialystok and Hakuta, 1999; White and Genesee, 1996).[5]

In terms of age of onset/acquisition, heritage language acquisition is more similar to L1 acquisition than post-puberty L2 acquisition. However, proficiency by heritage speakers seldom reaches a native-like level in spite of their early exposure and naturalistic setting. Due to the interrupted acquisition of and the reduced amount of input to the heritage language, the early exposure to heritage language does not guarantee success in all areas of grammar in heritage language (Polinsky, 1997; Montrul, 2005).

With regard to age effects between heritage language acquisition and second language acquisition, results are two-fold: O'Grady, Lee, and Choo (2001) report that there is no significant difference between heritage Korean speakers and L2 learners of Korean in asymmetrical comprehension of subject/object relative clauses in Korean. On the contrary, studies by J.-H. Kim (2007) on Korean binding and Montrul, Foote, and Perpinñán (2008) on Spanish gender show that heritage speakers are closer to native speakers than to L2 learners.

With respect to age effects between different groups of heritage language speakers, Kim, Montrul, and Yoon (2009) report that late bilinguals (i.e., late sequential Korean heritage speakers; age of onset, 11-19) performed more similar to Korean monolinguals than the early bilinguals (i.e., simultaneous Korean heritage speakers; age of onset, 0) in Korean binding

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[4] See Montrul (2008) on the summary of the issues whether there is a critical period in L2 acquisition.
[5] Replacing the term, "critical period", Long (1990) claims that there are "sensitive periods" governing the ultimate level of first or second language attainment possible in different linguistic domains (p. 255), beginning as early as age 6, not at puberty.

interpretations. The results indicate that the outcomes by the simultaneous Korean heritage speakers are significantly different from late sequential Korean heritage speakers.

1.3.3.3 Incomplete Acquisition and L1 Attrition

L2 researchers have investigated how Universal Grammar (UG) constrains L2 grammar in second language acquisition. There have been long-standing arguments as to whether UG is still available for L2 acquisition. Bley-Vroman (1990) in the *Fundamental Difference Hypothesis* argues that UG does not constrain L2 grammar, claiming that access to UG is subject to a critical period. While Hawkins and Chan (1997) in the *Failed Functional Features Hypothesis* argue that there is no parameter re-setting of UG for L2 acquisition, parameter setting/resetting of UG for L2 acquisition is argued to be possible by Schwartz and Sprouse (1996: *Full Transfer/Full Access*), Epstein, Flynn and Martohardjono (1996: *Full Access*), and Prévost and White (2000: *Missing Surface Inflection Hypothesis*).

In terms of L1 attrition, age of onset of heritage language acquisition and degree of attainment in L1 are closely related to the extent of L1 attrition. That is, if L1 has been acquired completely by late childhood and adolescence, L1 attrition is unlikely (de Bot and Clyne, 1989). However, as de Bot (1991) observes, language attrition occurs during the first generation of immigration (cited in Montrul, 2008). Under cross-linguistic influence, L1 attrition can occur in late bilingualism (Hulsen, 2000: lexical retrieval and access difficulties; Gürel, 2002: binding interpretations of overt and null subjects).

On the contrary, if the L1 grammar did not fully develop, especially in early to middle childhood, age of onset of bilingualism, a limited amount of input to the heritage language, and a

large amount of exposure to the dominant language significantly trigger L1 attrition or incomplete acquisition (Montrul, 2008, p. 65).

In an attempt to distinguish the notions between L1 attrition and incomplete acquisition, Montrul (2008) argues that incomplete acquisition occurs when either child or adult early bilinguals acquire their minority language during the early age of linguistic development, while L1 attrition can usually occur after (adult) bilingual (i.e., adult L2) speakers fully acquire their L1. Thus, Montrul (2008) claims that when disuse of L1 and extensive exposure to the dominant language occur during the linguistic development by children or the long-term effects of disuse of L1 and transfer by adult early bilinguals (i.e., heritage speakers), L1 loss can be ascribed to attrition, incomplete acquisition, or both (p. 107).

To investigate L1 attrition, Polinsky (2011) examines whether heritage adult speakers show a difference from heritage child speakers in the acquisition of relative clauses in Heritage Russian. Comparing heritage child group and heritage adult group with monolingual child and adult groups, Polinsky reports that monolingual children and heritage children pattern with adult monolinguals in the acquisition of relative clauses in Russian. However, adult heritage speakers are significantly different from adult monolinguals and child heritage speakers. Polinsky then argues that adult heritage speakers undergo gradual attrition over the life span.

1.3.4 Heritage Language Acquisition in Korean

O'Grady, Lee, and Choo (2001) investigate how heritage language learners and L2 learners acquire relative clauses, reporting that subject relative clauses are easier to comprehend than object relatives. O'Grady, et al. conclude that there is no significant difference between heritage language and L2 learners of Korean.

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On the contrary, H.-S. Kim (2005) reveals that heritage Korean speakers show a difference from non-heritage second language speakers in processing of relative clauses in Korean, reporting that there are transfer effects shown in both heritage language acquisition and second language acquisition of relative clauses in Korean from the parametric differences of the languages (e.g., headness difference in English). J.-H. Kim (2007) investigates the interpretations of binding in Korean by heritage language learners (i.e., early bilinguals; simultaneous heritage Korean speakers) and L2 learners of Korean (i.e., late bilinguals; non-heritage speakers). Kim concludes that overall results of her experiments generally supported her hypotheses on availability of UG, the role of the dominant language, and effects of age of onset of bilingualism (i.e., Korean) between heritage speakers and L2 Korean learners.

1.4 Theoretical Approaches to Negative Polarity Items

1.4.1 Basic Properties of Korean

Korean is a subject-object-verb (SOV) word order language as in (5a). Modifiers precede the modified words and its syntactic head is in the final position of the maximal projection as in (5b). In morphology, Korean is agglutinative as in (5c) and there is no subject and object agreement in its verb morphology.[6] Korean possesses nominative-accusative case system with post-positioned case markers (or particles). Refer to the examples in (5).

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[6] There have been controversial issues whether Korean has subject-verb agreement in verb morphology. It is suggested that the honorific morpheme *si* in Korean agrees with subject or object, while plural *-tul* copying shows subject-verb agreement (see discussions in Y-J Kwon, 1993). However, the honorific *si-* optionally involves only in a pragmatic context (i.e., politeness) and it does not involve in any syntactic agreement such as person, gender, and number.

(5) a. Chelswu-*ka* ppang-*ul*   mek-ess-ta.   (SOV)
   C-NOM   bread-ACC   eat-PST-DEC
   'Chelswu ate the bread.'

 b. [nay-ka   tani-nun]   *hakkyo*   (Relative Clauses)
    I-NOM   attend-RL   school
    'the school that I attend'   (H.-M. Sohn, 1999, p. 15)

 c. ka-*si-ess-kyess-sup-ni-ta*
    go-HON-PST-MODAL-HON-MOOD-DEC
    '(a respectable person) may have gone'   (H.-M. Sohn, 1999, p. 15)

Although basic word order is SOV, unlike the strict word order of languages like English,

the word order of Korean is relatively free as long as a verb is in the final position as exemplified

in (6).

 (6) a. Yenghuy-ka siktang-ese   ppang-ul   ppali   mek-ess-ta.
    Y-NOM   restaurant-LOC bread-ACC quickly eat-PST-DEC
    'Yenghuy ate the bread in a hurry in the restaurant.'

  b. Yenghuy-ka siktang-ese   *ppali*   ppang-ul   mek-ess-ta.
    Y-NOM   restaurant-LOC quickly   bread-ACC   eat-PST-DEC
    'Yenghuy ate the bread in a hurry in the restaurant.'

  c. *Yenghuy-ka ppali   ppang-ul   *mek-ess-ta*   siktang-ese.
    Y-NOM   quickly bread-ACC   eat-PST-DEC   restaurant-LOC
    'Yenghuy ate the bread in a hurry in the restaurant.'

Due to rich particles in Korean (e.g., case markers and delimiters), Korean allows scrambling of

constituents in a sentence (e.g., DP, VP-focus, and CP) as in (7).

 (7) a. Chelwu-ka Yenghuy-lul   manna-ss-ta.
    C-NOM   Y-ACC   meet-PST-DEC
    'Chelswu met Yenghuy.'

  b. *Yenghuy-lul$_k$*   Chelwu-ka t_k manna-ss-ta.   (DP Scrambling)
    Y-ACC   C-NOM   meet-PST-DEC
    'Chelswu met Yenghuy.'
    (Lit.) 'YENGHUY, Chelswu met.'

Even if scrambling changes syntactic positions, scrambling does not change grammatical relations of the functional categories in the sentence. Case particles play a crucial role in parsing scrambled constituents in Korean. The motivation of scrambling in Korean is largely accounted for by discourse-related information structure (i.e., topic/focus movement) in the literature (H.-W. Choi, 1999; Lee and Cho, 2004, among others).

1.4.2 Negation in Korean

There are two forms of sentential negation in Korean. The negative morpheme[7] *an* 'not' is the most commonly used in Korean negation with two different positions of the verb in a sentence: preverbal negation (short-form negation) and postverbal negation (long-form negation) (J.-B. Kim, 1995; K.-K. Kim 2001, among others).

1.4.2.1 Short-Form Negation and Long-Form Negation in Korean

In short-form negation, the negative morpheme precedes the verb as in (8a), whereas in long-form negation, the negative morpheme follows the verb as in (8b).

(8) a. Chelswu-ka ppang-ul **an** mek-ess-ta.   (Short Form Negation)
        C-NOM   bread-ACC   NEG   eat-PST-DEC
        'Chelswu did not eat the bread.'

    b. Chelswu-ka ppang-ul   mek-**ci an**-h-ass-ta.   (Long Form Negation)
        C-NOM   bread-ACC   eat-CI   NEG-do-PST-DEC
        'Chelswu did not eat the bread.'

---

[7] The other negative morphemes in Korean include *mos* 'cannot' and *mal-ta* 'do.not'. These negative morphemes are used with restrictions. The former cannot be co-occurred with adjectival predicates while the latter is only used with *ci* in long-form negation. (H.-M. Sohn, 1999).

As shown in (8b), in addition to the negative morpheme *an* 'not', long-form negation requires a negative nominal morpheme *–ci* after the verb root and a 'dummy' auxiliary verb, *ha* 'do' which takes tense. *An-h* 'not-do' is a contracted form of *an(i) ha* 'not do' and the contracted form, *an-h* is generally used in modern Korean. As J.-B. Kim (1995) points out, short-form and long-form negation generally show an identical behavior concerning scope ambiguities[8] and NPI licensing. However, short-form negation has phonological constraints, while long-form negation does not exhibit those constraints (J.-B. Kim, 1995).[9] Thus, for the present NPI study, negative polarity items (NPIs) are tested in long-form negation, in order to avoid heritage speakers' potential rejections of the predicates with short-form negation because of possible misuse of short-form negation by heritage speakers.[10]

1.4.3 Negative Polarity Items in Korean

A negative polarity item (NPI) is a word or a phrase that canonically appear in a sentence when it is accompanied by a negative licensing element.[11]

(9) a. John did **not** meet **any**one.
    b. *John met **any**one.

(10) a. John-un **amwuto** mannaci **ani** hayssta.
         J-TOP   anyone   see   not   did
         'John didn't meet anyone.'

---

[8] K.-K. Kim (2001) argues that there is no scope ambiguity in short-form negation.
[9] Short-form negation is sensitive to the syllabic structure of the predicates, i.e., short-form negation generally rejects a poly-syllabic host of the predicates (J.-B. Kim, 1995).
[10] Results of the fillers in the present study also revealed that heritage Korean speakers showed higher acceptability of the ordinary (i.e., non-NPI) sentences with long-form negation than those with short-form negation.
[11] Unlike English in which NPIs can be licensed not only by overt negation but also in conditionals, interrogatives, negative implicature predicates, NPIs in Korean (and Japanese) are licensed by negation (K.-W. Sohn, 1995; D.-H. Ahn 2007).

b. *John-un **amwuto** mannassta.
   J-TOP   anyone   met
   '*John met anyone.'   (K.-W. Sohn, 1995, p. 1)

The sentences in (9b) and (10b) are ungrammatical, because *anyone* in (9b) and *amwuto* 'anyone'

in (10b) are not licensed by the negation markers *not* and *an(i)* in English and Korean,

respectively.

Nominal NPIs in Korean include "*amwu*-type" '*any*-type', "*to*-type" '*even*-type', and

"*pakkey*-type" '*except/only*-type'. They must be licensed by negation in Korean.

1.4.3.1 Characteristics of *amwu*-type NPIs in Korean

The *amwu*-type NPIs in Korean consist of [*amwu* + Common Noun + *to*] 'any---even'.[12]

The particle *–to* itself means 'also', so *amwuto* literally means 'anyone-even-also'. Examples are

as follows:

(11) a. *amwu-(salam)-to* 'any-(person)-even' → 'anyone'
     b. *amwu-kes-to* 'any-thing-even' → 'anything'
     c. *amwu-cha-to* 'any-car-even' → 'any car'

The *amwu*-type NPIs in Korean can have neither a nominative nor an accusative Case marker as

in (12a), while a dative marker such as *–eyke* or *–hanthey* appears before the marker *–to* 'even'

as in (12b).[13]

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[12] Free Choice *amwu-na* 'anyone-or' and *amwu-lato* 'anyone-even' in Korean are formed by attaching a scalar
particle, *-na* or *–lato* and are used in an indefinite context or a scalar presupposition (see detailed discussions on the
semantics of the NPI *amwu-to* and Free Choice *amwu-na* and *amwu-lato* in D.-H. An (2007) and J. Choi (2007).
[13] The particle *–to* 'even' in *amwu-to* is considered as a focus particle (J. Choi, 2007).

(12) a. Mary-ka amwu-kes-to/*amwu-kes-**ul**-to/*amwu-kes-to-**lul**   an   mek-ess-ta.
     M-NOM   any-thing-even/any-thing-ACC-even/any-thing-even-ACC   not   eat-PST-DEC
     'Mary did not eat anything.'

   b. John-un chayk-ul   amwu-haksayng-**ekkey**-to/*amwu-haksayng-to-**ekkey**
     J-TOP   book-ACC any-student-to-even   /any-student-to-even
     cwu-ci   an-h-ass-ta.
     give-CI not-do-PST-DEC
     'John did not give a book to any student.'   (M. S. Song, 2003, p. 13)

Without the particle-*to* 'even', NPI sentences become ungrammatical as in (13).

(13) a. John-un   amwu-to/*amwu-Ø   manna-ci an-h-ass-ta.
     J-TOP   any-even/any-Ø   meet-CI   NEG-do-PST-DEC
     'John did not meet anyone.'

   b. amwu-to/*amwu-Ø   John-ul   manna-ci   an-h-ass-ta.
     any-even/any-Ø   J-ACC   meet-CI   NEG-do-PST-DEC
     'Nobody met John.'
     (Lit.) '*Anyone* did not meet John.'

For the investigations of NPI properties in Heritage Korean, the NPI *amwuto* 'anyone' is tested in the present study. As already introduced, another nominal NPI in Korean is *amwu-kes-to* 'anything' which is inanimate. The inanimate NPI *amwu-kes-to* 'anything' is excluded in the present study because the inanimate NPI *amwukes-to* 'anything' has thematic role (or animacy) restrictions to become a subject NPI. That is, it is rare that an inanimate NPI can serve as a matrix subject, especially in complex sentences in Korean.

1.4.3.2 Other Types of NPIs in Korean

Other nominal NPIs in Korean are classified as "*to*-type" '*even*-type' and "*pakkey*-type" '*except/only*-type' which are respectively named after the particles attached to the nominal DP. Like "*amwu*-type" '*any*-type', they must occur in negation in Korean.

(14) John-pakkey chayk-ul {ilk-ci   anh-ass-ta   /*ilk-ess-ta}.
     John-only   book-ACC read-CI   NEG-PST-DEC / read-PST-DEC
     'Except John, no one read a book.'   (J. H. Hwang, 2008, p. 19)

(15) han salam-to   {o-ci   anh-ass-ta   /*o-ass-ta}.
     one person-TO come-CI   NEG-PST-DEC / come-PST-DEC
     'Even one person didn't come.'   (p. 23)

1.4.4 Locality Condition of Negative Polarity Items in Korean

Along with the requirement that NPIs must be licensed by a negative element as shown in

(10), there is a locality condition between NPIs and a licensor, i.e., the negator, *an* in Korean.

Consider the following sentences as in (16-17).

(16) a. I do**n't** believe [that John loves **anyone**].
     b. I do**n't** believe [that John thinks [that Mary loves **anyone**]].

(17) a. na-nun [John-i **amwuto** ttaylici **ani** hayssta-ko] mitnunta.
        I-TOP J-NOM anyone   hit   not   did-COMP   believe
        'I believe that John did not hit anyone.'

    b. ?*na-nun [John-i **amwuto** ttayliessta-ko] mitci   **ani** hanta.
        I-TOP J-NOM anyone   hit-COMP   believe not do
        'I do not believe that John hit anyone.'   (K.-W. Sohn, 1995, p. 9)

In English, the licensing domain of NPIs is either local as in (9a) or long-distant as in (16a-b). In

other words, the relation between NPIs and negator in English needs not be clausemate. However,

in Korean the sentence in (17a) is grammatical when the NPI *amwuto* and the negator *an(i)* occur

in the same clause. That is, NPIs are subject to the "Clausemate Condition" (Choe, 1988). Thus,

the sentence in (17b) becomes ungrammatical[14] since the NPI *amwuto* does not co-occur with the

negator *an* in the same clause.

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[14] The grammaticality of the sentence (17b) is actually very marginal because there is variability in the
grammaticality of non-local embedded object NPI condition in Korean.

In relation to the Clausemate Condition in NPIs in Korean, there is an asymmetry between subject NPIs and object NPIs in embedded clauses. That is, subject NPIs in the embedded clause seem to be licensed by the negator in the matrix clause, whereas object NPIs in the embedded clause are not licensed by the negator in the matrix clause.

Unlike Korean, English equally allows long-distance licensing of both embedded subject and object NPIs as in (18a-b), respectively.[15]

(18) a. I do**n't** think [that **anyone** loves Mary].
　　 b. I do**n't** think [that Mary loves **anyone**].

In contrast, Korean shows asymmetrical licensing of embedded subject and object NPIs as in (19).

(19) a. na-nun [**amwuto** Mary-lul salang-ha-n-ta-ko]　　 sayngkak-ha-ci　 **an**-h-nun-ta.
　　　 I-TOP　 anyone M-ACC　 love-do-PRS-DEC-COMP　 think-do-CI　　　 NEG-do-PRS-DEC
　　　 'I don't think that *anyone* loves Mary.'

　　 b. na-nun [**amwuto** hayngpok-ha-ta-ko]　　 sayngkak-ha-ci　 **an**-h-nun-ta.
　　　 I-TOP　 anyone　 happy-do-DEC-COMP　 think-do-CI　　　 NEG-do-PRS-DEC
　　　 'I don't think that *anyone* is happy.'

　　 c. ?*na-nun [Mary-ka **amwuto**　 salang-ha-n-ta-ko]　　　 sayngkak-ha-ci **an**-h-nun-ta.
　　　　 I-TOP　 M-NOM　 anyone　 love-do-PRS-DEC-COMP　 think-do-CI　　　 NEG-do-PRS-DEC
　　　　 'I don't think that Mary loves *anyone*.'

The sentences in (19a-b) are grammatical even though the subject NPI *amwuto* and the negator *an* do not co-occur in the embedded clause, while (19c) is ungrammatical due to a violation of the Clausemate Condition. Thus, in contrast to the locality condition in general in Korean, the

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[15] A subject-object asymmetry of the embedded NPIs in Korean is of importance because English does not exhibit the asymmetry of long-distance NPI licensing of embedded NPIs. See results and discussion in Section 3.1.8.6a and 3.2.1.3 in Chapter 3.

long-distance licensing domain is also selectively legitimate when NPIs are in the subject

position in Korean. In other words, embedded object NPIs are subject to the clausemate

condition, whereas embedded subject NPIs do not seem to be subject to the clausemate condition.

In order to account for the asymmetric locality conditions of subject and object NPIs in

an embedded clause, K.-K. Kim (2001), following Laka (1990)[16], proposes that the local domain

of a matrix clause containing the negative licenser is extended down to the embedded Spec CP if

the head C lacks a case feature: *Extension of Local Domain* (p. 133). K.-K. Kim argues that a

quantifier NPI raises to the embedded Spec CP, where the nominative embedded subject is

exceptionally marked by accusative Case assigned by matrix verbs as in (19a-b). K.-K. Kim goes

on to argue that the embedded object NPI cannot raise to the embedded Spec CP since it has to

move over Spec of TP, leading to the violation of the *Minimal Link Condition* (MLC) (Chomsky,

1995).

An alternative approach to the asymmetrical locality conditions between subject and

object NPIs in an embedded clause is that the embedded subject NPI, *amwuto* undergoes

Exceptional Case Marking (ECM) (Chung, 1997; M. S. Song, 2003, among others). Thus, the

subject NPI, *amwuto* in (20a-b) raises to XP in the matrix clause to get accusative Case such that

the exceptionally case-marked NPI, *amwuto* and negator, *an* co-occur in the same clause.[17]
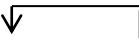
(20) a. na-nun **amwuto [amwuto** Mary-lul salang-ha-n-ta-ko**]**   sayngkak-ha-ci **an**-h-nun-ta.
     I-TOP   anyone   anyone M-ACC   love-do-PRS-DEC-COMP   think-do-CI   NEG-do-PRS-DEC
     'I don't think that *anyone* loves Mary.'
     (Lit.) 'I don't think anyone to love Mary.'

---

[16] Laka (1990) suggests that complementizers like [Wh] and [N] are NPI licensers (p.200)
  (i) a. I wonder whether anybody will show up.
      b. I deny that[N] anybody will show up.
[17] Yoon (1996) assumes that in the finite ECM construction, the subject in an embedded clause moves through Spec
CP, where it is assigned an accusative Case, and then moves to a nonthematic position in the higher clause.

b. na-nun **amwuto [~~amwuto~~** hayngpok-ha-ta-ko**]**   sayngkak-ha-ci **an**-h-nun-ta.
  I-TOP anyone anyone happy-do-DEC-COMP   think-do-CI   NEG-do-PRS-DEC
  'I don't think that *anyone* is happy.'
  (Lit.) 'I don't think anyone to be happy.'

As Chung (1993) observes, ECM constructions with subject NPIs in the embedded clause depend on verb types. That is, ECM constructions are only possible in BELIEVE-type verbs (e.g., *mitta* 'believe', *sayngkakhata* 'think', and *yekita* 'consider'), not in SAY-type verbs (e.g., *malhata* 'say' and *pokohata* 'report').

(21) a. na-nun **[amwuto** Minki-lul mit-ess-ta-ko**]**   *sayngkak-ha-ci*   **an**-h-ass-ta.
     I-TOP   anyone M-ACC   trust-PST-DEC-COMP   think-do-CI   NEG-do-PST-DEC
     'I did not *think* that *anyone* trusted Minki.'

   b. * na-nun **[amwuto** Minki-lul mit-ess-ta-ko**]**   *mal-ha-ci*   **an**-h-ass-ta.
     I-TOP   anyone M-ACC   trust-PST-DEC-COMP   say-do-CI   NEG-do-PST-DEC
     'I did not *say* that *anyone* trusted Minki.'

The sentences in (21a-b) show a clear distinction on grammaticality of the sentences. The sentences in (21a-b) are the same in linear order except for the verbs. However, (21a) with the BELIEVE-typed verb, *sayngkakhata* 'think' is grammatical, whereas (21b) with SAY-typed verb, *malhata* 'say' is not[18].

One problematic issue on ECM approach to the asymmetrical locality conditions of subject and object NPIs in an embedded clause is that the ECM constructions are allowed in Korean only when the embedded predicate is stative as in (22) (R.K. Lee, 1993; J.-S. Lee, 1991).

---

[18] Results in the present study reveal that native Korean speakers did not fully employ the ECM analysis (i.e., their acceptability was 45%). See results and discussion in Section 5.1.8.3b and 5.2.1.3b in Chapter 5.

(22) a. Mary-ka John-i hangpokhata-ko mit-ci ani ha-n-ta.
      M-NOM J-NOM happy-COMP believe-CI not do-PRS-DEC
      'Mary does not believe that John is happy.'

   b. Mary-ka John-ul hangpokhata-ko mit-ci ani ha-n-ta.
      M-NOM J-ACC happy-COMP believe-CI not do-PRS-DEC
      'Mary does not believe John to be happy.' (R.K. Lee, 1993, p. 397)

(23) John-i Mary-ka/*lul Tom-ul po-ass-ta-ko mit-nun-ta.
     J-NOM M-NOM/*-ACC T-ACC see-PST-DEC-COMP believe-PRS-DEC
     'John believes that Mary saw Tom.' (J.-S. Lee 1991, p. 317)

According to R.K. Lee (1993) and J.-S. Lee (1991), *Mary* in the embedded clause as in (23) cannot be assigned with accusative Case since the embedded verb *poassta* 'saw' is not stative. In other words, the transitive embedded verb *poassta* 'saw' already has the object DP *Tom* with accusative Case. Notice that if accusative Case is assigned to *Mary* in order to become an ECM construction, two accusative Cases sequentially occur in linear order, which becomes ungrammatical in Korean. Thus, only the nominative Case can be assigned to *Mary*.

     This kind of "Case clash" of double accusatives does not make the ECM approach invalid, to account for the asymmetrical licensing of embedded subject NPIs as in (19a) and (20a) in Korean. Since NPIs (e.g., *amwuto*) in Korean are not case-marked as we already observed in the previous section, as shown in (20a), there is no Case clash in ECM with NPIs when the embedded verbs are not stative in Korean. Thus, the ECM approach may hold for accounting for long-distance NPI licensing of the embedded NPI subjects in Korean[19].

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[19] The ECM approach is still viable even in degraded grammaticality (45%) of the sentences with non-local embedded subject NPIs in Native Korean. A possible account for the potential confound is that even though almost half native speakers consider the embedded subject NPI as a matrix object NPI, other half speakers may not treat the embedded subject NPI as a matrix object NPI because of two sequential DPs in the object position in the linear order in Korean. I assume that non-local licensing of embedded subject NPIs of a stative verb may obtain higher acceptability because there is no potential DP clash in one object position.

1.4.5 Subject-Object Symmetry in Negative Polarity Items in Korean

English shows a subject-object asymmetry in NPIs in the matrix clause in that NPIs cannot occur in the subject position in the matrix clause in English.[20]

(24) a. ***Anyone** does **not** love John.
    b. John does **not** love **anyone**.
    c. Mary does **not** believe **[**that **anyone** loves John**]**.

The sentence in (24a) is ungrammatical since *anyone* in the subject position is not c-commanded by the negator *not*, while the object NPI *anyone* in (24b) is c-commanded by the negator *not*. The sentence in (24c) is also grammatical since the subject NPI *anyone* in the embedded clause is c-commanded by the negator *not* in the matrix clause.

In contrast, Korean allows a subject NPI to occur in the matrix and embedded clauses even if no local NPI licensor is present.

(25) a. **amwuto** John-ul salang-ha-ci **an**-h-nun-ta.
      anyone   J-ACC   love-do-CI   NEG-do-PRS-DEC
      'Nobody loves John.'
      (Lit.) '*Anyone* does not love John.'

    b. John-un **amwuto** salang-ha-ci **an**-h-nun-ta.
      J-TOP   anyone   love-do-CI   NEG-do-PRS-DEC
      'John does not love anyone.'

    c. Mary-nun **[amwuto** John-ul salang-ha-ci **an-**h-nun-ta-ko**]**   mit-nun-ta.
      M-TOP   anyone J-ACC love-do-CI   NEG-do-PRS-COMP believe-PRS-DEC
      'Mary does not believe that anyone loves John.'
      (Lit.) 'Mary believes that *anyone* does not love John.'

---

[20] A subject-object symmetry in matrix NPIs in Korean is of importance for the present study because English does not exhibit matrix subject NPI licensing. See results and discussion in Section 3.1.8.2 and 3.2.1.2 in Chapter 3 for subject NPI licensing. For comparisons between subject and object NPI licensing, see Section 3.1.8.6b and 3.2.3.2 in Chapter 3.

The sentence in (25a) in the simple sentence and the sentence in (25c) in the embedded clause are both grammatical even though the subject NPI *amwuto* is not c-commanded by the negator *an*. The sentence in (25b) is also grammatical since the object NPI *amwuto* is c-commanded by the negator *an*.

1.5 Theoretical Approaches to Scrambling in Korean

1.5.1 Scrambling of Ordinary DPs in Korean

Korean allows scrambling among pre-predicate nominal elements without changing the core meaning of the sentence as in (26a-b).[21]

(26) a. Chelswu-ka chyak-ul ilk-nun-ta   (SVO: canonical order)
   C-NOM   book-ACC read-PRS-DEC
   'Chelswu reads a book.'

 b. chyak-ul Chelswu-ka ilk-nun-ta   (scrambled counterpart)
   book-ACC C-NOM   read-PRS-DEC
   'Chelswu reads a book.'   (E. Lee, 2007, p. 12)

Since Ross (1967), within the framework of generative grammar, two approaches to scrambling, i.e., a base-generation approach and a movement approach, have been proposed to account for scrambling in many languages (e.g., German, Russian, Hindi, Japanese, Korean, among others). Based on Hale's (1983) classification of languages as configurational and nonconfigurational, if the language has a hierarchical constituent structure in which the subject and the other phrase are

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[21] With regard to the study of Heritage Korean, scrambling is an important property because English does not exhibit the property. See results and discussion of ordinary DP scrambling in the fillers in Section 4.1.1 and 4.1.4.5 in Chapter 4. See Section 4.2.3 for comparisons between ordinary DP and NPI scrambling.

asymmetrical to the verb, the language is configurational.[22] On the other hand, the language is nonconfigurational, if the language does not have an asymmetrical relation between the subject and the verb.

If we assume that scrambling is a result of movement in Korean, an object DP undergoes scrambling to different structural positions in the sentence out of its original position. Depending on the distance of the landing sites of scrambled DPs from their base positions, two major kinds of scrambling appear: short-distance scrambling and long-distance scrambling as in (27).[23]

(27) a. John-nun [$_{CP}$ [$_{TP}$ Mary-ka [$_{vP}$ **Tom**-ul cohaha-n-ta-ko]]] sayngkak-ha-n-ta.
J-TOP M-NOM T-ACC like-PRS-DEC-COMP think-do-PRS-DEC
'John thinks that Mary likes Tom.' (base position)

b. John-nun [$_{CP}$ **Tom**-ul$_i$ [$_{TP}$ Mary-ka [$_{vP}$ **t**$_i$ cohaha-n-ta-ko]]] sayngkak-ha-n-ta.
J-TOP T-ACC M-NOM like-PRS-DEC-COMP think-do-PRS-DEC
'John thinks that Mary likes Tom.'
(Intended) 'John thinks that TOM Mary likes.' (short-distance scrambling)

c. [$_{CP}$ **Tom**-ul [$_{TP}$ John-nun [$_{CP}$ [$_{TP}$ Mary-ka [$_{vP}$ **t**$_i$ cohaha-n-ta-ko]]] sayngkak-ha-n-ta]].
T-ACC J-TOP M-NOM like-PRS-DEC-COMP think-do-PRS-DEC
'John thinks that Mary likes Tom.'
(Intended) 'TOM, John thinks that Mary likes.' (long-distance scrambling)

Under the movement approach, the object DP in the embedded clause, *Tom* in (27b) has been scrambled into the clause-initial position of the embedded clause (i.e., short-distance scrambling). In (27c), the embedded object DP has been scrambled out of the embedded clause into the matrix clause (i.e., long-distance scrambling). Thus DPs in short-distance and long-distance scrambling

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[22] Korean, Japanese, and Dutch are configurational (Choi, 1999 for Korean; Saito, 1985 for Japanese; Neeleman, 1994 for Dutch).

[23] Another kind of scrambling in the literature is middle field scrambling in which DP scrambles into the left periphery between TP and *v*P as in (i).

(i) John-nun [$_{CP}$ [$_{TP}$ Mary-ka **Tom**-ul$_i$ [$_{vP}$ Bill-ekey **t**$_i$ sokayhay-ss-ta-ko] sayngkak-ha-n-ta.
J-TOP M-NOM T-ACC B-DAT introduce-PST-DEC-COMP think-do-PRS-DEC
'John think that Mary introduced TOM to Bill.'

27

scramble to the left periphery between CP and TP in the embedded clause and in the matrix clause, respectively.

1.5.2 Scrambling of NPIs in Korean

1.5.2.1 NPI Scrambling of Grammatical Base Sentences

Since short-distance and long-distance scrambling in Korean show the properties of both A- and A-bar movement (S. Park, 1994), reconstruction effects occur both in short-distance and long-distance scrambling in Korean.[24] A question arises as to whether short-distance and long-distance scrambling of NPIs in Korean differ from other DPs in reconstruction effects.[25]

Consider the following NPI constructions in Korean in (28-29).

(28) a. [$_{TP}$ Mary-ka   **amwuto** salangha-ci   **an**-h-ass-ta]
M-NOM   anyone   love-CI   NEG-do-PST-DEC
'Mary did not love anyone.'

b. [$_{CP}$ **amwuto$_k$** [$_{TP}$ Mary-ka   **t$_k$** salangha-ci **an**-h-ass-ta]]
anyone   M-NOM   love-CI   NEG-do-PST-DEC
'Mary did not love anyone.'
(Intended) 'ANYONE, Mary did not love.'

(29) a. [$_{TP}$ John-i [$_{CP}$ Mary-ka **amwuto** salangha-ci **an**-h-ass-ta-ko]   sayngkak-ha-yss-ta]
J-NOM   M-NOM   anyone   love-CI   NEG-do-PST-DEC-COMP think-do-PST-DEC
'John thought that Mary did not love anyone.'

b. [$_{TP}$ John-i [$_{CP}$ **amwuto$_k$** Mary-ka **t$_k$** salangha-ci **an**-h-ass-ta-ko]   sayngkak-ha-yss-ta]
J-NOM   anyone   M-NOM   love-CI   NEG-do-PST-DEC-COMP think-do-PST-DEC
'John thought that Mary did not love anyone.'
(Intended) 'John thought that ANYONE Mary did not love.'

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[24] Reconstruction is an LF operation whereby fronted constituents returned to their base positions for interpretation (cf. Chomsky 1981). Following Chomsky (1993), it is widely accepted that reconstruction holds only for A-bar movement, not for A-movement.

[25] NPI scrambling is tested whether and how distance of NPI scrambling and reconstruction effects of NPI licensing play a role in (Heritage) Korean. See results and discussion in Section 4.1.4.2 and 4.2.1.2 in Chapter 4. For the general discussion of comparisons between NPI scrambling and base object NPI sentences, see Section 4.2.4. For the discussion of reconstruction effects, see Section 4.2.5 and for the discussion of distance of NPI scrambling, see Section 4.2.2 in Chapter 4.

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c. ?✓[_{CP} **amwuto_k** [_{TP} John-i [_{CP} Mary-ka **t_k** salangha-ci **an**-h-ass-ta-ko]
      anyone   J-NOM   M-NOM   love-CI   NEG-do-PST-DEC-COMP
      sayngkak-ha-yss-ta]][26]
      think-do-PST-DEC
      'John thought that Mary did not love anyone.'
      (Intended) 'ANYONE, John thought that Mary did not love.'

In short-distance scrambling in simple sentences as in (28b), the scrambled NPI *amwuto* in (28b) is licensed by the negation in the base position in the simple sentence as in (28a), whereas in short-distance scrambling in complex sentences as in (29b), the scrambled NPI *amwuto* in (29b) is licensed by the negation in the embedded base position in the complex sentence as in (29a).

On the other hand, in long-distance scrambling as in (29c), the grammaticality of the sentence is degraded a little since the scrambled NPI *amwuto* and the negator *an* are not clausemate at S-structure. However, the scrambled NPI *amwut*o in the matrix clause in (29c) is also licensed by the negation in the embedded base position as in (29a). The grammaticality of NPI scrambling in (28-29) indicates that the scrambled NPI *amwuto* reconstructs to the base position to be licensed by the negation, satisfying the Clausemate Condition.

1.5.2.2 NPI Scrambling from Ungrammatical Base Sentences

Scrambling of ungrammatical base sentences should be ungrammatical. However, the scrambled NPI sentences may obtain grammaticality when the NPI in the scrambled sentences become clausemate in the linear order after scrambling in Korean (K.-W. Sohn, 1995).[27]

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[26] Y.-J. Kwon (1993) judges that the sentence of long-distance scrambling as in (29c) is ungrammatical. However, Kwon does not discuss a grammaticality of the sentences in short-distance scrambling as in (29b).

[27] NPI scrambling from ungrammatical base sentences are theoretically and experimentally important in order to investigate whether and how scrambling improves acceptability of the ungrammatical base sentences in both Native Korean and Heritage Korean. See Section 4.1.4.3a-b in Chapter 4, for the results of short-and long-distance NPI scrambling from ungrammatical base sentences.

Consider the following short-distance scrambling of NPIs in (30) when the base sentence is ungrammatical.

(30) a. ?*[_TP_ John-i [_CP_ Mary-ka **amwuto** salangha-yss-ta-ko] sayngkak-ha-ci **an**-h-ass-ta]
        J-NOM   M-NOM anyone love-PST-DEC-COMP think-do-CI   NEG-do-PST-DEC
        'John did not think that Mary loved anyone.'

    b. ?[_TP_ John-i [_CP_ **amwuto_k_** Mary-ka **t_k_** salangha-yss-ta-ko] sayngkak-ha-ci **an**-h-ass-ta]
        J-NOM   anyone M-NOM   love-PST-DEC-COMP think-do-CI   NEG-do-PST-DEC
        'John did not think that Mary loved anyone.'
        (Intended) 'John did not think that ANYONE Mary loved.'

The sentence in (30a) is ungrammatical or very marginal since the NPI *amwuto* and the negator *an* are not clausemate. However, the grammaticality of the sentence in (30b) may improve since the NPI *amwuto* in (30b) scrambles out of the embedded subject to the Spec of CP in the embedded clause. The grammaticality of the scrambled sentence can be obtained when the scrambled NPI *amwuto* can raise to the matrix object position (i.e., Exceptional Case Marking: ECM[28]) such that the NPI and the negator become clausemate in the linear order in Korean.[29]

Now, consider the following long-distance scrambling of NPIs in (31) when the base sentence is also ungrammatical.

(31) a. ?*[_TP_ John-i [_CP_ Mary-ka **amwuto** salangha-yss-ta-ko] sayngkak-ha-ci **an**-h-ass-ta]
        J-NOM   M-NOM anyone love-PST-DEC-COMP think-do-CI   NEG-do-PST-DEC
        'John did not think that Mary loved anyone.' (=30a)

    b. ?[_CP_ **amwuto_k_** [_TP_ John-i [_CP_ Mary-ka **t_k_** salangha-yss-ta-ko] sayngkak-ha-ci **an**-h-ass-ta]]
        anyone   J-NOM M-NOM   love-PST-DEC-COMP think-do-CI NEG-do-PST-DEC
        'John did not think that Mary loved anyone.'
        (Intended) 'ANYONE, John did not think that Mary loved.'

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[28] K.-W. Sohn (1995) accounts for the grammaticality of the scrambled NPI sentences as in (22b) in terms of NegP as a result of short-distance scrambling ("medium" scrambling in his terms) (p. 33).
[29] See Section 4.2.5.2a in Chapter46 for the ECM discussion of the data in the present study.

Even if the base NPI sentence in (31a) is ungrammatical because of the violation of the clausemate condition, the grammaticality of the sentence in (31b) may improve since the NPI *amwuto* in (31b) scrambles out of the embedded clause to the initial position of the matrix clause such that the NPI and the negator co-occur "within" the clause boundary after scrambling.[30] In this case, reconstruction effects are not applicable to the sentence in (31b). The sentence in (31b) does not have any motivation to be reconstructed since the base sentence in (31a) is ungrammatical and (31b) is already a grammatical/acceptable sentence in the linear order, as I term "Linear Order Strategy".[31]

Thus, as we have seen, NPIs in Korean, whether they undergo short-distance or long-distance scrambling, scramble to the left periphery between CP and TP, yielding reconstruction effects when the NPI in the base position satisfies the locality condition as in (28-29). If the NPI in the base position does not satisfy the "Clausemate Condition" as in (30a) and (31a), NPI scrambling may increase the grammaticality of scrambling from the ungrammatical (i.e., non-local) NPI base sentences in Korean, employing the ECM approach or "Linear Order Strategy".

1.6 Negative Polarity Items and Scrambling in Acquisition Research

This section concerns the acquisition of negative polarity items (NPIs) based on the development of negation and of scrambling of NPIs in first language (L1), second language (L2), and heritage language. The acquisition of negation is relatively well studied both in L1 and in L2. However, there has been less research on the acquisition of NPIs. The acquisition of scrambling

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[30] The term, "within the clause boundary", is different from the local licensing domain (or the "clausemate condition") in a non-scrambling condition. The term, "within the clause boundary", is necessary to account for licensing of scrambled NPIs because when a NPI scrambles across TP, the NPI scrambles beyond the c-command licensing domain at S-structure.

[31] For the discussion of the "Linear Order Strategy", see Section 4.2.5.2b in Chapter 4.

has been mainly done in two types of scrambling: obligatory and non-obligatory scrambling. To the best of my knowledge, there has been no previous research on the acquisition of NPIs and NPI scrambling in Heritage Korean.

1.6.1 L1 and L2 Acquisition of Negation and Negative Polarity Items

Acquisition studies on negation have generally focused on the position of negative elements, i.e., Neg or NegP, and on negative polarity items (NPIs). Based on the studies by Klima and Bellugi (1966) and McNeill and McNeill (1968), Wode (1977) suggests that there are three universal stages in the development of negation: one-word negation, Neg in external-position, and Neg in clause-internal position.

(32) Developmental Pattern of Negation in L1

I *One-word negation*: no, nein, non, etc.
II *Multi-word negation with NEG placed in external position*
   In most studies, the children placed NEG utterance-initially. However, there are a few cases where NEG was in final position.'
III *Clause-internal negation*

(cited and adapted from Meisel, 1997 p. 236)

Meisel (1997) points out that at stage II, when negative multi-word utterances emerge, the negator appears in external position (i.e., NEG appears utterance-initially). The syntax of III clearly reflects the distribution of the respective adult language.

Crosslinguistic child language data confirm the developmental patterns in which Neg is initially placed in external position[32] (Pierce, 1992 for Spanish; Déprez and Pierce, 1993 for French; Clahsen, 1983 for German). However, once children acquire finiteness, Neg is placed

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[32] Neg is adjoined to the VP containing the subject (Meisel, 1997, p. 237).

internally, more specifically, Neg(P) adjoins to VP. SOV child languages like Basque also show the same property. That is, in the finite-form stage, Neg, *ez* in Basque is always correctly placed initially, being cliticized to Aux and moving to head-initial CP (Meisel, 1997).

Bellugi (1967) examines developmental stages of three children in the use of indefinite forms, *some* and *any* in affirmative and negative context, respectively. Bellugi (1967) reports that one of the children, Sarah, produced *any* in negative sentences in 44 months. Van der Wal (1996), furthermore, investigates how children acquire the licensing conditions on NPIs in Dutch and English based on lexical differences. Van der Wal (1996) argues that crosslinguistic similarities in NPI use comes from the development of negation. On the acquisition of a subject/object asymmetry in English NPIs, M. S. Song (2003) in her elicited production task reports that English speaking children aged 3-5 did not produce any NPIs in the subject position, but only in the object position, indicating that they know a subject/object asymmetry of NPIs in English.

Studies on L2 acquisition of negation have also focused on an invariant acquisition sequence, agreeing that the age of the learners is not a major factor in the sequence (Meisel, 1997). Based on observations of the positions of negation in L2 (Stauble, 1984 for Spanish and Japanese; Ravem, 1968 for Norwegian), it is suggested that the similarities between L1 and L2 acquisition may be accounted for by underlying principles and mechanism (i.e., Universal Grammar, UG), while L1 transfer may be a source of crosslinguistic differences. That is, there may be parametric differences crosslinguistically: (i) the basic phrase structure (functional projections and head directionality), (ii) the status of Neg (head of NegP or Spec of NegP), and (iii) finiteness (triggering of verb raising) (Meisel, 1997, p. 241).

With regard to NPIs in L2 acquisition, M. S. Song (2003) reports that Korean learners of English do not generally produce NPIs in the subject position in simple sentences, while they

produce NPIs in the object position, suggesting that the L2 learners know the parametric difference of NPI licensing (i.e., a subject/object asymmetry in English). However, in terms of long-distance licensing of English NPIs, Song (2003) argues that L2 learners generally find a difficulty in long-distance licensing of NPIs in English.

1.6.2 L1 and L2 Acquisition of Negation and Negative Polarity Items in Korean

On the development of short-form negation and long-form negation in Korean, it is observed that children start to use short-form negation much earlier than long-form negation. Short-form negation in utterances occurs around age 1;7, whereas long-form negation does not occur until around age 3;3-3;5 (Choi and Zubin, 1985; Han and Park, 1995; Y.-J. Kim, 1997).[33] On the other hand, children in the pre long-form negation stage such as around age 2 often misplace the negative morpheme, *an* or *mos* before the object in short-form negation as in (33) (Hahn, 1981; Cho and Hong, 1988). All of these examples are ungrammatical in adult speech.

(33) a. na mos   pap   hay
        I   NEG   meal   do
        'I can't cook.'   (Hahn, 1981, p.130)

     b. an   keyelan meke
        NEG   eggs   eat
        '(I) won't eat (my) eggs.'   (Hahn, 1981, p.206)

Based on the data from Hahn (1981) and Cho and Hong (1988), Hagstrom (1997, 2002) argues that Neg *an* is generated to the left of the object (i.e., left to VP) and children sometimes fail to perform the surface order in the adult grammar such as verb raising.

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[33] Even children too young to produce long-form negation can nevertheless comprehend it (Hahn, 1981; Cho and Hong, 1988, cited from Hagstrom, 2002, p. 212).

Some studies have been done on the acquisition of negative polarity items (NPIs) in Korean. In a longitudinal study, Hahn (1981) reports that her son produced *amettwo* 'anything' – an immature form of adult *amwuketsto* 'anything' at age 3;1. Suggesting that children in Korean can produce NPIs as early as age 3, M. S. Song (2003) observes that children at age 3 (mean age 3;8) to 6 (mean age 6;4) produced an equal number of NPIs in the subject and the object position, with no sign of a subject/object asymmetry.

With regard to the acquisition of NPIs in Korean as a second language ("KSL" in her terms), Song (2003) observes that all three groups of "KSL learners" (KI: beginner, KII: intermediate, KIII: advanced) showed no subject/object asymmetry[34]. However, Song (2003) reports that KSL learners with intermediate and advanced proficiency (i.e., KII and KIII) acquired subject NPI licensing, although matrix subject NPIs are not present in the dominant language.[35] KSL learners with low proficiency (KI) produced NPIs at low rate both in subject and object positions. Notice that even though Song (2003) did not specifically categorize these "KSL learners" as heritage Korean speakers in our terms, those "KSL learners" were all early sequential Korean heritage speakers who came to USA in the early ages (up to 2nd grade of elementary school). Thus, Song's results are more relevant to heritage language acquisition than to adult L2 Korean (non-heritage Korean) research.

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[34] Song's results showed that KI produced subject and object NPIs at 36.80% and 42.80%, respectively. However, KII produced subject and object NPIs at 74.8% and 81.2%, and KII produced them at 87.6% and 95.6%, respectively.

[35] Since M. S. Song (2003) does not include Korean NPIs in embedded clauses, more investigation is needed on the clausemate condition between two languages.

1.6.3 L1 and L2 Acquisition of Scrambling

Research on the acquisition of scrambling has been done in two types of scrambling: obligatory scrambling (e.g., in Dutch and German) and non-obligatory scrambling (e.g., in Japanese and Korean). On the optionality of scrambling in child L1 when obligatory scrambling is used in adult L1, various kinds of accounts (syntax, semantics, pragmatics, and their interface) have been presented (Schaeffer, 2000; Barbier, 2000; Unsworth, 2005). In Dutch, scrambling of the specific object DPs is obligatory (over negation), but in child Dutch, specific object DPs scramble optionally. Reporting that children of all ages (2;8-6;3) imitated scrambled sentences in a target-like fashion, Barbier (2000) claims that children are sensitive to the interpretive constraints on scrambling over negation, since scrambled definite DPs result in a sentential negation reading, whereas a contrastive reading is obtained when definite DPs appear in a non-scrambled position. Schaeffer (2000) reports that nominal specificity is optionally marked at age 2, while object scrambling in child Dutch is close to adult Dutch by age 3.

Based on the observations of optional scrambling of the specific (definite or referential) DPs in child Dutch, Schaeffer (2000) argues that scrambling in Dutch is triggered by discourse-related feature, i.e., specificity (or referentiality, p. 24), claiming that since specificity is underspecified in early child grammar, child Dutch show optional scrambling due to a lack of pragmatic principle (i.e., lack of shared knowledge).

With regard to L2 acquisition of scrambling, Unsworth (2005) examines whether English-speaking adult and child L2 learners go through the same developmental sequence in the acquisition of object scrambling in Dutch as L1 Dutch children. Unsworth assumes that scrambling is movement to VP-external position, because of interpretative (semantic) effects. That is, scrambling over negation is obligatory for specific direct object DPs, but it is not

allowed for non-specific direct object DPs. Unsworth observes that both adult and child L2 learners pass through the same optional scrambling stage, and claims that syntactic-semantic factors may play a more important role in Dutch scrambling acquisition than pragmatic knowledge. Unsworth continues to argue that since a specific interpretation cannot be transferred from the L1, the acquisition of the interpretive constraints on scrambling demonstrates that learners can overcome a poverty-of-the stimulus problem.

1.6.4 L1 and L2 Acquisition of Scrambling in Korean and Japanese

Languages like Korean and Japanese have different scrambling typology from Dutch and German in that scrambling in Korean and Japanese is not obligatory. Research on the acquisition of scrambling in Korean and Japanese has focused on the issues as to whether case morphology triggers scrambling in L1 or whether L1 children know syntactic structure of scrambling through understanding reconstruction effects (B. Kang, 2005; Murasugi and Kawamura, 2004). B. Kang (2005) argues that the accusative Case marker triggers scrambling in Korean-speaking child L1, supporting the generalization that there is a relationship between an overt case marker and free word order.[36] Pointing out that the acquisition of scrambling invokes a learnability issue since Korean children do not receive sufficient input of scrambling utterances from their mothers, Kang (2005) reports that children (2;2-3;2) generally acquire scrambling successfully at early age (i.e., age 3), after they succeed in an accusative test. Kang, thus, argues that children will acquire scrambling only if they acquire an overt accusative Case marker (see Boškovič, 2004).

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[36] Boškovič (2004) argues that there are two conditions in allowing scrambling: overt case marker and lack of determiners. Bulgarian does not allow scrambling even though Bulgarian has overt an accusative case marker. Boškovič claims that the presence of a determiner in Bulgarian blocks scrambling.

Hayashibe (1975) examines how Japanese-speaking children (3;8-6;8) interpret the scrambled sentences, and reports that scrambling is acquired quite late in the development of grammar, arguing that children employ the thematic hierarchy, i.e., the first DP as agent and the second DP as patient. Otsu (1994) observes that 3-to-4 year-old Japanese-speaking children interpret scrambled sentences correctly when appropriate discourse contexts are provided. Otsu argues that performance of scrambling in child L1 depends on discourse contexts as a 'bridging function'. Murasugi and Kawamura (2004) also demonstrate that children (age 2 to 6) acquire scrambling at very early age (age 2) and, furthermore, children show the knowledge of the anaphor *zibun* through understanding of reconstruction effects in binding, indicating that children know syntactic structure of scrambling and binding relations.

CHATER 2
The Method of the Present Study

2.1 Background of the NPI Properties in Korean

In the present study, I investigate the licensing condition of both object and subject NPIs, and NPI scrambling in Heritage Korean. While English allows NPIs in both local and long-distance licensing domains, NPIs in Korean are subject to a locality condition in which NPIs and negative morphemes must co-occur within the same clause (i.e., the Clausemate Condition: Choe, 1988) as in (1a-b). The sentence in (1b) is ungrammatical because the NPI *amwuto* 'anyone' and the negator *an* 'not' do not co-occur in the same clause.

(1) a. na-nun **[**John-i **amwuto** coha-ha-ci **an**-h-ass-ta-ko**]** sayngkak-ha-n-ta.
I-TOP J-NOM anyone like-do-CI NEG-do-PST-DEC-COMP think-do-PRS-DEC
'I think that John did not like anyone.'

b. ?*na-nun **[**John-i **amwuto** coha-ha-yass-ta-ko**]** sayngkak-ha-ci **an**-h-nun-ta.
I-TOP J-NOM anyone like-PST-DEC-COMP think-do-CI NEG-do-PRS-DEC
'I do not think that John liked anyone.'

With respect to the presence of subject NPIs, unlike English, NPIs in Korean do not exhibit a subject/object asymmetry. In other words, NPIs in Korean can occur in the subject position in matrix clauses as in (2a-b).

(2) a. **amwuto** John-ul mit-ci **an**-h-ass-ta.
anybody J-ACC trust-CI NEG-do-PST-DEC
'Nobody trusted John.'
(Lit.) '*Anybody* did *not* trust John.'

b. **amwuto** [John-i Yenghuy-lul mit-ess-ta-ko] sayngkak-ha-ci **an**-h-ass-ta.
anybody J-NOM Y-ACC trust-PST-DEC-COMP think-CI NEG-do-PST-DEC
'Nobody thought that John trusted Yenghuy.'
(Lit.) '*Anybody* did *not* think that John trusted Yenghuy.'

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With regard to scrambling properties in NPIs, Korean allows scrambling of DPs (including NPIs), while English does not allow any DP scrambling as in (3a-b).

(3) a. *__Anyone_i__ John didn't meet __t_i__.
  b. __amwuto_k__ John-i __t_k__ manna-ci __an__-h-ass-ta.
    anyone J-NOM   meet-CI   NEG-do-PST-DEC
    'John didn't meet anyone.'
    (Intended) 'ANYONE, John did *not* meet.'

Properties of NPI scrambling in Korean also involve both the Clausemate Condition and reconstruction effects as in (4).

(4) ?✓__amwuto_k__ na-nun [John-i __t_k__ manna-ci __an__-h-ass-ta-ko]   mit-nun-ta.
    anyone I-TOP J-NOM   meet-CI NEG-do-PST-DEC-COMP believe-PRS-DEC
    'I believe that John did not meet anyone.'
    (Intended) 'ANYONE, I believe that John did *not* meet.'

The scrambled NPI *amwuto* 'anyone' in (4) reconstructs to the original base position at D-structure, while the scrambled NPI *amwuto* 'anyone' does not co-occur with the negator *an* 'not' on the surface.

  Since the local licensing property of object NPIs as in (1a) in Korean is instantiated in the same way as English, the task of learning object NPIs in local licensing by heritage Korean speakers is facilitated by the shared principle between two languages. However, since the ungrammaticality of the non-local licensing property of object NPIs as in (1b) in Korean has a parametric difference from English, the task of learning object NPIs in non-local licensing by heritage Korean speakers is interfered by the parametric difference between two languages.

  Since the properties of subject NPIs as in (2) and NPI scrambling as in (3-4) are instantiated in different ways in the target language and the dominant language, the task of

learning NPIs and scrambling of NPIs by heritage language speakers is complicated by the differences between two languages. NPI properties are summarized in Table 2.1.

Table 2.1. NPI properties in Korean and English

	Korean	English
Negation	✓	✓
Local Object NPI Licensing	✓	✓
Local Subject NPI Licensing	✓	*
Non-local Object NPI Licensing	*	✓
NPI Scrambling	✓	*

Thus, this study concerns how Heritage Korean licenses NPIs similarly or differently in comparison with the target language and the dominant language. The study was conducted by experimental design which investigates the degree of acquisition and the syntax of Korean NPIs (i.e., object and subject NPIs) and NPI scrambling by heritage Korean speakers.

2.2 Research Questions and Hypotheses

2.2.1 Research Questions

I address three research questions in connection with the acquisition of NPIs in Heritage Korean as follows:

(i) To what extent do heritage Korean speakers have knowledge of both the shared portion of the NPI properties between the target language (i.e., Korean) and the dominant language (i.e., English) such as the local licensing domain, and the salient Korean-specific properties of NPIs such as subject-object symmetry (i.e., the presence of subject NPIs) and scrambling of NPIs in Korean?

(ii) Do heritage Korean speakers show transfer effects from English? Specifically, whether and how does the dominant language (i.e., English) affect the locality condition (i.e., the clasuemate condition) of NPIs in Korean?

(iii) If the grammaticality of NPIs in Heritage Korean are influenced by the dominant language (i.e., English), is Heritage Korean affected in the same way in simultaneous and early sequential heritage Korean speakers? That is, how does age of acquisition of English play a role in the degree of acquisition of NPIs in Korean?

2.2.2 Hypotheses and Predictions

In order to answer the research questions above, I posit the following hypotheses and predictions.

Hypothesis 1: Heritage Language Maintenance

If an NPI property is either a shared portion of the property between the target language and the dominant language, or purely a property in the target language (i.e., the target language-specific property), heritage Korean speakers will show somewhat similar patterns in the areas of object NPIs in the local licensing domain, the presence of subject NPIs, and scrambling of NPIs with native Korean speakers.

Predictions:

(a) Since the property of object NPIs in the local licensing domain is a shared portion of the NPI licensing properties between Korean and English, heritage Korean speakers will maintain the use of object NPIs in the local licensing domain, showing overall similar acceptability compared to native Korean speakers.

(b) Since the property of NPIs in the matrix subject position is heritage language-specific and the subject position is salient as well, the acquisition of subject NPIs in the matrix position in Heritage Korean will be less affected by the dominant language (English). Heritage Korean speakers will show overall somewhat similar acceptability compared to native Korean speakers.

(c) Since scrambling is purely a property in the target language (Korean), the acquisition of scrambling of NPIs in Heritage Korean is less affected by the dominant language (English). In other words, heritage Korean speakers will show overall somewhat similar acceptability compared to native Korean speakers.

Hypothesis 2: Dominant Language Transfer

Transfer effects will be shown in the conditions of NPIs where two languages show a distinctively different property such as the locality condition (i.e., the Clausemate Condition) in the non-local licensing domain.

Predictions:

(a) Since English NPIs allow long-distance licensing, heritage Korean speakers will show overall less acceptability compared to native Korean speakers with NPIs in the Clausemate Condition in the non-local licensing domain.

Hypothesis 3: Age Effects

Because of longer exposure to the heritage language and later onset of acquisition of the dominant language, early sequential heritage Korean speakers (AOA 7-10) will show overall more knowledge of Korean than simultaneous heritage Korean speakers (AOA 0-2).

Predictions:

(a) Early sequential heritage Korean speakers will perform better than simultaneous heritage Korean speakers in the investigated properties of NPIs in Korean[37].

Along with these factors, I also investigate whether and how much sentence complexity plays a role in the acceptability of object, subject NPIs, and scrambling of NPIs in Heritage

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[37] With different age group of heritage Korean speakers, Kim, Montrul, and Yoon (2009) show that late bilinguals (AOA 11-19) show significantly different results from early bilinguals (i.e., simultaneous heritage Korean speakers, AOA 0) with binding in Korean.

Korean. Because of the potential difficulties of computation in the complex sentences, heritage Korean speakers' acceptability of the given NPI properties will be worse in complex sentences than in simple sentences.

2.3 Pilot Study

2.3.1 Participants

The present study is based on a pilot study that I conducted in the summer of 2009. Participants in this pilot experiment were 20 adults Korean speakers (age range 18-42), consisting of two groups: 10 heritage Korean speakers and 10 fully native Korean speakers as the control group. I divided heritage Korean speakers into two subgroups: simultaneous heritage Korean speakers (HKI) and early sequential heritage Korean speakers (HKII).

The ten heritage Korean speakers (mean age 20.2, age range 18-24) were recruited in the San Diego, California area. Five of them (mean age 20.4, age range 18-23) were born in the United States to Korean families. These speakers were all schooled in English, and after age 5-6, English became their dominant language. At the time of testing, all of the five simultaneous heritage speakers (AOA, 0) had attended Saturday/Sunday Korean schools and three of them had taken Korean as a heritage language in college (University of California, San Diego) less than 1.3 years. All of the five simultaneous heritage Korean speakers reported speaking Korean with their parents in daily conversation. There was one more simultaneous heritage Korean speaker who was born in Korea and came to the United States in toddlerhood, being exposed to English sequentially from early childhood. The simultaneous heritage Korean speaker (AOA, 3) did not take Korean at Saturday school or college, but reported speaking Korean with her parents in daily conversation.

The other four heritage speakers were early sequential bilinguals (age ranges, 7-10). The early sequential heritage Korean speakers were exposed to English from age of 7 to 10 (mean age 19, age range 18-20; mean age of arrival 8.75, age range 7-10; mean length of residence, 10.25 years, range 9-11 years).

All of the four early sequential heritage Korean speakers had attended elementary school (range 1 year to 4 years) in Korea before they came to the United States. Two of them had attended a Saturday Korean school (range 5-6 years) in San Diego, California. All of them reported speaking Korean with their parents in daily conversation.

In addition, ten adult fully native Korean speakers were tested as the control group (mean age 30.9, age range 21-42). They were recruited both in San Diego, California and Lawrence, Kansas and had been in the United States less than five years at the time of testing. Biographical information on both heritage Korean speaker groups is shown in Table 2.2.

Table 2.2. Biographical information on Korean heritage speakers in pilot study

	Simultaneous Heritage Speakers (HKI: n = 6)	Early Sequential Heritage Speakers (HKII: n = 4)
Age	21.0 (18-24)	19.0 (18-20)
Mean age of onset of acquisition of English	0.5 (0-3)	8.75 (7-10)
Mean length of residence in the US	20.5 (18-23)	10.25 (9-11)
Language of education including Saturday schools	English (n = 1) Both (n = 5)	Korean and English (n = 4)
Mean % use of Korean	27.5 (10-50)	30.0 (30)

2.3.2 Materials for Screening

A language background questionnaire (Questionnaire A for heritage speakers and Questionnaire B for the controls) and a Korean proficiency test were used to screen subjects. Questionnaire A and B in the pilot study are similar to the ones in the present study. Korean Proficiency Test is the same as the one in the present study. Mean scores in percentage in the proficiency test are shown in Table 2.3.

Table 2.3. Mean acceptability on Korean Proficiency Test of heritage speakers in Pilot Study

Groups	N	Mean	SD	Range
Simultaneous Heritage Speakers (HKI)	6	70.8	10.7	60-85
Early Sequential Heritage Speakers (HKII)	4	78.8	8.5	70-90
Korean Native Speakers (NK)	10	99.0	2.1	95-100

Both the simultaneous heritage Korean speakers (HKI) and the early sequential heritage Korean speakers (HKII) performed around 70.8 and 78.8, respectively, while the Korean native controls performed 99% acceptability. In other words, a one-way ANOVA with proficiency in Korean showed that there was a significant difference by group (F $(2, 17)$ = 33.560, $p < .001$). Tukey HSD showed that there were significant differences between the Korean controls and the simultaneous HKs ($p < .001$) and between the Korean controls and the early sequential HKs ($p < .001$). However, there was no significant difference between the simultaneous HKs and the early sequential HKs ($p = .214$). These results suggest that some heritage speakers have incomplete knowledge of Korean.

2.3.3 Main Task: A Grammaticality Judgment Task

The main task in the pilot was a grammaticality judgment task. The main task was administered in two separate tests: Test 1 and Test 1 Follow-up Test.

In Test 1, the participants were asked to judge and circle Y(es) or N(o), regarding a sentence containing the Korean NPI *amwuto* 'anyone' in three different conditions: locality conditions, NPIs in the subject position (i.e., subject/object symmetry of NPIs in Korean), and scrambling of NPIs. Examples in locality conditions are shown in (5a-b) below.

(5) Local Domain
 a. [na-nun [John-i *amwuto* manna-ci *an*-h-ass-ta-ko]   mit-nun-ta] **(Y)** **N**
   I-TOP   J-NOM anyone meet-CI NEG-do-PST-DEC-COMP believe-PRS-DEC
   'I believe that John didn't meet anyone.'

 Non-local Domain
 b. ?*[na-nun [John-i *amwuto* manna-ss-ta-ko]   mit-ci   *an*-h-nun-ta] **Y** **(N)**
    I-TOP J-NOM anyone meet-PST-DEC-COMP believe-CI NEG-do-PRS-DEC
    'I don't believe that John met anyone.'

Grammaticality of the sentences in (5a-b) depends on whether the NPI *amwuto* and the negator *an* co-occur in the same clause as in (5a) or not as in (5b).

Examples in licensing of subject NPIs are shown in (6a-b) below.

(6) Subject NPIs: Local Domain
 a. [*amwuto* [John-i ku salam-ul manna-ss-ta-ko]   mit-ci   *an*-h-nun-ta] **(Y)** **N**
   anyone J-NOM the man-ACC meet-PST-DEC-COMP believe-CI NEG-do-PRS-DEC
   'Nobody believes that John met the man.'
   (Lit.) '*Anyone* doesn't believe that John met the man.'

 Subject NPIs: No-Negator in Local Domain
 b. [*amwuto* [John-i ku salam-ul manna-ss-ta-ko]   mit-nun-ta]   **Y** **(N)**
   anyone J-NOM the man-ACC meet-PST-DEC-COMP believe-PRS-DEC
   *'Anyone believes that John met the man.'

In subject NPIs as in (6a), unlike English, the matrix subject NPI *amwuto* 'anyone' and the negator *an* co-occur in the local licensing domain, the sentence is grammatical. The sentence in (6b) is ungrammatical since there is no negator *an* to license the subject NPI *amwuto*.

For the test of NPI scrambling, the initial test on NPI scrambling did not include context for scrambling. The results indicated that the test on NPI scrambling without context is inadequate because native speakers scored much lower in scrambling than heritage language speakers. Since context plays an important role in the grammaticality of scrambling, a follow-up test with a question and answer format was conducted to compare the results between with- and without- context for NPI scrambling. An example context and a scrambling of the NPI in the test are shown in (7A-B).

(7)   Non-locality after Scrambling
    A: ne-nun   [John-i   cengmal ku salam-ul   manna-ss-ta-ko]   mit-ni?
       you-TOP John-NOM really   the man-ACC meet-PST-DEC-COMP believe-Q
       'Do you believe that John really met the man?'

    B: ?✓ani, [*amwuto* [na-nun [John-i manna-ci *an*-h-ass-ta-ko]   mit-e]]   (Y) N
       no   anyone   I-TOP   J-NOM meet-CI NEG-do-PST-DEC-COMP believe-DEC
       'No, I believe that John didn't meet anyone.'
       (Intended) 'No, ANYONE, I believe that John didn't meet.'

From the given context in (7A), speakers of Korean identify the NPI *amwuto* as being scrambled. The scrambled sentence in (7B) is grammatical since the scrambled NPI *amwuto* reconstructs to the base position in the embedded clause such that the NPI and the negator are clausemate at D-structure.

2.3.4 Materials

Three sentence types with the NPI *amwuto* 'anyone' were used both in simple and complex sentences (i.e., sentences with a local-licensing domain, non-local licensing domain, and no-negation).

More specifically, Test 1 included 14 sentence types, while Test 1 Follow-up Test included 5 sentence types. Test 1 included 6 tokens of each condition (i.e., 2 sentence types of 3 grammatical and 3 ungrammatical sentences) in simple sentences, whereas there were 9 tokens of each condition (i.e., 3 sentence types of 3 grammatical or 3 ungrammatical sentences) in complex sentences, with an exception of 2 sentence types of 3 grammatical and 3 ungrammatical in the category of subject NPIs (i.e., specifically, "Subject NPIs in Matrix Clauses"). The task in Test 1 included a total of 60 sentences (30 grammatical, 30 ungrammatical), 42 of which were target items (21 grammatical and 21 ungrammatical), while the other 18 items were fillers. Filler items included sentences where negation occurs in short-form and long-form without the NPI *amwuto* 'anyone' and positive polarity items (PPIs) like *atten* 'some' occurs in both affirmative and negative sentences. Object DPs with the PPI *atten* 'some' also sometimes scrambled in the filler items. The number of the fillers was balanced for grammatical and ungrammatical sentences (9 grammatical and 9 ungrammatical).

Test 1 Follow-up Test included the NPI *amwuto* 'anyone' in scrambling both in simple and complex sentences. The follow-up test included 5 sentence types with a total of 25 sentences (15 grammatical, 10 ungrammatical). That is, the follow-up test included 10 tokens of each condition (5 grammatical and 5 ungrammatical) in simple sentences, while there were 15 tokens of each condition (10 grammatical and 5 ungrammatical) in complex sentences. No fillers were included in the follow-up test.

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Thus both tests in the pilot study included 14 sentence types with a total of 85 sentences (45 grammatical and 40 ungrammatical), 67 of which were target items, (36 grammatical and 31 ungrammatical), while the other 18 items were fillers (9 grammatical and 9 ungrammatical).

2.3.5 Procedure

While scrambling of NPIs without context was tested in Test 1, Test 1 Follow-up Test for scrambling of NPIs was done approximately 5 months later on the same participants except for one simultaneous heritage speaker who did not take the follow-up test (i.e., N = 9). Since the participants already completed the language background questionnaire and took the Korean proficiency test before in Test 1, only scrambling with context was tested on the participants.

2.4 Methodology in the Present Study

2.4.1 Participants

A total of eighty-four adult participants (ages 18-42) were tested in three groups: twenty-five simultaneous heritage Korean speakers (AOA 0-2), twenty-five early sequential heritage Korean speakers (AOA 7-10)[38], and thirty-four native Korean speakers as the control group.

The fifty Korean simultaneous and early sequential heritage speakers residing in the United States were recruited in the Southern and Northern California areas, in various ways such as personal contact with the Korean Program at the San Diego State University, the Korean-American Student Association at the University of California, San Diego, and a Korean college ministry at the University of California, Davis, as well as contact with Korean church

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[38] For the present study, I delimit AOA ranges of "late L2 child learners" to 7-10, instead of Montrul's (2008) AOA ranges, 7-12, in order to avoid a potential onset of puberty in late childhood. Thus, the present study focuses on "middle" child L2 acquisition rather than "late" child L2 acquisition.

communities in the San Diego area, through flyers on-line and off-line. Most of the heritage Korean participants were college undergraduate students attending the three universities in California. One participant was a graduate student and one participant was a college graduate.

Out of the twenty-five simultaneous heritage Korean speakers (mean age 20.0, ages 18-23; mean age of arrival 0.20, ages 0-2; mean length of residence 19.8 years, years 18-23) who participated in the experiments, twenty-two of them (mean age 19.9, ages 18-23) were born in the United States to Korean families. The other three simultaneous heritage Korean speakers (mean age 20.7, ages 19-22; mean age of arrival 1.67, ages 1-2; mean length of residence, 19.0 years, years 18-20) were born in Korea and came to the United States in toddlerhood (ages 1-2), being exposed to English since then. I will refer to simultaneous heritage Korean speakers as "HKI" throughout the remainder of the dissertation.

The simultaneous heritage Korean speakers were all schooled in English, and after age 5-6, English became their dominant language. At the time of testing, twenty-one of the twenty-five simultaneous heritage Korean speakers had attended Saturday Korean schools (mean year 5.9; years, 2-11) and/or Korean programs at church (mean year 4.7, years 0.2-12) before they went to college. Seven of the simultaneous heritage Korean speakers had taken Korean as a heritage language in college[39] (mean year 1, years 0.6-1.5) and two of them were taking Korean at college at the time of testing. Four of the twenty-five simultaneous heritage Korean speakers never took Korean instruction. However, they learned Korean as a heritage language through daily conversation with their parents. Twenty-four of the twenty-five simultaneous heritage Korean

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[39] All the participants who had taken Korean at college were the students from the University of California, San Diego and San Diego State University. Korean was not offered as one of the heritage/foreign languages in the University of California, Davis.

speakers reported speaking Korean with their parents in daily conversation, while the other one simultaneous heritage Korean speakers reported speaking Korean with their grandparent(s).

The twenty-five early sequential heritage Korean speakers (i.e., "late child L2 learners" in traditional terms) were born in Korea and came to the United State in "middle" childhood (ages 7-10). I will refer to this group as "HKII". The early sequential heritage Korean speakers were child L2 bilinguals who were first exposed to English from age of 7 to 10 (mean age 20.0, ages 18-23; mean age of arrival 8.4, ages 7-10; mean length of residence, 11.6 years, years 10-16).

All of the twenty-five early sequential heritage Korean speakers had attended elementary school (from 1st to 4th grade) in Korea before they came to the United States. At the time of testing, ten of the twenty-five early sequential heritage Korean speakers had attended Saturday Korean schools (mean year 2.4; years 0.6-5) and/or Korean programs at church (10.6 years) before they went to college. One of the twenty-five early sequential heritage Korean speakers had taken Korean at high school for 2 years. Nine of the early sequential heritage Korean speakers had taken Korean as a heritage language in college (mean year 0.6, years 0.1-2) and four of them were taking Korean at college at the time of testing. Eight of the twenty-five early sequential heritage Korean speakers did not take Korean instruction any more after they came to the United States. Twenty-four of the twenty-five early sequential heritage Korean speakers reported speaking Korean with their parents in daily conversation, while the other one simultaneous heritage Korean speakers reported speaking Korean with their grandparent(s).

The thirty-four fully native Korean speakers (mean age 31.3, ages 18-52) were recruited by personal contacts and social connections to the Korean communities, mainly in the San Diego, California area. I will refer to this group as "NK". The native Korean speakers were limited to

those who had been in the United States less than one year at the time of testing (mean month 4.68, months 1-10), to reduce potential L2 English influence on L1 Korean.

A language background questionnaire was used to assess their biographical information and language background. A language background questionnaire for the heritage Korean speakers included personal questions, information about knowledge of Korean, types of Korean instruction, percentage use of Korean in daily life, Korean involvement in the family, Korean learning activities, and self-rating scales on Korean language ability. Native Korean participants used other language background questionnaire which included personal information such as sex, age, native region, and duration of stay in the United States. Table 2.4 summarizes the background on simultaneous and early sequential heritage Korean speakers tested in the study.

Table 2.4. Language background on simultaneous and early sequential Korean heritage speakers

	Simultaneous Heritage Korean Speakers (HKI: n = 25)	Early Sequential Heritage Korean Speakers (HKII: n = 25)
Age	20.0 (18-23)	20.0 (18-23)
Mean age of onset of acquisition of English	0.2 (0-2)	8.4 (7-10)
Mean length of residence in the US	19.8 (18-23)	11.6 (10-16)
Language of education including Saturday schools	English only (n=3) Both (n = 22)	English only (n=8) Both (n = 17)[40]
Length of instruction (year)	5.8 (0.6-12)	1.8 (0.1-10.6)
Language spoken with parents	Korean only (n=21) English only (n=1) Both (n=3)	Korean only (n=22) English only (n=1) Both (n=2)
Language spoken at home by HKs	Korean only (n=2) English only (n=0) Both (n=23)	Korean only (n=6) English only (n=0) Both (n=19)
Mean % use of Korean in daily life	24.2 (10-50)	32.4 (5-90)

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[40] This number (n=16) of HKII only includes Korean instruction after they came to the USA. All HKII received Korean formal education up to 4th grade in Korea before they came to the USA.

2.4.2 Test Materials

2.4.2.1 Korean Proficiency Test

All participants completed a standardized Korean proficiency cloze test which included 20 items (a perfect score, 100), examining various properties of Korean grammar (vocabulary, case-marking, verbal morphology, conjunctions, reading comprehension, etc.). The Korean proficiency test was adopted from the Korean Program of the Sungkyun Language Institute at Sungkyunkwan University in Korea[41].

To investigate whether age of onset of acquisition of the dominant language (i.e., English) plays a role in NPI licensing, heritage Korean participants with intermediate and advanced levels of Korean proficiency were screened for the present study. Thirty-four native Korean speakers also participated in the experiment as the control group.

2.4.2.2 Main Tasks

The present study consists of two experiments. Experiment 1 and Experiment 2 were tested by a grammaticality judgment task and an acceptability judgment task, respectively, which were administered in a paper-and-pencil format.

2.4.2.2a A Grammaticality Judgment Task

The main task in Experiment 1 was a grammaticality judgment task. The grammaticality judgment task consists of sentence types with a context-free format both in simple and complex sentences. The participants were instructed to judge whether a given sentence is grammatical or not. The participants were asked to circle Y(es) or N(o), regarding the sentence types containing

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[41] The same Korean proficiency test was used in J.-H. Kim (2007).

the Korean NPI *amwuto* "anyone" in two different conditions: object NPI licensing domains (i.e., the locality conditions) and NPIs in the subject position (i.e., subject/object symmetry of NPIs).

2.4.2.2b An Acceptability Judgment Task

The main task in Experiment 2 was an acceptability judgment task. The acceptability judgment task consists of sentence types with a context-given question and answer format both in simple and complex sentences. In the acceptability judgment task, each experimental sentence was preceded by a prompt sentence that gives the context. The participants were instructed to judge whether a response sentence is natural or acceptable from a given question. The participants were asked to circle Y(es) or N(o), regarding the sentence types of responses containing the Korean NPI *amwuto* 'anyone' in the local and non-local scrambling conditions: NPI scrambling (i.e., short-distance and long-distance NPI scrambling).

2.4.3 Stimuli

2.4.3.1 Sentence Properties in Experiment 1

Experiment 1 examines whether heritage Korean speakers correctly accept NPIs in the local domain as grammatical and treat NPIs in the non-local domain in Korean as ungrammatical (or very marginal) (i.e., the clausemate condition), and explores whether heritage Korean speakers allow NPIs in the matrix subject position which English does not allow (i.e., subject/object symmetry of NPIs in Korean).

The sentences in (8-9) below are the sentence types to test the locality condition of object NPIs.

(8) a. Local Domain in Simple Sentences
    Swumi-nun *amwuto* manna-ci *an*-h-ass-ta.
    S-TOP   anyone   meet-CI   NEG-do-PST-DEC
    'Swumi did not meet anyone.'

   b. Local Domain in Complex Sentences
    [na-nun [Swumi-ka *amwuto* manna-ci *an*-h-ass-ta-ko]   sayngkak-ha-n-ta]
    I-TOP   S-NOM   anyone   meet-CI NEG-do-PST-DEC-COMP think-do-PRS-DEC
    'I think that Swumi did not meet anyone.'

   c. Non-local Domain in Complex Sentences
    ?*[na-nun [Swumi-ka *amwuto* manna-ss-ta-ko]   sayngkak-ha-ci *an*-h-nun-a]
        I-TOP   S-NOM   anyone   meet-PST-DEC-COMP   think-do-CI   NEG-do-PRS-DEC
        'I do not think that Swumi met anyone.'

In the local licensing domain as in (8a-b) in simple and complex sentences, respectively, since

the NPI *amwuto* and the negator *an* co-occur in the same clause, the sentence is grammatical.

However, in the non-local licensing domain as in (8c), unlike English, the sentence becomes

ungrammatical or very marginal since the NPI *amwuto* and the negator *an* do not co-occur in the

same clause.

In addition to the locality condition of object NPIs, the ungrammaticality of no negation

in the object NPI sentences were provided as in (9) both in simple and complex sentences.

(9) a. No-negation in Simple Sentences
    *Swumi-nun *amwuto* manna-ss-ta.
    S-TOP   anyone   meet-PST-DEC
    '*Swumi met anyone.'

   b. No-negation in Complex Sentences
    *[na-nun [Swumi-ka *amwuto* manna-ss-ta-ko]   sayngkak-ha-n-ta]
    I-TOP   S-NOM   anyone   meet-PST-DEC-COMP think-do-PRS-DEC
    '*I believe that Chelswu met anyone.'

The sentences in (9a-b) are ungrammatical since negator *an* is not present in the NPI sentences.

The sentences in (10-11) below are the sentence types to test the presence of subject NPIs. In subject NPIs as in (10), unlike English, the matrix subject NPI *amwuto* and the negator *an* co-occur in the local licensing domain, the sentence is grammatical.

(10) a. Subject NPIs: Local Domain in Simple Sentences
  amwuto Chelswu-lul ttayli-ci *an*-h-ass-ta.
  anyone C-ACC   hit-CI   NEG-do-PST-DEC
  'Nobody hit Chelswu.'
  (Lit.) '*Anyone* does *not* hit Chelswu.'

 b. Subject NPIs: Local Domain in Matrix Clauses
  [*amwuto* [Chelswu-ka ku salam-ul ttayle-ess-ta-ko] mit-ci   *an*-h-ass-ta]
  anyone C-NOM   the man-ACC hit-PST-DEC-COMP believe-CI NEG-do-PST-DEC
  'Nobody believes that Chelswu hit the man.'
  (Lit.) '*Anyone* does *not* believe that Chelswu hit the man.'

 c. Subject NPIs: Local Domain in Embedded Clauses
  [na-nun [*amwuto* ku salam-ul ttayli-ci *an*-h-ass-ta-ko]   mit-nun-ta]
  I-TOP anyone the man-ACC hit-CI NEG-do-PST-DEC-COMP believe-PRS-DEC
  'I believe that nobody hit the man.'
  (Lit.) 'I believe that *anyone* did *not* hit the man.'

The ungrammaticality of no negation in the subject NPI sentences were also tested as in (11) both in simple and complex sentences.

(11) a. Subject NPIs: No-negation in Simple Sentences
  amwuto Chelswu-lul ttayli-ess-ta.
  anyone C-ACC   hit-PST-DEC
  '*Anyone hit Chelswu.'

 b. Subject NPIs: No-negation in Matrix Clauses
  [*amwuto* [Chelswu-ka ku salam-ul ttayle-ess-ta-ko] mit-ess-ta]
  anyone C-NOM   the man-ACC hit-PST-DEC-COMP believe-PST-DEC
  '*Anyone believes that Chelswu hit the man.'

 c. Subject NPIs: no-negation in Embedded Clauses
  [na-nun [*amwuto* ku salam-ul ttayli-ess-ta-ko] mit-nun-ta]
  I-TOP anyone the man-ACC hit-PST-DEC-COMP believe-PRS-DEC
  '*I believe that anyone hit the man.'

The sentences in (11a-c) are ungrammatical since negator *an* is not present in the subject NPI sentences.

In addition to the local domain in subject NPIs, the non-local domain in subject NPIs were also presented in the experiment as in (12a-b).

(12) a. Subject NPIs: Non-local Domain in Matrix Clauses
      *[*amwuto* [Chelswu-ka ku salam-ul ttayli-ci *an*-h-ass-ta-ko]   mit-nun-ta]
       anyone   C-NOM   the man-ACC hit-CI   NEG-do-PST-DEC-COMP believe-PRS-DEC
       'Nobody believes that Chelswu hit the man.'
       (Lit.) '*Anyone* believes that Chelswu did *not* hit the man.'

   b. Subject NPIs: Non-local Domain in Embedded Clauses
     [na-nun [*amwuto* ku salam-ul ttayli-ess-ta-ko]   mit-ci   *an*-h-nun-ta]
     I-TOP   anyone the man-ACC hit-PST-DEC-COMP   believe-ci NEG-do-PRS-DEC
     'I do not believe that anyone hit the man.'

The subject NPI sentence in (12a) is ungrammatical because the matrix subject NPI *amwuto* and negator *an* is not clausemate. However, like English, the sentence in (12b) becomes grammatical even though the embedded subject NPI and negator in the matrix clause is not clausemate. Thus, Korean exceptionally allows the embedded subject NPI in the non-local domain.

2.4.3.2 Sentence Properties in Experiment 2

Experiment 2 tests the properties of scrambling of object NPIs in Korean, exploring whether heritage Korean speakers allow for scrambling of NPI DPs out of the c-command domain of negation either in the local licensing domain or non-local licensing domain on the surface.

The sentences in (13a-c) below are the sentence types to test the locality condition in NPI scrambling presented in Experiment 2.

(13) a. Locality after Scrambling (Simple Sentences)
  ✓*amwuto* Minki-ka *t* mit-ci   *an*-h-ass-e
   anyone M-NOM   trust-CI NEG-do-PST-DEC
   'Minki did not trust ANYONE.'
   (Lit.) 'ANYONE, Minki did *not* trust.'

 b. Locality after Scrambling (Short-distance Scrambling)
  ✓[na-nun [*amwuto* Minki-ka *t* mit-ci   *an*-h-ass-ta-ko**]**   sayngkak-ha-y]
   I-TOP   anyone M-NOM   trust-CI NEG-do-PST-DEC-COMP think-do-DEC
   'I think that Minki did not trust ANYONE.'
   (Lit.) 'I think that ANYONE, Minki did *not* trust.'

 c. Non-locality after Scrambling (Long-distance Scrambling)
  ?✓[*amwuto* [na-nun [Minki-ka *t*   mit-ci   *an*-h-ass-ta-ko]   sayngkak-hay]]
   anyone I-TOP   M-NOM   trust-CI NEG-do-PST-DEC-COMP think-do-DEC
   'I think that Minki did not trust ANYONE.'
   (Lit.) 'ANYONE, I think that Minki did *not* trust.'

In (13a-c), the NPI *amwuto* and the negator *an* are clausemate in the base sentences (i.e., at D-structure). Even if the scrambled NPI and the negator do not co-occur in the same clause after scrambling, the NPI can reconstruct to the base position such that the sentence remains grammatical. The scrambled NPI *amwuto* and negator *an* in (13a-b) are in the local licensing domain on the surface (i.e., at S-structure). However, the scrambled NPI *amwuto* and negator *an* in (13c) do not remain in the local licensing domain on the surface, but the NPI scrambled sentence becomes grammatical. The grammaticality of the scrambled sentence in the non-local NPI licensing domain as in (13c) is obtained since the scrambled NPI *amwuto* reconstructs to the base position.

The ungrammaticality of no negation in the scrambled NPI sentences were also tested as in (14) both in simple and complex sentences.

(14) a. No-negation: NPI Scrambling in Simple Sentences
     *amwuto Minki-ka t mit-ess-e
      anyone M-NOM   trust-PST-DEC
      '*Minki trusted ANYONE.'
      (Lit.) '*ANYONE, Minki trusted.'

   b. No-negation: Short-distance NPI Scrambling
     *[na-nun [amwuto Minki-ka t mit-ess-ta-ko]   sayngkak-ha-y]
      I-TOP   anyone M-NOM   trust-PST-DEC-COMP   think-do-DEC
      '*I think that Minki trusted ANYONE.'
      (Lit.) '*I think that ANYONE, Minki trusted.'

   c. No-negation: Long-distance NPI Scrambling
     ?*[amwuto [na-nun [Minki-ka t   mit-ess-ta-ko]   sayngkak-hay]]
       anyone I-TOP   M-NOM   trust-PST-DEC-COMP   think-do-DEC
       '*I think that Minki trusted ANYONE.'
       (Lit.) '*ANYONE, I think that Minki trusted.'

The sentences in (14a-b) are ungrammatical since negator *an* is not present in the scrambled NPI

sentences.

On the other hand, the (un)grammaticality of the scrambled NPI sentences were tested

when the base sentences are ungrammatical due to the non-local NPI licensing domain as in

(15a-b).

(15) a. Non-locality after Scrambling (Short-distance Scrambling)
     ??[na-nun [amwuto Minki-ka t mit-ess-ta-ko]   sayngkak-ha-ci an-h-a]
       I-TOP   anyone M-NOM   trust-PST-DEC-COMP think-do-CI   NEG-do-DEC
       'I do not think that Minki trusted ANYONE.'
       (Lit.) 'I do *not* think that ANYONE, Minki trusted.'

   b. Locality after Scrambling (Long-distance Scrambling)
     ??[amwuto [na-nun [Minki-ka t   mit-ess-ta-ko]   sayngkak-ha-ci an-h-a]]
       anyone I-TOP   M-NOM   trust-PST-DEC-COMP think-do-CI   NEG-do-DEC
       'I do not think that Minki trusted ANYONE.'
       (Lit.) 'ANYONE, I do *not* think that Minki trusted.'

Even though the base sentences in (15a-b) are ungrammatical since the NPI *amwuto* and the negator *an* are not clausemate, the scrambled sentences become acceptable but degraded. The grammaticality of the sentence in (15a) can be obtained when the embedded subject NPI *amwuto* raises to the matrix object position (i.e., Exceptional Case Marking: ECM). The grammaticality of the scrambled sentence in (15b) can be obtained when the NPI and the negator co-occur within the same clause on the surface after scrambling.

2.4.3.3 Degrees of Grammaticality in the Investigated NPI Properties

In the present study, the participant's acceptability in the two experiments should be evaluated based on the degrees of (un)grammaticality of the investigated NPI properties. That is, there are certain degrees of variability in some investigated NPI properties (especially in NPI scrambling) in native Korean.

In object NPI licensing, local object NPIs both in simple and complex sentences as in (8a-b) are fully grammatical. However, non-local object NPI sentences as in (8c) show marginality. That is, the sentence in (8c) is not considered fully ungrammatical in the literature (S. Park, 1994; J.-B. Kim, 1995, among others). In subject NPI licensing, simple sentences with local subject NPIs as in (10a), complex sentences with local matrix subject NPIs as in (10b), and complex sentences with local embedded subject NPIs as in (10c) are all fully grammatical. However, complex sentences with non-local matrix subject NPIs as in (12a) are fully ungrammatical and complex sentences with non-local embedded subject NPIS as in (12b) are degraded.

In NPI scrambling, since an NPI does not carry a case-marker and is subject to the clausemate condition, grammaticality (or acceptability) judgment of the scrambled NPI

sentences varies to the native speaker's grammaticality judgment.[42] Since there is no consensus on the grammaticality (or acceptability) judgment of the scrambled NPI sentences in the literature, it is suggested that there is variability in NPI scrambling. Scrambled NPI simple sentences as in (13a) and short-distance scrambled NPI complex sentences as in (13b) are considered grammatical (or acceptable). However, long-distance scrambled NPI sentences as in (13c) are considered degraded. In NPI "rescue" scrambling, short-distance scrambled NPI complex sentences as in (15a) and long-distance NPI scrambled complex sentences as in (15b) are considered very degraded, because their unscrambled base sentences are ungrammatical.

In the present study, when variability affects the acceptability of group results (especially, of native speakers), their individual results are discussed for the properties of variability.

2.4.4 Sentence Types

The two experiments tested with 42 sentence types either in simple or complex sentences. Each sentence type consists of 5 sentences. A total of 210 test sentences were constructed with 110 grammatical sentences and 110 ungrammatical sentences. Experiment 1 included 22 sentence types, while Experiment 2 included 20 sentence types.

The grammatical judgment task in Experiment 1 included a total of 110 test sentences with 55 grammatical sentences and 55 ungrammatical sentences. Experiment 1 included 45 test sentences in simple sentences and 65 test sentences in complex sentences. That is, there were 20 tokens of the 4 grammatical sentence types and 25 tokens of the 5 ungrammatical sentence types

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[42] S. Park (1994) observes that scrambled NPI sentences can be grammatical if a scrambled NPI reconstructs to the base position to be clausemate with negation and K.-W. Sohn (1995) discusses how the scrambled sentence as in (15a) obtains grammaticality. However, Y.-J. Kwon (1993) considers the scrambled NPI sentences ungrammatical from his own grammaticality judgment.

in simple sentences, whereas there were 35 tokens of the 7 grammatical sentence types and 30 tokens of the 6 ungrammatical sentence types in complex sentences. Among a total of 110 sentences (55 grammatical, 55 ungrammatical), 65 of which were target items (30 grammatical and 35 ungrammatical), while the other 45 items were fillers and distractors.

Target items included 10 tokens of the 2 grammatical sentence types and 10 tokens of the 2 ungrammatical sentence types in simple sentences, whereas there were 20 tokens of the 4 ungrammatical sentence types and 25 tokens of 5 ungrammatical sentence types in complex sentences. The numbers of the fillers and distractors were adjusted for grammatical and ungrammatical sentences (25 grammatical and 20 ungrammatical) to the numbers of the grammatical and ungrammatical sentences of the target items. For fillers and distractors, there were 10 tokens of 2 grammatical sentence types presented in simple sentences and 10 tokens of the other 2 grammatical sentence types were presented in complex sentences. Fifteen tokens of 3 ungrammatical sentence types were presented in simple sentences while 10 tokens of 2 ungrammatical sentence types were presented in complex sentences. Filler items included 20 sentences (15 grammatical, 5 ungrammatical) in simple and complex sentences. Distractor items included 25 sentences (10 grammatical and 15 ungrammatical) in simple and complex sentences.

The acceptability judgment task in Experiment 2 included a total of 100 test sentences with 50 grammatical sentences and 50 ungrammatical sentences. Experiment 2 included 50 test sentences in simple sentences and 50 test sentences in complex sentences. That is, there were 20 tokens of the 4 grammatical sentence types and 30 tokens of the 6 ungrammatical sentence types in simple sentences, whereas there were 30 tokens of the 6 grammatical sentence types and 20 tokens of the 4 ungrammatical sentence types in complex sentences. Among a total of 100

sentences (50 grammatical, 50 ungrammatical), 40 of which were target items (25 grammatical and 15 ungrammatical), while the other 60 items were fillers and distractors.

Target items included 5 tokens of the 1 grammatical sentence type and 5 tokens of the 1 ungrammatical sentence type in simple sentences, whereas there were 20 tokens of the 3 grammatical sentence types and 10 tokens of the 2 ungrammatical sentence types in complex sentences. The numbers of the fillers and distractors were adjusted for grammatical and ungrammatical sentences (25 grammatical and 35 ungrammatical) to the numbers of the grammatical and ungrammatical sentences of the target items. For fillers and distractors, there were 15 tokens of 3 grammatical sentence types presented in simple sentences and 10 tokens of the other 2 grammatical sentence types were presented in complex sentences. Twenty-five tokens of 5 ungrammatical sentence types were presented in simple sentences, while 10 tokens of 2 ungrammatical sentence types were presented in complex sentences. Filler items included 25 sentences (15 grammatical, 10 ungrammatical) in simple and complex sentences. Distractor items included 35 sentences (10 grammatical and 25 ungrammatical) in simple and complex sentences.

To sum up, both experiments in the present study included a total of 210 tokens of 42 sentence types (i.e., 105 tokens of the 21 grammatical sentence types and 105 tokens of the other 21 ungrammatical sentence types), 105 tokens of them were target items, (55 grammatical and 50 ungrammatical), while the other 105 tokens were fillers and distractors (50 grammatical and 55 ungrammatical).

2.4.5 Procedure

Before the participants took the two main tasks, they read and signed the consent form. The participants were then asked to complete the language background questionnaire. All participants then completed a standardized Korean proficiency cloze test examining various properties of Korean grammar.

The main tasks were administered with a test based on . A participant took two experiments in one sitting with an interval break. The participants were allowed to ask any questions about the tasks while they were taking the tests. However, questions related to answers or to any aspect of the tasks were not answered. On average, it took one and half to two hours for the participants to complete the whole experimental session. Each participant was compensated financially for the experiments[43]

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[43] The payment to each participant was $20 funded by Graduate Studies Research Fund (2011) from the University of Kansas.

CHAPTER 3
Experiment 1: Results and Discussion

3.1 Results

3.1.1 Korean Proficiency Test

The Korean proficiency test included 20 items (i.e., a perfect score, 100) examining various properties of Korean from vocabulary to reading comprehension. The test included synonym, antonym, adverbials, tense, case, natural responses, and idioms. To investigate whether age of onset of acquisition of the dominant language (i.e., English) plays a role in NPI licensing, heritage Korean participants with intermediate and advanced levels of Korean proficiency were screened for the present study. For the purpose of balancing the proficiency of at least an intermediate level between two heritage Korean speaker groups, the score of 50 from the Korean proficiency test was cut off while the score of 95 was capped, comparable to the highest score from simultaneous heritage Korean speaker group.

Originally, thirty-nine simultaneous heritage Korean speakers participated in the experiments. Fourteen simultaneous heritage Korean speakers were excluded for the test results since they did not fit into either the proficiency category (proficiency scores 50-95) or the category of the simultaneous heritage Korean speaker group. Twenty-five simultaneous heritage Korean speakers (HKI) were selected for inclusion in the study.

Twenty-nine early sequential heritage Korean speakers initially participated in the experiments. Four early sequential heritage Korean speakers were excluded for the test results since two of them achieved the proficiency score of 100 which did not fit into the comparable proficiency score range to the simultaneous heritage Korean speaker group (proficiency scores

50-95), while two of them did not fit into the category of the early sequential heritage Korean speaker group. Twenty-five early sequential heritage Korean speakers (HKII) were selected for inclusion in the study. Thirty-four native Korean speakers were also selected in the study as the control group.

Mean scores in percentage of the Korean proficiency test for both heritage Korean speaker groups and the native Korean control group are shown in Table 3.1.

Table 3.1. Mean acceptability on the Korean proficiency test (in percentage) of the simultaneous heritage Korean speakers, early sequential heritage Korean speakers and native Korean speakers

Group		N	Mean	SD	Range
Simultaneous Heritage Speakers	(HKI)	25	71.0	14.1	50-95
Early Sequential Heritage Speakers	(HKII)	25	81.0	11.47	50-95
Native Korean Speakers	(NK)	34	96.8	4.1	85-100

A one-way ANOVA (Analysis of Variance) showed that there was a significant between-subjects difference ($F(2, 81) = 47.848$, $p < .0001$). Post-hoc comparisons by the Bonferroni adjustment revealed that the performance of the simultaneous heritage Korean speakers (HKI) was lower than that of the early sequential heritage Korean speakers (HKII) and of the native Korean controls (NK). HKI was significantly different from both HKII ($p=.003$) and NK ($p < .0001$). The performance of the early simultaneous Korean speakers (HKII) was lower than that of native speakers (NK) and HKII was significantly different from NK ($p < .0001$).

Along with the mean scores of both HKI and HKII, the proficiency scores of both HKI and HKII ranging between 50-95% also suggest that some heritage Korean speakers have incomplete knowledge of Korean in general. In comparison between HKI and HKII, since HKI

and HKII were significantly different from each other (p = .003) in the proficiency test, age effects exist in acquisition of Korean in general.

Thus, the present study investigates whether incomplete knowledge of Korean in general and age effects between HKI and HKII suggested by the proficiency test results will correlate with the mean acceptability scores on the main tasks for NPI licensing (object and subject NPIs) and NPI scrambling in Korean.

3.1.2 Fillers and Distractors

All test batteries in Experiment 1 included 9 sentence types of the fillers and distractors. Filler items included 4 sentence types (3 grammatical, 1 ungrammatical) in simple and complex sentences. Distractor items included 5 sentence types (2 grammatical and 3 ungrammatical) in simple and complex sentences[44]. Fillers consist of sentences where negation occurs in short-form and long-form without the NPI *amwuto* 'anyone', while distractors consist of case morphology (case-marker mismatch: double DPs, passives, and transitivity), relative clauses, and affirmative sentences.

Filler items were presented to compare participants' acceptability of NPI negation in the target items. Fillers included short-form and long-form negation in ordinary sentences (See Section 1.4.2.1 in Chapter 1).

Fillers of ordinary negation were presented as follows:

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[44] As discussed in the previous chapter, for fillers and distractors, there were 10 tokens of 2 grammatical sentence types presented in simple sentences and 10 tokens of the other 2 grammatical sentence types were presented in complex sentences. Fifteen tokens of 3 ungrammatical sentence types were presented in simple sentences while 10 tokens of 2 ungrammatical sentence types were presented in complex sentences.

(1) Ordinary Negation: Short-form

    (a) Short-Form in Simple Sentences
        (e.g., *Chelswu Yenghuy NEG met.*)

    (b) * Short-Form in Simple Sentences
        (e.g., **Yenghuy a student NEG is.*)

(2) Ordinary Negation: Long-Form

    (a) Long-Form in Simple Sentences
        (e.g., *Chelswu Yenghuy met-CI NEG.*)

    (b) Long-Form in Complex Sentences
        (e.g., *Chelsw said that Minki her trust-CI NEG.*)

Results for the filler items in Experiment 1 are presented in Table 3.2.

Table 3.2. Mean acceptability of the fillers in Experiment 1

Sentence Types	HKI (n = 25) Mean (SD) Range	HKII (n = 25) Mean (SD) Range	NK (n = 34) Mean (SD) Range
Short-Form	88 (17.3)	94 (15.8)	96 (12.5)
in Simple Sentence	40-100	40-100	40-100
*Short-Form	2 (5.5)	2 (8.0)	2 (10.3)
in Simple Sentences	0-20	0-40	0-60
Long-Form	99 (4.0)	98 (6.6)	99 (3.4)
in Simple Sentences	80-100	80-100	80-100
Long-Form	93 (12.8)	91 (20.0)	99 (4.8)
in Complex Sentences	60-100	20-100	80-100

To determine the group-differences, four separate one-way ANOVAs were conducted on the types of filler sentences. There were no significant differences between the groups. However, results for the filler sentences with grammatical short-form negation in simple sentences ($F(2, 81)$ = 2.365, p = .100) and grammatical long-form negation in complex sentences ($F(2, 81)$ = 2.755,

p = .070) showed a marginally significant difference between the groups. Post-hoc comparisons by the Bonferroni adjustment revealed that only in grammatical long-form negation, the performance of the early sequential heritage Korean speakers (HKII) was marginally different from that of the native Korean speakers (NK).

Thus, results on short-form and long-form negation showed that except for one marginal difference between HK and NK in grammatical long-form negation in complex sentences, there were no marginal or significant differences between the groups. Since no significant differences were found between the groups in negation forms in these filler sentences, results indicate that all experimental groups overall have a good knowledge of the two kinds of negation forms both in simple and complex sentences in Korean.

Distractors were used to distract the participants from identifying the target items and to assess various types of linguistic input of (morpho-)syntactic properties other than NPI properties in Korean. Distractors included case morphology (double DPs, passives, and transitivity), relative clauses, and complex affirmative sentences. Distractors were presented as follows:

(3) Case Mismatch

   (a) *Passives in Simple Sentences
      (e.g., *Chelswu-*NOM* is cut flower-*ACC*.)

   (b) *Transitivity in Simple Sentences
      (e.g., *The man-*NOM* likes his son-*NOM*.)

   (c) *Double DPs in Complex Sentences
      (e.g., *Chelswu-*NOM* believed that Yenghuy-*NOM* met the man-*NOM*.)

(4) Others in Complex Sentences

   (a) Relative Clauses
      (e.g., *Chelswu met the man who likes Yenghuy*.)

(b) Affirmatives

     (e.g. *Chelswu believed that Yenghuy did the work*.)

Results for the distractors in Experiment 1 are presented in Table 3.3.

Table 3.3. Mean acceptability of the distractors in Experiment 1

Sentence Types	HKI (n = 25) Mean (SD) Range	HKII (n = 25) Mean (SD) Range	NK (n = 34) Mean (SD) Range
*Passives in Simple Sentence	30 (20.9) 0-80	11 (15.4) 0-60	3 (8.7) 0-40
*Transitivity in Simple Sentences	11 (13.0) 0-40	10(13.1) 0-40	4 (8.2) 0-20
*Double DPs in Complex Sentences	26 (22.9) 0-80	20 (20.8) 0-80	12 (14.9) 0-60
Relative Clauses in Complex Sentences	83 (19.7) 40-100	92 (12.9) 60-100	97 (7.2) 80-100
Affirmative in Complex Sentences	96 (100) 60-100	98 (8.8) 60-100	98 (6.5) 80-100

Five separate one-way ANOVAs were conducted on the types of distractor sentences. Four of the five distractor sentences showed significant differences between the groups. Results for ungrammatical passives showed a significant difference between the groups ($F(2, 81) = 22.657$, $p < .0001$). Post-hoc comparisons by the Bonferroni adjustment revealed that there were significant differences between HKI and HKII ($p < .0001$), and between HKI and NK ($p < .0001$). Results for ungrammatical transitivity showed a significant difference between the groups ($F(2, 81) = 3.240$, $p = .044$). Post-hoc comparisons by the Bonferroni adjustment revealed that there was a marginally significant difference between HKI and NK ($p = .060$). Results for ungrammatical double DPs showed a significant difference between the groups ($F(2, 81) = 4.226$, $p = .018$). Post-hoc comparisons by the Bonferroni adjustment revealed that there was a

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significant difference between HKI and NK (p = .016). Results for grammatical relative clauses showed significant differences between the groups (F(2, 81) = 7.478, p = .001). Post-hoc comparisons by the Bonferroni adjustment revealed that there was a significant difference between HKI and NK (p = .001), and there was a marginally significant difference between HKI and HKII (p = .075).

Thus, results on the (morpho-)syntactic properties in the distractors showed that except for the ordinary affirmative sentences, HKI showed marginal or significant differences from NK and there was a marginal or significant difference between HKI and HKII in passives and double DPs case morphology.

Given the fact that the differences were overall mostly significant between the groups in the various kinds of (morpho-)syntactic properties in the distractor sentences, these results show close similarity to those of the Korean proficiency test, except that the Korean proficiency test showed another group difference between HKII and NK. Results on the distractor sentences indicate that all experimental groups clearly understand the task.

3.1.3 NPI Licensing Domains: Object NPIs

As discussed in Chapter 2, the five sentence types of the target items in object NPI licensing were tested as a part of the experiment 1. The sentence types of the target items for object NPI licensing were divided into the local licensing conditions, non-local licensing condition, and no-negation conditions in object NPI licensing:

(5) Local Licensing Conditions in Object NPI Licensing

    (a) Local Licensing Condition in Simple Sentences.
       (e.g., *Chelswu did not love anyone*.)

(b) Local Licensing Condition in Complex Sentences
(e.g., *I believe that Chelswu did not love anyone*.)

(6) Non-Local Licensing Condition in Object NPI Licensing

(a) *Non-local Licensing Condition in Complex Sentences
(e.g., *I do not believe that Chelswu loved anyone*.)

(7) No-negation Conditions in Object NPI Licensing

(a) *No-negation Condition in Simple Sentences
(e.g., * Chelswu loved anyone*.)

(b) *No-negation Condition in Complex Sentences
(e.g., *I believe that Chelswu loved anyone*.)

The one goal of the analyses of object NPI licensing was to investigate how participants

judge the given sentence types grammatically depending on the different locality conditions as in

(5b) and (6a). The second goal of the analyses was to determine whether participants responded

to a given sentence type differently depending on different levels of sentence complexity as in

(5a) versus (5b). The other goal was to identify whether simultaneous heritage Korean speakers

(HKI) differed from early sequential heritage Korean speakers (HKII) and heritage Korean

speakers differed from native Korean speakers (NK).

For the analyses of the different levels of the sentence types and between-group

differences, repeated measures ANOVAs were conducted with sentence type as the within-

subject factor, group as the between-subject factor, and interaction between sentence type and

group. To determine between-subjects differences, one-way ANOVAs were performed for each

sentence type. Post-hoc comparisons were conducted by using the Bonferroni adjustment.

Follow-up repeated measures ANOVAs with sentence type were also conducted in each group if

there was a significant difference within the sentence types. To obtain statistical interpretations from the results, Wilks' Lambda was used among four multivariate tests. Group results are reported in the following sections. Individual results are also reported when the results are particularly significant to discuss.

3.1.4 Descriptive Statistics

3.1.4.1 Acceptability of the Locality and No-negation in Object NPI Licensing

Participants were presented with sentences containing either grammatical local NPIs or ungrammatical non-local NPIs. Sentence types of the ungrammatical no-negation in NPIs were also presented. Acceptability was calculated for each experimental condition of both grammatical and ungrammatical sentence types. Thus, if participant performed well, the acceptability for the grammatical sentence types would be up to 100%, while for ungrammatical sentence types, it would be 0%. Results for locality and no-negation are presented in Table 3.4.

Table 3.4. Mean acceptability of locality and no-negation conditions in object NPI licensing

Sentence Type	HKI (n = 25) Mean (SD) Range	HKII (n = 25) Mean (SD) Range	NK (n = 34) Mean (SD) Range
Local Object NPIs in Simple Sentences	96 (11.5) 60-100	94 (12.3) 60-100	97 (8.7) 60-100
*No-Negation in Simple Sentences	5 (13.3) 0-40	6 (10.8) 0-40	3 (7.2) 0-20
Local Object NPIs in Complex Sentences	92 (19.1) 20-100	84 (25.2) 20-100	95 (17.3) 20-100[a]
*No-Negation in Complex Sentences	14 (22.7) 0-80	8 (17.3) 0-60	1 (3.4) 0-20
*Non-Local Object NPIs in Complex Sentences	42 (30.0) 0-100	36 (33.2) 0-100	13 (18.3) 0-60[b]

[a] One NK participant scored 20 and another NK participant scored 40, which was unusual for the grammaticality of the given sentence type. The range except for the two scores was 80-100.

Figure 3.1 shows the mean acceptability of object NPIs for simultaneous heritage Korean speakers (HKI), early sequential heritage Korean speakers (HKII), and native Korean speakers (NK).
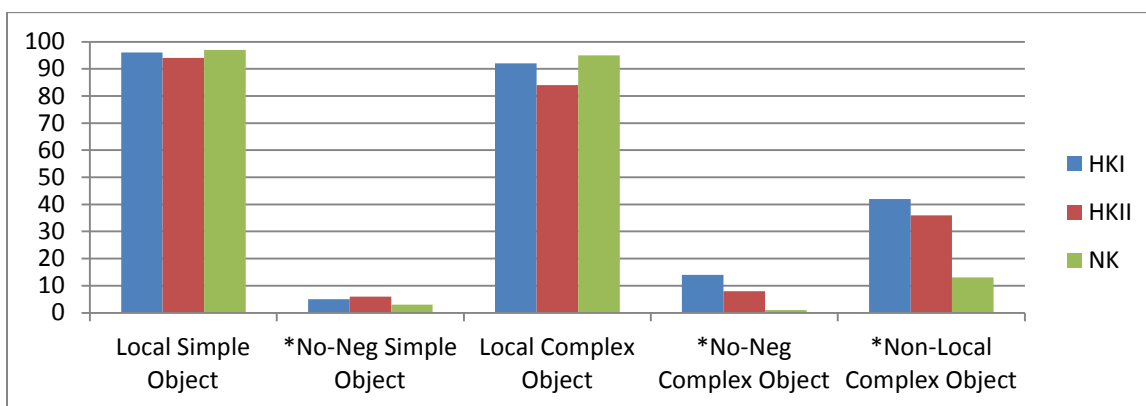
Figure 3.1. Mean acceptability of the local, non-local, and no-negation conditions in object NPI licensing

Detailed statistical analyses of sentence type and group in the local, non-local, and no-negation conditions in object NPI licensing will be presented in the following ANOVA Results section.

3.1.5 ANOVA Results

3.1.5.1 Local Licensing and No-negation Conditions in Object NPI Licensing

To test whether all participant groups are sensitive to ungrammaticality of the no-negation condition (i.e., the absence of negator) in object NPI sentences, repeated measures ANOVAs with grammaticality (i.e., within the sentence types) as the within-subjects factor and group as the between-subjects factor were conducted for each ungrammatical no-negation

condition against its grammatical counterpart within the same level of sentence complexity. Differences between both heritage Korean speaker groups (i.e., HKI and HKII) and native Korean speaker group (NK) were tested with group as the between-subjects factor. Grammatical local object NPI sentences and ungrammatical no-negation sentences were compared within the same clause type. Table 3.5 presents the ANOVA results of the local and no-negation conditions in object NPI licensing.

Table 3.5. ANOVA results of the local and no-negation conditions in object NPI licensing

		Local Simple[1]/ *No-Neg Simple[2]	Local Complex[3]/ *No-Neg Complex[4]
Grammaticality	F	3064.656	849.469
	(p)	(.000*)	(.000*)
Group	F	.025	2.167
	(p)	(.975)	(.121)
Grammaticality ×	F	.926	4.621
Group	(p)	(.400)	(.013*)

* Effect/interaction is significant at the $p < .05$ level.

1. *Chelswu did not love anyone*.
2. * *Chelswu loved anyone*.
3. *I believe that Chelswu did not love anyone*.
4. **I believe that Chelswu loved anyone*.

There were significant effects for grammaticality with the grammatical local object NPI conditions and the ungrammatical no-negation conditions both in simple sentences (Local Simple Object and *No-Neg Simple Object) (F(1, 81) = 3064.656, p < .0001) and in complex sentences (Local Complex Object and *No-Neg Complex Object) (F (1, 81) = 849.469, p < .0001). However, no significant differences were found between the groups. Thus, all three groups demonstrated the same pattern of high acceptability for the grammatical sentences and significantly lower acceptability for the ungrammatical no-negation sentences in the same clause

type. Results indicate that both heritage speaker groups (HKI and HKII) demonstrated native speakers' (NK) sensitivity to the ungrammaticality of the no-negation conditions both in simple and complex object NPI sentences. To the same degree as native Korean speakers, both heritage Korean speaker groups know that the sentences with the object NPI *amwuto* 'anyone' become ungrammatical when the NPI sentences do not occur in negation.

3.1.5.2 Object NPI Licensing Conditions

The sentence types of object NPIs in the local licensing conditions (Local Simple Object, Local Complex Object) and the non-local licensing conditions (*Non-Local Complex Object) were compared to investigate how participants identify the (un)grammaticality of object NPIs in the local and non-local licensing conditions (Local and Non-Local) in different levels of clause types (Simple and Complex). Results for the local and non-local NPI conditions are presented in Table 3.6.

Table 3.6. Mean acceptability of the local and non-local conditions in object NPI licensing

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
Local Object NPIs in Simple S.[1]	96 (11.5)	94 (12.3)	97 (8.7)
Local Object NPIs in Complex S.[2]	92 (19.1)	84 (25.2)	95 (17.3)
*Non-Local Object NPIs in Complex S.[3]	42 (30.0)	36 (33.2)	13 (18.3)

1. *Chelswu did not love anyone*.
2. *I believe that Chelswu did not love anyone*.
3. **I do not believe that Chelswu loved anyone*.

Figure 3.2 shows the mean acceptability of the local and non-local NPI conditions in object licensing.

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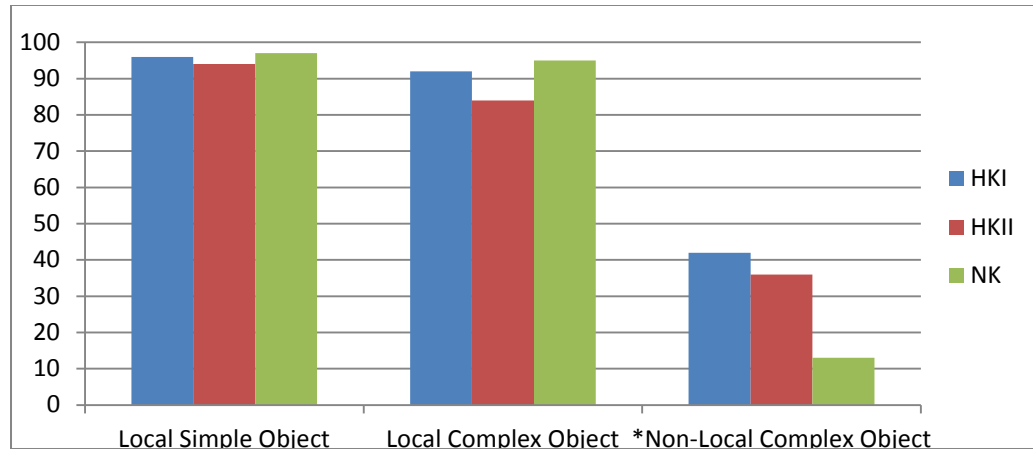
Figure 3.2. Mean acceptability of the local and non-local conditions in object NPI licensing

In order to investigate sensitivity to ungrammaticality of the non-local NPI sentences, different levels of sentence complexity and/or locality conditions were examined by conducting repeated measures ANOVAs, in comparisons between Local Simple Object and Local Complex Object, between Local Simple object and *Non-Local Complex Object, and between Local Complex Object and *Non-Local Complex Object.

3.1.5.2a Local Licensing Conditions in Object NPI Licensing

When the grammatical condition with local NPI licensing in simple sentences (Local Simple Object) was compared to the grammatical condition with local NPI licensing in complex sentences (Local Complex Object), there was a significant effect for sentence type ($F(1, 81) = 5.540$, $p = .021$). The effect for group was not significant and there was no significant interaction between sentence type and group. No differences between the groups show that both HKI and HKII correctly determine the grammaticality of the sentence types to the same degree as NK.

In order to investigate sentence-type complexity, follow-up repeated measures ANOVAs were conducted with sentence type in each group. Only HKII showed a marginally significant

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difference within the sentence types: HKII (F(1, 24) = 3.229, p = .085). The results show that sentence complexity in local object NPI conditions overall does not play a role in the acceptability of HKI, while sentence complexity marginally plays a role in that of HKII.

3.1.5.2b One-way ANOVA Results of Local Object Licensing Conditions

One-way ANOVAs were conducted on the two sentence types of the local conditions in both simple and complex sentences. No significant difference between the groups was found either in Local Simple or Local Complex. Results show that both HKI and HII know the shared portion of the syntactic property of the local object licensing domain and the results support Hypothesis 1 (Heritage Language Maintenance) in Section 2.2.2 in Chapter 2, in that heritage Korean speakers know (or maintain) the use of object NPIs in the local licensing domain, showing overall a similar acceptability compared to native Korean speakers. Age effects between simultaneous heritage speakers (HKI) and early sequential heritage speakers (HKII) were not detected. That is, simultaneous heritage speakers (HKI) did not show lower acceptability than early sequential heritage speakers (HKII) in local object licensing both in simple and complex sentences. There were also no significant differences between HKI and HKII.

3.1.5.2c Non-local Licensing Condition in Object NPI Licensing

The non-local NPI licensing condition is ungrammatical because unlike English, Korean does not allow non-local NPI licensing (*Non-Local Complex Object) (e.g., *I do not believe that Chelswu loved anyone*). However, it is also well known in the literature that the ungrammaticality of the non-local condition slightly varies to native speakers in Korean. The native speakers' acceptability of the non-local object NPI condition in the current study also

confirms that the non-local object NPI condition in native Korean is very marginal at the acceptability of 13% in Table 3.4 (SD = 18.3; Range = 0-60).

Among those who responded that the condition is grammatical, 28 out of the 34 native speakers responded at the rate of 0% to 20% of incorrect acceptance (considered highly Ungrammatical), while 6 out of the 34 native speakers responded at the rate of 40% to 60% of incorrect acceptance. However, no one out of the 34 native speakers responded at the rate of 80% to 100% of incorrect acceptance (considered highly Grammatical).

To examine how much heritage speakers know the distinct property between Korean and English, a one-way ANOVA was conducted on the non-local object NPI sentences in complex sentences (*Non-Local Complex Object). Results for the non-local object conditions (*Non-Local Complex Object) showed a significant difference between the groups ($F(2, 81) = 9.552$, $p < .0001$). Post-hoc comparisons by the Bonferroni adjustment revealed that there were significant differences between HKI and NK ($p < .0001$) and HKII and NK ($p = .005$). There was no significant difference between HK groups.

Results show that both HKI and HKII incorrectly accept the non-local object NPI sentences as grammatical. Results support Hypothesis 2 (Dominant Language Transfer) in Section 2.2.2 in Chapter 2, in that heritage Korean speakers' knowledge of the ungrammatical NPI licensing domain (non-local) in the heritage language (Korean) is affected by the grammatical NPI licensing domain (non-local) in the dominant language (English). However, age effects between simultaneous heritage speakers (HKI) and early sequential heritage speakers (HKII) were not detected because there were no significant differences between HKI and HKII.

3.1.5.2d Local and Non-local NPI Licensing Conditions in Object NPI Licensing

To investigate whether heritage speakers know the difference between the English and Korean locality conditions (i.e., between the grammatical local domain and ungrammatical non-local domain), repeated measures ANOVAs with the local and non-local conditions in simple and complex sentences were conducted.

When the grammatical condition with the local object NPI licensing domain in simple sentences (Local Simple Object) was compared to the ungrammatical condition with the non-local object NPI licensing domain in complex sentences (*Non-Local Complex Object), there was a significant effect for sentence type ($F(1, 81) = 431.197$, $p < .0001$). The effect for group was significant ($F(2, 81) = 7.104$, $p = .001$) and there was a significant interaction between sentence type and group ($F(2, 81) = 9.580$, $p < .0001$). Post-hoc comparisons by the Bonferroni adjustment revealed that there were significant differences between HKI and NK ($p = .002$), and between HKII and NK ($p = .031$). However, there was no significance difference between HKI and HKII.

In order to investigate sentence-type complexity, follow-up repeated measures ANOVAs were conducted with sentence type in each group. In comparison with Local Simple Object and *Non-Local Complex Object, each group showed a significant difference within the sentence types: HKI ($F(1, 24) = 75.187$, $p < .0001$, HKII ($F(1, 24) = 65.723$, $p = <.0001$, NK ($F(1, 33) = 671.460$, $p < .0001$).

When the grammatical condition with the local object NPI licensing domain in complex sentences (Local Complex Object) was compared to the ungrammatical condition with the non-local object NPI licensing domain in complex sentences (*Non-Local Complex Object), there was also a significant effect for sentence type ($F(1, 81) = 308.121$, $p < .0001$). The effect for

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group was significant (F(2, 81) = 3.658, p = .030) and there was a significant interaction between sentence type and group (F(2, 81) = 11.182, p < .0001). Post-hoc comparisons by the Bonferroni adjustment revealed that there was a significant difference between HKI and NK (p = .025). However, there was no significance difference between HKI and HKII or between HKII and NK.

With respect to sentence type with Local Complex Object and *Non-Local Complex Object, each group showed a significant difference within the sentence types: HKI (F(1, 24) = 78.985, p < .0001, HKII (F(1, 24) = 33.231, p = <.0001, NK (F(1, 33) = 438.811, p < .0001).

Thus, all three groups know the difference in the (un)grammaticality of the locality conditions (i.e., the grammatical local and ungrammatical non-local domains). Table 3.7 summarizes the ANOVA results of the local and non-local conditions in object NPI licensing.

Table 3.7. ANOVA results of the local and non-local conditions in object NPI licensing

		Local Simple/ Local Complex	Local Simple/ *Non-Local Complex	Local Complex/ *Non-Local Complex
Sentence Type	F	5.540	431.197	308.121
	(p)	(.021*)	(.000*)	(.000*)
Group	F	2.187	7.104	3.658
	(p)	(.119)	(.001*)	(.000*)
Sentence Type × Group	F	1.066	9.580	11.182
	(p)	(.349)	(.000*)	(.000*)

* Effect/interaction is significant at the *p* < .05 level.

3.1.5.3 No-negation in Object NPIs

The no-negation conditions in object NPI licensing were analyzed independently since the sentence types of no-negation (*No-Neg) were provided to test whether participants identify the ungrammaticality of the absence of negator in the object NPI sentences. Results for the no-negation conditions in object NPI licensing are presented in Table 3.8.

Table 3.8. Mean acceptability of the no-negation conditions in object NPI licensing

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
*No-Negation in Simple S.[1]	5 (13.3)	6 (10.8)	3 (7.2)
*No-Negation in Complex S.[2]	14 (22.7)	8 (17.3)	1 (3.4)

1. *Chelswu loved anyone.
2. *I believe that Chelswu loved anyone.

Figure 3.3 shows the mean acceptability of no-negation in object NPI licensing.
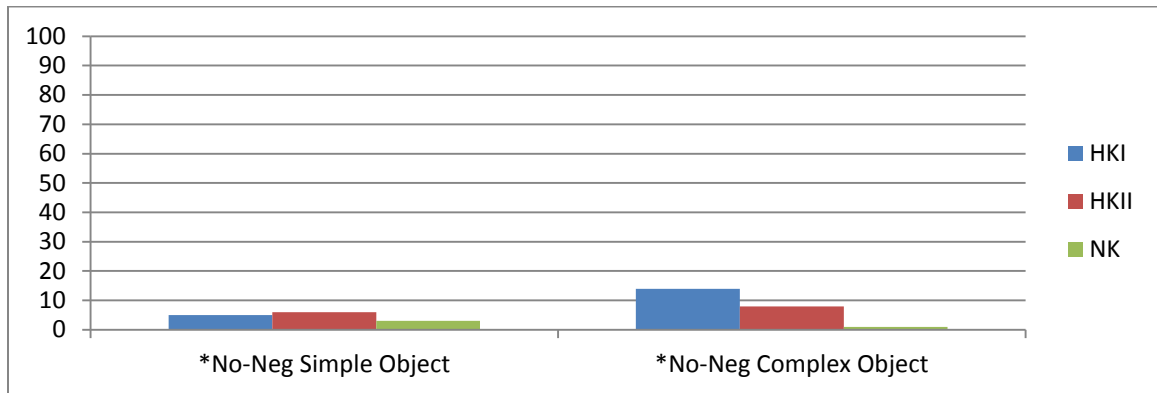
Figure 3.3. Mean acceptability of no-negation in object NPI licensing

In order to investigate sentence complexity of the no-negation conditions in object NPI sentences, a repeated measures ANOVA was conducted. When the ungrammatical condition with no-negation in simple sentences (*No-Neg Simple Object) was compared to the ungrammatical condition with no-negation in complex sentences (*No-Neg Complex Object), there was a marginally significant effect for sentence type ($F(1, 81) = 3.711$, $p = .058$). The effect for group was significant ($F(2, 81) = 3.895$, $p = .024$) and there was a significant interaction between sentence type and group ($F(2, 81 = 4.494$, $p < .014$). Post-hoc comparisons by the Bonferroni adjustment revealed that there was a significant difference between HKI and

NK (p = .024). However, there were no significant differences between HKI and HKII and between HKII and NK.

With respect to sentence type with *No-Neg Simple Object and *No-Neg Complex Object, only HKI showed a significant difference within the sentence types ((F(1, 24) = 5.268, p = .031).

Thus, results indicate that sentence complexity in the no-negation conditions in object NPI licensing plays a significant role in HKIs' acceptability.

Two separate one-way ANOVAs were conducted on the no-negation sentence types in simple and complex sentences. There was no significant difference between the groups in *No-Neg Simple Object. However, results for *No-Neg Complex Object showed a significant difference between the groups (F(2, 81) = 5.651, p = .005). Post-hoc comparisons by the Bonferroni adjustment revealed that there was a significant difference between HKI and NK (p = .004). However, there were no significant differences between HKI and HKII and between HKII and NK.

Thus, results indicate that sentence complexity does indeed play a role in the acceptability of HKI in the complex sentence no-negation condition.

3.1.6 Subject NPIs

As was shown in the previous chapter, the eight sentence types of the target items in subject NPI licensing were tested as the other part of the experiment 1. The sentence types of the target items for subject NPI licensing were divided into the local domain, the non-local domain, and no-negation in subject NPI licensing:

(8) Local Licensing Conditions in Subject NPIs Licensing

    (a) Local Licensing Condition in Simple Sentences
        (e.g., *Anyone did not trust Chelswu*.)

    (b) Local Licensing Condition in Matrix Clause
        (e.g., *Anyone does not think that Chelswu trusted Yenghuy*.)

    (c) Local Licensing Condition in Embedded Clauses
        (e.g., *I think that anyone did not trust Chelswu*.)

(9) Non-Local Licensing Conditions in Subject NPI Licensing

    (a) *Non-Local Licensing Condition in Matrix Clauses
        (e.g., **Anyone thinks that Yenghuy did not trust Chelswu*.)

    (b) %Non-Local Licensing Condition in Embedded Clauses
        (e.g., *%I do not think that anyone trusted Chelswu*.)

(10)   No-Negation Conditions in Subject NPI Licensing

    (a) No-Negation Condition in Simple Sentences
        (e.g., **Anyone loves Chelswu*.)

    (b) No-Negation Condition in Matrix Subject NPIs
        (e.g., **Anyone thinks that Chelswu loved Yenghuy*.)

    (c) No-Negation Condition in Embedded Subject NPIs
        (e.g., **I think that anyone loved Yenghuy*.)

The analyses of subject NPI licensing were mainly conducted to determine whether participants responded to a given sentence type differently depending on the different levels of sentence complexity as in (8a-c) and to identify whether simultaneous heritage Korean speakers differed from early sequential heritage Korean speakers and heritage Korean speakers differed from native Korean speakers. However, the sentence types in (9) were analyzed separately from the sentence types in (8), since the nature of the sentence types (9a-b) are different from the

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sentence types in which we saw in Non-local Licensing Condition in Complex Sentences as in (6a). That is, the sentence type of Non-local Licensing Condition in Matrix Clauses as in (9a) violates c-command as well as the clausemate condition, while the sentence type of Non-local Licensing Condition in Embedded Clauses as in (9b) selectively allows the non-local NPI licensing domain in native Korean. Recall that subject, but not object, are licensed in (9b) and refer to Section 1.4.4 in Chapter 1 for the discussion of embedded subject licensing.

3.1.7 Descriptive Statistics

Participants were presented with sentences containing either grammatical local subject NPIs or ungrammatical non-local matrix subject NPIs as well as grammatical non-local embedded subject NPIs. Sentence types of the ungrammatical no-negation NPIs were also presented. Acceptability rates were calculated for each experimental condition of both grammatical and ungrammatical sentence types.

3.1.7.1 Acceptability of Local Licensing and No-negation in Subject NPI Licensing

With regard to the comparisons between grammatical local subject NPIs and negation in subject NPIs, the ungrammatical no-negation conditions in subject NPI licensing were compared to the grammatical local subject NPI conditions both in simple and complex sentences. Table 3.9 below presents results for the grammatical local licensing conditions and the ungrammatical no-negation conditions in subject NPI licensing.

Table 3.9. Mean acceptability of the local and no-negation conditions in subject NPI licensing

Sentence Type	HKI (n = 25) Mean (SD) Range	HKII (n = 25) Mean (SD) Range	NK (n = 34) Mean (SD) Range
Local Subject NPIs in Simple Sentences	98 (5.5) 80-100	93 (14.0) 60-100	100 (0.0) 100
*No-Negation in Subject NPIs in Simple Sentences	5 (14.5) 0-60	6 (13.6) 0-60	1 (3.4) 0-20
Local Subject NPIs in Matrix Clauses	86 (20.6) 20-100	83 (23.6) 40-100	94 (12.6) 60-100
*No-Negation in Matrix Subject NPIs in Complex Sentences	15 (21.0) 0-80	22 (28.8) 0-100	0 (0.0) 0
Local Subject NPIs in Embedded Clauses	85 (21.0) 40-100	90 (18.4) 20-100	94 (12.6) 60-100
*No-Negation in Embedded Subject NPIs in Complex Sentences	11 (23.2) 0-80	12 (20.0) 0-80	0 (0.0) 0

The mean acceptability of the local and no-negation conditions in the subject NPI licensing for simultaneous heritage Korean speakers (HKI), early sequential heritage Korean speakers (HKII), and native Korean speakers (NK) is presented in Figure 3.4.
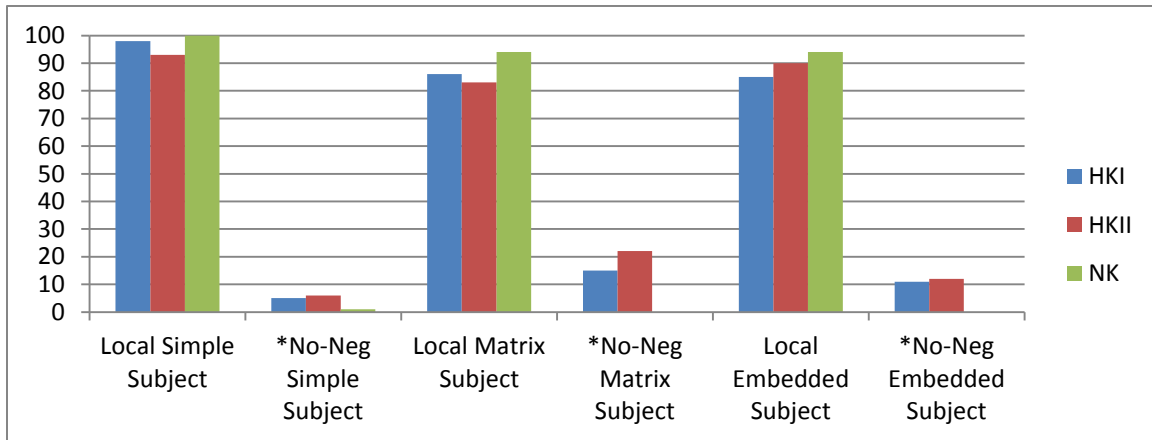
Figure 3.4. Mean acceptability of the local and no-negation conditions in subject NPI licensing

3.1.7.2 Acceptability of Non-local Licensing Conditions in Subject NPI Licensing

Participants were also presented with sentences both with ungrammatical non-local matrix subject NPIs and grammatical but degraded non-local embedded subject NPIs. Table 3.10 presents results for the non-local conditions in subject NPI licensing.

Table 3.10. Mean acceptability of the non-local conditions in subject NPI licensing

Sentence Type	HKI (n = 25) Mean (SD) Range	HKII (n = 25) Mean (SD) Range	NK (n = 34) Mean (SD) Range
*Non-Local Matrix Subject NPIs in Complex Sentences[1]	47 (29.9) 0-100	50 (36.1) 0-100	36 (35.3)[a] 0-100
%Non-Local Embedded Subject NPIs in Complex Sentences[2]	61 (30.3) 0-100	58 (29.6) 0-100	45 (33.9)[b] 0-100

[a.] The native speakers' acceptability was surprisingly unexpected since the non-local matrix subject NPI condition causes c-command violation in addition to the violation of the clausemate condition.
[b.] The native speakers' acceptability came from the variability of the sentence.
1. *Anyone thinks that Yenghuy did not trust Chelswu.*
2. %*I do not think that anyone trusted Chelswu.*

I address the unexpected native speakers' acceptability in the non-local matrix subject NPI licensing condition in Section 3.1.8.3a. In particular, I also address the speakers' variability in non-local embedded subject NPIs licensing condition in Section 3.1.8.3b and 3.2.1.3b.

The mean acceptability of the non-local conditions in the subject NPI licensing for simultaneous heritage Korean speakers (HKI), early sequential heritage Korean speakers (HKII), and native Korean speakers (NK) is presented in Figure 3.5 below.
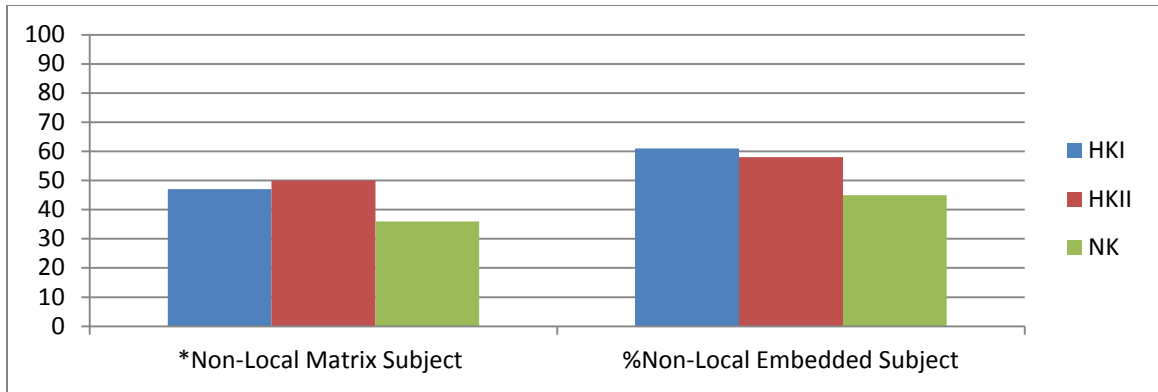
Figure 3.5. Mean acceptability of the non-local conditions in subject NPIs licensing

Detailed statistical analyses of sentence type and group in locality and no-negation conditions in subject NPI licensing will be presented in the following ANOVA Results section.

3.1.8 ANOVA Results

3.1.8.1 Local Licensing and No-negation Conditions in Subject NPI Licensing

To test whether all participant groups are sensitive to ungrammaticality of the no-negation condition (i.e., the absence of negator) in subject NPI sentences, repeated measures ANOVAs with grammaticality (i.e., within the sentence types) as the within-subjects factor and group as the between-subjects factor were conducted for each ungrammatical no-negation condition against its grammatical counterpart within the same level of sentence complexity. Differences between both heritage Korean speaker groups (i.e., HKI and HKII) and native Korean speaker group (NK) were tested with group as the between-subjects factor. Grammatical local subject NPI sentences and ungrammatical no-negation sentences were compared within the same clause type. Table 3.11 summarizes the ANOVA results of the local and no-negation conditions in subject NPI licensing.

Table 3.11. ANOVA results of the local and no-negation conditions in subject NPI licensing

		Local Simple/ *No-Neg Simple	Local Matrix/ *No-Neg Matrix	Local Embedded/ *No-Neg Embedded
Grammaticality	F	2682.688	478.758	963.659
	(*p*)	(.000*)	(.000*)	(.000*)
Group	F	1.319	1.867	.906
	(*p*)	(.273)	(.161)	(.408)
Grammaticality ×	F	4.029	8.494	6.032
Group	(*p*)	(.021*)	(.000*)	(.004*)

* Effect/interaction is significant at the $p < .05$ level.

There were significant effects for grammaticality with the grammatical local subject NPI conditions and the ungrammatical no-negation conditions in simple sentences (Local Simple Subject and *No-Neg Simple Subject) ($F (1, 81) = 2682.688$, $p < 0001$), in the matrix subject NPI sentences (Local Matrix Subject and *No-Neg Matrix Subject) ($F (1, 81) = 478.758$, $p < 0001$), and in embedded subject NPI sentences (Local Embedded Subject and *No-Neg Embedded Subject) ($F (1, 81) = 963.659$, $p < 0001$). There were also significant differences with interaction between sentence type and group. However, no significant differences were found between the groups throughout the comparisons.

Thus, all three groups demonstrated the same pattern of high acceptability for the grammatical sentences and significantly lower acceptability for the ungrammatical sentences in the same clause type. Results indicate that heritage speakers (HKI and HKII) demonstrated native speakers' sensitivity to the ungrammaticality of no-negation both in simple and complex (matrix and embedded) subject NPI sentences. Like object NPI conditions, to the same degree as native Korean speakers, both heritage Korean speaker groups know that the sentences with the subject NPI *amwuto* 'anyone' is ungrammatical when the NPI sentences do not occur in negation.

3.1.8.2 Local NPI Licensing Conditions in Subject NPIs

The sentence types of subject NPIs in the local licensing conditions (Local Simple Subject, Local Matrix Subject, and Local Embedded Subject) were provided to compare how participants identify the grammaticality of subject NPIs in different levels of clause types. Results for the local conditions in subject NPI licensing are presented in Table 3.12.

Table 3.12. Mean acceptability of the local conditions in subject NPI licensing

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
Local Subject NPIs in Simple Sentences[1]	98 (5.5)	93 (14.0)	100 (0.0)
Local Subject NPIs in Matrix Clauses[2]	86 (20.6)	83 (23.6)	94 (12.6)
Local Subject NPIs in Embedded Clauses[3]	85 (21.0)	90 (18.4)	94 (12.6)

1. *Anyone did not trust Chelswu.*
2. *Anyone does not think that Chelswu trusted Yenghuy.*
3. *I think that anyone did not trust Chelswu.*

Figure 3.6 below shows the mean acceptability of the local conditions in subject NPI licensing.
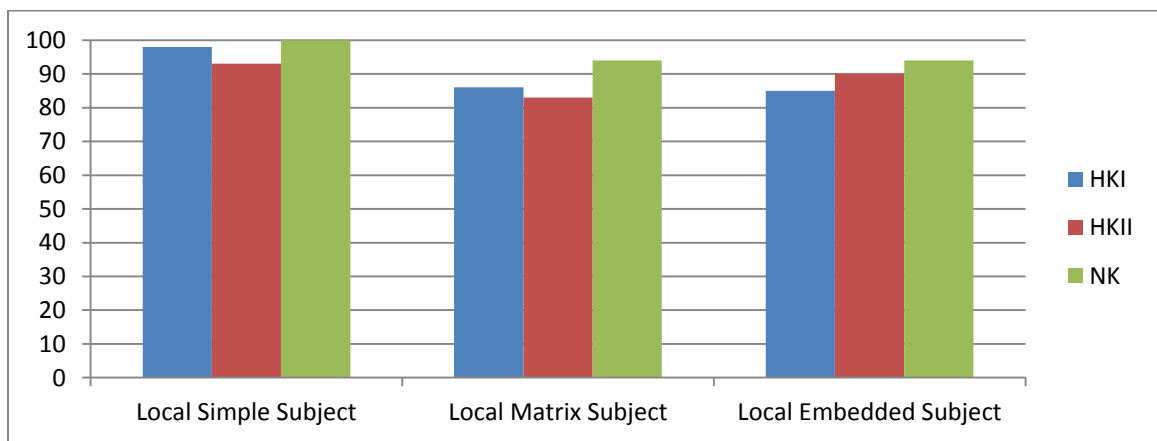
Figure 3.6. The mean acceptability of the local conditions in subject NPI licensing

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In order to investigate whether sentence complexity play a role in the acceptability of the grammatical local NPI sentences, different levels of clause types were examined by conducting repeated measures ANOVAs, in comparisons between Local Simple and Local Matrix, between Local Simple and Local Embedded, and between Local Matrix and Local Embedded.

3.1.8.2a Local Simple and Local Matrix Subject NPI Licensing

When local subject NPI licensing in simple sentences (Local Simple Subject) was compared to local matrix subject NPI licensing in complex sentences (Local Matrix Subject), there was a significant effect for sentence type ($F(1, 81) = 30.859$, $p < .0001$). The effect for group was significant ($F(2, 81) = 3.850$, $p = .025$). However, there was no significant interaction between sentence type and group. Post-hoc comparisons by the Bonferroni adjustment revealed that there was a significant difference between HKII and NK ($p = .021$). There were no significance differences between HKI and HKII or between HKI and NK.

In order to investigate sentence-type complexity, follow-up repeated measures ANOVAs were conducted with sentence type in each group. HKI ($F(1, 24) = 10.800$, $p = .003$) and HKII ($F(1, 24) = 11.294$, $p = .003$) showed significant differences. NK also showed a significant difference within the sentence types ($F(1, 33) = 7.432$, $p = .010$).

Results show that sentence complexity of simple and matrix clauses in local subject NPI conditions plays a role in the acceptability of both heritage speaker groups (HKI and HKII) and even that of native speakers.

3.1.8.2b Local Simple and Local Embedded Subject NPI Licensing

When local subject NPI licensing in simple sentences (Local Simple Subject) was compared to local embedded subject NPI licensing in complex sentences (Local Embedded Subject), there was a significant effect for sentence type ($F(1, 81) = 18.035$, $p < .0001$). The effect for group was marginally significant ($F(2, 81) = 2.498$, $p = .089$). There was a significant interaction between sentence type and group ($F(2, 81) = 3.418$, $p = .038$). However, post-hoc comparisons by the Bonferroni adjustment revealed that there were no significant differences between the groups.

With respect to sentence type with Local Simple and Local Embedded, HKI showed a significant difference ($F(1, 24) = 10.111$, $p = .004$), while HKII showed no significant difference. NK showed a significant difference within the sentence types ($F(1, 33) = 7.432$, $p = .010$).

Results show that sentence complexity of simple and embedded clauses in local subject NPI conditions plays a role in the acceptability of simultaneous heritage speakers (HKI) and native speakers. Thus, unlike local object NPI licensing, sentence complexity plays a significant role in HKI's knowledge of local subject NPI licensing.

3.1.8.2c Local Matrix and Local Embedded Subject NPI Licensing

When local matrix subject NPI licensing in complex sentences (Local Matrix Subject) was compared to local embedded subject NPI licensing in complex sentences (Local Embedded Subject), there was no significant effect for sentence type ($F(1, 81) = .595$, $p = .443$). The effect for group was significant ($F(2, 81) = 3.142$, $p = .048$). However, there was no significant interaction between sentence type and group. Post-hoc comparisons by the Bonferroni

adjustment revealed that there was a marginally significant difference between HKI and NK (p = .080). There were no significant differences between HKI and HKII or between HKII and NK.

With respect to sentence type with Local Matrix and Local Embedded, HKI showed no significant difference, while HKII showed a marginally significant difference (F(1, 24) = 3.574, p = .071). However, NK showed no significant difference within the sentence types.

Results show that unlike comparisons between simple and matrix clauses, and between simple and embedded clauses, sentence complexity of matrix and embedded clauses in local subject NPI conditions overall does not play a significant role in the acceptability of all three groups, because matrix clauses and embedded clauses belong to complex sentences. Table 3.13 summarizes ANOVA results of the local conditions in subject NPI licensing.

Table 3.13. ANOVA results of the local conditions in subject NPI licensing

		Local Simple/ Local Matrix	Local Simple/ Local Embedded	Local Matrix/ Local Embedded
Sentence Type	F	30.859	18.035	.595
	(*p*)	(.000*)	(.000*)	(.443)
Group	F	3.850	2.498	3.142
	(*p*)	(.025*)	(.089†)	(.048*)
Sentence Type × Group	F	1.255	3.418	1.169
	(*p*)	(.291)	(.038*)	(.316)

* Effect/interaction is significant at the *p* < .05 level.
† Effect/interaction is marginally significant (.10 > p > .05).

3.1.8.2d One-way ANOVA Results of Local Subject NPI Licensing

In order to test how much both heritage speaker groups' acceptability of the locality condition (the clausemate condition) is different from that of native speakers, one-way ANOVAs were conducted on the three sentence types of the local subject conditions in both simple and

complex sentences (matrix and embedded clauses). A one-way ANOVA with local subject NPI licensing in simple sentences (Local Simple Subject) showed that there was a significant difference between the groups ($F(2, 81) = 5.835$, $p = .004$). Pairwise comparisons by the post-hoc Bonferroni adjustment revealed that there was a significant difference between HKII and NK ($p = .004$) and there was a marginally significant difference between HKI and HKII ($p = .054$). There was no significant difference between HKI and NK. Since a marginal significance stems from higher acceptability by HKI, not by HKII, the results do not support the presence of age effects.

A one-way ANOVA with local matrix subject NPI condition (Local Matrix Subject) showed that there was a marginally significant difference between the groups ($F(2, 81) = 2.656$, $p = .076$). Pairwise comparisons by the post-hoc Bonferroni adjustment revealed that there was a marginally significant difference between HKII and NK ($p = .092$). However, there were no significant differences between HKI and HKII or between HKI and NK. Lastly, a one-way ANOVA with local embedded subject NPI condition (Local Embedded Subject) showed that there was no significant difference between the groups. Age effects between HKI and HKII were not detected.

Results from one-way ANOVAs show that although HKII showed a significant difference from NK in Local Simple Subject and showed a marginally significant difference from NK in Local Matrix Subject, HKI did not show any difference from NK in any of the three sentence types. That is, HKIs' acceptability of the locality condition is higher than HKII such that HKI knows the clausemate condition to the same degree with NK. In comparisons with simultaneous heritage speakers (HKI) and early sequential heritage speakers (HKII), there were

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overall no significant differences, except for a marginal significance in Local Simple Subject. Age effects between HKI and HKII were not detected.

Thus, results indicate that both heritage Korean speaker groups know the language-specific salient property of the local subject licensing domain in Korean, and the results support Hypothesis 1 (Heritage Language Maintenance) in that to a somewhat similar degree, heritage Korean speakers maintain the use of subject NPIs in the local licensing domain, and are less affected by the dominant language (English). Age effects between HKI and HKII were not detected in the local subject NPI conditions.

3.1.8.3 Non-local NPI Licensing Conditions in Subject NPIs

The sentence types of subject NPIs in the non-local licensing conditions (*Non-Local Matrix and %Non-Local Embedded) were provided to investigate how participants identify the acceptability ((un)grammaticality) of the two different subject NPIs in the non-local licensing conditions. Means and standard derivations for the non-local licensing conditions in subject NPI licensing were presented in Table 3.10 in the descriptive statistics section. The mean acceptability of the non-local licensing conditions in subject NPI licensing were presented in Figure 3.5 in the descriptive statistics section.

3.1.8.3a Ungrammaticality of Matrix Subject NPIs

As we saw in the descriptive statistics section, native Korean speakers demonstrated surprisingly unexpected acceptability of 36% in Table 3.10 (SD = 35.3; Range = 0-100) in terms of the ungrammaticality of the non-local matrix subject NPI condition. Since the sentence type (*Non-Local Matrix Subject) (e.g., *Anyone that Mary did not trust John.*) violates c-command as

well as the clausemate condition, the sentence type was expected to be totally ungrammatical. However, native speakers incorrectly accepted the ungrammatical non-local matrix subject NPI sentences at the rate of 36%. Among those who responded that the condition is grammatical, 7 out of the 34 native speakers responded at the rate of 80% to 100% of incorrect acceptance (considered highly Grammatical), while 9 out of the 34 native speakers responded at the rate of 40% to 60% of incorrect acceptance. Eighteen out of the 34 native speakers responded at the rate of 0% to 20% of incorrect acceptance (considered highly Ungrammatical). On the average, almost half (47%; 16 out of the 34 native Korean speakers) of the native speakers responded that the condition is grammatical at more than 40% of incorrect acceptance. Incorrect acceptance can be accounted for possibly by an alternative semantic interpretation of the NPI *amwuto* 'anyone' as the universal quantifier *motwu* 'everyone' or the free choice *amwu-rato* 'anyone'.

A one-way ANOVA was conducted and there was no significant difference between the groups in *Non-Local Matrix Subject.

Since native speakers' mean acceptability of the non-local matrix subject condition showed different aspects of ungrammaticality of the sentence type and there was no significant difference between the groups, *Non-Local Matrix Subject was excluded for further analyses of ANOVA results in comparisons with other sentence types.

3.1.8.3b Grammaticality of Embedded Subject NPIs

As discussed in the descriptive statistics section, native Korean speakers demonstrated expected acceptability of 45% in Table 3.10 (SD = 33.9; Range = 0-00) in terms of the grammaticality of the grammatical but degraded non-local embedded subject NPI condition. Since the sentence type (%Non-Local Embedded Subject) (e.g., *I do not think that anyone trust*

Chelswu.) may allow the non-local licensing condition, the grammaticality of the sentence type was expected to be degraded.

Native speakers accepted the degraded non-local embedded subject NPI sentences at the rate of 45%. Among those who responded that the condition is grammatical, 11 out of the 34 native speakers responded at the rate of 80% to 100% of correct acceptance (considered highly Grammatical), while 10 out of the 34 native speakers responded at the rate of 40% to 60% of correct acceptance. Thirteen out of the 34 native speakers responded at the rate of 0% to 20% of correct acceptance (considered highly Ungrammatical). On the average, the majority (68%; 23 out of the 34 native Korean speakers) of the native speakers responded that the condition is grammatical at more than 40% of correct acceptance and the three groups with different acceptability indicate that there is a variability of acceptability of the non-local embedded subject NPI condition.

The variable acceptability of the non-local embedded subject NPI condition is accounted for speakers' interpretations of the embedded NPI subject. That is, when speakers interpret the non-local embedded subject as the matrix subject (Exceptional Case Marking: ECM), the subject NPI and negator become local in a given linear order in Korean.

Both heritage speakers (HKI and HKII) demonstrated higher acceptability than the native speakers. HKI showed 61% of acceptability (SD = 30.3; Range = 0-100) and HKII showed 58% of acceptability (SD = 29.6; Range = 0-100). To determine whether there was a significant difference between the groups, a one-way ANOVA was conducted. Results demonstrated that there was no significant difference between the groups in *Non-Local Embedded Subject.

Thus, the results indicate that like NK, both HKI and HKII also accept the non-local embedded subject NPI sentences as grammatical. Since the syntactic property of the non-local

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embedded subject NPI condition is an NPI property in English, acceptability of the non-local condition was expected to enhance. Although there was no significant difference between the groups (i.e., both HKs and NK), since HKs show higher acceptability of the same property of the locality condition in the non-local licensing domain as English, it is possible that the grammaticality judgment of the condition in Heritage Korean is positively affected by the grammatical NPI licensing (non-local) in English (i.e., potential Positive Transfer Effect). Age effects between simultaneous heritage speakers (HKI) and early sequential heritage speakers (HKII) were not detected.

3.1.8.4 Local and Non-local NPI Licensing Conditions in Subject NPIs

The sentence types of subject NPIs in the local licensing conditions (Local Embedded Subject) and in the non-local licensing conditions (%Non-Local Embedded Subject) were compared in order to investigate how participants identify the grammaticality of subject NPIs in the different licensing domains (i.e., the local and non-local domains) in the same clause type (i.e., embedded clauses). Results for the local and non-local licensing conditions in subject NPI licensing are presented in Table 3.14.

Table 3.14. Mean acceptability of the local and non-local embedded subject conditions in subject NPI licensing

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
Local Subject NPIs in Embedded Clauses[1]	85 (21.0)	90 (18.4)	94 (12.6)
%Non-Local Embedded Subject NPIs in Complex Sentences[2]	61 (30.3)	58 (29.6)	45 (33.9)

1. *I think that anyone did not trust Chelswu.*
2. *%I do not think that anyone trusted Chelswu.*

Figure 3.7 shows the mean acceptability of the local and non-local conditions in subject NPI licensing.
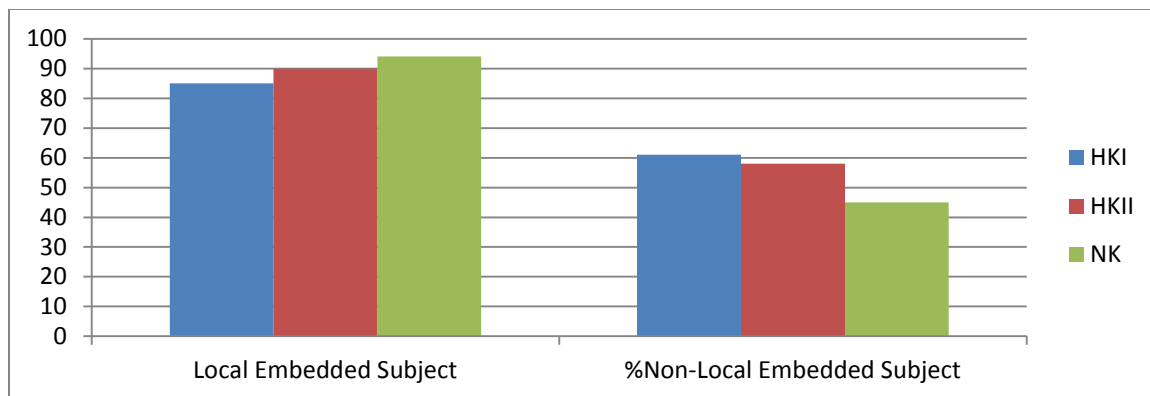
Figure 3.7. Mean acceptability of the local and non-local embedded subject conditions in subject NPI licensing

A repeated measures ANOVA was conducted to compare embedded subject NPI licensing in the local licensing domain (Local Embedded Subject) and embedded subject NPI licensing in the non-local licensing domain (%Non-Local Embedded Subject). There was a significant effect for sentence type ($F(1, 81) = 80.612$, $p < .0001$). The effect for group was not significant. However, there was a significant interaction between sentence type and group ($F(2, 81) = 3.720$, $p = .028$). However, post-hoc comparisons by the Bonferroni adjustment revealed that there were no significant differences between the groups.

With respect to sentence type with Local Embedded Subject and %Non-Local Embedded Subject, HKI ($F(1, 24) = 9.600$, $p = .005$) and HKII ($F(1, 24) = 28.941$, $p < .0001$) showed significant differences. NK also showed a significant difference within the sentence types ($F(1, 33) = 60.575$, $p < .0001$). Results indicate that all three groups know the difference in the locality conditions in subject NPIs (Local Embedded Subject and %Non-Local Embedded Subject).

3.1.8.5 No-negation in Subject NPIs

The no-negation conditions in subject NPI licensing were analyzed independently to investigate whether participants identify the ungrammaticality of the absence of a negator in subject NPI sentences. Results for the no-negation conditions in subject NPI licensing are presented in Table 3.15.

Table 3.15. Mean acceptability of the no-negation conditions in subject NPI licensing

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
*No-Negation in Simple S.[1]	5 (14.5)	6 (13.6)	1 (3.4)
*No-Negation in Matrix C.[2]	15 (21.0)	22 (28.8)	0 (0.0)
*No-Negation in Embedded C.[3]	11 (23.2)	12 (20.0)	0 (0.0)

1. *Anyone loves Chelswu.
2. *Anyone thinks that Chelswu loved Yenghuy.
3. *I think that anyone loved Yenghuy.

Figure 3.8 shows the mean acceptability of the no-negation conditions in subject NPI licensing.
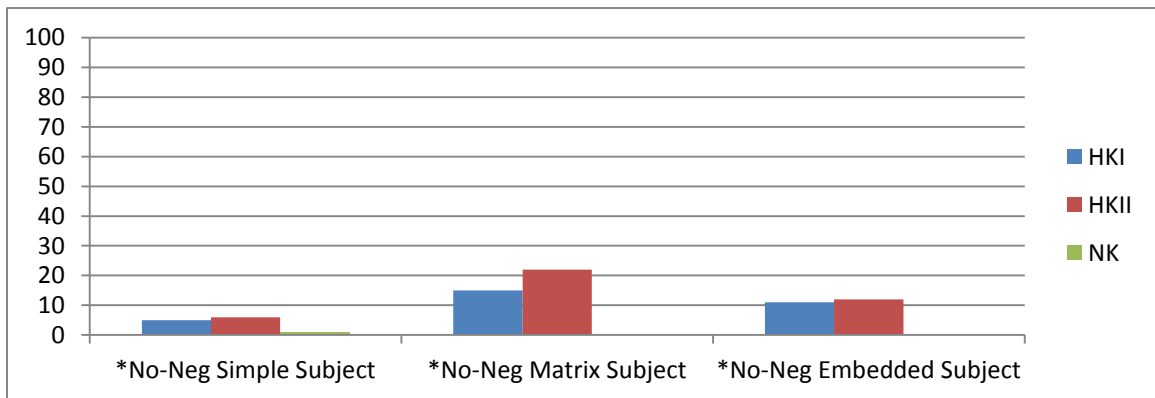
Figure 3.8. Mean acceptability of the no-negation conditions in subject NPI licensing

In order to investigate sentence complexity of no-negation in subject NPI sentences, repeated measures ANOVAs were conducted. Table 3.16 presents ANOVA results of the no-

negation conditions in subject NPI licensing.

Table 3.16. ANOVA results of the no-negation conditions in subject NPI licensing

		*No-Neg Simple/ *No-Neg Matrix	*No-Neg Simple/ *No-Neg Embedded	*No-Neg Matrix/ *No-Neg Embedded
Sentence Type	F	27.274	27.274	6.814
	(p)	(.000*)	(.002*)	(.011*)
Group	F	7.342	4.055	8.888
	(p)	(.001*)	(.021)	(.000*)
Sentence Type ×	F	9.495	3.593	2.676
Group	(p)	(.000*)	(.032*)	(.075†)

* Effect/interaction is significant at the $p < .05$ level.
† Effect/interaction is marginally significant $(.10 > p > .05)$.

For the comparisons with the three sentence types (*No-Neg Simple Subject, *No-Neg Matrix Subject, and *No-Neg Embedded Subject), there were overall significant differences of effect for sentence type, for group and for interaction between sentence type and group, except for one marginal difference between *No-Neg Matrix Subject and No-Neg Embedded Subject. Post-hoc comparisons by the Bonferroni adjustment revealed that there were overall significant differences between HKI and NK and between HKII and NK. However, there was no significant difference between HKI and HKII.

With respect to sentence type comparisons by each group, overall both HKI and HKII showed significant differences within the sentence types. NK did not show significant differences within the sentence types.

Thus, results show that sentence complexity in the no-negation conditions in subject NPI licensing plays a significant role in both HK groups' acceptability.

Three separate one-way ANOVAs were conducted on the sentence types of no-negation

in simple and complex sentences (*No-Neg Simple Subject, *No-Neg Matrix Subject, and *No-Neg Embedded Subject). There was no significant difference between the groups in no-negation in simple sentences (*No-Neg Simple Subject) ($F_{(2, 81)} = 1.807$, $p = .171$).

Significant differences by group were found in both complex sentence types. There was a significant difference between the groups in no-negation in matrix subject NPIs (*No-Neg Matrix Subject) ($F_{(2, 81)} = 9.759$, $p < .0001$). Post-hoc comparisons by the Bonferroni adjustment revealed that there was a significant difference between HKI and NK ($p = .012$) and between HKII and NK ($p < .0001$). However, there was no significant difference between HKI and HKII.

No-negation in embedded subject NPIs (*No-Neg Embedded Subject) also showed a significant difference between the groups (($F_{(2, 81)} = 4.924$, $p = .010$). Post-hoc comparisons by the Bonferroni adjustment revealed that there was a significant difference between HKI and NK ($p = .038$) and between HKII and NK ($p = .023$). However, a significant difference was not found between HKI and HKII.

Thus, these results indicate that HKI and HKII know the ungrammaticality of the no-negation conditions. However, in comparison with NK, both HKI and HKII show lower acceptability than NK in complex sentences (both in matrix and embedded clauses).

3.1.8.6 Comparisons between Object and Subject NPI Licensing

3.1.8.6a Non-local Embedded Object NPIs and Subject NPIs: Difference

The sentence types of the ungrammatical non-local licensing condition in object NPI licensing (*Non-Local Embedded Object) and the degraded non-local licensing condition in subject NPI licensing (%Non-Local Embedded Subject) were compared in order to investigate

how participants identify the difference of the non-local licensing conditions in object and subject NPI licensing. Results for the non-local licensing conditions in object and subject NPI licensing are presented in Table 3.17.

Table 3.17. Mean acceptability of the non-local embedded object and non-local embedded subject conditions

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
*Non-Local Embedded Object NPIs in Complex Sentences[1]	42 (30.0)	36 (33.2)	13 (18.3)
%Non-Local Embedded Subject NPIs in Complex Sentences[2]	61 (30.3)	58 (29.6)	45 (33.9)

1. *I do not believe that Chelswu loved anyone.
2.% I do not think that anyone trusted Chelswu.

The mean acceptability of the non-local embedded object and non-local embedded subject NPI licensing conditions is presented in Figure 3.9.
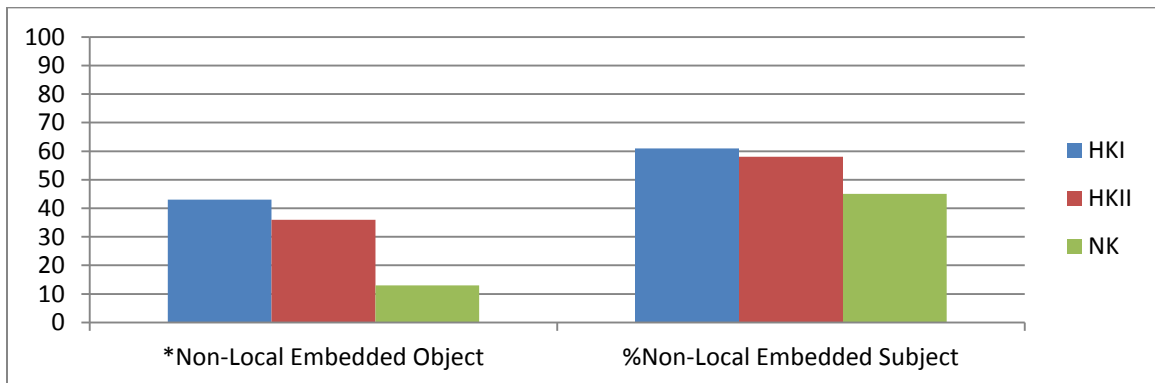
Figure 3.9. Mean acceptability of the non-local embedded object and non-local embedded subject NPI licensing conditions

A repeated measures ANOVA was conducted to compare the non-local embedded subject NPI licensing condition (*Non-Local Embedded Object) and the non-local embedded

subject NPI licensing condition (%Non-Local Embedded Subject). There was a significant effect for sentence type ($F(1, 81) = 53.586$, $p < .0001$). The effect for group was also significant ($F(2, 81) = 6.484$, $p = .002$). However, there was no significant interaction between sentence type and group. Post-hoc comparisons by the Bonferroni adjustment revealed that there were significant differences between HKI and NK ($p = .004$) and between HKII and NK ($p = .028$). No significant difference was found between HKI and HKII.

With respect to sentence type with *Non-Local Embedded Object and %Non-Local Embedded Subject, HKI ($F(1, 24) = 6.830$, $p = .015$) and HKII ($F(1, 24) = 17.566$, $p < .0001$) showed significant differences. NK also showed a significant difference within the sentence types ($F(1, 33) = 45.854$, $p < .0001$).

Thus, results indicate that HKI and HKII know the difference between the ungrammaticality of the non-local embedded object NPI condition and the grammaticality of the non-local embedded subject condition.

3.1.8.6b Local Object NPIs and Subject NPIs: Similarity

The sentence types of the grammatical local licensing conditions in object NPI licensing (Local Simple Object and Local Complex Object) and the grammatical local licensing conditions in subject NPI licensing (Local Simple Subject, Local Matrix Subject and Local Embedded Subject) were compared in order to determine how participants know the subject and object symmetry in the local licensing conditions. Results for the local licensing conditions in object and subject NPI licensing are presented in Table 3.18.

Table 3.18. Mean acceptability of the local object and local subject NPI licensing conditions

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
Local Object NPIs in Simple Sentences[1]	96 (11.5)	94 (12.3)	97 (8.7)
Local Object NPIs in Complex Sentences[2]	92 (19.1)	84 (25.2)	95 (17.3)
Local Subject NPIs in Simple Sentences[3]	98 (5.5)	93 (14.0)	100 (0.0)
Local Subject NPIs in Matrix Clauses[4]	86 (20.6)	83 (23.6)	94 (12.6)
Local Subject NPIs in Embedded Clauses[5]	85 (21.0)	90 (18.4)	94 (12.6)

1. *Chelswu did not love anyone.*
2. *I believe that Chelswu did not love anyone.*
3. *Anyone did not trust Chelswu.*
4. *Anyone does not think that Chelswu trusted Yenghuy.*
5. *I think that anyone did not trust Chelswu.*

Figure 3.10 presents the mean acceptability of the local object and local subject NPI licensing conditions.
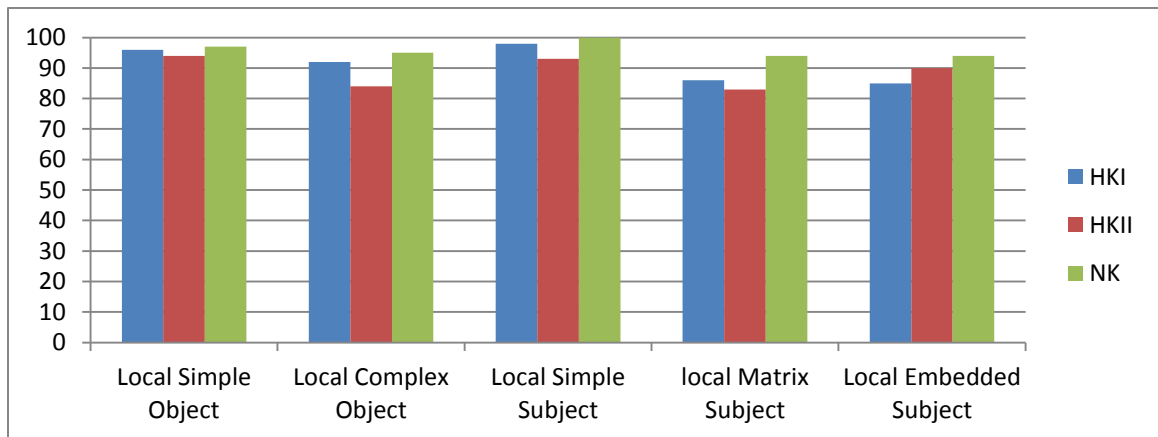
Figure 3.10. Mean acceptability of the local object and local subject NPI licensing conditions

Repeated measures ANOVAs were conducted to compare the local object NPI licensing

conditions (Local Simple Object and Local Complex Object) and the local subject NPI licensing

conditions (Local Simple Subject, Local Matrix Subject and Local Embedded Subject). Table

3.19 presents ANOVA results of the local object and NPI and local subject NPI conditions.

Table 3.19. ANOVA results of the local object NPI and local subject NPI conditions

		Local Simple Object/ Local Simple Subject	Local Complex Object/ Local Matrix Subject	Local Complex Object/ Local Embedded Subject
Sentence Type	F	1.047	.747	.039
	(*p*)	(.309)	(.390)	(.845)
Group	F	2.973	3.567	1.858
	(*p*)	(.057†)	(.033*)	(.163)
Sentence Type × Group	F	1.353	.357	2.541
	(*p*)	(.267)	(.701)	(.085†)

* Effect/interaction is significant at the $p < .05$ level.

† Effect/interaction is marginally significant $(.10 > p > .05)$.

Results showed that there were no significant differences between the sentences types. In

terms of between-group differences, comparisons between Local Complex Object and Local

Matrix Subject showed a significant difference ($F(2, 81) = 3.567$, $p = .033$). Post-hoc

comparisons by the Bonferroni adjustment revealed that there was a significant difference

between HKII and NK ($p = .028$). Comparisons between Local Simple Object and Local Simple

Subject showed a marginally significant difference ($F(2, 81) = 2.973$, $p = .057$). Post-hoc

comparisons by the Bonferroni adjustment revealed that there was a marginally significant

difference between HKII and NK ($p = .058$). There were no significance differences between

HKI and HKII or between HKI and NK.

Thus, the results indicate that both HKI and HKII know the grammaticality of the local

object and subject NPI conditions to the same degree. HKI knows the similarities between object

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and subject NPI licensing (i.e., the subject-object symmetry) in Korean to the same degree with NK.

These results also support Hypothesis 1, since both HKI and HKII overall show the knowledge of the shared property of the local object NPI licensing and the unique Korean-specific property of the local subject NPI licensing.

3.1.8.7 Summary of Results

It was predicted that when the syntactic properties are the shared portion(s) of the heritage language (Korean) and the dominant language (English), or heritage-language (Korean) specific salient properties, heritage speakers relatively easily acquire the properties. Both of the heritage Korean speaker groups (i.e., HKI and HKII) demonstrated acceptability of local object NPI licensing (e.g., *Chelswu did not love anyone*) to the same degree as native speakers. Heritage Korean speakers (especially, HKI) also show acceptability of local subject NPI licensing (e.g., *Anyone did not trust Chelswu*) to a similar degree with native speakers. The results of the local object NPI licensing and local subject NPI licensing conditions support Hypothesis 1 (Heritage Language Maintenance) in Section 2.2.2 in Chapter 2, in that heritage Korean speakers know the use of the shared property of the local object NPI licensing domain to the same degree with native Korean speakers. The results of the local subject NPI licensing conditions also support Hypothesis 1 in that heritage speakers (HKI) know the use of the salient Korean-specific properties of local subject NPI licensing to a somewhat similar degree with native Korean speakers, less affected by the dominant language (English).

With regard to transfer predictions, both HKI and HKII were significantly different from NK in their acceptability in the non-local embedded object NPI condition (e.g., **I do not believe*

that Chelswu loved anyone). That is, both HKI and HKII incorrectly accept the non-local embedded object NPI sentences as grammatical. The results of the non-local embedded object licensing condition support Hypothesis 2 (Dominant Language Transfer) (see Section 2.2.2 in Chapter 2), in that heritage Korean speakers show significantly lower acceptability in the condition where the dominant language and heritage language diverge. Thus, heritage Korean speakers' knowledge of the ungrammatical NPI licensing domain (non-local) in the heritage language (Korean) is potentially affected by the grammatical NPI licensing domain (non-local) in the dominant language (English).

Another possible account of why heritage speakers show lower acceptability in non-local object NPI licensing is 'locality'. That is, the properties that heritage speakers performed well on are 'local' and the property that they have difficulty with is 'non-local'. Thus the difficulty may be due to either L1 transfer or locality. In the future study I can examine this question by testing a property which is both shared between English and Korean and non-local.[45]

In terms of potential positive transfer effects, both simultaneous HKs and early sequential HKs demonstrated acceptability in the non-local embedded subject NPI licensing (e.g., %*I do not think that anyone trusted Chelswu*) to the same degree as native speakers. That is, both HKI and HKII correctly accept the non-local embedded subject NPI sentences as grammatical. Since the syntactic property of the non-local embedded subject NPI condition is a shared NPI property with English, the acceptability of the non-local condition was expected to be high. The results of the non-local embedded subject licensing condition show that the grammatical English NPI licensing (non-local) may facilitate the acceptability of the degraded

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[45] I tested the shared property of non-local NPI licensing (i.e., non-local embedded subject NPIs) in Experiment 1. However, the results were unclear because of native speakers' variability in the property. See Section 3.1.8.3b for the results of the non-local embedded subject NPI condition.

non-local condition in Heritage Korean (i.e., potential Positive Transfer Effect).

With respect to age effect predictions (see Section 2.2.2 in Chapter 2), although there was a marginally significant difference between HKI and HKII in the local subject NPI condition in simple sentences (Local Simple Subject) (e.g., *Anyone did not trust Chelswu*), the results do not support Hypothesis 3 (Age Effects) because HKI showed a higher acceptability rate than HKII. From these results for the object and subject NPI conditions, Hypothesis 1 and 2 are supported, whereas Hypothesis 3 is not supported.

Different sentence types were also compared to investigate whether sentence complexity plays a significant role in heritage speakers' acceptability of object and subject NPI conditions. With regard to the object NPI conditions, like native speakers, HKI did not show a significant difference, while HKII showed a marginally significant difference. However, with regard to the subject NPI conditions, like native speakers, HKI showed significant differences in the local subject NPI condition in simple sentences (Local Simple Subject) and the local matrix subject NPI condition in complex sentences (Local Matrix Subject) (e.g., *Anyone does not thinks that Yenghuy trusted Chelswu*), and in the local subject NPI condition in simple sentences (Local Simple Subject) and the local embedded subject NPI condition in complex sentences (Local Embedded Subject) (e.g., *I think that anyone did not trust Chelswu*). The results show that sentence complexity overall plays a significant role in heritage speakers and native speakers' acceptability of the local subject NPI conditions.

Lastly, to investigate the similarities and differences of the syntactic properties of the object and subject NPI conditions in Korean, the object NPI conditions were compared to the subject NPI conditions. The results of the non-local embedded object NPI licensing (e.g., **I do not believe that Chelswu loved anyone*) and non-local embedded subject NPI licensing (e.g., %*I*

do not think that anyone trusted Chelswu) indicate that both heritage Korean speaker groups know the difference of the non-local object and subject NPI conditions. The results of the local object and local subject NPI licensing also indicate that both heritage Korean speaker groups know the similarity of the local object and local subject NPI conditions. Detailed accounts of these findings will be discussed in the following section.

3.2 Discussion

3.2.1 Acquisition of Negative Polarity Items (NPIs) in Korean by Heritage Korean Speakers

To investigate whether and how much heritage speakers develop full range of linguistic ability in their family language, negative polarity items (NPIs) in Korean were examined. The aspects and the degree of the potential incomplete acquisition of NPIs by heritage Korean speakers were compared between simultaneous heritage Korean speakers (HKI, AOA 0-2) and early sequential heritage Korean speakers (HKII, AOA 7-10). These two heritage Korean groups were also compared to native Korean speakers. The research questions were mainly concerned with as follows: (i) whether heritage Korean speakers acquire (or retain) the shared property of the locality condition (i.e., the local licensing domain in object NPI licensing), and the salient Korean-specific property of the presence of subject NPIs (i.e., the local licensing domain in subject NPI licensing) in Heritage Korean, (ii) whether heritage Korean speakers show possible transfer effects from English in the parametric different property of the non-local licensing domain (i.e., non-local object NPI condition in embedded clauses) in Korean, and (iii) whether age of acquisition of English plays a role in the degree of acquisition of NPIs in Korean.

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3.2.1.1 Acceptability of Negative Polarity Items (NPIs) Licensing in No-negation

Both of the heritage Korean speaker groups (simultaneous and early sequential heritage speakers) correctly rejected the sentences with the NPI *amwuto* as ungrammatical when the NPI sentences appear without the negator *an* in simple sentences as in (11). Refer to Section 3.1.5.3 and 3.1.8.5 for the results for no-negation conditions in object and subject NPI licensing, respectively.

    (11) *Chelswu-ka **amwuto** salang-ha-n-ta.
         C-NOM   anyone   love-do-PRS-DEC-COMP
         '*Chelswu loves anyone.'

The NPI sentence in (11) is ungrammatical both in Korean and English since the NPI cannot be licensed without negator. Results show that both heritage speaker groups know that NPIs are subject to negation in Korean.

3.2.1.2 Acquisition of Heritage Language Shared and Specific Properties

From the results of the syntactic properties of object (see Section 3.1.5.2) and subject NPI licensing (see Section 3.1.8.2) in Korean, Hypothesis 1 is supported (see Section 2.2.2 in Chapter 2). Hypothesis 1 (Acquisition of Heritage Language Properties) stated that in the acquisition of NPI licensing in Korean, heritage Korean speakers will show similar patterns with native Korean speakers in the shared properties such as the local NPI licensing domain in object NPI licensing as in (12a-b).

    (12) a. Chelswu-nun **amwuto** salang-ha-ci **an**-h-nun-ta.
       C-NOM   anyone   love-do-CI   NEG-do-PRS-DEC
       'I believe that Chelswu does not love anyone.'

b. na-nun [Chelswu-ka **amwuto** salang-ha-ci **an**-h-nun-ta-ko]   mit-nun-ta.
   I-TOP C-NOM anyone love-do-CI NEG-do-PRS-DEC-COMP believe-PRS-DEC
   'I believe that Chelswu does not love anyone.'

The local NPI sentences in (12a-b) are grammatical both in Korean and English since the NPI and negator are clausemate. Results showed that there were no differences between heritage speaker groups and native speakers in local object NPI conditions both in simple and complex sentences.

Hypothesis I also stated that heritage Korean speakers will show somewhat similar patterns with native Korean speakers or less affected acceptability in the salient Korean-specific NPI properties such as the presence of subject NPIs in the local licensing domain as in (13a-b).

(13) a. **amwuto** Minki-lul manna-ci **an**-h-ass-ta.
      anyone M-ACC meet-CI NEG-do-PST-DEC
      (Lit.) '*Anybody did not meet Minki.'
      (Intended) 'Nobody met Minki'

   b. na-nun [**amwuto** Minki-lul manna-ci **an**-h-ass-ta-ko]   mit-nun-ta.
      I-TOP anyone M-ACC meet-CI NEG-do-PST-DEC-COMP believe-PRS-DEC
      (Lit.) '*I believed that anybody did not meet Minki.'
      (Intended) 'I believe that nobody met Minki'

The equivalent English sentences to the subject NPI sentences in (13a-b) are ungrammatical in English since negator cannot license the subject NPI because of the c-command violation in English. That is, NPIs must be licensed by its c-commanding licenser negation at S-structure in English. However, the sentences in (13a-b) are grammatical in Korean. Unlike English, Korean allows subject NPI licensing through the Spec-Head Agreement (K.-W. Sohn, 1995; Y.-J. Kwon ,1993; among others) when the subject NPI is locally licensed by negator.

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Results showed that there were no differences between heritage speaker groups and native speakers in local subject NPI conditions both in simple and complex sentences, except that early sequential heritage speakers (HKII) showed a significant and marginal difference from native speakers in local subject NPI licensing in simple and matrix clauses, respectively.

Thus, results indicate that both heritage speaker groups (especially, simultaneous heritage speakers) have the knowledge of the shared property of the local licensing domain in object NPI licensing and the salient heritage language property of the local licensing domain in subject NPI licensing which English prohibits.

3.2.1.3 Transfer Effects

3.2.1.3a Dominant Language Transfer

With regard to Hypothesis 2 (Dominant Language Transfer) (see Section 2.2.2 in Chapter 2), the results support the hypothesis. Hypothesis 2 stated that if knowledge of the dominant language (i.e., English) influences the grammaticality of NPIs in Korean, transfer effects will be shown in the conditions of NPIs where two languages show different properties such as the non-local licensing domain. That is, since English NPIs allow long-distance licensing, heritage Korean speakers will show less acceptability overall compared to native Korean speakers in the non-local NPI condition in object NPI licensing as in (14).

(14) *na-nun [Swumi-ka **amwuto** ttayly-ess-ta-ko]   sayngkak-ha-ci **an-**h-nun-ta.
      I-TOP S-NOM   anyone hit-PST-DEC-COMP think-do-CI   NEG-do-PRS-DEC
      'I don't think that Swumi hit anyone.'

While the non-local embedded object NPI sentence in (14) is grammatical in English, the sentence is ungrammatical in Korean. Unlike English, Korean prohibits non-local object NPI licensing.

Results showed that simultaneous heritage Korean speakers and early sequential heritage speakers incorrectly accept the non-local object NPI condition at the rates of 42% and 36%, respectively. That is, when the sentence with NPIs does not occur with the negator in the same clause, which is a property of English, both HK groups' acceptability of the ungrammatical non-local condition is significantly affected by the syntactic property of the dominant language.

3.2.1.3b Potential Positive Transfer

Positive transfer effects can occur when the syntactic properties in the dominant language facilitate the acquisition of the syntactic properties in the heritage language. Potential positive transfer may happen in the non-local embedded NPI condition in subject NPI licensing, as in the degraded Korean equivalent sentence to the grammatical English sentence as in (15).

(15) %na-nun [**amwuto** Yenghuyy-lul mit-ess-ta-ko]   sayngkak-ha-ci **an-**h-nun-ta.
     I-TOP   anyone   Y-ACC   trust-PST-DEC-COMP think-do-CI   NEG-do-PRS-DEC
     'I don't think that anyone trusted Yenghuy.'

The non-local embedded subject NPI sentence in (15) is grammatical in English. However, the sentence is degraded in Korean. The grammaticality of the sentence is obtained when the embedded object NPI raises to the matrix object position (Exceptional Case Marking, ECM) such that the NPI and negator become local (i.e., the clausemate condition). However, the native speakers' low acceptability (45%) indicates that there is a confound in the non-local embedded

subject NPI condition in Korean. That is, the grammaticality varies depending on whether speakers employ ECM to interpret the non-local embedded subject NPI sentences in Korean.

The heritage speakers were expected to show a high acceptability of the condition if the English syntactic property of the non-local subject NPI licensing affects positively the acquisition of the non-local subject NPI condition in Korean. The other expectation is that heritage speakers may show a relatively similar acceptability if they employ the ECM approach as native speakers do. Results showed that simultaneous heritage speakers' (61%) and early sequential heritage speakers' (58%) acceptability of the non-local embedded subject NPI condition improves than that of native speakers (45%), however, there was no significant difference between the groups. Thus, with respect to acquisition of the non-local embedded subject NPI condition whose syntactic property is degraded in Korean but grammatical in English, it is hard to tell whether positive transfer or the ECM approach plays a role in the heritage speakers' acceptability of the non-local NPI condition.

3.2.1.4 Age Effects

Hypothesis 3 is not supported (see Section 2.2.2 in Chapter 2). Hypothesis 3 stated that if there are age effects in the acquisition of Korean NPIs properties, early sequential heritage Korean speakers (i.e., HKII, AOA, 7-10) will show overall more knowledge of Korean than simultaneous heritage Korean speakers (i.e., HKI, AOA, 0-2). In other words, early sequential Korean heritage speakers will show a higher acceptability than simultaneous heritage Korean speakers in the investigated properties of NPIs in Korean. However, age effects between the simultaneous heritage Korean speakers and the early sequential heritage Korean speakers were not significant in overall properties investigated.

As we discussed before, although there was a marginally significant difference between simultaneous heritage speakers and early sequential heritage speakers in the local subject NPI condition in simple sentences (Local Simple Subject), the results do not support Age Effects because simultaneous heritage speakers showed higher acceptability than early sequential heritage speakers. Age effects were not detected in filler sentences (ordinary negation) either. However, the results do not indicate that there are no age effects between simultaneous and early sequential heritage speakers in the acquisition of Korean grammar in general. Notice that the results of the Korean proficiency test and the distractor sentences (i.e., relative clauses and passive case morphology) showed age effects between two heritage speaker groups. Thus, although age effects are not supported in the acquisition of object and subject NPI licensing, age effects can be selectively borne out depending on the properties of morphology and syntax.

3.2.1.5 Variability of Early Sequential Heritage Speakers

L1 attrition may occur in late bilingualism under cross-linguistic influence (de Bot 1991, cited in Montrul, 2008) or in heritage language acquisition, possibly because of age of onset of the dominant language, a limited amount of input to the heritage language, and a large amount of exposure to the dominant language (Montrul, 2008).

Since L1 attrition may arise in heritage language acquisition or bilingualism, once syntax is fully acquired in L1, a question arises as to whether early sequential heritage speakers who came to the dominant language country during middle childhood (i.e., AOA, 7-10 in the present study) after they acquired the L1 syntax in their home country show L1 attrition or not. As Montrul (2008) argues that age is one of crucial factors in L1 attrition (p. 89), if early sequential heritage Korean speakers show significantly lower acceptability than simultaneous heritage

Korean speakers, it is possible that the early sequential heritage Korean speakers exhibit L1 attrition (or incomplete acquisition).

The results showed that there was one marginally significant difference between HKI and HKII in the local subject NPI condition in simple sentences (p= .054†) and the difference came from HKIIs' lower acceptability of the condition.

Difference between early sequential heritage speakers (HKII) and native speakers were also significant (p = .004). Thus, early sequential heritage speakers showed lower acceptability both than simultaneous speakers and native speakers in local subject NPI scrambling in simple sentences .

Early sequential heritage speakers (HKII) may show variability in local subject NPI scrambling. However, the individual results showed that early sequential heritage speakers responded to the local subject NPI condition in simple sentences (Local Simple Subject) at the acceptability of 93%. Individual results also showed that 3 each both heritage speaker groups of 25 incorrectly rejected the condition at the rate of 20% acceptability and 3 more early heritage speakers out of 25 incorrectly rejected the condition at the rate of 40% acceptability.

Results also demonstrated that the early sequential heritage speakers showed a marginally significant difference from native speakers in the local subject NPI condition in matrix clauses in subject NPI licensing (p = .092†). However, both heritage speaker groups responded to the condition at close acceptability (83% by early sequential HKs and 86% by simultaneous HKs) and early sequential heritage speakers were not different from simultaneous heritage speakers. Thus, this variability of early sequential heritage speakers is not accounted for by L1 attrition, because of relatively high acceptability of early sequential heritage speakers (83%).

Thus, in both subject NPI conditions (i.e., local subject NPIs in simple sentences and local matrix subject NPIs in complex sentences), early sequential heritage speakers did not perform at the level of native speakers (93% and 83%, respectively) and they show variability in the conditions.

3.2.2 Sentence Complexity

Due to the general sentence complexity, heritage speakers were expected to show overall relatively lower acceptability of the conditions in complex sentences the conditions in simple sentences. One-way ANOVA results showed that between simultaneous heritage speakers and native speakers, there were significant differences in the no-negation NPI conditions in complex sentences both in object and subject NPI licensing. Sentence complexity also plays a role in early sequential heritage speakers' acceptability of the no-negation conditions in complex sentences.

In order to investigate whether sentence complexity plays a significant role in heritage speakers' acceptability of the NPI conditions, sentence complexity was also examined by conducting repeated measures ANOVAs with the different sentence types between simple and complex sentences. With regard to the object NPI conditions, like native speakers, HKI did not showed a significant difference, while HKII showed a marginally significant difference. However, with regard to the subject NPI conditions, like native speakers, HKI showed significant differences in Local Simple Subject and Local Matrix Subject, and in Local Simple Subject and Local Embedded Subject. With regard to the comparison between the complex sentences (Local Matrix Subject and Local Embedded Subject), only HKII showed a marginally significant difference between the complex sentence types. The results show that sentence complexity overall plays a significant role in heritage speakers and native speakers' acceptability

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of the local subject NPI conditions.

3.2.3 Subject and Object Symmetry

In order to investigate the similarities and differences of the syntactic properties between the object and subject NPI conditions in Korean, the object NPI conditions were compared to the subject NPI conditions.

3.2.3.1 Subject and Object Symmetry in Heritage Korean

The non-local embedded object NPI condition is ungrammatical and the non-local embedded subject NPI condition is degraded in full Korean. The grammaticality of the non-local embedded subject NPI condition is selective depending on speakers' approach of Exceptional case marking (ECM) to the condition. Thus, to investigate whether all three groups know the different grammaticality of the two conditions, the incorrect acceptability of the ungrammatical non-local embedded object NPI condition were compared with the correct acceptability of the grammatical non-local embedded subject NPI condition. Results showed that there was a significant effect for sentence type and group. Both heritage speaker groups' acceptability was significant difference from native speakers. With respect to sentence type, all three groups showed significant differences. The results indicate that like native speakers, both heritage speaker groups know the different grammaticality between the non-local embedded object and non-local embedded subject NPI conditions.

On the other hand, both heritage speakers groups show transfer effects, more than majority of the heritage speakers incorrectly accepted the non-local embedded object NPI condition as grammatical. Thus, to investigate whether all three groups know the difference of

the two conditions, the correct rejection rates of the ungrammatical non-local embedded object NPI condition were used this time, in comparison with the existing correct acceptability of the non-local embedded subject NPI condition. The mean acceptability of the local object and local subject NPI licensing conditions are presented in Figure 3.11.
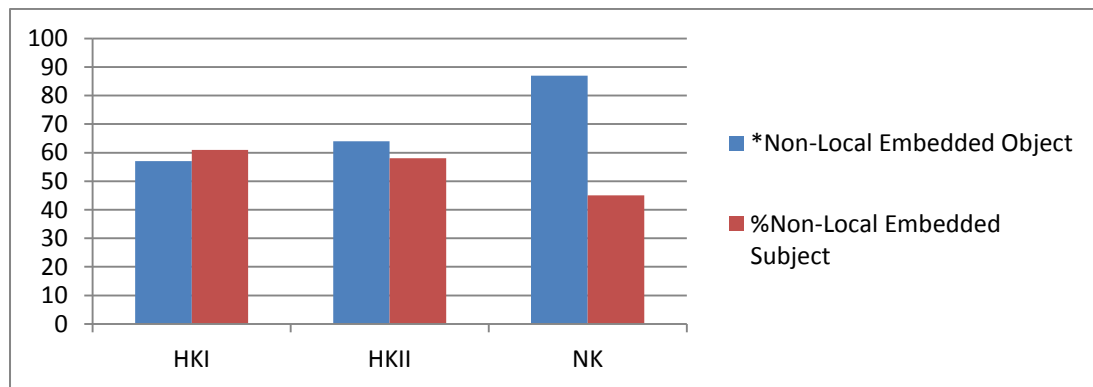
*Correct rejection rates were used for the non-local embedded object condition

Figure 3.11. Mean acceptability of the non-local embedded object and non-local embedded subject NPI licensing conditions

A repeated measures ANOVA was conducted to compare the non-local embedded subject NPI condition (*Non-Local Embedded Object) and the non-local embedded subject NPI condition (%Non-Local Embedded Subject). There was a significant effect for sentence type $(F(1, 81) = 7.530, p = .007)$. The effect for group was not significant. There was a significant interaction between sentence type and group $(F(2, 81) = 6.484, p = .002)$. However, post-hoc comparisons by the Bonferroni adjustment revealed that there were no significant differences between the groups. With respect to sentence type with *Non-Local Embedded Subject and %Non-Local Embedded Subject, HKI and HKII showed no significant differences. NK showed a significant difference within the sentence types $(p < .0001)$.

The results indicate that native speakers know the difference of the non-local embedded object and subject NPI conditions (i.e., subject-object asymmetry). However, both heritage speakers groups know that there is a similarity between the two conditions (i.e., subject-object symmetry), because the non-local embedded object NPI condition is considered grammatical due to transfer effects in Heritage Korean.

3.2.3.2 Subject and Object Symmetry both in Native and Heritage Korean

The local object NPI conditions are grammatical and the local subject NPI conditions are also grammatical in Native Korean. Repeated measures ANOVA results for the local object NPI conditions and the local subject NPI conditions in the same clause type showed that there were no significant differences within the sentence type. However, simultaneous heritage speakers showed a marginally significant difference between the local embedded object NPI condition and the local embedded subject NPI condition. In terms of the group differences, there was a significant or marginally significant difference only between early sequential heritage speakers and native speakers. However, there were no significant differences between both heritage speaker groups. Thus, the results indicate that both heritage speaker groups know the similarity of the local object and subject NPI conditions (i.e., subject-object symmetry).

3.2.4 Grammar of Negative Polarity Items (NPIs) in Heritage Korean

This section explores how the syntactic properties NPI licensing in Heritage Korean are different from full Korean. Since age effects were not overall statistically significant between the simultaneous and the early sequential heritage Korean speakers, the syntax of NPIs in Heritage

Korean can be represented for both simultaneous heritage Korean speakers and early sequential heritage Korean speakers.

3.2.4.1 Heritage Korean Grammar in accordance with Korean Grammar

As we discussed, heritage Korean speakers correctly reject sentences with the object and subject NPI *amwuto* as ungrammatical when the sentence does not occur with the negator *an*. NPIs are subject to negation in Heritage Korean. Heritage Korean speakers correctly accept sentences with the object NPI as grammatical when they co-occur with negator in the same clause (the clausemate condition) in simple and complex sentences. NPIs occur in the local licensing domain in Heritage Korean. Heritage Korean speakers correctly accept sentences with the subject NPI as grammatical when they co-occur with negator in the local licensing domain. NPIs occur in the subject position in Heritage Korean. Thus, in connection with subject and object symmetry in NPI licensing, heritage Korean speakers know the similarity of the local object and subject NPI conditions.

3.2.4.2 Heritage Korean Grammar in contrast to Korean Grammar

Transfer (both negative and positive) plays a role in heritage Korean grammar different from full Korean grammar. Two different syntactic properties were found in NPI licensing. Due to transfer from English, heritage Korean speakers incorrectly accept sentences with the NPI as grammatical although they violate the locality condition when the NPI and negator are not clausemate. Thus, under English influence, NPIs are not overall subject to the locality condition (i.e., the clausemate condition) in Heritage Korean.

On the other hand, the non-local embedded subject NPI condition is selectively

grammatical depending on native Korean speakers' approach of Exceptional case marking (ECM) to the condition. Because of potential positive transfer from English which licenses non-local NPI licensing, the degraded non-local embedded subject NPI condition in full Korean is treated as grammatical in Heritage Korean.

Thus, Heritage Korean allows embedded object and subject NPI licensing in the non-local licensing domain like English. Heritage Korean also allows object NPI licensing in the local licensing domain like Native Korean and English. In other words, like English, NPIs are both locally and non-locally licensed in Heritage Korean.

3.2.5 Summary of Discussion

The Discussion section has explored how Negative Polarity Items (NPIs) in Korean are acquired by heritage Korean speaker in connection with the issues of heritage language acquisition such as acquisition of the heritage language properties (shared and language-specific), potential language transfer (negative and positive) and age effects (between simultaneous and early sequential heritage Korean speakers). The syntactic properties of NPI licensing in Korean are also discussed to investigate how NPI grammars in Heritage Korean are similar to and different from Native Korean.

With regard to Hypothesis 1 (Heritage Language Maintenance), when the syntactic properties of NPI licensing in Korean are the shared portion of the NPI licensing in English, the shared properties become default between two languages. The shared properties of the local licensing domain were fully acquired by heritage Korean speakers. The acquisition of the shared properties is the least affected by dominant language transfer.

When the syntactic properties of NPI licensing in Korean are the Korean-specific properties, the Korean-specific properties become salient in Heritage Korean. The Korean-specific properties of subject NPI licensing were successfully acquired by heritage Korean speakers. The acquisition of the Korean-specific properties is less affected by dominant language transfer.

With respect to Hypothesis 2 (Dominant Language Transfer), when the syntactic properties of NPI licensing in Korean are different from English, the parametrically different property of the dominant language influences the acquisition of the property in Heritage Korean. The parametrically different property of the non-local licensing domain (of the embedded object NPI condition) was not completely acquired by heritage Korean speakers. The acquisition of the parametrically different property is potentially affected by dominant language transfer.

When the syntactic properties of NPI licensing in Korean are parametric but similar (i.e., not the same) in a way to English, the parametrically similar property of the dominant language facilitates the acquisition of the property in Heritage Korean. The parametrically similar property of the non-local licensing domain (of the embedded subject NPI condition) was acquired with relative ease by heritage Korean speakers. The acquisition of the parametrically similar property is positively affected by dominant language transfer.

With regard to Hypothesis 3 (Age Effects), age of onset of the dominant language was expected to play a significant role in the acquisition of negative polarity items (NPIs) in Heritage Korean as shown in the results of the Korean proficiency test. However, age effects between the simultaneous heritage Korean speakers (AOA, 0-2) and the early sequential heritage Korean speakers (AOA, 7-10) were not found in the overall properties investigated. Since there were significant difference between two heritage speaker groups in the Korean proficiency test and the

distractor sentences (i.e., relative clauses and passive case morphology), age effects play a role in other morphology and syntax in general in Heritage Korean. However, in terms of acquisition of NPI licensing domains, heritage Korean speakers' grammar of NPI licensing is relatively stable.

Variability by early sequential heritage speakers was found in the local subject NPI condition in simple sentences and in matrix clauses, based on the results of early sequential heritage speakers' lower acceptability of the conditions than that of the simultaneous heritage speakers. Statistically, there was a marginal difference between two heritage speaker groups (p = .054†). However, early sequential heritage speakers responded to the local subject NPI condition in simple sentences at the acceptability of 93%. In the local subject NPI condition in complex sentences, both heritage speaker groups responded to the condition at the close acceptability (83% by early sequential heritage speakers and 86% by simultaneous heritage speakers). Furthermore, the lower acceptability comes from sentence complexity rather than the lower acceptability of the local subject NPI licensing.

In terms of sentence complexity, sentence complexity plays a role in heritage speakers' and native speakers' in local subject NPI conditions between simple and complex sentences (i.e., matrix and embedded clauses). However, sentence complexity specifically plays a role in heritage speakers' acceptability of the no-negation NPI conditions in complex sentences both in object and subject NPI licensing.

Lastly, with respect to the heritage grammars of NPI licensing in Heritage Korean, in the properties of the local licensing domain, heritage Korean speakers correctly accept sentences with the object NPI as grammatical when they co-occur with negation in the same clause. NPIs occur in the local licensing domain in Heritage Korean. In salient Korean-specific property of subject NPI licensing, heritage Korean speakers correctly accept sentences with the subject NPI

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as grammatical when they co-occur with negation in the local licensing domain. NPIs occur in the subject position in Heritage Korean.

With regard to the parametrically different (i.e., English only) property of the non-local NPI licensing, due to transfer from English, heritage Korean speakers incorrectly accept the non-local embedded NPI condition as grammatical although it violates the locality condition when the NPI and negator are not clausemate (the clausemate condition).

Because of potential positive transfer from English which licenses non-local embedded subject NPIs, the degraded non-local embedded subject NPI condition in Korean is treated as grammatical in Heritage Korean.

Thus, Heritage Korean allows embedded object and subject NPI licensing in the non-local licensing domain like English. Heritage Korean also allows object NPI licensing in the local licensing domain like Korean and English. In other words, like English, NPIs are both locally and non-locally licensed in Heritage Korean.

CHAPTER 4
Experiment 2: Results and Discussion

4.1 Results

4.1.1 Fillers and Distractors

All test batteries in Experiment 2 included 12 sentence types of the fillers and distractors. Filler items included 5 sentence types (3 grammatical, 2 ungrammatical) in simple and complex sentences. Distractor items included 7 sentence types (2 grammatical and 5 ungrammatical) in simple and complex sentences. Fillers consist of sentences where ordinary DPs scramble, while distractors consist of *wh*-constructions, relative clauses, and case morphology (i.e., causatives, topic/focus, and case-drop).

Filler items were presented to compare participants' acceptability of NPI scrambling in the target items. Fillers included DP scrambling both in simple and complex sentences (i.e., short-distance and long-distance scrambling) (See Section 1.5.1 in Chapter 1).

Fillers of ordinary DP scrambling were presented as follows:

(11)   Ordinary DP Scrambling: Simple Sentences (Short-distance Scrambling)

   (c) Short-distance DP Scrambling (OSV)
       (e.g., *Chelswu-ACC Yenghuy-NOM hit*.)

   (d) *Short-distance V(P) Scrambling (SVO)
       (e.g., **Chelswu-NOM likes Yenghuy-ACC*.)

(12)   Ordinary DP Scrambling: Complex Sentences

   (c) Short-distance DP Scrambling
       (e.g., *I think that Yenghuy-ACC Chelswu-NOM met*.)

(d) Long-distance DP Scrambling

 (e.g., *Yenghuy-ACC I think that Chelswu-NOM met.*)

(e) *Short-and Long-distance VP Scrambling

 (e.g., **I think that Yenghuy-ACC met Chelswu-NOM.*)

Results for the filler items in Experiment 2 are presented in Table 4.1.

Table 4.1. Mean acceptability of the fillers in Experiment 2

Sentence Types	HKI (n = 25) Mean (SD) Range	HKII (n = 25) Mean (SD) Range	NK (n = 34) Mean (SD) Range
Short-distance DP Scrambling in Simple Sentences	74 (30.4) 0-100	77 (37.3) 0-100	94 (15.2) 40-100
*Short-distance VP Scrambling in Simple Sentences	41 (42.2) 0-100	36 (40.4) 0-100	76[46] (36.7) 0-100
Short-distance DP Scrambling in Complex Sentences	69 (29.5) 0-100	68 (34.6) 0-100	92 (13.0) 60-100
Long-distance DP Scrambling in Complex Sentences	53 (39.1) 0-100	54 (35.5) 0-100	75 (32.8) 0-100
*VP Scrambling in complex Sentences	10 (17.4) 0-60	2 (5.5) 0-20	7 (24.1) 0-100

To determine the group-differences, five separate one-way ANOVAs were conducted on the types of filler sentences. Except for ungrammatical VP scrambling in complex sentences, four of the five fillers showed significant differences between the groups. Results for short-distance DP scrambling in simple sentences (OSV) showed significant differences between the groups ($F_{(2, 81)} = 4.728$, $p = .011$). Post-hoc comparisons by the Bonferroni adjustment revealed that there was a significant difference between simultaneous heritage speakers (HKI) and native speakers (NK) ($p = .020$), while there was a marginal significance between early sequential

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[46] There is a confound in native speakers accuracy of the ungrammatical VP scrambling (SVO). Native speakers tend to allow any kind of DP scrambling as long as contexts are given with case-marked scrambled DPs.

heritage speakers (HKII) and native speakers (NK) ($p = .063$). Results for ungrammatical short-distance VP scrambling (SVO) showed significant differences between the groups ($F(2, 81) = 9.494$, $p < .0001$). Post-hoc comparisons by the Bonferroni adjustment revealed that there were significant differences between HKI and NK ($p = .003$), and between HKII and NK ($p = .001$). Results for short-distance DP scrambling in complex sentences showed a significant difference between the groups ($F(2, 81) = 8.513$, $p < .0001$). Post-hoc comparisons by the Bonferroni adjustment revealed that there were significant differences between HKI and NK ($p = .003$), and between HKII and NK ($p = .002$). Results for long-distance DP scrambling showed a significant difference between the groups ($F(2, 81) = 3.708$, $p = .029$). However, post-hoc comparisons by the Bonferroni adjustment revealed that there were marginal differences between HKI and NK ($p = .065$), and between HKII and NK ($p = .081$). There was no significant difference between groups in ungrammatical VP scrambling in complex sentences. Throughout the filler sentence types (DP scrambling), there were no significant differences between heritage speaker groups.

Thus, results on grammatical DP scrambling both in simple and complex sentences indicate that simultaneous speakers pattern with early sequential speakers and that both heritage speaker groups were less accurate in DP scrambling than native speakers. In terms of long-distance DP scrambling, native speakers showed a lower acceptability than in short-distance DP scrambling both in simple and complex sentences.

Distractors were used to distract the participants from identifying the target items and to assess various types of linguistic input of (morpho-)syntactic properties other than NPI scrambling properties in Korean. Distractors included *wh*-constructions (i.e., *wh*-scrambling and *wh*-in situ), relative clauses, and case morphology (case-marker mismatch: causative, topic/focus, and case-drop). Distractors were presented as follows:

(13)   *Wh*-constructions in Simple Sentences

    (d) *Wh*-Scrambling (e.g., *Who-ACC Chelswu-NOM liked?*)
    (e) *Wh*-in Situ (e.g., *Chelswu-NOM who-ACC liked?*)
    (f) *Wh-in Situ (e.g., **Chelswu-NOM who-NOM liked?*)

(14)   *Relative Clauses (Embedded DP Scrambling)
    (e.g., **Yenghuy-ACC Chelswu-NOM met the man-ACC liked.*)

(15)   Case Mismatch in Simple Sentences

    (a) *Causatives (e.g., **Chelswu-NOM cried his brother-ACC.*)
    (b) *Topic/Focus (e.g., **A computer-TOP broke.*)
    (c) *Case-drop (e.g., **Yenghuy-Ø was making a hamburger-ACC.*)

Results for the distractors in Experiment 2 are presented in Table 4.2.

Table 4.2. Mean acceptability of the distractors in Experiment 2

Sentence Types	HKI (n = 25) Mean (SD) Range	HKII (n = 25) Mean (SD) Range	NK (n = 34) Mean (SD) Range
Wh-scrambling in Simple Sentence	76 (31.1) 0-100	74 (29.8) 0-100	94 (16.1) 20-100
Wh-in situ in Simple Sentences	99 (4.0) 80-100	98(5.5) 80-100	96 (17.4) 0-100
*Wh-in situ in Simple Sentences	48 (32.7) 0-100	24 (35.1) 0-100	16 (18.9) 0-60
*Relative Clauses in Complex Sentences	16 (25.2) 0-100	9 (20.9) 0-80	14 (19.5) 0-60
*Causatives in Simple Sentences	57 (26.3) 0-100	41 (29.7) 0-80	15 (18.5) 0-60
*Topic/Focus in Simple Sentences	39 (26.8) 0-80	39 (33.4) 0-100	50 (28.4) 0-100
*Case-drop in Simple Sentences	51 (30.6) 0-100	48 (40.0) 0-100	52 (34.2) 0-100

Seven separate one-way ANOVAs were conducted on the types of distractor sentences. Three of the seven distractor sentences showed significant differences between the groups. Results for *wh*-scrambling showed a significant difference between the groups ($F(2, 81) = 5.464$, $p = .006$). Post-hoc comparisons by the Bonferroni adjustment revealed that there were significant differences between HKI and NK ($p = .033$), and between HKII and NK ($p = .012$). Results for ungrammatical *wh*-in situ showed a significant difference between the groups ($F(2, 81) = 9.300$, $p < .0001$). Post-hoc comparisons by the Bonferroni adjustment revealed that there were significant differences between HKI and HKII ($p = .012$), and between HKI and NK ($p < .0001$). Results for ungrammatical causative case mismatch showed a significant difference between the groups ($F(2, 81) = 21.435$, $p < .0001$). Post-hoc comparisons by the Bonferroni adjustment revealed that there were significant differences between HKI and NK ($p < .0001$), and between HKII and NK ($p = .001$), while there was a marginally significant difference between HKI and HKII ($p = .072$).

Thus, results on *wh*-scrambling in the distractors indicate that *wh*-scrambling patterns with ordinary DP scrambling in the fillers. That is, like DP scrambling, heritage speakers were less accurate in *wh*-scrambling. Results on ungrammatical embedded DP scrambling in relative clauses showed that there was no significant difference between the groups. The results indicate that all three groups know ungrammaticality of embedded DP scrambling (of both subject and object) in Korean. Results on causative case mismatch indicate that both heritage speaker groups have insufficient knowledge of case morphology in Korean.

Overall results on fillers and distractors showed that there were significant differences between heritage speakers (especially, HKI) and native speakers and there were no significant between both heritage speaker groups. The results indicate that simultaneous speakers pattern

with early sequential speakers in fillers and distractors and that both heritage speaker groups were less accurate than native speakers, especially in DP scrambling and *wh*-scrambling. Scrambling distance also plays a role in the acceptability of all three groups.

4.1.2 NPI Scrambling

Eight sentence types of the target items in NPI scrambling (object NPIs) were tested in the experiment 2. The sentence types of the target items for NPI scrambling were divided into NPI scrambling (i.e., local NPI licensing at D-structure), NPI "rescue" scrambling (i.e. non-local NPI licensing at D-structure)[47], and no-negation in NPI scrambling:

(16)   NPI Scrambling: Grammatical Local NPI Licensing at D-structure

   (c) Simple Sentences: Short-distance Scrambling
       (e.g., *Anyone Chelswu did not hit*.)

   (d) Complex Sentences: Short-distance Scrambling
       (e.g., *I that anyone Chelswu did not hit believe*.)

   (e) Complex Sentences: Long-distance Scrambling
       (e.g., *Anyone I that Chelswu did not hit believe*.)

(17)   NPI "Rescue'" Scrambling: Ungrammatical Non-local NPI Licensing at D-structure

   (a) ?Complex Sentences: Short-distance Scrambling
       (e.g., ?*I that anyone Chelswu hit did not believe*.)

   (b) ?Complex Sentences: Long-distance Scrambling
       (e.g., ?*Anyone that I Chelswu hit did not believe*.)

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[47] I use the new term NPI "rescue" scrambling in the present study in order to contrast with NPI scrambling. NPI scrambling can increase the grammaticality of scrambled sentences from ungrammatical non-local base NPI sentences as in (7a-b). Ssee K.-W. Sohn, 1995, p.34, for discussion of this phenomenon in Korean.

(18)　　　No-negation in NPI Scrambling

(a) *Simple Sentences: Short-distance Scrambling
(e.g., *Anyone Chelswu hit.)

(b) *Complex Sentences: Short-distance Scrambling
(e.g., *I that anyone Chelswu hit believe.)

(c) *Complex Sentences: Long-distance Scrambling
(e.g., *Anyone I that Chelswu hit believe.)

The one goal of the analyses of NPI scrambling was to investigate how participants judge the given sentence types grammatically depending on the different locality conditions in base sentences as in (6-7). In other words, the sentence types in (6) were analyzed separately from the sentence types in (7), since the nature of the sentence types in (7a-b) are different from the sentence types in (6a-c). That is, the non-local NPI base sentences in (7a-b) were ungrammatical before scrambling. However, the experiment explores whether scrambling affects the grammaticality of non-local NPI licensing in Korean.

The second goal of the analyses was to determine how participants responded to a given sentence type differently depending on different distances of NPI scrambling as in (6a-c) (i.e., short-distance and long-distance). The other goal was to identify whether simultaneous heritage Korean speakers (HKI) differed from early sequential heritage Korean speakers (HKII) and heritage Korean speakers differed from native Korean speakers (NK).

The group results are reported in the following sections. The individual results are also reported when the results are particularly significant to discuss.

4.1.3 Descriptive Statistics

Participants were presented with sentences containing either scrambled sentences with grammatical local NPI licensing at D-structure or scrambled sentences with ungrammatical non-local NPI licensing at D-structure. Sentence types of the ungrammatical no-negation NPIs were also presented. Acceptability was calculated for each experimental condition of both grammatical and ungrammatical sentence types.

4.1.3.1 Acceptability of Locality and No-negation in NPI Scrambling

With regard to the comparisons between NPI scrambling and negation in NPI scrambling, the ungrammatical no-negation conditions in NPI scrambling were compared to the grammatical NPI scrambling conditions both in simple and complex sentences. Acceptability was calculated for each experimental condition of both grammatical and ungrammatical sentence types. If participant performed well, the acceptability for the grammatical sentence types would be up to 100%, while for ungrammatical sentence types, it would be 0%. Results are presented in Table 4.3 below.

Table 4.3. Mean acceptability of locality and no-negation conditions in NPI scrambling

Sentence Type	HKI (n = 25) Mean (SD) Range	HKII (n = 25) Mean (SD) Range	NK (n = 34) Mean (SD) Range
NPIs in Simple Sentences	63 (31.5) 0-100	42 (30.7) 0-100	72 (33.0) 0-100[a]
*No-Negation in Simple Sentences	5 (11.9) 0-40	6 (15.8) 0-60	1 (6.9) 0-40
NPIs in Complex Sentences (Short-distance)	76 (32.7) 0-100	66 (36.3) 0-100	87 (26.0) 0-100[a]
*No-Negation in Complex Sentences (Short-distance)	13 (27.0) 0-100	9 (23.2) 0-80	2 (7.6) 0-40
NPIs in Complex Sentences (Long-distance)	62 (34.1) 0-100	54 (35.4) 0-100	68 (34.5) 0-100[a]
*No-Negation in Complex Sentences (Long-distance)	9 (19.2) 0-80	6 (16.9) 0-60	3 (12.2) 0-60

[a] Acceptability of NPI scrambling varies to native Korean speakers.

Figure 4.1 shows the mean acceptability of the NPI scrambling and no-negation conditions for simultaneous heritage Korean speakers (HKI), early sequential heritage Korean speakers (HKII), and native Korean speakers (NK).
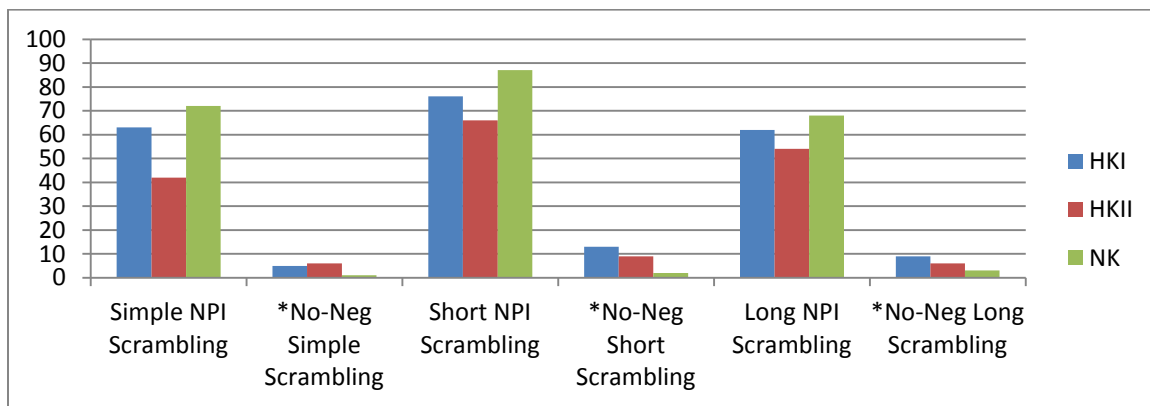
Figure 4.1. Mean acceptability of the locality and no-negation conditions in NPI scrambling

4.1.3.2 Acceptability of NPI Scrambling in Non-local Licensing Conditions at D-structure

Participants were also presented with scrambled sentences with ungrammatical non-local NPI licensing both in short and long-distance in complex sentences. Since the base NPI sentences are ungrammatical, the grammaticality of the scrambled sentences becomes very degraded. To contrast with NPI scrambling (i.e., NPI scrambling of grammatical base NPI sentences), the term NPI "rescue" scrambling is used in the present study. Table 4.4 presents results for NPI "rescue" scrambling of non-local licensing in the base NPI sentences.

Table 4.4. Mean acceptability of NPI rescue scrambling

Sentence Type	HKI (n = 25) Mean (SD) Range	HKII (n = 25) Mean (SD) Range	NK (n = 34) Mean (SD) Range
?? NPIs in Complex Sentences (Short-distance)[1]	52 (34.2) 0-100	54 (36.8) 0-100	57 (37.9) 0-100
??NPIs in Complex Sentences (Long-distance)[2]	42 (34.6) 0-100	54 (33.0) 0-100	54 (37.1) 0-100

1. ?*I that anyone Chelswu hit did not believe*.
2. ?*Anyone that I Chelswu hit did not believe*.

The mean acceptability of the NPI rescue scrambling of non-local base NPI conditions for simultaneous heritage Korean speakers (HKI), early sequential heritage Korean speakers (HKII), and native Korean speakers (NK) is presented in Figure 4.2 below.
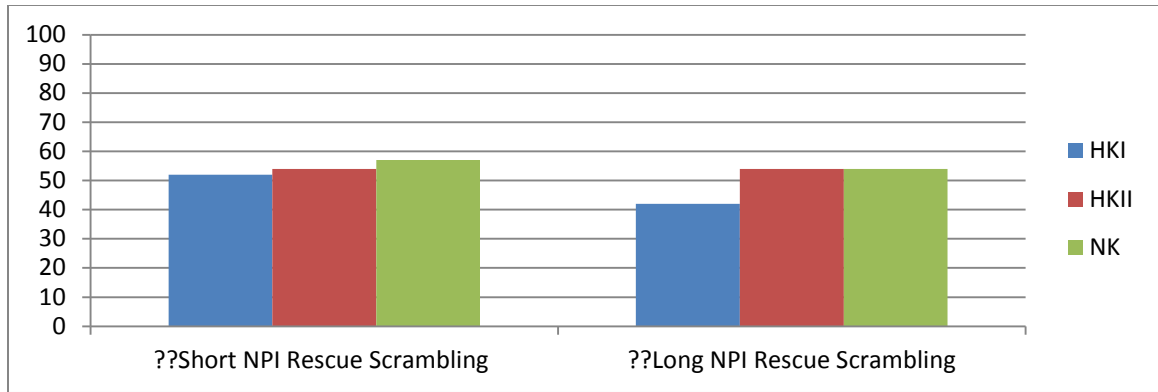
Figure 4.2. Mean acceptability of NPI scrambling of non-local NPI licensing

Detailed statistical analyses of sentence type and group in NPI scrambling, NPI rescue scrambling and no-negation conditions in NPI licensing will be presented in the following ANOVA Results section.

4.1.4 ANOVA Results

4.1.4.1 Local Licensing and No-negation Conditions in NPI Scrambling

To test whether all participant groups are sensitive to ungrammaticality of the no-negation condition (i.e., the absence of negator) in scrambled NPI sentences, repeated measures ANOVAs with grammaticality (i.e., within the sentence types) as the within-subjects factor and group as the between-subjects factor were conducted for each ungrammatical no-negation condition against its grammatical counterpart within the same level of sentence complexity. Differences between both heritage Korean speaker groups (i.e., HKI and HKII) and native Korean speaker group (NK) were tested with group as the between-subjects factor. Grammatical NPI scrambled sentences and ungrammatical scrambled no-negation sentences were compared within the same clause type. Table 4.5 presents the ANOVA results of the NPI scrambling and no-negation conditions in NPI scrambling.

Table 4.5. ANOVA results of the NPI scrambling and no-negation conditions

		Simple NPI/ *No-Neg Simple	Short NPI/ *No-Neg Short	Long NPI/ *No-Neg Long
Grammaticality	F	251.654	303.117	190.553
	(*p*)	(.000*)	(.000*)	(.000*)
Group	F	3.798	1.225	.659
	(*p*)	(.027*)	(.299)	(.520)
Grammaticality × Group	F	8.495	5.296	1.666
	(*p*)	(.000*)	(.007*)	(.195)

* Effect/interaction is significant at the *p* < .05 level.

There were significant effects for grammaticality with NPI scrambling of the grammatical local NPI conditions and the ungrammatical no-negation conditions both in simple sentences (Simple NPI and *No-Neg Simple) $(F(1, 81) = 251.654, p < .0001)$, in short-distance scrambling in complex sentences (Short NPI and *No-Neg Short) $(F (1, 81) = 303.117, p < .0001)$, and in long-distance scrambling in complex sentences (Long NPI and *No-Neg Long) $(F (1, 81) = 190.553, p < .0001)$. There were also significant differences with interaction between sentence type and group in short-distance scrambling both in simple sentences $(F (1, 81) = 8.495, p < .0001)$ and complex sentences $(F (1, 81) = 5.296, p = .007)$. However, a significant difference between the groups was found only in simple sentences (Simple NPI and *No-Neg Simple) $(F(1, 81) = 3.798, p = .027)$. Post-hoc comparisons by the Bonferroni adjustment revealed that there was a significant difference between HKII and NK (p = .026).

Since there were no significant differences between the groups, all three groups demonstrated the same pattern of high acceptability in NPI scrambling of the grammatical sentences and significantly lower acceptability in the ungrammatical no-negation sentences in the same clause type. Results indicate that both heritage speaker groups (HKI and HKII)

demonstrated native speakers' (NK) sensitivity to the ungrammaticality of the no-negation conditions both in simple and complex sentences. To the same degree as native Korean speakers, both heritage Korean speaker groups know that the sentences with the scrambled object NPI *amwuto* 'anyone' become ungrammatical when the scrambled NPI sentences do not occur in negation.

4.1.4.2 NPI Scrambling: Local NPI Licensing at D-structure

The sentence types of NPI scrambling of the base local licensing conditions (Simple NPI Scrambling, Short NPI scrambling, and Long NPI Scrambling) were provided to compare how participants identify the grammaticality of NPI scrambling in different levels of scrambling distance. Results for the local base conditions in NPI scrambling are presented in Table 4.6.

Table 4.6. Mean acceptability of the local base conditions in NPI scrambling

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
NPI Scrambling in Simple Sentences[1]	63 (31.5)	42 (30.7)	72 (33.0)
NPI Scrambling in Short-distance in Complex Sentences[2]	76 (32.7)	66 (36.3)	87 (26.0)
NPI Scrambling in Long-distance in Complex Sentences[3]	62 (34.1)	54 (35.4)	68 (34.5)

　　1. *Anyone Chelswu did not hit.*
　　2. *I that anyone Chelswu did not hit believe.*
　　3. *Anyone I that Chelswu did not hit believe.*

Figure 4.3 shows the mean acceptability of the local conditions in NPI scrambling.
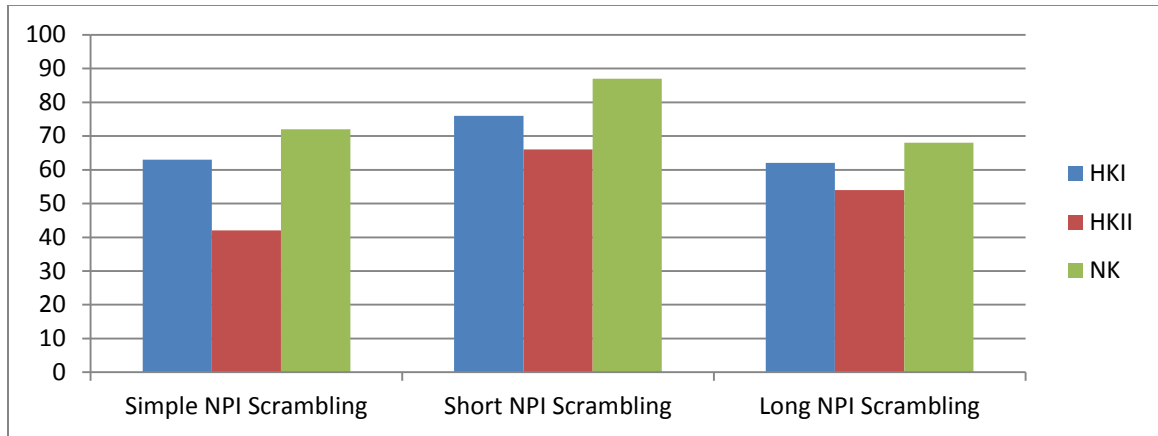
Figure 4.3. The mean acceptability of the local base conditions in NPI scrambling

In order to investigate whether scrambling distance play a role in the acceptability of the grammatical NPI scrambled sentences, different levels of clause types were examined by conducting repeated measures ANOVAs, in comparisons between Simple NPI Scrambling and Short NPI Scrambling, between Simple NPI Scrambling and Long NPI Scrambling, and between Short NPI Scrambling and Long NPI Scrambling.

4.1.4.2a Simple NPI and Short NPI Scrambling

When scrambling of NPI licensing in simple sentences (Simple NPI Scrambling) was compared to scrambling of NPI licensing in short-distance in complex sentences (Short NPI Scrambling), there was a significant effect for sentence type ($F(1, 81) = 32.210$, $p < .0001$). The effect for group was significant ($F(2, 81) = 5.831$, $p = .004$). However, there was no significant interaction between sentence type and group. Post-hoc comparisons by the Bonferroni adjustment revealed that there was a significant difference between HKII and NK ($p = .003$). There were no significance differences between HKI and HKII or between HKI and NK.

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In order to investigate scrambling-distance complexity, follow-up repeated measures ANOVAs were conducted with sentence type in each group. HKI ($F(1, 24) = 5.885$, $p = .023$) and HKII ($F(1, 24) = 17.799$, $p < .0001$) showed significant differences. NK also showed a significant difference within the sentence types ($F(1, 33) = 10.007$, $p = .003$).

Results show that sentence complexity of the same short-distance NPI scrambling conditions in simple and complex sentences seems to play a role in the acceptability of all three groups.

4.1.4.2b Simple NPI and Long NPI Scrambling

When scrambling of NPI licensing in simple sentences (Simple NPI Scrambling) was compared to scrambling of NPI licensing in long-distance in complex sentences (Long NPI Scrambling), there was a significant effect for group ($F(2, 81) = 4.202$, $p = .018$). However, there were no significant effects for sentence type and for interaction between sentence type and group. Post-hoc comparisons by the Bonferroni adjustment revealed that there was a significant difference between HKII and NK ($p = .015$). There were no significance differences between HKI and HKII, or between HKI and NK.

With respect to sentence type with Simple NPI Scrambling and Long NPI Scrambling, there was a significant difference in HKII ($F(1, 24) = 4.320$, $p = .049$). However, there were no significant differences in HKI and NK within the sentence types.

Results show that scrambling distance of simple and long-distance in complex sentences does not seem to play a role in the acceptability of simultaneous heritage speakers (HKI) and native speakers.

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4.1.4.2c Short NPI and Long NPI Scrambling

When scrambling of NPI licensing in short-distance in complex sentences (Short NPI Scrambling) was compared to scrambling of NPI licensing in long-distance in complex sentences (Long NPI Scrambling), there was a significant effect for sentence type ($F(1, 81) = 27.445$, $p < .0001$). The effect for group was marginally significant ($F(2, 81) = 2.438$, $p = .094$). However, there was no significant interaction between sentence type and group. Post-hoc comparisons by the Bonferroni adjustment revealed that there was a marginally significant difference between HKII and NK ($p = .092$). There were no significance differences between HKI and HKII or between HKI and NK.

With respect to sentence type with Simple NPI Scrambling and Long NPI Scrambling, there were significant differences in HKI ($F(1, 24) = 8.397$, $p = .008$) and NK ($F(1, 33) = 19.925$, $p < .0001$), while HKII showed a marginally significant difference HKI ($F(1, 24) = 4.076$, $p = .055$).

Results show that scrambling distance of short-distance and long-distance in complex sentences plays a role in the acceptability of all three groups. Thus, scrambling distance overall seems to play a significant role in all three groups' knowledge of NPI scrambling.

However, results also revealed that all three groups were more accurate in short-distance scrambling of the embedded clauses in complex sentences than in short-distance scrambling in simple sentences and long-distance in complex sentences. In other words, since there is no case-marker with the Korean NPI *amwuto*, it may be harder for speakers to interpret scrambled NPI without a case-marker in the initial position of the sentence. It is possible that an uncase-marked NPI to the left of matrix subject is incorrectly interpreted as a subject NPI such that the sentence is considered as ungrammatical.

Thus, in terms of acceptability of NPI scrambling, it is not just sentence complexity or even distance of NPI scrambling that play a role in speakers' acceptability but speakers' interpretation strategy of preference to an initial DP with a case marker in the sentence. Table 4.7 summarizes ANOVA results of NPI scrambling in the local base NPI licensing conditions.

Table 4.7. ANOVA results of NPI scrambling

		Simple NPI/ Short NPI	Simple NPI/ Long NPI	Short NPI/ Long NPI
Sentence Type	F	32.210	.318	27.445
	(*p*)	(.000*)	(.574)	(.000*)
Group	F	5.831	4.202	2.438
	(*p*)	(.004*)	(.018*)	(.094†)
Sentence Type × Group	F	1.077	1.796	.656
	(*p*)	(.345)	(.173)	(.522)

* Effect/interaction is significant at the *p* < .05 level.
† Effect/interaction is marginally significant (.10 > p > .05).

4.1.4.2d One-way ANOVA Results of NPI Scrambling

In order to test how much both heritage speaker groups' acceptability of NPI scrambling of local NPI licensing conditions in the base sentences is different from that of native speakers, one-way ANOVAs were conducted on the three sentence types of NPI scrambling of the grammatical local NPI base conditions both in simple and complex sentences (i.e. short-distance and long-distance). A one-way ANOVA with NPI scrambling in simple sentences (Simple NPI Scrambling) showed that there was a significant difference between the groups ($F(2, 81) = 6.460$, p = .002). Pairwise comparisons by the post-hoc Bonferroni adjustment revealed that there was a significant difference between HKII and NK (p = .002) and there was a marginally significant difference between HKI and HKII (p = .071). There was no significant difference between HKI and NK. Since a marginal significance stems from higher acceptability by HKI, not by HKII, the

results do not support presence of the presence of age effects.

A one-way ANOVA with NPI scrambling in short-distance in complex sentences (Short NPI Scrambling) showed that there was a significant difference between the groups ($F(2, 81) = 3.413$, $p = .038$). Pairwise comparisons by the post-hoc Bonferroni adjustment revealed that there was a significant difference between HKII and NK ($p = .033$). However, there were no significant differences between HKI and HKII, or between HKI and NK.

Lastly, a one-way ANOVA with NPI scrambling in long-distance in complex sentences (Long NPI Scrambling) showed that there was no significant difference between the groups. Age effects between HKI and HKII were not detected.

Results from one-way ANOVAs show that although HKII showed a significant difference from NK in Simple NPI Scrambling and Short NPI Scrambling, HKI did not show any difference from NK throughout the all three sentence types. That is, HKIs' acceptability of NPI scrambling of the locality base condition is higher than HKII such that HKI allows NPI scrambling to the same degree as NK. In comparisons with simultaneous heritage speakers (HKI) and early sequential heritage speakers (HKII), there were overall no significant differences, except for a marginal significance in Simple NPI Scrambling. Age effects between HKI and HKII were not detected in NPI scrambling of local NPI base sentences.

Thus, results indicate that both heritage Korean speaker groups (especially, simultaneous heritage speakers (HKI)) know the language-specific property of NPI scrambling of local NPI base sentences in Korean, and the results support Hypothesis 1 (Heritage Language Maintenance), in that to somewhat similar degree simultaneous heritage Korean speakers (HKI) maintain the use of NPI scrambling in local licensing in the base sentences, less affected by the

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dominant language (English). Age effects between HKI and HKII were not detected in NPI scrambling of local NPI base sentences.

4.1.4.3 NPI "Rescue" Scrambling: Non-local NPI Licensing at D-structure

The term "NPI rescue scrambling" is introduced to account for the phenomenon that ungrammatical base non-local NPI sentences can be scrambled such that scrambled NPI sentences become grammatical but degraded. See Section 4.2.5.2, for discussion of NPI "rescue" scrambling.

The sentence types of NPI scrambling of the non-local licensing conditions in base sentences (Short Rescue NPI and Long Rescue NPI) were provided to compare how participants identify potential variability of NPI scrambling in different levels of scrambling distance. Results for NPI "rescue" scrambling of non-local licensing in the base sentences were presented in Table 4.4 in the descriptive statistics section. The mean acceptability of NPI scrambling of non-local licensing in the base sentences were presented in Figure 4.2 in the descriptive statistics section.

As we saw in the descriptive statistics section, native Korean speakers demonstrated surprisingly high acceptability of 57% (SD = 37.9; Range = 0-100) and 54% (SD = 37.1; Range = 0-100) both in short-distance and long-distance scrambling of ungrammatical non-local NPI base sentences, respectively. Scrambling of non-local NPIs in the base sentences were expected to be ungrammatical (or unacceptable). Since the sentence type (Short NPI Rescue Scrambling) violates the clausemate condition in the base sentences.

4.1.4.3a Variability in Short-distance Scrambling of Non-local NPIs in the Base Sentences

Native speakers allowed the scrambled non-local short-distance NPI sentences at the

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acceptability of 57%. Among those who responded that the condition is grammatical or acceptable, 14 out of the 34 native speakers responded at the rate of 80% to 100% of acceptability (considered highly Acceptable or Natural), while 9 out of the 34 native speakers responded at the rate of 40% to 60% of acceptability. Eleven out of the 34 native speakers responded at the rate of 0% to 20% of acceptability (considered highly Unacceptable or Unnatural). On the average, the majority (68%; 23 out of the 34 native Korean speakers) of the native speakers responded that the condition is acceptable or natural at more than 40% of acceptability. Acceptability of short-distance NPI scrambling of ungrammatical non-local NPI base sentences can be accounted for by Exceptional Case Marking (ECM). That is, even though base NPI sentences were ungrammatical because of non-local licensing, if a speaker regards the scrambled object NPI *amwuto* 'anyone' as the matrix object (i.e., ECM), the scrambled NPI and negator become clausemate on the surface. Refer to Section 4.2.5.2a for discussion of ECM.

A one-way ANOVA was conducted and there was no significant difference between the groups in Short NPI Rescue Scrambling.

4.1.4.3b Variability of Long-distance Scrambling of Non-local NPIs in the Base Sentences

As we saw, native speakers allowed the scrambled long-distance NPI sentences at the acceptability of 54%. Among them who responded that the condition is grammatical or acceptable, 14 out of the 34 native speakers responded at the rate of 80% to 100% of acceptability (highly considered Acceptable or Natural), while 9 out of the 34 native speakers responded at the rate of 40% to 60% of acceptability. Eleven out of the 34 native speakers responded at the rate of 0% to 20% of acceptability (highly considered Unacceptable or Unnatural). On the average, majority (68%; 23 out of the 34 native Korean speakers) of the

native speakers responded that the condition is acceptable or natural at more than 40% of acceptability. Acceptability of long-distance NPI scrambling of ungrammatical non-local NPI base sentences can be accounted for by "Linear Order Strategy". In other words, even though base NPI sentences were ungrammatical because of non-local licensing, a speaker may accept the scrambled NPI sentences as grammatical because the scrambled NPI and negator become clausemate after scrambling.

A one-way ANOVA was conducted and there was no significant difference between the groups in Short NPI Rescue Scrambling.

4.1.4.3c Rescuing Effect in NPI "Rescue" Scrambling

In the literature, there has been a puzzle whether and how scrambled NPI sentences are allowable even though the non-local base NPI sentences are ungrammatical (K.-W. Sohn, 1995, p. 34). That is, scrambling can increase the grammaticality of ungrammatical non-local base NPI sentences. In this experiment, the results showed that all three groups display variability in both short-distance and long-distance NPI "rescue" scrambling conditions. Specifically, I discussed NK's variability in short-distance and long-distance NPI "rescue" scrambling. Based on the average acceptability from the individual results (68%, both in short-distance and long-distance scrambling), the results suggest that the scrambling has a rescuing effect for NK.

A rescuing effect can be also found if we compare the NK's acceptability in ungrammatical non-local base sentences (13%) with the NK's acceptability in NPI rescue scrambling (i.e., 57% and 54% in both short and long scrambling, respectively). However, for heritage Korean speakers, a rescuing effect does not seem to play a role in scrambling of ungrammatical non-local base NPI sentences. That is, the heritage speakers' acceptability in

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ungrammatical non-local base sentences was 42% and 36% in both short and long scrambling, respectively. The heritage speakers' acceptability in NPI "rescue" scrambling was 52% (HKI) and 54% (HKII) in short-distance "rescue" scrambling and 42% (HKI) and 54% (HKII) in long-distance "rescue" scrambling.

Furthermore, it is difficult to interpret the results for NPI "rescue" scrambling, because methodology used in the two experiments in the present study is somewhat different. That is, the ungrammatical input sentence is a part of Experiment 1 and the subjects were not given any context, while for "rescue" scrambling they were. In addition, the instructions (and the tasks) for each experiment were also different. In Experiment 1, the subjects were asked to judge whether a given sentence is grammatical or not, while in Experiment 2, they were asked to judge whether a given response is natural or acceptable based on a given context.

Thus, in terms of a rescuing effect of NPI "rescue" scrambling, along with the observations in the literature (K.-W. Sohn, 1995), the results also suggest that there is a rescuing effect for native speakers. However, it is not clear whether the scrambling has a rescuing effect for heritage speakers. A follow-up test needs to done for clearer analysis of the data.

4.1.4.3d Distance of NPI "Rescue" Scrambling

When scrambling of non-local base NPI licensing in short-distance in complex sentences (Short NPI Rescue Scrambling) was compared to scrambling of non-local base NPI licensing in long-distance in complex sentences (Long NPI Rescue Scrambling), there was no significant effects for sentence type, group, or interaction between sentence type and group.

With respect to sentence type with Short NPI Rescue Scrambling and Long NPI Rescue Scrambling, there were no significant differences in throughout all three groups.

Thus, the results indicate that both heritage speaker groups pattern with native speakers. Sentence complexity of short-distance and long-distance scrambling does not play a role in all three groups' acceptability of NPI "rescue' scrambling of ungrammatical non-local NPI base sentences.

4.1.4.4 No-negation in NPI Scrambling

The no-negation conditions in NPI scrambling were analyzed independently to investigate whether participants identify the acceptability (i.e., ungrammaticality) of the absence of negator (*No-Neg) in the scrambled NPI sentences. Results for the no-negation conditions in NPI scrambling are presented in Table 4.8.

Table 4.8. Mean acceptability of the no-negation conditions in NPI scrambling

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
*No-Negation in Simple Sentences[1]	5 (11.9)	6 (15.8)	1 (6.9)
*No-Negation in Short-distance in Complex Sentences[2]	13 (27.0)	9 (23.2)	2 (7.6)
*No-Negation in Long-distance in Complex Sentences[3]	9 (19.2)	6 (16.9)	3 (12.2)

1. *Anyone Chelswu hit.
2. *I that anyone Chelswu hit believe.
3. *Anyone I that Chelswu hit believe.

Figure 4.4 below shows the mean acceptability of the no-negation conditions in NPI scrambling.
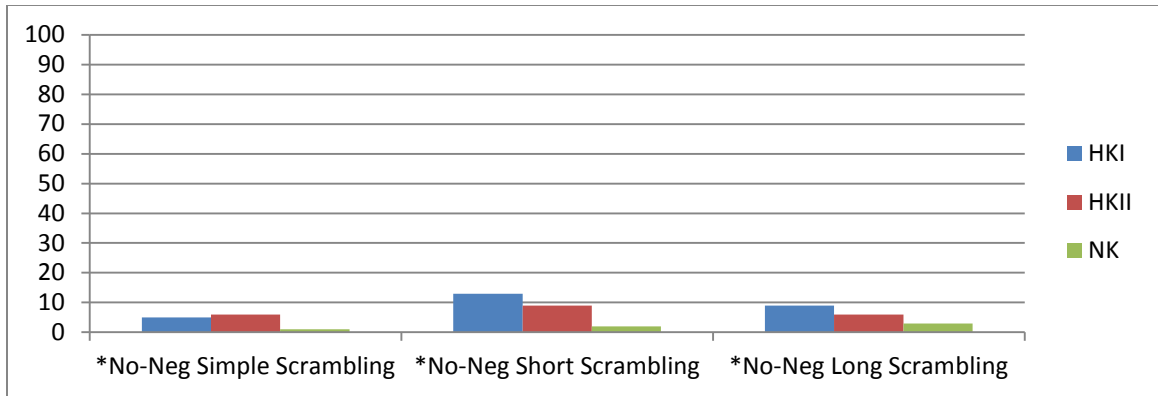
Figure 4.4. Mean acceptability of the no-negation conditions in NPI scrambling

In order to investigate sentence complexity of no-negation in scrambled NPI sentences, repeated measures ANOVAs were conducted. Table 4.9 presents ANOVA results of the no-negation conditions in NPI scrambling.

Table 4.9. ANOVA results of the no-negation conditions in NPI scrambling

		*No-Neg Simple/ *No-Neg Short	*No-Neg Simple/ *No-Neg Long	*No-Neg Short/ *No-Neg Long
Sentence Type	F	4.734	1.588	2.889
	(*p*)	(.032*)	(.211)	(.093†)
Group	F	2.238	1.241	1.775
	(*p*)	(.113)	(.295)	(.176)
Sentence Type × Group	F	1.484	.526	2.046
	(*p*)	(.233)	(.593)	(.136)

* Effect/interaction is significant at the *p* < .05 level.
† Effect/interaction is marginally significant (.10 > p > .05).

For the comparisons with the three sentence types (*No-Neg Simple, *No-Neg Short, and *No-Neg Long), there was a significant difference and a marginal difference of effect for sentence type. There were no significant differences both in group and interaction between

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sentence type and group.

With respect to sentence type comparisons by each group, only HKI showed a marginally significant difference with the sentence types between no-negation in simple sentences and short-distance in complex sentences (*No-Neg Simple and *No-Neg Short).

Thus, results show that sentence complexity (i.e., scrambling distance) in the no-negation conditions in NPI scrambling overall does not play a significant role in heritage Korean speakers' acceptability.

Three separate one-way ANOVAs were conducted on the sentence types of no-negation in simple and complex sentences (*No-Neg Simple, *No-Neg Short, and *No-Neg Long). There were no significant differences between the groups in no-negation through the three sentence types. Thus, these results indicate that both heritage Korean speaker groups fully know the ungrammaticality of the no-negation conditions in NPI scrambling.

4.1.4.5 Comparisons between NPI Scrambling and DP Scrambling

4.1.4.5a Simple NPI Scrambling and Simple DP Scrambling

The sentence types of local object NPI scrambling in simple sentences (Simple NPI Scrambling) and ordinary object DP scrambling in simple sentences (Simple Object DP Scrambling) were compared in order to investigate whether there were significant differences between NPI scrambling and object DP scrambling in simple sentences. Results for the NPI scrambling and object DP scrambling conditions in simple sentences are presented in Table 4.10.

Table 4.10. Mean acceptability of the NPI scrambling and object DP scrambling conditions in simple sentences

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
NPI Scrambling in Simple Sentences[1]	63 (31.5)	42 (30.7)	72 (33.0)
Object DP Scrambling in Simple Sentences[2]	74 (30.4)	77 (37.3)	94 (15.2)

1. *Anyone Chelswu did not hit*.
2. *Chelswu-ACC Yenghuy-NOM hit*.

The mean acceptability of the NPI scrambling and object DP scrambling conditions in simple sentences is presented in Figure 4.5.

Figure 4.5. Mean acceptability of the NPI scrambling and object DP scrambling conditions in simple sentences

A repeated measures ANOVA was conducted to compare the simple NPI scrambling condition (Simple NPI Scrambling) and the simple object DP scrambling condition (Simple DP Scrambling). There was a significant effect for sentence type ($F(1, 81) = 39.048$, $p < .0001$). The effect for group was also significant ($F(2, 81) = 6.614$, $p = .002$) and there was a significant interaction between sentence type and group ($F(2, 81) = 3.475$, $p = .036$). Post-hoc comparisons

by the Bonferroni adjustment revealed that there was a significant difference between HKII and NK (p = .002). Difference between HKI and NK was marginally significant (p = .086).

With respect to sentence type with Simple NPI Scrambling and Simple Object DP Scrambling, HKII showed a significant difference (F(1, 24) = 28.157, p < .0001), while HKI showed a marginally significant difference (F(1, 24) = 2.991, p = .097). NK also showed a significant difference within the sentence types (F(1, 33) = 14.328, p = .001).

Thus, results indicate that all three groups overall know the difference between local simple NPI scrambling and simple object DP scrambling. That is, all three groups overall showed less acceptability of NPI scrambling than of DP scrambling. Both heritage speaker groups overall pattern differently with native speakers. Both heritage speaker groups showed less acceptability than native speakers.

4.1.4.5b Short NPI Scrambling and Short DP Scrambling in Complex Sentences

The sentence types of short-distance NPI scrambling in complex sentences (Short NPI Scrambling) and short-distance DP scrambling in complex sentences (Short DP Scrambling) were compared in order to investigate whether there were significant differences between short-distance NPI scrambling and short-distance DP scrambling in complex sentences. Results for the short-distance NPI scrambling and short-distance DP scrambling conditions in complex sentences are presented in Table 4.11.

Table 4.11. Mean acceptability of the short-distance NPI scrambling and short-distance DP scrambling conditions in complex sentences

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
Short NPI Scrambling in Complex Sentences[1]	76 (32.7)	66 (36.3)	87 (26.0)
Short DP Scrambling in Complex Sentences[2]	69 (29.5)	68 (34.6)	92 (13.0)

1. *I that anyone Chelswu did not hit believe.*
2. *I that Yenghuy-ACC Chelswu-NOM met think.*

The mean acceptability of the local short-distance NPI scrambling and short-distance DP scrambling conditions in complex sentences is presented below in Figure 4.6.

Figure 4.6. Mean acceptability of the short-distance NPI scrambling and short-distance DP scrambling conditions in complex sentences

A repeated measures ANOVA was conducted to compare the short-distance NPI scrambling condition (Short NPI Scrambling) and the short-distance object DP scrambling condition (Short DP Scrambling). There was a significant effect for group ($F(2, 81) = 7.565$, $p = .001$). However, the effects for sentences type and interaction between sentence type and group were not significant. Post-hoc comparisons by the Bonferroni adjustment revealed that there

were significant differences between HKI and NK (p = .021), and between HKII and NK (p = .001).

With respect to sentence type with Short NPI Scrambling and Short DP Scrambling, there were no significant differences throughout all three groups.

Thus, results indicate that all three groups allow short-distance NPI scrambling and short-distance DP scrambling in complex sentences to the same degree. Both heritage speaker groups pattern differently from native speakers. That is, both heritage speaker groups showed less acceptability than native speakers.

4.1.4.5c Long NPI Scrambling and Long DP Scrambling

The sentence types of long-distance NPI scrambling in complex sentences (Long NPI Scrambling) and long-distance DP scrambling in complex sentences (Long DP Scrambling) were compared in order to investigate whether there were significant differences between long-distance NPI scrambling and long-distance DP scrambling in complex sentences. Results for the long-distance NPI scrambling and long-distance DP scrambling conditions in complex sentences are presented in Table 4.12.

Table 4.12. Mean acceptability of the long-distance NPI scrambling and long-distance DP scrambling conditions in complex sentences

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
Long NPI Scrambling in Complex Sentences[1]	62 (34.1)	54 (35.4)	68 (34.5)
Long DP Scrambling in Complex Sentences[2]	53 (39.1)	54 (35.5)	75 (32.8)

1. *Anyone I that Chelswu did not hit believe.*
2. *Yenghuy-ACC I that Chelswu-NOM met think.*

The mean acceptability of the long-distance NPI scrambling and long-distance DP scrambling conditions in complex sentences is presented in Figure 4.7.

Figure 4.7. Mean acceptability of the long-distance NPI scrambling and long-distance DP scrambling conditions in complex sentences

A repeated measures ANOVA was conducted to compare the long-distance NPI scrambling condition (Long NPI Scrambling) and the long-distance DP scrambling condition (Long DP Scrambling). There was a significant effect for group ($F(2, 81) = 3.171$, $p = .047$). However, the effects for sentences type and interaction between sentence type and group were not significant. Post-hoc comparisons by the Bonferroni adjustment revealed that there was a marginally significant difference between HKII and NK ($p = .070$).

With respect to sentence type with Long NPI Scrambling and Long DP Scrambling, there were no significant differences throughout all three groups.

Thus, results indicate that all three groups allow short-distance NPI scrambling and short-distance DP scrambling in complex sentences to the same degree. Heritage speakers (especially, simultaneous speakers) pattern with native speakers. That is, heritage speakers allowed both NPI

and DP scrambling as much as native speakers did. Thus, all three groups show the same degree

of acceptability of both scrambling properties.

Table 4.13 presents ANOVA results of the NPI scrambling conditions and object DP

scrambling conditions both in simple and complex sentences.

Table 4.13. ANOVA results of the NPI scrambling and object DP scrambling conditions in
simple and complex sentences

		Simple NPI Scrambling/ Simple DP Scrambling	Short NPI Scrambling/ Short DP Scrambling	Long NPI Scrambling/ Long DP Scrambling
Sentence Type	F	39.048	.002	.055
	(*p*)	(.000*)	(.964)	(.815)
Group	F	6.614	7.565	3.171
	(*p*)	(.002*)	(.001*)	(.047*)
Sentence Type × Group	F	3.475	1.107	1.032
	(*p*)	(.036*)	(.336)	(.361)

* Effect/interaction is significant at the *p* < .05 level.

The mean acceptability of the NPI scrambling and object DP scrambling conditions in both in

simple and complex sentences is presented in Figure 4.8.
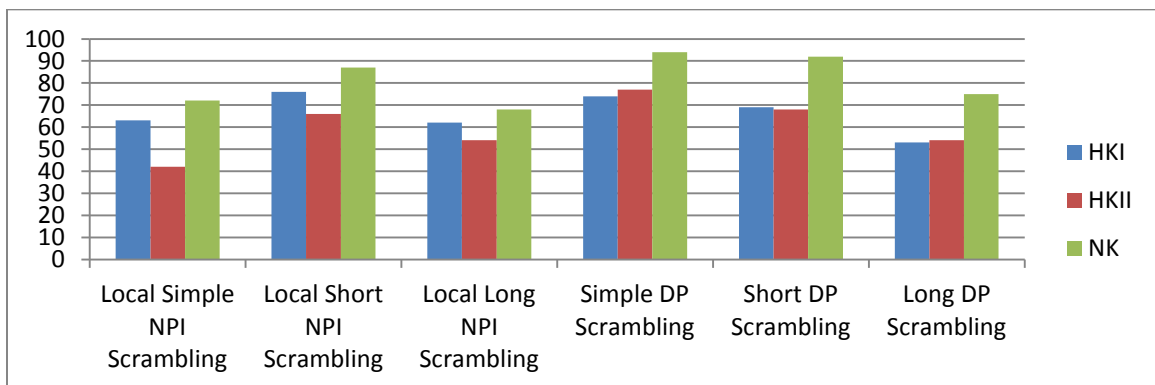
Figure 4.8. Mean acceptability of the NPI scrambling and object DP scrambling conditions in
simple and complex sentences

To sum up, in simple sentences, all three groups know the difference between NPI scrambling and object DP scrambling. In comparison between groups, heritage speakers (especially, HKII) showed less acceptability than native speakers. Both heritage speaker groups know the difference to the same degree.

On the other hand, in complex sentences, all three groups know the similarities between short and long-distance local NPI scrambling and short and long-distance object DP scrambling. In comparison between groups, early sequential heritage speakers (HKI) showed less acceptability than native speakers. Both heritage speaker groups know the similarities to the same degree.

4.1.4.6 Comparisons between NPI Scrambling and Object NPI Licensing

4.1.4.6a Simple NPI Scrambling and Local Simple Object NPI Licensing

The sentence types of NPI scrambling in simple sentences (Simple NPI Scrambling) and unscrambled base NPI sentences of local object NPI licensing in simple sentences (Local Simple Object) were compared in order to investigate how participants identify the difference of NPI scrambling and its base sentences of object NPI licensing in simple sentences. Results for the NPI scrambling and object NPI licensing conditions in simple sentences are presented in Table 4.14 below.

Table 4.14. Mean acceptability of the NPI scrambling and object NPI licensing conditions in simple sentences

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
NPI Scrambling in Simple Sentences[1]	63 (31.5)	42 (30.7)	72 (33.0)
Local Object NPI Licensing in Simple Sentences[2]	96 (11.5)	94 (12.3)	97 (8.7)

1. *Anyone Chelswu did not hit.*
2. *Chelswu did not love anyone.*

The mean acceptability of the NPI scrambling and object NPI licensing conditions in simple sentences is presented in Figure 4.9.
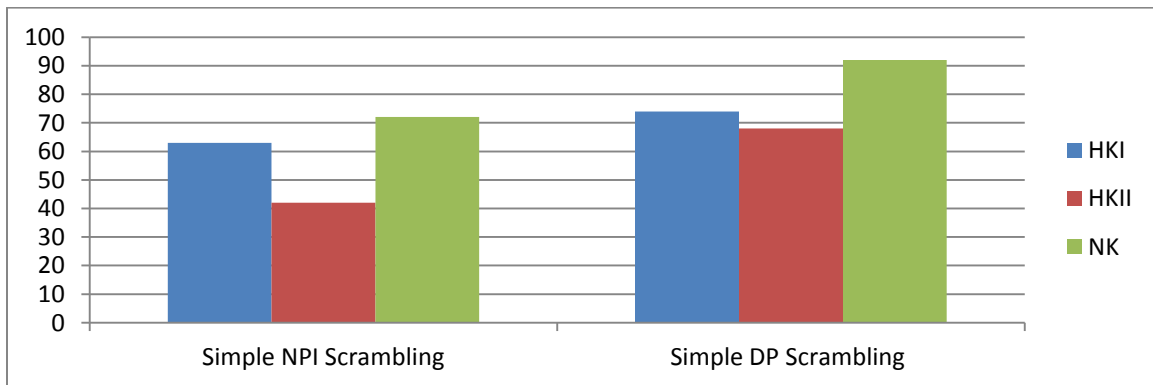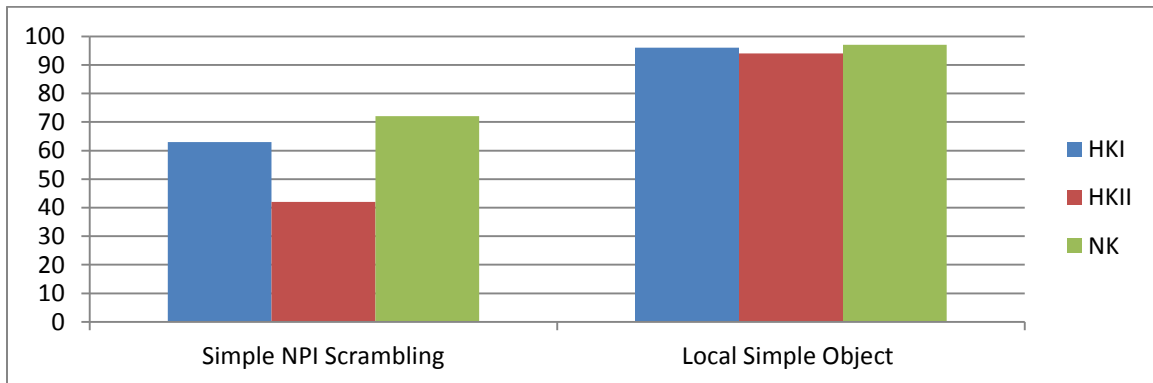

Figure 4.9. Mean acceptability of the NPI scrambling and object NPI licensing conditions in simple sentences

A repeated measures ANOVA was conducted to compare the simple NPI scrambling condition (Simple NPI Scrambling) and the local simple object NPI licensing condition (Local Simple Object). There was a significant effect for sentence type ($F(1, 81) = 116.886$, $p < .0001$). The effect for group was also significant ($F(2, 81) = 5.858$, $p = .004$) and there was a significant interaction between sentence type and group ($F(2, 81) = 5.836$, $p = .004$). Post-hoc comparisons by the Bonferroni adjustment revealed that there was a significant difference between HKII and

NK (p = .003). Difference between HKI and HKII was marginally significant (p = .098).

With respect to sentence type with Simple NPI Scrambling and Local Simple Object, HKI ($F(1, 24) = 30.018$, $p < .0001$) and HKII ($F(1, 24) = 67.600$, $p < .0001$) showed significant differences. NK also showed a significant difference within the sentence types ($F(1, 33) = 22.493$, $p < .0001$).

Thus, results indicate that all three groups know the difference between the simple object NPI scrambling and local simple object NPI licensing in unscrambled base sentences.

4.1.4.6b Short NPI Scrambling and Local Complex Object NPI Licensing

The sentence types of short-distance NPI scrambling in complex sentences (Short NPI Scrambling) and unscrambled base NPI sentences of local object NPI licensing in complex sentences (Local Complex Object) were compared in order to investigate how participants identify the difference of short-distance NPI scrambling and its base sentences of object NPI licensing in complex sentences. Results for the short-distance NPI scrambling and object NPI licensing conditions in complex sentences are presented in Table 4.15.

Table 4.15. Mean acceptability of the short-distance NPI scrambling and object NPI licensing conditions in complex sentences

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
Short NPI Scrambling in Complex Sentences[1]	76 (32.7)	66 (36.3)	87 (26.0)
Local Object NPI Licensing in Complex Sentences[2]	92 (19.1)	84 (25.2)	95 (17.3)

1. *I that anyone Chelswu did not hit believe.*
2. *I believe that Chelswu did not love anyone.*

The mean acceptability of the short-distance NPI scrambling and object NPI licensing conditions in complex sentences is presented below in Figure 4.10.
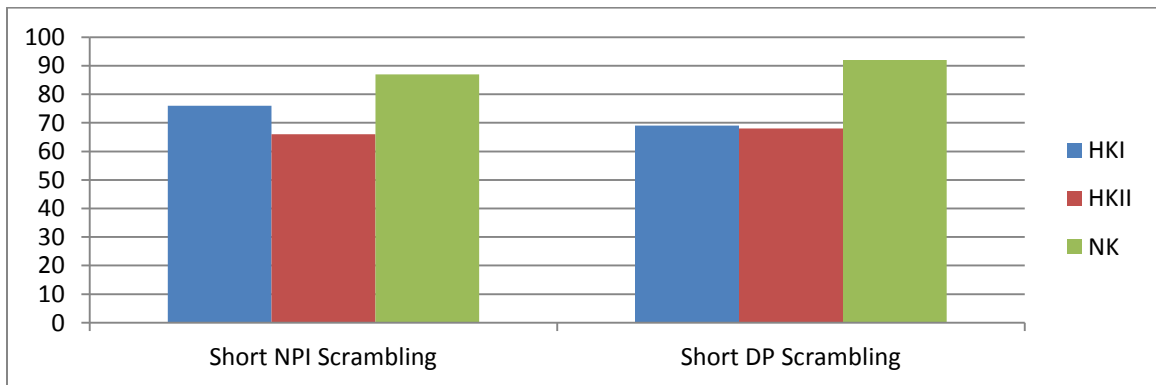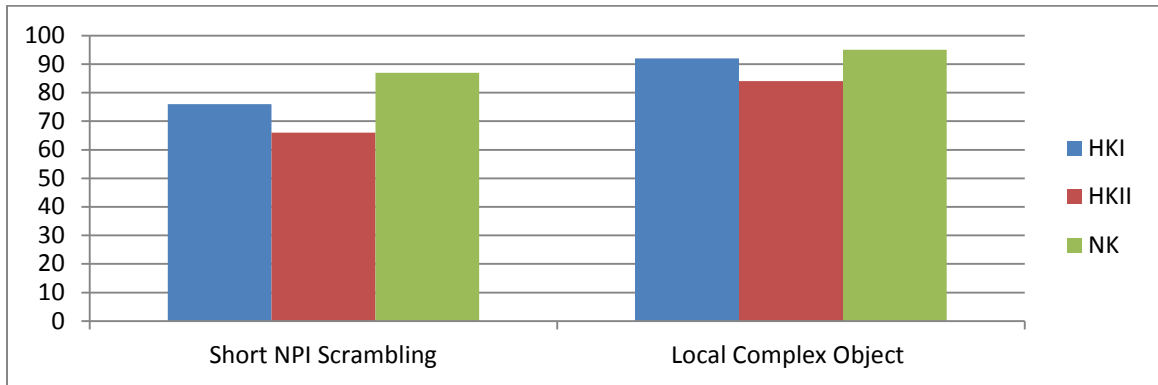

Figure 4.10. Mean acceptability of the short-distance NPI scrambling and object NPI licensing conditions in complex sentences

A repeated measures ANOVA was conducted to compare the short-distance NPI scrambling condition (Short NPI Scrambling) and the local complex object NPI licensing condition (Local Complex Object). There was a significant effect for sentence type ($F(1, 81) = 15.300$, $p < .0001$). The effect for group was also significant ($F(2, 81) = 4.275$, $p = .017$). However, there was no significant difference in interaction between sentence type and group. Post-hoc comparisons by the Bonferroni adjustment revealed that there was a significant difference between HKII and NK ($p = .013$).

With respect to sentence type with Short NPI Scrambling and Local Complex Object, there was a significant difference in HKI ($F(1, 24) = 7.680$, $p = .011$). There were also marginally significant differences both in HKII ($F(1, 24) = 4.238$, $p = .051$) and NK ($F(1, 33) = 3.725$, $p = .062$).

Thus, results indicate that both heritage speaker groups know the difference between the short-distance object NPI scrambling condition and the unscrambled base sentences of the local complex object NPI condition.

4.1.4.6c Long NPI Scrambling and Local Complex Object NPI Licensing

The sentence types of long-distance NPI scrambling in complex sentences (Long NPI Scrambling) and unscrambled base NPI sentences of local object NPI licensing in complex sentences (Local Complex Object) were compared in order to investigate how participants identify the difference of long-distance NPI scrambling and its base sentences of object NPI licensing in complex sentences. Results for the long-distance NPI scrambling and object NPI licensing conditions in complex sentences are presented in Table 4.16.

Table 4.16. Mean acceptability of the long-distance NPI scrambling and object NPI licensing conditions in complex sentences

Sentence Type	HKI (n = 25) Mean (SD)	HKII (n = 25) Mean (SD)	NK (n = 34) Mean (SD)
Long NPI Scrambling in Complex Sentences[1]	62 (34.1)	54 (35.4)	68 (34.5)
Local Object NPI Licensing in Complex Sentences[2]	92 (19.1)	84 (25.2)	95 (17.3)

1. *Anyone I that Chelswu did not hit believe.*
2. *I believe that Chelswu did not love anyone.*

The mean acceptability of the long-distance NPI scrambling and object NPI licensing conditions in complex sentences is presented below in Figure 4.11.
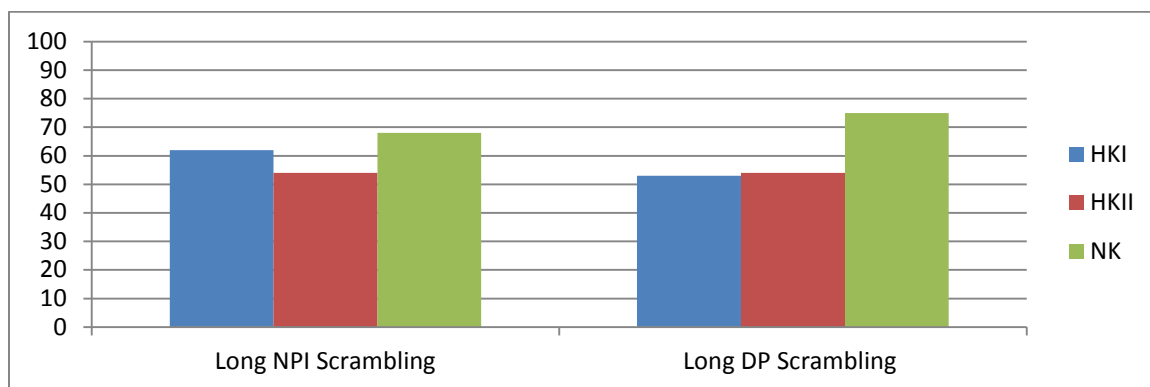
163
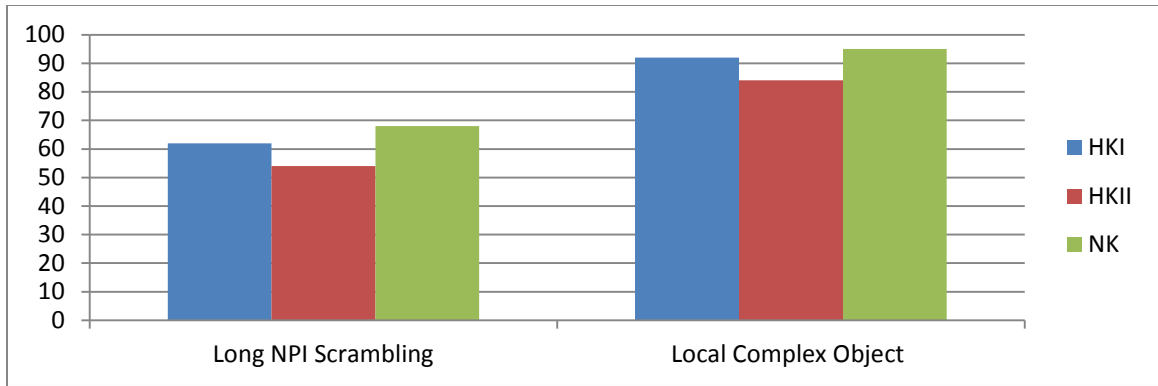
Figure 4.11. Mean acceptability of the long-distance NPI scrambling and object NPI licensing conditions in complex sentences

A repeated measures ANOVA was conducted to compare the long-distance NPI scrambling condition (Long NPI Scrambling) and the local complex object NPI licensing condition (Local Complex Object). There was a significant effect for sentence type ($F(1, 81)$ = 49.087, $p < .0001$). However, the effects for group and interaction between sentence type and group were not significant.

With respect to sentence type with Long NPI Scrambling and Local Complex Object, HKI ($F(1, 24)$ = 20.928, $p < .0001$) and HKII ($F(1, 24)$ = 9.507, $p = .005$) showed significant differences. NK also showed a significant difference within the sentence types ($F(1, 33)$ = 25.380, $p < .0001$).

Thus, results indicate that all three groups know the difference between the long-distance object NPI scrambling condition and the unscrambled base sentences of the local complex object NPI condition.

Table 4.17 presents ANOVA results of the object NPI scrambling conditions and unscrambled local object NPI conditions both in simple and complex sentences.

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Table 4.17. ANOVA results of the object NPI scrambling and unscrambled local object NPI conditions in simple and complex sentences

		Simple NPI Scrambling/ Local Simple Object NPIs	Short NPI Scrambling/ Local Complex Object NPIs	Long NPI Scrambling/ Local Complex Object NPIs
Sentence Type	F	116.886	15.300	49.087
	(*p*)	(.000*)	(.000*)	(.000*)
Group	F	5.858	4.275	2.357
	(*p*)	(.004*)	(.017*)	(.101)
Sentence Type × Group	F	5.836	.908	.093
	(*p*)	(.004*)	(.407)	(.911)

* Effect/interaction is significant at the $p < .05$ level.

The mean acceptability of the NPI scrambling and object NPI licensing conditions in both in simple and complex sentences is presented in Figure 4.12.
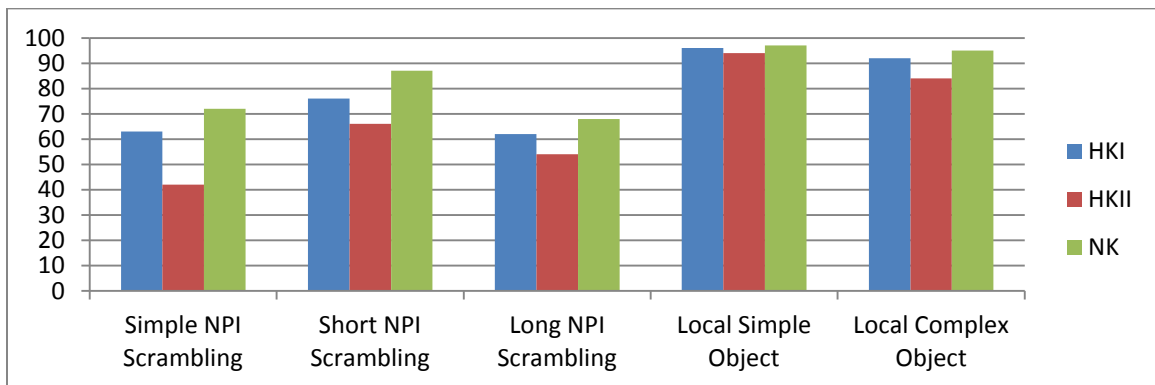
Figure 4.12. Mean acceptability of the NPI scrambling and object NPI licensing conditions in simple and complex sentences

To sum up, all three groups know the difference between the NPI scrambling conditions and the unscrambled base sentences of the object NPI licensing conditions. In comparison between groups, there were overall significant differences between HKII and NK. However, there was no significant difference between heritage speaker groups.

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4.1.4.7 Summary of Results

As we saw in Chapter 3, it was predicted that when the syntactic properties are Korean-specific properties, heritage speakers acquire the heritage language-specific properties. Both of the heritage Korean speaker groups (especially, simultaneous heritage speakers) overall demonstrated acceptability of NPI scrambling (e.g., *Anyone Chelswu did not hit*) to the same degree as native speakers. The results of the NPI scrambling conditions support Hypothesis 1 (Heritage Language Maintenance) in Section 2.2.2 in Chapter 2, in that heritage Korean speakers (especially, simultaneous speakers) know the use of the Korean-specific properties of NPI scrambling to a somewhat similar degree with native Korean speakers.

With respect to age effect predictions (see also Section 2.2.2 in Chapter 2), although there was a marginally significant difference between simultaneous heritage speakers (HKI) and early sequential heritage speakers (HKII) in the NPI scrambling condition in simple sentences (Simple NPI Scrambling) (e.g., *Anyone Chelswu did not hit*), the results do not support Hypothesis 3 (Age Effects) because HKI showed higher acceptability than HKII. From these results for the NPI scrambling conditions, Hypothesis 1 is supported, whereas Hypothesis 3 is not supported.

For the variability of NPI "rescue" scrambling from the ungrammatical non-local NPI base sentence, all three groups partially allow the NPI scrambling conditions, with speakers' interpretation strategies such as Exceptional Case Marking (ECM) for the short-distance NPI "rescue" scrambling condition (e.g., ?*I that anyone Chelswu hit did not believe.*) and "Linear Order Strategy" for the long-distance NPI "rescue" scrambling condition (e.g., ?*Anyone that I Chelswu hit did not believe.*). In terms of a rescuing effect, the scrambling may have the rescuing effect for native speakers. However, the rescuing effect for heritage speakers is not clear, based on the comparison with scrambled sentences and unscrambled non-local base NPI sentences.

Different sentence types were also compared to investigate whether distance of scrambling plays a significant role in heritage speakers' acceptability of the NPI scrambling conditions. With regard to short-distance in simple sentences (e.g., *Anyone Chelswu did not hit*) and complex sentences (e.g., *I that anyone Chelswu did not hit believe*) in the NPI scrambling conditions, like native speakers, both heritage speaker groups showed a significant difference (Simple NPI Scrambling and Short NPI Scrambling). With regard to short-distance (e.g., *I that anyone Chelswu did not hit believe*) and long-distance (e.g., *Anyone I that Chelswu did not hit believe*) in complex sentences, all three groups showed a significant difference (Short NPI Scrambling and Long NPI Scrambling).

However, with respect to short-distance in simple sentences (e.g., *Anyone Chelswu did not hit*) and long-distance in complex sentences (e.g., *Anyone I that Chelswu did not hit believe*), only early sequential heritage speakers (HKII) showed a significant difference. In comparisons with groups, there were overall significant differences between early sequential heritage speakers (HKII) and native speakers. The results indicate that distance of scrambling or sentence complexity does not play a role in all three groups' acceptability of NPI scrambling.

Lastly, to investigate the similarities and differences of the syntactic properties regarding NPI scrambling, comparisons were made between NPI scrambling and ordinary DP scrambling, and between NPI scrambling and unscrambled base object NPI licensing in Korean. Results show that all three groups know the difference between NPI scrambling in simple sentences (Simple NPI Scrambling) (e.g., *Anyone Chelswu did not hit*) and DP scrambling in simple sentences (Simple DP Scrambling) (e.g., *Chelswu-ACC Yenghuy-NOM hit*). All three groups also know the similarities between local short-distance NPI scrambling in complex sentences (Short NPI Scrambling) (e.g., *I that anyone Chelswu did not hit believe*) and short-distance DP

scrambling in complex sentences (Short DP Scrambling) (e.g., *I think that Yenghuy-ACC Chelswu-NOM met*), and between long-distance NPI scrambling in complex sentences (Long NPI Scrambling) (e.g., *Anyone I that Chelswu did not hit believe*) and long-distance DP scrambling in complex sentences (Long DP Scrambling) (e.g., *Yenghuy-ACC I think that Chelswu-NOM met*). In all comparisons, early sequential heritage speakers (HKII) were overall less accurate than native speakers.

In comparisons with NPI scrambling (e.g., *Anyone Chelswu did not hit*) and unscrambled base object NPI licensing (e.g., *Chelswu did not hit anyone*), results indicate that all three groups know the differences of NPI scrambling and NPI licensing in the base sentences. In all comparisons, early sequential heritage speakers (HKII) were overall less accurate than native speakers. Detailed accounts of these findings will be discussed in the following section.

4.2 Discussion

4.2.1 Acquisition of NPI Scrambling in Korean by Heritage Korean Speakers

Scrambling of negative polarity items (NPIs) was examined to investigate whether and how much heritage speakers allow NPI scrambling and additionally to explore whether and how much the acquisition of NPI scrambling is similar or different to the acquisition of ordinary DP scrambling in Heritage/Full Korean. The same groups tested in Experiment 1 were compared in this experiment. The research questions mainly focused on: (i) whether heritage Korean speakers know the Korean-specific properties of scrambling of object NPIs in Heritage Korean, (ii) whether heritage Korean speakers show possible transfer effects from the absence of scrambling in English, and (iii) whether age of acquisition of English plays a role in the degree of acquisition of NPI scrambling in Korean.

4.2.1.1 Acceptability of Negative Polarity Items (NPIs) Licensing in No-negation

Both of the heritage Korean speaker groups correctly rejected the sentences with the scrambled NPI *amwuto* as ungrammatical when the scrambled NPI sentences appear without the negator *an* as in (9).

(9) *__amwuto__ Chelswu-ka   salang-ha-yss-ta.
    anyone   C-NOM   love-do-PST-DEC
    '*ANYONE Chelswu loved.'

The scrambled NPI sentence in (9) is ungrammatical since the scrambled NPI cannot be licensed without negator. Results show that both heritage speaker groups fully know that scrambled NPIs both in simple and complex sentences are subject to negation in Korean.

4.2.1.2 Acquisition of Heritage Language-specific Properties

From the results of the syntactic properties of object NPI scrambling in Korean, Hypothesis 1 is supported. Hypothesis 1 (Acquisition of Heritage Language Properties) stated that in the acquisition of NPI scrambling in Korean, heritage Korean speakers will show somewhat similar patterns with native Korean speakers, or less affected acceptability in the salient Korean-specific NPI properties of object NPI scrambling in the grammatical local licensing in the base sentences as in (10a-c).

(10) a. __amwuto$_k$__ Swumi-ka __t$_k$__   mit-ci   __an__-h-ass-ta.
      anyone   S-NOM   trust-CI NEG-do-PST-DEC
      'Swumi did not trust ANYONE.'
      (Intended) 'ANYONE, Swumi did not trust.'

b. na-nun **[amwuto_k** Swumi-ka **t_k** mit-ci   **an**-h-ass-ta-ko]   sayngkak-ha-n-ta.
I-TOP   anyone   S-NOM   trust-CI   NEG-do-PST-DEC-COMP   think-do-PRS-DEC
'I think that Swumi did not trust anyone.'
(Intended) 'I think that ANYONE Swumi did not trust.'

c. **amwuto_k**   na-nun [Swumi-ka **t_k** mit-ci   **an**-h-ass-ta-ko]   sayngkak-ha-n-ta.
anyone   I-TOP   S-NOM   trust-CI   NEG-do-PST-DEC-COMP   think-do-PRS-DEC
'I think that Swumi did not trust anyone.'
(Intended) 'ANYONE, I believe that Swumi did not trust.'

The equivalent English sentences to the scrambled object NPI sentences in (10a-c) are ungrammatical in English since English does not allow scrambling in general or the scrambled NPIs cannot be licensed by its c-commanding licenser negation in English. However, the sentences in (10a-c) are grammatical (or acceptable) in Korean, since NPIs can be scrambled when they are clausemate with negator in base sentences[48]. Results showed that there were no differences between simultaneous heritage speakers (HKI) and native speakers in local NPI scrambling both in simple and complex sentences. However, early sequential heritage speakers (HKII) showed significant differences from native speakers in local NPI scrambling both in simple and short-distance in complex sentences.

Thus, results indicate that simultaneous heritage speakers (HKI) have the similar knowledge of the Korean-specific properties of local NPI scrambling which English prohibits. However, early sequential heritage speakers (HKII) show less acceptability of short-distance NPI scrambling than native speakers.

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[48] Grammaticality of NPI scrambling has not been widely discussed in the literature. S. Park (1994) discusses NPI scrambling in A and A-bar movement, while Y.-J. Kwon (1993) judges that the sentence of long-distance scrambling as in (10c) is ungrammatical. However, Kwon does not discuss a grammaticality of the sentences in short-distance scrambling as in (10a-b).

4.2.1.3 Dominant Language Transfer

With regard to Hypothesis 2 (Dominant Language Transfer), the NPI scrambling results do not seem to support the hypothesis. Unlike ungrammatical long-distance object NPI licensing in Experiment 1, where we saw potential transfer from English non-local NPI licensing, heritage Korean speakers (especially, HKI) did not show less acceptability compared to native Korean speakers in NPI scrambling. Thus, the results may indicate that transfer effects were not found in NPI scrambling in Heritage Korean.

On the contrary, potential transfer effects may occur when syntactic properties in Korean are different from English properties as in other type of scrambling, i.e., case-marked ordinary DP scrambling. Ordinary DP scrambling in the fillers was not successfully acquired by both heritage speaker groups. Thus, the absence of scrambling properties in English potentially influences the acquisition of ordinary DP scrambling in Heritage Korean. That is, the acquisition of the Korean properties different from English word order is potentially affected by dominant language transfer. However, in addition to syntactic differences, there are possible other reasons why heritage speakers pattern differently from native speakers. Heritage speakers may not fully acquire pragmatic use of scrambling unlike native speakers. Even though they have the knowledge of scrambling from the given contexts, they prefer not to use scrambling. Thus, I argue that heritage Korean speakers prefer canonical word order to non-canonical word order (i.e., scrambling) in Korean.

Even though the absence of scrambling in English potentially affects the acquisition of ordinary DP scrambling in Korean, potential transfer effects do not seem to occur in scrambling of NPIs. However, notice that no significant differences between heritage speakers and native speakers came from low acceptability from native speakers as the control group. If NPI

scrambling is compared with DP scrambling, there were no significant differences in heritage speakers (especially simultaneous heritage speakers), either. In other words, ordinary DP scrambling patterns with NPI scrambling in Heritage Korean. Thus, it is hard to tease apart whether there are no potential transfer effects in the acquisition of NPI scrambling or whether there are potential transfer effects in the acquisition of NPI scrambling like the acquisition of DP scrambling but native speakers as the control group did not perform on NPI scrambling as well as they did on DP scrambling.

4.2.1.4 Age Effects

Hypothesis 3 (Age Effects) is not supported as in other NPI properties of object and subject NPI licensing investigated in Experiment 1. Early sequential heritage speakers (HKII) did not show a higher acceptability (or acceptability) of NPI scrambling than simultaneous heritage speakers (HKI).

Although there was a marginally significant difference between simultaneous heritage speakers and early sequential heritage speakers in local NPI scrambling in simple sentences (Local Simple Scrambling), the results do not support Age Effects because simultaneous heritage speakers showed higher acceptability than early sequential heritage speakers. Age effects were not detected in filler sentences (ordinary DP scrambling) either. However, age effects were found selectively in the distractor sentences (i.e., ungrammatical *wh*-in situ and ungrammatical causative case morphology). Thus, as we discussed in Experiment 1, although age effects are not supported in the acquisition of NPI scrambling, age effects can be selectively borne out depending on the properties of morphology and syntax.

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4.2.1.5 Variability of Early Sequential Heritage Speakers

The results showed that there was one marginally significant difference between HKI and HKII in NPI scrambling in simple sentences (p = .071†) and the difference came from HKIIs' lower acceptability of the condition. Difference between early sequential heritage speakers (HKII) and native speakers were also significant (p = .002). In short-distance NPI scrambling in complex sentences, there was a significant difference between early sequential heritage speakers (HKII) and native speakers (p = .033). Thus, early sequential heritage speakers showed lower acceptability either than simultaneous speakers or native speakers in NPI scrambling in local short-distance NPI scrambling both in simple and complex sentences.

Individual results of NPI scrambling in simple sentences also showed that 10 early sequential heritage speakers of 25 did not allow the condition at the rate of less than 20% acceptability and only 5 early heritage speakers out of 25 allowed the condition at the rate of more than 80% acceptability. However, individual results of short-distance NPI scrambling in complex sentences showed that 14 early sequential heritage speakers of 25 allowed the condition at the rate of more than 80% acceptability and only 6 early heritage speakers out of 25 did not allow the condition at the rate of less than 20% acceptability.

On the contrary, the results also demonstrated that early sequential heritage speakers (HKII) pattern with simultaneous heritage speakers (HKI) in ordinary DP scrambling both in simple and complex sentences. Individual results also showed that 18 early sequential heritage speakers of 25 allowed ordinary DP scrambling in simple sentences at the rate of more than 80% acceptability and only 5 early heritage speakers out of 25 did not allow the condition at the rate of less than 20% acceptability.

Notice that all three groups showed less acceptability in NPI scrambling than that of ordinary DP scrambling. Thus, the results between NPI scrambling and DP scrambling indicate that interpretations of scrambled sentences with case-marked DPs are much easier than those of scrambled sentences with uncase-marked NPIs.

Thus, lower acceptability of early sequential heritage speakers in NPI scrambling in simple sentences may suggest that they show more conservative views of case morphology in interpretation of scrambled NPI simple sentences than simultaneous heritage speakers.

As we also saw in Experiment 1, even if early sequential heritage speakers showed lower acceptability than simultaneous and/or native speakers, L1 attrition is hard to determine because lower acceptability of NPI scrambling by early sequential heritage speakers was not significant across sentence types and in other scrambling type (i.e., DP scrambling) there was no difference between HKI and HKII. Thus, the results may suggest that early sequential heritage speakers are more aware of canonical case morphology in NPI scrambling.

4.2.2 NPI Scrambling Distance

Results of ordinary DP scrambling in the filler conditions showed that all three groups showed significant differences with the sentence types between short-distance and long-distance DP scrambling. However, all three groups did not show any differences with the sentence types between short-distance in simple and complex sentences. The results indicate that distance of scrambling (rather than sentence complexity only) plays a significant role in ordinary DP scrambling.

In terms of NPI scrambling, results showed that all three groups showed significant differences with the sentence types between short-distance both in simple and complex sentences,

and between short and long-distance in complex sentences. However, all three groups did not show any differences with the sentence types between short-distance in simple and long-distance in complex sentences. Thus, the results indicate that there is a confound in terms of scrambling distance and sentence complexity. A confound is accounted for by the fact that there was no significant differences between short-distance in simple and long-distance in complex sentences. In other words, what plays a significant role in NPI scrambling is whether NPIs scramble to the initial position of the sentence (i.e., the canonical matrix subject position) or NPIs scramble to non-matrix subject positions. Recall that unlike ordinary DP, NPIs in Korean are not case-marked such that scrambled non-cased marked NPIs in the matrix subject position make the NPI scrambled sentences harder to interpret because speakers may assume the scrambled object NPI as a subject NPI in canonical order. If scrambled NPI sentences starts with canonical DP matrix subject as in short-distance NPI scrambling in complex sentences (Short Complex NPI Scrambling), all three groups pattern with short-distance DP scrambling.

The results show that unlike ordinary DP scrambling, scrambling distance (and sentence complexity) does not play a role in heritage speakers and native speakers' acceptability of the local NPI scrambling conditions. Since NPI scrambling is different from DP scrambling in case morphology, heritage speakers and native speakers employ other interpretation strategy. Speakers may have a preference to parse a subject DP as the canonical order in NPI scrambled sentences. Ordinary DP scrambling does not cause this interpretation ambiguity since ordinary DPs are case-marked such that speakers configure the sentences although they are scrambled. I would call the speakers' interpretation strategy of NPI scrambling as 'subject DP preference in NPI scrambling'. This analysis of subject DP preference in scrambled NPI sentences does not conflict with the presence of subject NPIs since an uncase-marked subject NPI can be parsed as

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subject due to a case-marked ordinary DP object in the canonical order in Korean. NPI scrambling is less allowable than ordinary DP scrambling because an uncase-marked scrambled NPI cause ambiguity. Furthermore, a scrambled uncase-marked NPI in matrix subject position may cause a difficulty to parse subject-object relations in non-canonical order.

4.2.3 NPI Scrambling and DP Scrambling

As we saw, ordinary object DP scrambling and object NPI scrambling are both allowable from the contexts in Korean. In ordinary object DP scrambling, both heritage speaker groups showed less acceptability than native speakers and there were no significant differences between heritage speaker groups. In object NPI scrambling, simultaneous heritage speakers (HKI) showed the same acceptability as native speakers. However, early sequential speakers (HKII) generally showed less acceptability than native speakers.

In comparisons between NPI scrambling and ordinary DP scrambling, results showed that NPI scrambling patterns with DP scrambling in short and long-distance scrambling in complex sentences. However, NPI scrambling patterns differently from DP scrambling in short-distance scrambling in simple sentences.

The results indicate that like native speakers, both heritage speaker groups know the similarities and difference between NPI scrambling and DP scrambling. The difference may stem from speakers' interpretation strategy that speakers prefer a case-marked matrix subject DP to an uncase-marked matrix subject NPI in NPI scrambling. In other words, an uncase-marked NPI may cause ambiguity in parsing grammatical functions of DPs in the scrambled sentence. Thus, NPI scrambling is different from ordinary DP scrambling in that (i) NPIs are not case-marked, which causes ambiguous interpretations when NPIs scramble to the left of the matrix subject

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position and (ii) scrambled NPIs still need to be clausemate with negation both at D-structure and S-structure.

4.2.4 NPI Scrambling and Object NPI Licensing

NPI scrambling, like NPI local licensing, becomes grammatical when an NPI occurs with negator in the same clause (i.e., the clausemate condition). Results between NPI scrambling and NPI local licensing showed that there were significant throughout the sentence types in all three groups. The results indicate that the grammaticality of NPI scrambling is not the same as that of NPI local licensing, even in Native Korean. As already discussed, unlike the grammaticality of object and subject NPIs in Korean, the grammaticality of NPI scrambling has not been widely discussed in the literature. S. Park (1994) discusses NPI scrambling in A and A-bar movement and K.-W. Sohn (1995) discusses NPI scrambling in the Neg feature (NegP) and scope, while Y.-J. Kwon (1993) judges long-distance scrambling as ungrammatical. As we saw in this experiment, both short and long-distance NPI scrambling are possible, but NPI scrambling is less acceptable than ordinary DP scrambling, (especially, in short-distance scrambling both in simple and complex sentences).

4.2.5 Grammar of NPI Scrambling in Korean and Heritage Korean

This section explores how the syntactic properties NPI scrambling in Heritage Korean are similar to Native Korean. Since age effects were not overall statistically significant between simultaneous and early sequential heritage Korean speakers, and heritage speakers (especially simultaneous heritage speakers) pattern with native speakers, the syntax of NPI scrambling is represented for both Heritage Korean and Korean.

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4.2.5.1 NPI Scrambling: Reconstruction Effects

Long-distance NPI scrambling is possible even though a scrambled NPI is not clausemate with negation after scrambling as in (11b).

(11) a. na-nun **[Chelswu-ka amwuto** ttayli-ci **an**-h-ass-ta-ko]   sayngkak-ha-n-ta.
       I-TOP   C-NOM   anyone hit-CI   NEG-do-PST-DEC-COMP think-do-PRS-DEC
       'I think that Chelswu did not hit anyone.'

   b. **amwuto_k**   na-nun [Chelswu-ka **t_k** ttali-ci **an**-h-ass-ta-ko]   sayngkak-ha-n-ta.
       anyone   I-TOP   C-NOM   hit-CI   NEG-do-PST-DEC-COMP think-do-PRS-DEC
       'I think that Cheslwu did not hit anyone.'
       (Intended) 'ANYONE, I think that Cheslwu did not hit.'

The long-distance/non-local scrambled NPI *amwuto* in (11b) cannot be licensed by the negator *an* in the embedded clause at S-structure. However, the scrambled NPI sentence in (11b) becomes grammatical since local NPI licensing takes place when the scrambled NPI reconstructs to the base position as in (11a).

Thus, as S. Park (1994) points out, long-distance NPI scrambling is possible when the scrambled NPI can reconstruct to the base position.

4.2.5.2 NPI "Rescue" Scrambling

NPI scrambling of ungrammatical non-local NPI base sentences is expected to be ungrammatical since the NPI is not clausemate with negation in the base sentence.[49] However, results showed that there were different trends by all three groups in terms of acceptability of scrambling of non-local NPI base sentences: highly acceptable, no preference, and highly unacceptable. Thus, the results indicate that grammaticality (or acceptability) of non-local NPI

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[49] K.-W. Sohn (1995) also discusses the puzzle of this phenomenon (Sohn, p. 34).

scrambling depends on speakers' variability. The variability is accounted for by speakers' interpretation strategies of reanalysis of the NPI scrambling structures employing Exceptional Case Marking (ECM) and Linear Order Strategy.

4.2.5.2a Exceptional Case Marking (ECM)

Grammaticality of short-distance NPI scrambling of non-local NPI base sentences is variable as in (12b), even though the non-local NPI base sentence is ungrammatical as in (12a) and the scrambled NPI is not clausemate with negation after scrambling as in (12b).

(12) a. ?*na-nun **[Chelswu-ka amwuto** ttayli-ess-ta-ko**]**   sayngkak-ha-ci **an**-h-n-ta.
    I-TOP   C-NOM   anyone hit-PST-DEC-COMP think-do- CI   NEG-do-PRS-DEC
    'I think that Chelswu did not hit anyone.'

  b. ??na-nun **[amwuto$_k$** Chelswu-ka **t$_k$** ttayli-ess-ta-ko**]**   sayngkak-ha-ci **an**-h-n-ta.
    I-TOP   anyone C-NOM   hit-PST-DEC-COMP think-do- CI   NEG-do-PRS-DEC
    'I think that Cheslwu did not hit anyone.'
    (Intended) 'I, ANYONE, think that Cheslwu did not hit.'

If speakers treat the scrambled NPI as the matrix object, the NPI *amwuto* becomes clausemate with the negator *an* in the matrix clause as in (12b) and the scrambled sentence is acceptable. However, even if the NPI can be licensed by negation at S-structure, if the base NPI sentence is not locally licensed by negation, the grammaticality of the scrambled NPI sentences becomes variable in Korean.[50]

4.2.5.2b Linear Order Strategy

Grammaticality of long-distance NPI scrambling of non-local NPI base sentences is also

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[50] K..-W. Sohn (1995) accounts for the grammaticality of the sentences as in (12) in a NegP approach (Sohn, p. 35).

variable as in (13b), even though the non-local NPI base sentence is ungrammatical as in (13a)

but the scrambled NPI becomes clausemate with negation after scrambling as in (13b).

(13) a. ?*na-nun **[Chelswu-ka amwuto** ttayli-ess-ta-ko**]** sayngkak-ha-ci **an**-h-n-ta.
I-TOP   C-NOM   anyone hit-PST-DEC-COMP think-do- CI   NEG-do-PRS-DEC
'I think that Chelswu did not hit anyone.'

b. ?? **amwuto_k** na-nun **[**Chelswu-ka **t_k** ttayli-ess-ta-ko**]** sayngkak-ha-ci **an**-h-n-ta.
anyone I-TOP   C-NOM   hit-PST-DEC-COMP think-do- CI   NEG-do-PRS-DEC
'I think that Cheslwu did not hit anyone.'
(Intended) 'ANYONE, I think that Cheslwu did not hit.'

In linear order as in (13b), since the scrambled NPI *amwuto* becomes clausemate with the

negator *an* in the matrix clause, the scrambled sentence is acceptable. However, like short-

distance NPI scrambling of non-local NPI base sentences, even if the NPI can be licensed by

negation at S-structure, if the base NPI sentence is not local, the grammaticality of the scrambled

NPI sentences becomes variable in Korean.

4.2.6 Summary of Discussion

The Discussion section has explored how scrambling of Negative Polarity Items (NPIs)

in Korean are acquired by heritage Korean speaker in connection with heritage language

maintenance of Korean-specific properties, possible transfer from English different word order

and age effects (between simultaneous and early sequential heritage Korean speakers). The

syntactic properties of NPI scrambling in Korean are also discussed to investigate how NPI

grammars in Heritage Korean are similar to and different from Native Korean.

With regard to Hypothesis 1 (Heritage Language Maintenance), when the syntactic

properties of NPI scrambling in Korean are the Korean-specific properties, the Korean-specific

properties become salient in Heritage Korean. The Korean-specific properties of object NPI scrambling were overall successfully acquired by heritage Korean speakers (especially, simultaneous heritage speakers). The acquisition of the Korean-specific properties is the least affected by dominant language transfer.

With respect to Hypothesis 2 (Dominant Language Transfer), potential transfer effects may occur in ordinary case-marked DP scrambling. However, potential transfer effects do not seem to occur in NPI scrambling. Since simultaneous heritage speakers pattern with native speakers in NPI scrambling, potential transfer effects were not found. However, no transfer effects are somewhat undetermined in NPI scrambling, because NPI scrambling also patterns with ordinary DP scrambling which may show potential transfer effects in Heritage Korean. Thus, it is hard to tease apart whether there are no potential transfer effects in the acquisition of NPI scrambling or whether there are potential transfer effects in the acquisition of NPI scrambling like the acquisition of DP scrambling but native speakers as the control group did not perform on NPI scrambling as well as they did on DP scrambling.

With regard to Hypothesis 3 (Age Effects), age effects between simultaneous heritage Korean speakers (AOA, 0-2) and early sequential heritage Korean speakers (AOA, 7-10) were not found in the overall properties of NPI scrambling. Age effects were not found in ordinary DP scrambling in the fillers either.

Potential L1 attrition by early sequential heritage speakers might be statistically inferred in NPI scrambling in simple sentences, based on the results of early sequential heritage speakers' lower acceptability of the condition than that of the simultaneous heritage speakers (p = .071†). However, L1 attrition is hard to determine because as we saw early sequential heritage speakers pattern with simultaneous speakers in ordinary DP scrambling. Thus, this is not the issue of L1

attrition in scrambling in general. More specifically, the issue lies in why early sequential show significantly lower acceptability of NPI scrambling in simple sentences. The acquisition of NPI scrambling concerns not only with scrambling itself but also with the NPI property of no case morphology. Thus, I suggest that early sequential heritage speakers show more conservative views of case morphology in interpretation of scrambled NPI sentences than simultaneous heritage speakers.

In terms of scrambling distance, distance of scrambling (rather than sentence complexity only) plays a significant role in ordinary DP scrambling in the fillers. However, in NPI scrambling shows a confound in scrambling distance and sentence complexity as between short-distance in simple and long-distance in complex sentences. Unlike ordinary DP scrambling, scrambling distance (and sentence complexity) in NPI scrambling does not play a significant role in heritage speakers as well as native speakers' acceptability. That is, both heritage Korean speakers and native Korean speakers find it hard to interpret NPI scrambled sentences when the sentences start with an uncase-marked NPI. This indicates that case morphology (even to native speakers) seems to be the cue to locate grammatical functions in uncased-marked NPI scrambling as well as cased-marked ordinary DP scrambling in Korean.

Lastly, with respect to the heritage grammars of NPI and ordinary scrambling in Heritage Korean, NPI scrambling is different from ordinary DP scrambling in terms of the NPI locality condition and case morphology. Ordinary DP scrambling in Heritage Korean is different from Korean, possibly, because of potential transfer from English word order or preference of canonical word order to non-canonical word order (scrambling) in Korean.

On the other hand, NPI scrambling in Heritage Korean is similar to Native Korean. In other words, all three groups show higher acceptability of NPI scrambling of grammatical local

base NPI sentences than that of ungrammatical non-local base NPI sentences. In NPI scrambling of grammatical local NPI base sentences, reconstruction effects take place in long-distance NPI scrambling (i.e., the non-local condition after scrambling) in Heritage Korean such that a reconstructed NPI fix the locality condition after scrambling. In NPI scrambling of ungrammatical non-local base sentences, which is expected to be ungrammatical because of the non-local condition of the NPI base sentence, variable acceptability can be accounted for either by Exceptional Case Marking (ECM) or Linear Order Strategy. Exceptional Case Marking (ECM) makes a scrambled NPI local to negation in the matrix clause, while Linear Order Strategy can be used to consider a scrambled NPI clausemate with negation in the matrix clause at S-structure. Thus, Exceptional Case Marking (ECM) and Linear Order Strategy can increase speakers' interpretations of the NPI scrambled sentences from the ungrammatical NPI base sentences.

CHAPTER 5
Conclusion

5.1 Summary of the Findings

This study investigated the acquisition and syntax of negative polarity items (NPIs) by adult simultaneous and early sequential heritage language speakers who speak Korean as a family (or heritage) language in the USA. Specifically, the study examined whether and how the dominant language (i.e., English) affects the heritage language (i.e., Korean) in NPI licensing and NPI scrambling.

The research questions tested in the experiments were as follows:

(i)   To what extent do heritage Korean speakers have knowledge of both the shared portion of the NPI properties between the target language (i.e., Korean) and the dominant language (i.e., English) such as the local licensing domain, and the salient Korean-specific properties of NPIs such as subject-object symmetry (i.e., the presence of subject NPIs) and scrambling of NPIs in Korean?

(ii)   Do heritage Korean speakers show transfer effects from English? Specifically, whether and how does the dominant language (i.e., English) affect the locality condition (i.e., the clasuemate condition) of NPIs in Korean?

(iii)   If the grammaticality of NPIs in Heritage Korean are influenced by the dominant language (i.e., English), is Heritage Korean affected in the same way in simultaneous and early sequential heritage Korean speakers? That is, how does age of acquisition of English play a role in the degree of acquisition of NPIs in Korean?

From the experiment testing local NPI licensing of object and subject NPIs (i.e., Experiment 1), the first research question regarding heritage language maintenance is answered as predicted. Heritage Korean speakers patterned with native Korean speakers in the acquisition of shared properties of object NPI local licensing between Korean and English (e.g., *Chelswu did*

not love anyone and *I believe that Chelswu did not love anyone*). In the acquisition of Korean-specific salient properties of subject NPIs in the matrix (e.g., *Anyone does not think that Chelswu trusted Yenghuy*) and embedded clauses (e.g., *I think that anyone did not trust Chelswu*) in local licensing heritage speakers showed similar acceptability as native speakers. The results indicate that heritage Korean speakers acquire and maintain syntactic properties of NPIs in their heritage language when the properties are shared and heritage language-specific. The results suggest that in addition to the acquisition of heritage language shared NPI properties (i.e., local object NPI licensing), the acquisition of language-specific NPI properties (i.e., local subject NPI licensing) is robust and seems to be less affected by the dominant language.

From the experiment testing NPI scrambling (i.e., Experiment 2), the answer to the first research question seems to come out as predicted. Heritage Korean speakers (especially, HKI) patterned with native Korean speakers in the acquisition of the Korean-specific salient properties of NPI scrambling in simple sentences (e.g., *Anyone Chelswu did not hit*), short-distance in complex sentences (e.g., *I that anyone Chelswu did not hit believe*), and long-distance in complex sentences (e.g., *Anyone I that Chelswu did not hit believe*). Thus, Heritage Korean speakers seem to maintain the Korean-specific properties of NPI scrambling. However, the comparisons between heritage speakers and native speakers in NPI scrambling may not be reliable because the native speakers' acceptability of NPI scrambling (e.g., 72% acceptability in NPI scrambling simple sentences) is significantly lower than other tested properties including ordinary DP scrambling (e.g., 94% acceptability in DP scrambling in simple sentences). In the acquisition of the Korean-specific properties of scrambling in general, since the results of NPI scrambling were different from those of ordinary DP scrambling in comparison with heritage speakers and native controls (i.e., heritage speakers patterned with native speakers in NPI

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scrambling whereas they patterned differently from native speakers in ordinary DP scrambling), it is unclear whether heritage speakers can maintain scrambling properties in Korean.

With regard to the second research question of transfer effects, heritage speakers showed potential dominant language transfer where two languages show distinctively different properties of the locality conditions such as local NPI licensing in Korean and non-local (or long-distance) NPI licensing in English (e.g., *I do not believe that Chelswu loved anyone*). Heritage Korean speakers patterned differently from native speakers in the acquisition of embedded object NPI licensing when negation appears in the matrix clause.

Finally, as for the third research question concerning the effects of age of onset of the dominant language (i.e., English), the answer comes out in an unpredicted way. Unlike age effects shown in the proficiency test, heritage Korean speakers overall did not display age effects throughout the sentence types in the two experiments. That is, simultaneous heritage speakers (HKI) overall did not pattern differently from early sequential heritage speakers (HKII) in object, subject NPI licensing, and in scrambling of NPIs.

5.2 Some Theoretical Implications

The results of the present study provide some theoretical implications to the research of heritage language acquisition. The current study of negative polarity items (NPIs) in Heritage Korean is generally in line with the findings of the literature in heritage language acquisition.

Heritage language can be fully acquired (or maintained) when the syntactic properties are shared between the dominant language and the heritage language (e.g., English and Korean). The results of the shared properties (i.e., local object NPI licensing) are in line with the binding study in Kim, Montrul, and Yoon (2009). Kim et al. (2009) found that heritage Korean speakers

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overall know *caki-casin* 'self-self' as a local anaphor, since it is similar in makeup to the complex anaphor *pronoun-self* in English (i.e., "form-function correlation", p. 16).

Heritage language maintenance may also occur when the syntactic properties are specific to the heritage language. The acquisition of heritage language-specific NPI properties is less affected by the dominant language. The results of the Korean-specific properties (e.g., subject NPIs in local licensing) are in line with J.-H. Kim (2007). Kim (2007) found that heritage Korean speakers generally acquired a language-specific binding property of a non-c-commanding (i.e., "sub-commanding") antecedent, *caki* 'self', whereas English learners of Korean (i.e., L2 Korean) did not fully acquire the Korean-specific "sub-commanding" anaphor and showed potential transfer from their L1 English.

Dominant language transfer may occur where there are parametrically different properties between heritage and dominant languages (see transfer effects in heritage language acquisition in Montrul, 2008). The results of the parametrically different properties in licensing (i.e., non-local object NPI licensing) are in line with H.-S. Kim (2005) (headness differences in relative clauses), and Kim, Montrul, and Yoon (2009) (binding) in heritage language acquisition. Specifically, in the acquisition of the locality conditions, Kim et al. (2009) found that heritage Korean speakers accepted long-distance binding of *caki* (and *casin*) 'self' to a lesser degree than monolinguals, just as heritage Korean speakers incorrectly accepted non-local NPI licensing of *amwuto* 'anyone' in the current study. Thus, in the acquisition of syntactic properties of heritage language, heritage speakers are vulnerable to the acquisition of a parametrically different locality condition from the dominant language (e.g., long-distance NPI licensing and local binding in English).

Transfer effects also occur in second language acquisition and they have been widely discussed in various linguistics domains in the literature. In relation to the locality condition,

Song (2003) reports that Korean learners of English generally find a difficulty in non-local licensing of NPIs in English. Thus, potential transfer effects may be predictable in heritage language acquisition as well as second language acquisition, especially when the cross-linguistic differences lie in distance of structural properties such as the locality conditions (e.g., the binding and NPI licensing domains).

In connection with heritage language maintenance and dominant language transfer, since the properties are language-specific, transfer effects do not display in heritage language. Studies in binding (J.-H. Kim, 2007) and subject NPI licensing (in the current study) have shown that there was no dominant language transfer in the acquisition of language-specific properties. However, recall that English learners of Korean showed transfer from their L1 (i.e., English) in the same binding property of the non-c-commanding/"sub-commanding" antecedent, *caki* 'self'. The results (especially, of subject NPI licensing) suggest that dominant language transfer does not occur in heritage language-specific properties and they are successfully acquired by heritage language speakers. Possible explanations can be found in the aspects of heritage language acquisition (i.e., early acquisition and family language input). Heritage language speakers may successfully acquire the language-specific properties (e.g., the presence of subject NPIs) in an early age, as Song (2003) observes that children in Korean showed no sign of an subject/object NPI asymmetry as early as 3;8. In addition to early acquisition of the language-specific properties, an uninterrupted exposure to the family language, sufficient input, and heritage language instruction are the potential factors that heritage language speakers become able to maintain the properties.

In terms of the acquisition of NPI scrambling, since the results show that heritage Korean speakers overall know the NPI scrambling as much as native controls, it was argued that like

subject NPIs in local licensing, the Korean-specific property of NPI scrambling is also maintained by heritage Korean speakers, assuming that there is no potential transfer from English. However, as pointed out, these results were challenged by the acceptability of native controls and by comparison with the results of ordinary DP scrambling in the fillers. I suggested that since NPI scrambling is even challenging to native Korean speakers because native Korean speakers along with heritage Korean speakers find it harder to interpret scrambled sentences with uncased-marked NPIs. The results of case-marked ordinary DP scrambling in the fillers confirm that native controls showed native acceptability of short-distance ordinary scrambling in simple and complex sentences. Thus, if native speakers' variability came from potential ambiguity because of no case markers to interpret scrambled sentences and if they relied more on given contexts to obtain the grammaticality of scrambled NPI sentences, more elaborated discourse contexts are needed to compare the acceptability of native speakers (and heritage speakers) in the future study.[51]

Unlike obligatory scrambling triggered by "specificity" (or "referentiality") in Dutch and German (Barbier, 2000; Unsworth, 2005; Schaeffer, 2000), scrambling in Korean and Japanese is not obligatory and scrambling may occur when a case marker (e.g. the accusative Case marker) play a role in interpreting the scrambled sentences (B. Kang, 2005). Since scrambling is acquired in early age (around age 3) (B. Kang, 2005; Otsu, 1994) or even in earlier age (age 2) (Murasugi and Kawamura, 2004) in Korean and Japanese, and scrambling is a language-specific property, heritage Korean speakers in the present study were predicted to acquire (or maintain) accusative

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[51] For future research, I also need to examine whether native speakers' variability improves in scrambling when a scrambled NPI is inanimate. Since there is no case marker with a scrambled NPI, animacy may play a role in interpretation of scrambled NPI sentences. That is, the scrambled animate NPI *amwuto* 'anyone' may cause more ambiguity than inanimate NPI *amwu-kes-to* 'anything', because all DPs are human in a NPI scrambled sentence.

case-marked ordinary DP scrambling in the fillers. Acceptability in ordinary DP scrambling by heritage speakers can be accounted for by the nature of non-obligatory scrambling, and/or by insufficient input including instruction of scrambling. Notice that (object) DP scrambling in Korean is neither obligatory nor canonical, and scrambled sentences are even considered as uneducated such that the use of scrambled sentences is generally not preferred or even discouraged, especially in written speech in Korean. Furthermore scrambling is not instructed at school. It is also possible that there may be potential transfer effects from English word order. Thus, it is not clear to tease apart what factors may cause lower acceptability in scrambling when the properties are non-canonical.

With respect to age effects, the results in the present study turn out to be of more interest to the age effects in heritage language acquisition in general. In connection with age effects and input, as is already pointed out (Polinsky, 1997; Montrul, 2005), early exposure to heritage language does not guarantee success in all areas of grammar, because of the interrupted acquisition of and the reduced amount of input to the heritage language. Simultaneous heritage Korean speakers in my study also show some subtle differences from native speakers in subject NPI licensing in complex sentences and in NPI scrambling, even if there were no significant differences between heritage speakers and native controls. With regard to effects of age of onset of the dominant language (e.g., English) between different heritage language speaker groups, Kim et al. (2009) show that results from late sequential heritage Korean speakers (AOA, 11-19) are similar to those from native speakers, indicating that simultaneous heritage Korean speakers show dominant language transfer or incomplete acquisition. J.-H. Kim (2007) also shows that simultaneous heritage Korean speakers are more similar to native Korean speakers than English learners of Korean, although both groups show some transfer effects. Thus, results in J.-H. Kim

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(2007) and Kim et al. (2009) indicate that age of onset of the dominant language (e.g., English) or bilingualism (e.g., English and Korean) plays a significant role in heritage language acquisition.

On the contrary, the findings of age effects in the present study were different from those from J.-H. Kim (2007) and Kim et al. (2009), in that simultaneous heritage speakers did not differ from early sequential heritage speakers (AOA, 7-10). One might consider the fact that the group categories of the sequential heritage speakers in comparison are different (e.g., late vs. early sequential). However, notice that age effects were detected in the proficiency test and some distractors (e.g., morpho-syntactic properties: passives, causative, relative clauses). The results indicate that there are potential age effects between simultaneous and early sequential heritage speakers in the acquisition of Korean grammar in general. However, age effects did not display in the acquisition of NPI licensing and scrambling. Thus, age effects may selectively play a role in the acquisition of different morpho-syntactic properties and complex structures (e.g., relative clauses[52]). Based on the observations, it is suggested that age effects may display when the morpho-syntactic properties are complex and harder to acquire. Further research is needed whether and how simultaneous and early sequential heritage speakers differ in the acquisition of various morpho-syntactic properties.

With regard to sentence complexity, although the differences were not statistically significant, heritage Korean speakers were overall not accurate as native controls at object and subject NPI licensing in complex sentences. Furthermore, heritage Korean speakers were not accurate as native speakers at both object and subject NPI licensing when object and subject

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[52] H.-S. Kim (2005) also shows that heritage Korean speakers performed better than L2 (Korean) learners on relative clause in Korean. However, O'Grady et al. (2001) find that heritage speakers were not different from L2 learners in relative clauses in Korean.

NPIs appear without negation in complex sentences. Thus, the results indicate that sentence complexity generally affects the acquisition of NPI licensing. However, notice that in the distractors heritage Korean speakers were accurate as native speakers at plain (and affirmative) complex sentences which do not include the complex syntactic properties such as NPI licensing conditions. Thus, sentence complexity potentially plays a role in heritage language acquisition in that complex sentences containing complex linguistic properties may trigger slightly lower acceptability of heritage speakers. However, NPI scrambling distance (and sentence complexity) does not play a significant role in heritage speakers as well as native speakers' acceptability.[53]

With respect to acceptability in heritage speakers, both heritage speaker groups overall acquired NPI licensing and scrambling in the present study. The grammar of NPI licensing and scrambling is generally "stable", possibly because of early acquisition of the properties at age 3 (subject/object NPIs: M. S. Song, 2003; scrambling of ordinary DPs: B. Kang, 2005). However, potential dominant transfer effects cause variability of non-local object NPI licensing by both heritage speaker groups. Furthermore, as we have also observed, both heritage speaker groups showed lower acceptability of subject NPI licensing in complex sentences.

In connection with variability of simultaneous (HKI) and early sequential heritage speakers (HKII), early sequential heritage speakers were marginally different from simultaneous heritage speakers (p = .054†) in the local subject NPI condition in simple sentences. Although early sequential heritage speakers showed lower acceptability than simultaneous heritage speakers, it is hard to determine whether potential L1 attrition causes lower acceptability of HKII or not, because early sequential heritage speakers responded to the local subject NPI condition in simple sentences at 93% acceptability.

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[53] Scrambling distance plays a role in ordinary DP scrambling in Heritage Korean.

In NPI scrambling, despite early sequential heritage speakers' lower acceptability of NPI scrambling (of grammatical base sentences), the differences between simultaneous and early heritage speakers were not significant. Ordinary DP scrambling in the fillers also shows that both heritage speaker groups showed lower acceptability in cased-marked DP scrambling than native speakers, and that both heritage speaker groups patterned similarly.

Although early sequential heritage speakers (HKII) show lower acceptability than native speakers in NPI (and DP) scrambling, it is also difficult to determine whether potential L1 attrition causes lower acceptability of HKII in scrambling, because there is no adequate comparison group[54] to evaluate whether early sequential heritage speakers already acquired the scrambling properties at their early age.

Lastly, with respect to the grammars of NPI licensing and NPI scrambling in Heritage Korean, results of object NPI licensing show that object NPIs are both locally and non-locally licensed in Heritage Korean since heritage Korean speakers maintained the local object NPI licensing and they showed transfer in non-local object NPI licensing. Thus, it turns out that Heritage Korean grammar of object NPI licensing is exactly like English since English allows local and non-local NPI licensing. On the other hand, in subject NPI licensing, like Native Korean, Heritage Korean allows subject NPI licensing, which exhibits a subject-object symmetry.

In the heritage grammar of NPI scrambling, simultaneous heritage speakers overall allow NPI scrambling as much as native speakers do. NPI scrambling is of importance in terms of heritage speakers strategies of the interpretations of NPI scrambling. In NPI scrambling of grammatical base NPI sentences, like Native Korean, reconstruction effects take place in long-

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[54] Polinsky (2011) address L1 attrition in the acquisition of relative clauses in Heritage Russian. Polinsky compares child heritage speakers with adult heritage speakers.

distance NPI scrambling in Heritage Korean. NPI scrambling in Heritage Korean also increases the grammaticality of the scrambled NPI sentences of which base NPI sentences are ungrammatical by employing the same interpretation strategies as in Native Korean. That is, interpretation strategies such as Exceptional Case Marking (ECM) and Linear Order Strategy also take place in NPI "rescue" scrambling from ungrammatical non-local base sentences in Heritage Korean.

5.3 Directions for the Future Research

Future directions of the study will include further investigations of acquisition of negative polarity properties (NPIs) in Korean. The NPI tested in this study was the DP *amwuto* 'anyone' which belongs to *amwu*-type '*any*-type' (e.g., *amwu-to* 'anyone-even', *amwukes-to* 'anything-even', *amwute-to* 'anywhere-even', etc.). Other NPIs that need to be examined include *–to* type '*even*-type' and -*pakkey* '*except/only*-type' in Korean. The crosslinguistic semantic differences between English and Korean may trigger potential transfer when heritage Korean speakers acquire these NPIs (*even*-type and *except/only*-type) because *even* and *only* in English are not sensitive to negative polarity. These NPI types can also be tested for the locality condition, in which these NPIs are also subject to the clausemate condition in Korean.

With regard to a future study of NPI scrambling, the inanimate NPI *amwukesto* 'anything' needs to be investigated whether the inanimate NPI *amwukesto* 'anything' can decrease potential ambiguity shown in scrambling of the human NPI *amwuto* 'anyone' in Experiment 2. In other words, if an uncase-marked NPI scrambles to the left periphery of the complex sentence, three DPs appear sequentially in the linear order in Korean. These sequential DPs in the left of the sentence may cause ambiguity of the initial NPI's grammatical relation, due to the absence of the

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case marker of the scrambled NPI. A potential research question will be then whether and how animacy of NPIs plays a role in acceptability in scrambled NPI sentences.

In order to evaluate and support the answers to the research questions (heritage language maintenance, transfer, and age effects) addressed in the current study, further investigations of the acquisition of the NPI properties need to be done in different populations to compare simultaneous heritage Korean speakers and English learners of Korean (L2 Korean). Thus, it is hoped that further investigations will provide more understanding of syntactic properties and heritage language acquisition of negative polarity items (NPIs).

APPENDICES

APPENDIX A. Tables for Native Speakers' Variability

Appendix A-1. Experiment 1: NK (N=34)

Table A-1. Non-local Object NPIs in Embedded Clauses (13%)
e.g., ?*I do not believe that Chelswu loved anyone.

	NK1		NK3	NK4	NK5	NK6	NK7	NK8	NK9	NK10
Y	1		0	0	0	1	1	0	0	0
N	4		5	5	5	4	4	5	5	5
	NK11	NK12	NK13	NK14	NK15	NK16	NK17	NK18	NK19	NK20
Y	0	1	0	0	0	0	0	2	3	2
N	5	4	5	5	5	5	5	3	2	3
	NK21	NK22	NK23	NK24	NK25	NK26	NK27	NK28	NK29	NK30
Y	1	2	1	0	0	2	0	0	3	0
N	4	3	4	5	5	3	5	5	2	5
	NK31	NK32	NK33	NK34	NK35					
Y	0	1	0	1	0					
N	5	4	5	4	5					

Table A-2. Non-local Subject NPIs in Matrix Clauses (36%)
e.g., *Anyone thinks that Yenghuy did not trust Chelswu.*

	NK1		NK3	NK4	NK5	NK6	NK7	NK8	NK9	NK10
Y	1		0	0	5	1	4	1	0	2
N	4		5	5	0	4	1	4	5	3
	NK11	NK12	NK13	NK14	NK15	NK16	NK17	NK18	NK19	NK20
Y	0	2	0	3	0	5	2	2	3	3
N	5	3	5	2	5	0	3	3	2	2
	NK21	NK22	NK23	NK24	NK25	NK26	NK27	NK28	NK29	NK30
Y	2	1	0	1	2	0	0	1	1	4
N	3	4	5	4	3	5	5	4	4	1
	NK31	NK32	NK33	NK34	NK35					
Y	**5**	**5**	1	**5**	0					
N	**0**	**0**	4	**0**	5					

Table A-3. Non-local Subject NPIs in Embedded Clauses (45%)
e.g., %*I do not think that anyone trusted Chelswu.*

	NK1		NK3	NK4	NK5	NK6	NK7	NK8	NK9	NK10
Y	1		0	1	4	2	4	2	0	1
N	4		5	4	1	3	1	3	5	4
	NK11	NK12	NK13	NK14	NK15	NK16	NK17	NK18	NK19	NK20
Y	0	3	0	1	0	5	2	4	5	4
N	5	2	5	4	5	0	3	1	0	1
	NK21	NK22	NK23	NK24	NK25	NK26	NK27	NK28	NK29	NK30
Y	5	4	0	3	1	4	1	0	3	2
N	0	1	5	2	4	1	4	5	2	3
	NK31	NK32	NK33	NK34	NK35					
Y	3	4	2	4	2					
N	2	1	3	1	3					

Appendix A-2. Experiment 2: NK (N=34)

Table A-4. Short NPI Rescue Scrambling in Complex Sentences (57%)
e.g., ?*I that anyone Chelswu hit did not believe*.

	NK1		NK3	NK4	NK5	NK6	NK7	NK8	NK9	NK10
Y	0		1	0	1	4	5	3	3	3
N	5		4	5	4	1	0	2	2	2
	NK11	NK12	NK13	NK14	NK15	NK16	NK17	NK18	NK19	NK20
Y	2	0	1	3	0	5	1	4	5	3
N	3	5	4	2	5	0	4	1	0	2
	NK21	NK22	NK23	NK24	NK25	NK26	NK27	NK28	NK29	NK30
Y	5	5	2	0	1	3	1	5	5	5
N	0	0	3	5	4	2	4	0	0	0
	NK31	NK32	NK33	NK34	NK35					
Y	5	5	2	5	4					
N	0	0	3	0	1					

Table A-5. Long NPI Rescue Scrambling in Complex Sentences (54%)
e.g., ?*Anyone that I Chelswu hit did not believe*.

	NK1		NK3	NK4	NK5	NK6	NK7	NK8	NK9	NK10
Y	2		0	0	1	4	4	2	5	1
N	3		5	5	4	1	1	3	0	4
	NK11	NK12	NK13	NK14	NK15	NK16	NK17	NK18	NK19	NK20
Y	1	3	0	2	1	5	1	3	5	4
N	4	2	5	3	4	0	4	2	0	1
	NK21	NK22	NK23	NK24	NK25	NK26	NK27	NK28	NK29	NK30
Y	4	3	3	0	0	2	0	5	5	5
N	1	2	2	5	5	3	5	0	0	0
	NK31	NK32	NK33	NK34	NK35					
Y	5	5	2	4	4					
N	0	0	3	1	1					

APPENDIX B. Test Materials

Appendix B-1. Language Background Questionnaire to Heritage Speakers

Language Background Questionnaire

This project is designed to investigate the question of whether your knowledge of Korean is affected by your experience of Korean and your knowledge of English. Please answer all questions. All personal information you will provide is confidential.

Section I

1. Participant No.:

2. Age: _____ 3. Month and Year of Birth: _____

4. Gender (circle one): Male Female

5. Place of Birth (e.g., San Diego, CA; Seoul, Korea): _____

6. If you were not born in the US, at what age did you come to the US? _____

7. Are you a student? Yes No

7a. If Yes, please indicate your current level of education
     (e.g., college-second year; graduate school-first year): _____

7b. If No, please indicate your level of education: _____

Section II

1. When you were a child, what was your first language? (e.g., if your parents spoke to you in Korean before age of 5, your first language is Korean.) _____

2. In what grade did you first attend school in the US? _____

3. If you visited Korea and studied/practiced Korean there while you have been living in the US,

3a. how many times have you visited/stayed in Korea? _____

3b. how did you learn Korean? (e.g., daily conversation, instruction, etc) _____

3c. list school level/ program if you took a Korean course (e.g., K-12, college, summer school, study abroad, etc) _____

3d. at what age: _____   3e. for how long: _____ yr _____ mo

4. How did you learn Korean in the US *before*? (check all that apply)
      Saturday/Sunday Korean School
      Korean program at church
      college Korean course
      Other (specify): _____

5. How long did you study Korean in the US? _____ yr _____ mo

6. If you took Korean language classes at college before, how long did you take Korean language classes at college? _____ yr _____ mo

7. Are you studying Korean *now*?   Yes   No

7a. If Yes, how do you study Korean *now*? (check all that apply)
      college Korean course
      Korean language school
      private one-to-one lesson
      Other (specify): _____

7b. How long have you been studying Korean in the US *so far*? _____ yr _____ mo

8. If you are taking Korean language classes at college *now*, how long have you been taking Korean language classes at college? _____ yr _____ mo

9. What language is mainly spoken at home? _____

10. What language do you use at home? (check one)
      Korean only   Korean and English   English only

11. What language(s) does your mother/father speak?
      Mother: _____   Father _____

12. Do you have family members who are native speakers of Korean and you have lived with for a significant time (over 3 years) of your life?   Yes   No

13. Who do you speak Korean with? (check all that apply)

     mother   father   sibling(s)

     grandparent(s)   relatives   your school friends

     your friends outside school   neighbors   Other (specify) _____

14. In a given week, how much of your time do you spend speaking Korean? (check one)

     everyday   a few times   at least once a week

     at least once a month   a few times a year

15. How would you rate your overall activities in Korean below?

1: never/ very seldom	2: occasionally (once or twice a month)	3: sometimes (once a week)	4: often (2 or 3 times a week)	5: very often (every day)

	1	2	3	4	5
Conversation	1	2	3	4	5
Magazine	1	2	3	4	5
Books/Novels	1	2	3	4	5
Internet Search	1	2	3	4	5
TV/Movies	1	2	3	4	5
Pop Music	1	2	3	4	5
Casual Writing	1	2	3	4	5

16a. If you use Korean from time to time in your ordinary life, how would you rate your relative use of Korean compared to the use of English in day-to-day life?

          Korean _____ %   English _____ %

16b. If *not*, what is the best reason to explain why you do not use Korean?

      _____ Korean is not spoken at home.

      _____ I don't feel comfortable speaking Korean.

      _____ I don't know Korean well enough to use it.

      _____ I don't have anyone to speak Korean with.

      _____ Other (please state) _____

17. How would you rate your overall language skills in Korean?

     (1: very poor   2: somewhat poor   3: so-so   4: somewhat good   5: very good)

Speaking	1	2	3	4	5
Listening	1	2	3	4	5
Reading (short letter)	1	2	3	4	5
Reading (newspaper)	1	2	3	4	5

Writing (casual message)	1	2	3	4	5
Writing (social letter)	1	2	3	4	5
Writing (formal essay)	1	2	3	4	5

18. On a scale of 1 to 5, please, estimate your overall proficiency in Korean.
   (1: poor   2: beginner   3: intermediate   4: advanced   5: like native speaker)

| | 1 | 2 | 3 | 4 | 5 |

Thank you for your cooperation!
Please, take a moment now to make sure that you have filled in all the blanks.

Appendix B-2. Language Background Questionnaire to Native Speakers

Language Background Questionnaire

언어 배경 지식에 관한 설문조사

이 설문지는 한국어를 모국어로 사용하는 사람들이 내재적으로 알고 있는 문법규칙이 나이, 성별, 사용방언 등에 따라 어떻게 다를 수 있는가를 연구하기 위해 준비 되었습니다. 귀하께서 내 주시는 1 시간 30 분에서 2 시간의 시간은 학술적으로 매우 소중한 자료를 만드는데 큰 도움이 될 것입니다. 아래의 질문에 모두 답하여 주십시오. 감사합니다.

1. 참가자 번호:

2. 만 나이: _____

3. 출생년월: _____

4. 성별: 남성   여성

5. 출생지역 (예: 경상남도; 서울): _____

6. 귀하께서 주로 성장하신 지역이 출생지와 다른 경우 그 성장 지역을 적어
   주십시오.
            _____

7. 미국 거주 기간: 년

Korean Proficiency Test
한국어 능력 시험

(1-2) 다음 밑줄 친 말과 바꾸어 쓸 수 <u>없는 것</u>은 무엇입니까?

1. 집에 너무 늦게 왔다고 엄마가 저를 <u>나무라셨어요</u>.
   (1) 혼내셨어요   (2) 야단치셨어요 (3) 맞아 주셨어요 (4) 뭐라고 하셨어요

2. 그 사람은 어려운 일도 잘 해결하는 <u>대단한</u> 사람입니다.
   (1) 훌륭한   (2) 능력있는   (3) 실력있는   (4) 재능있는

(3-5) 다음 밑줄 친 말과 바꾸어 쓸 수 있는 것은 무엇입니까?

3. 저는 <u>웬만한</u> 일에는 놀라지 않아요.
(1) 보통 정도의   (2) 아주 많은   (3) 힘든   (4) 일상적인

4. 주말에는 동대문 시장이 사람들로 매우 <u>붐빕니다</u>.
(1) 시끄럽습니다   (2) 복잡합니다   (3) 한가합니다   (4) 조용합니다

5. 낮에 졸린것은 일의 능률을 <u>떨어뜨릴 뿐더러</u> 대인관계의 문제도 일으킵니다.
(1) 떨어뜨릴 뿐만 아니라 (2) 떨어뜨리지만 (3) 떨어뜨리나 (4) 떨어뜨릴 뿐이고

(6-9) 다음 보기에 있는 말 중에 알맞는 것을 골라 그 번호를 쓰세요.

[보기]	(1) 비록	(2) 어차피	(3) 기왕	(4) 어찌나

6. 그때는 (   ) 싸웠어도 지금은 사이가 좋아요.

7. (   ) 놀랐는지 소리를 크게 질렀어요.

8. (   ) 말이 나온 김에 오늘 너희 집에 가 보자.

9. (   ) 오늘은 비가 와서 못 가니까 내일 갑시다.

10. 다음 대화의 대답으로 알맞은 것을 고르세요.

　가: 그 사람은 왜 인기가 많은 가요?
　나: _____.
　　(1) 연기도 잘하고 얼굴도 잘 생기고 해서 인기가 많아요.
　　(2) 연기도 잘하고 얼굴도 잘 생길 겸해서 인기가 많아요.
　　(3) 연기는 잘하지만 얼굴이 잘 생기지 못해서 인기가 많아요.
　　(4) 연기만 잘하고 얼굴이 잘 생겨서 인기가 많아요.

(11-12) 밑줄 친 부분에 가장 알맞은 것을 고르십시오.

11. 가: 김영수 씨는 아직도 출근 안 했어요?
　　나: _____.

　　(1) 네. 회사 가까이 살면서도 늘 지각을 해요.
　　(2) 아니요. 회사에 오더라도 절대로 늦지 않아요.
　　(3) 아니요. 출근 시간에 늦지않게 올 줄 몰랐어요.
　　(4) 네. 출근 시간을 지키려다 보니 지각도 못해요.

12. 가: 그 영화 어땠어요? 다들 감동적이라고 하던데요.
　　나: 그래요. _____.

　　(1) 가슴이 답답해서 극장을 나왔어요.
　　(2) 가족들과 만나는 마지막 장면에서는 눈물이 났어요.
　　(3) 재미있는 장면을 보고 웃음이 나왔어요.
　　(4) 나오면서 보지 말걸 하고 생각했어요.

13. 밑줄 친 부분이 나머지 셋과 다른 것을 고르세요.

　　(1) 지난 겨울에 추위로 고생을 많이 했다.
　　(2) 교통 사고로 많은 사람들이 다쳤다.
　　(3) 지하철로 출퇴근 하는 사람이 많아졌다.
　　(4) 요즘 감기로 결석하는 학생들이 늘었다.

(14-16) 다음 밑줄 친 것 중 틀린 것을 찾아 바르게 고쳐 쓰십시오.

14. 1) 10년 만에　 2) 만날 친구와　 3) 이야기하느라고　 약속 시간에　 4)못나갔어요.
　　　　　　　（　　　　　　　　　　　　　　　）
15. 약속 시간에　 1) 늦을 것 같아서　 2) 뛰어갔지만　 3) 아무나　 4) 안 나왔어요.
　　　　　　　（　　　　　　　　　　　　　　　）

16. 너무 1) 더워서 아이스크림을 2) 네 개 밖에 먹었더니 배탈이 3) 났어요.
병원에 4) 가야겠어요.
                    (   )

(17-18) 서로 <u>다른</u> 뜻끼리 연결된 것을 고르세요.

17. (1) 여위었다 – 말랐다
    (2) 눈시울이 붉어졌다 – 울려고 한다
    (3) 제격이다 – 제법 빠르다
    (4) 개꿈이다 – 별 의미없는 꿈이다

18. (1) 호강한다 – 여유롭고 편하게 산다
    (2) 땅거미가 진다 – 날이 저물었다
    (3) 서슴지 않다 – 주저하지 않다
    (4) 미덕으로 여긴다 – 무시하는 경향이 있다

(19-20) 본문을 읽고 물음에 답하세요.

　　우리 모두는 타인에게 좋은 인상을 주는 인기있는 사람이 되고 싶어한다. 그렇다면 어떻게 인기를 얻을 수 있을까? 학자들의 연구에 따르면 일반적으로 사람들은 가까이 있어 자주 만나는 사람에 대해 호감을 갖게 된다고 한다. 그러나 어떤 사람과 가깝게 지내고 있다고 해서 무조건 그를 좋아하게 되는 것은 아니다. 좋은 성격과 뛰어난 능력, 잘 생긴 외모 등을 가지고 있을 때 그 사람의 인기는 높아진다. 그런데 재미있는 것은 우리가 유능하고 완벽하기만 한 사람을 좋아하는 것은 아니라는 사실이다. 한 조사 결과에 따르면 사람들은 실수를 전혀 하지 않는 사람보다는 <u>능력이 뛰어나지만 가끔 실수를 하는 경우도 있는 사람</u>에게 더 호감을 느낀다고 한다.

---

19. 다음 중 밑줄 친 부분과 가장 관계 깊은 말을 고르시오.

    (1) 아니 땐 굴뚝에 연기나랴?
    (2) 윗물이 맑아야 아랫물이 맑다.
    (3) 원숭이도 나무에서 떨어질 때가 있다.
    (4) 낮말은 새가 듣고 밤 말은 쥐가 든는다.

20. 윗 글에 이어질 문장으로 가장 알맞는 것을 고르시오.

   (1) 실수를 통해서 그 사람의 인간적인 면을 발견할 수 있기 때문이다.
   (2) 능력이 뛰어나다고 해서 항상 행복하기만 한 것은 아니기 때문이다.
   (3) 자주 만나서 가까워질수록 호감을 얻기는 더욱 어려워지기 때문이다.
   (4) 이는 잘생긴 사람보다 성격 좋은 사람을 더 좋아하기 때문이다.

Appendix B-4. Grammaticality Judgment Task

Test 1

문법성 판정 과제

다음의 문장들이 문법적으로 맞게 사용되어진 문장인지 판단하시고 귀하께서 문법적으로 맞는 문장이라고 판단하시면 **Y** 에, 문법적으로 맞지 않는 문장이라고 판단하시면 **N** 에 동그라미 쳐주십시오.

보기

1. 철수는 영희가 반에서 제일 예쁘다고 생각한다.　　　Ⓨ　　　　N

2. 철수가 김치에 좋아하지 않는다.　　　　　　　　　Y　　　　Ⓝ

---

(1) 유나는 그 이야기를 안 믿었다.　　　　　　　　　　Y　　　　N

(2) 아무도 준수를 미워했다.　　　　　　　　　　　　　Y　　　　N

(3) 준수는 아무도 미워하지 않았다.　　　　　　　　　　Y　　　　N

(4) 나는 아무도 그 사람을 만났다고 생각하지 않는다.　　Y　　　　N

(5) 다희는 수미가 그 사람이 때렸다고 말했다.　　　　　Y　　　　N

(6) 수미는 아무도 만났다.　　　　　　　　　　　　　　Y　　　　N

(7) 유나는 민기가 좋아하는 그 책을 샀다.　　　　　　　Y　　　　N

(8) 민기는 아무도 믿지 않았다.　　　　　　　　　　　　Y　　　　N

(9) 나는 꽃을 예쁘다.　　　　　　　　　　　　　　　　Y　　　　N

(10) 나는 아무도 그녀를 미워했다고 생각한다.　　　　　Y　　　　N

(11) 아무도 준수가 그녀를 미워했다고 생각하지 않는다.　Y　　　　N

(12) 준수는 아무도 미워했다.   Y   N

(13) 철수는 어제 민기가 밥이 먹었다고 말했다.   Y   N

(14) 나는 준수가 아무도 미워했다고 생각하지 않는다.   Y   N

(15) 다희는 준수를 미워하지 않았다.   Y   N

(16) 아무도 수미가 그 사람을 만나지 않았다고 생각한다.   Y   N

(17) 미나는 윤기가 그녀를 사랑했다고 믿지 않았다.   Y   N

(18) 나는 아무도 그 사람을 믿지 않았다고 생각한다.   Y   N

(19) 나는 철수가 아무도 때렸다고 믿지 않는다.   Y   N

(20) 수미가 방에서 음악을 들렸다.   Y   N

(21) 영희는 아무도 사랑했다.   Y   N

(22) 유나는 준수를 만나지 않았다.   Y   N

(23) 나는 영희가 아무도 사랑했다고 믿는다.   Y   N

(24) 윤기가 꽃을 꺾이었다.   Y   N

(25) 아무도 철수가 그 사람을 때리지 않았다고 믿는다.   Y   N

(26) 나는 아무도 그녀를 미워했다고 생각하지 않는다.   Y   N

(27) 경찰이 그 남자를 잡혔다.   Y   N

(28) 나는 아무도 그 사람을 만났다고 생각한다.   Y   N

(29) 아무도 수미를 만났다.   Y   N

(30) 책상 위에 책이 안 없다.   Y   N

(31) 아무도 철수를 때리지 않았다.   Y   N

(32) 수미는 아무도 만나지 않았다.   Y   N

(33) 준수는 고양이를 좋아하는 미나를 사랑한다.   Y   N

(34) 나는 영희가 아무도 사랑하지 않았다고 믿는다.   Y   N

(35) 나는 뱀을 무섭다.   Y   N

(36) 나는 아무도 그녀를 사랑했다고 믿지 않는다.   Y   N

(37) 민기는 그 아이를 안 때렸다.   Y   N

(38) 철수는 아무도 때리지 않았다.   Y   N

(39) 유나는 샌프란시스코가 가보고 싶어한다.   Y   N

(40) 나는 수미가 아무도 만났다고 생각한다.   Y   N

(41) 아무도 영희를 사랑했다.   Y   N

(42) 나는 민기가 아무도 믿었다고 생각하지 않는다.   Y   N

(43) 아무도 철수가 그 사람을 때렸다고 믿는다.   Y   N

(44) 철수는 어제 민기가 여행을 갔다고 말했다.   Y   N

(45) 아무도 준수가 그녀를 미워했다고 생각한다.   Y   N

(46) 다희는 어제 영어 숙제를 안했다.   Y   N

(47) 철수는 민기가 그녀를 믿지 않는다고 말했다.   Y   N

(48) 나는 아무도 그 사람을 믿었다고 생각하지 않는다.   Y   N

(49) 아무도 철수를 때렸다.   Y   N

(50) 다희가 운전을 안 못한다.   Y   N

(51) 나는 수미가 아무도 만났다고 생각하지 않는다.   Y   N

(52) 유나는 민기가 그 선물을 샀다고 말했다.　　　　　Y　　　　N

(53) 영희는 아무도 사랑하지 않았다.　　　　　Y　　　　N

(54) 영희는 안 학생이다.　　　　　Y　　　　N

(55) 철수는 아무도 때렸다.　　　　　Y　　　　N

(56) 나는 아무도 그 사람을 때리지 않았다고 믿는다.　　　　　Y　　　　N

(57) 미나는 윤기를 때리지 않았다.　　　　　Y　　　　N

(58) 나는 철수가 아무도 때렸다고 믿는다.　　　　　Y　　　　N

(59) 민기는 아무도 믿었다.　　　　　Y　　　　N

(60) 아무도 준수가 그녀를 미워하지 않았다고 생각한다.　　　　　Y　　　　N

(61) 나는 민기가 아무도 믿었다고 생각한다.　　　　　Y　　　　N

(62) 다희는 수미가 그 사람을 때리지 않았다고 말했다.　　　　　Y　　　　N

(63) 아무도 영희가 그 사람을 믿었다고 생각한다.　　　　　Y　　　　N

(64) 아무도 민기가 그녀를 사랑했다고 믿지 않는다.　　　　　Y　　　　N

(65) 윤기는 미나를 그 사람을 미워했다고 말했다.　　　　　Y　　　　N

(66) 아무도 준수를 미워하지 않았다.　　　　　Y　　　　N

(67) 준수는 미나를 안 만났다.　　　　　Y　　　　N

(68) 나는 아무도 그 사람을 때렸다고 믿지 않는다.　　　　　Y　　　　N

(69) 나는 영희가 아무도 사랑했다고 믿지 않는다.　　　　　Y　　　　N

(70) 영희는 고양이가 무서워하는 개를 좋아했다.　　　　　Y　　　　N

(71) 나는 아무도 그녀를 사랑하지 않았다고 믿는다.　　　　　Y　　　　N

(72) 준수는 유나가 그 사람을 만나지 않았다고 믿었다.　　　　Y　　　　N

(73) 아무도 수미를 만나지 않았다.　　　　Y　　　　N

(74) 아무도 영희가 그 사람을 믿지 않았다고 생각한다.　　　　Y　　　　N

(75) 문이 바람에 닫았어요.　　　　Y　　　　N

(76) 아무도 민기를 믿었다.　　　　Y　　　　N

(77) 철수는 영희의 말을 믿지 않았다.　　　　Y　　　　N

(78) 나는 아무도 그 사람을 믿었다고 생각한다.　　　　Y　　　　N

(79) 수미는 개를 괴롭히는 고양이를 보았다.　　　　Y　　　　N

(80) 아무도 수미가 그 사람을 만났다고 생각하지 않는다.　　　　Y　　　　N

(81) 다희는 수미가 그 병을 깨뜨렸다고 말했다.　　　　Y　　　　N

(82) 아무도 민기가 그녀를 사랑하지 않았다고 믿는다.　　　　Y　　　　N

(83) 준수는 유나가 그 사람이 만났다고 믿었다.　　　　Y　　　　N

(84) 아무도 민기를 믿지 않았다.　　　　Y　　　　N

(85) 그 남자는 정답을 안 모른다.　　　　Y　　　　N

(86) 철수는 영희를 좋아하는 그 남자를 만났다.　　　　Y　　　　N

(87) 나는 철수가 아무도 때리지 않았다고 믿는다.　　　　Y　　　　N

(88) 준수는 유나가 그 일을 했다고 믿었다.　　　　Y　　　　N

(89) 나는 준수가 아무도 미워했다고 생각한다.　　　　Y　　　　N

(90) 윤기는 미나가 그 소식을 알았다고 생각했다.　　　　Y　　　　N

(91) 미나는 수학을 안 알았다.　　　　Y　　　　N

(92) 나는 아무도 그 사람을 만나지 않았다고 생각한다.   Y   N

(93) 아무도 수미가 그 사람을 만났다고 생각한다.   Y   N

(94) 그 사람이 아들이 좋아한다.   Y   N

(95) 아무도 영희를 사랑하지 않았다.   Y   N

(96) 민기는 다희가 그 사람을 미워했다고 생각하지 않았다.   Y   N

(97) 윤기는 오늘 아침 밥을 안 먹었다.   Y   N

(98) 아무도 민기가 그녀를 사랑했다고 믿는다.   Y   N

(99) 나는 수미가 아무도 만나지 않았다고 생각한다.   Y   N

(100) 윤기는 수미를 사랑하지 않았다.   Y   N

(101) 나는 아무도 그녀를 사랑했다고 믿는다.   Y   N

(102) 아무도 영희가 그 사람을 믿었다고 생각하지 않는다.   Y   N

(103) 나는 준수가 아무도 미워하지 않았다고 생각한다.   Y   N

(104) 고양이가 개를 쫓기었다.   Y   N

(105) 나는 민기가 아무도 믿지 않았다고 생각한다.   Y   N

(106) 아무도 철수가 그 사람을 때렸다고 믿지 않는다.   Y   N

(107) 나는 운동장에서 공이 찼다.   Y   N

(108) 나는 아무도 그 사람을 때렸다고 믿는다.   Y   N

(109) 유나는 민기를 그녀를 사랑했다고 믿었다.   Y   N

(110) 나는 아무도 그녀를 미워하지 않았다고 생각한다.   Y   N

감사합니다!   **Thank You!**

Appendix B-5. Acceptability Judgment Task

Test 2

자연성 판정 과제

다음의 예문들은 A 와 B 의 짧은 대화들입니다. 각 문항들의 대화들을 읽으시고 A 문장에 대한 B 의 대화에 주목해 주십시오. 귀하께서는 A 에 대한 B 의 대화가 일상 생활에서 쓰이는 대화에서 문맥상 자연스러운지를 판단하시게 됩니다. 귀하께서 **B** 의 대화가 각 문맥 속에서 <u>일상 생활에서 쓰이는 대화로</u> 자연스럽거나 사용 가능할 수 있는 문장이라고 느끼시면 **Y** 에, B 의 대화가 문맥 속에서 자연스럽지 않거나 사용 가능하지 못한 문장이라고 느끼시면 **N** 에 동그라미 쳐 주십시오.

보기
1. A: 우리반에서 철수가 제일 똑똑한 것 같아.　　　　　　Y　　　　(N)
　 B: 아니. 영희를 제일 똑똑해요.

2. A: 영희가 김치를 좋아하니?　　　　　　　　　　　　(Y)　　　　N
　 B: 영희는 김치를 안 좋아해요.

---

(1) A: 너는 수미가 누구를 때렸다고 믿니?
　 B: 나는 민기를 수미가 때렸다고 믿어.　　　　　　　Y　　　　　N

(2) A: 너는 영희가 정말 그 사람을 미워했다고 생각하니?
　 B: 아니, 아무도 나는 영희가 미워하지 않았다고 생각해.　Y　　　　　N

(3) A: 냉장고 안에 무엇이 있니?
　 B: 수박 냉장고 안에 있어요.　　　　　　　　　　　Y　　　　　N

(4) A: 준수는 누구를 사랑하니?
　 B: 고양이를 준수는 좋아하는 유나를 사랑해.　　　　Y　　　　　N

(5) A: 너는 준수가 정말 그녀를 사랑했다고 믿니?
　 B: 아니, 나는 아무도 준수가 사랑했다고 믿지 않아.　Y　　　　　N

(6) A: 누가 엄마를 일찍 일어나게 했니?
   B: 민기가 엄마를 일찍 깼어요.   Y   N

(7) A: 수미가 어떤 사람을 만났어요.
   B: 그래? 누구를 수미가 만났니?   Y   N

(8) A: 너는 철수가 누구를 만났다고 생각하니?
   B: 영희를 나는 철수가 만났다고 생각해.   Y   N

(9) A: 영희가 정말 그 사람을 미워했니?
   B: 아니, 아무도 영희가 미워하지 않았어.   Y   N

(10) A: 너는 민기가 정말 그 사람을 믿었다고 생각하니?
   B: 아니, 나는 아무도 민기가 믿었다고 생각하지 않아.   Y   N

(11) A: 철수가 어떤 사람을 좋아했어요.
   B: 그래? 철수가 누구를 좋아했니?   Y   N

(12) A: 영희가 정말 누구를 미워했니?
   B: 아무도 영희가 미워했어.   Y   N

(13) A: 너는 철수가 누구를 만났다고 생각하니?
   B: 나는 영희를 철수가 만났다고 생각해.   Y   N

(14) A: 너는 영희가 정말 누구를 미워했다고 생각하니?
   B: 나는 아무도 영희가 미워했다고 생각해.   Y   N

(15) A: 민기가 정말 그 사람을 믿었니?
   B: 아니, 아무도 민기가 믿지 않았어.   Y   N

(16) A: 누가 다쳤니?
   B: 미나는 다쳐서 병원에 갔어요.   Y   N

(17) A: 영희가 어떤 사람을 때렸어요.
   B: 그래? 영희가 누가 때렸니?   Y   N

(18) A: 너는 수미가 어제 그 사람을 만났다고 생각하니?
　　B: 아니, 아무도 나는 수미가 만났다고 생각하지 않아.　　　Y　　　　　N

(19) A: 준수가 어떤 것을 찾았어요.
　　B: 그래? 준수가 무엇을 찾았니?　　　　　　　　　　　　Y　　　　　N

(20) A: 너는 영희가 정말 누구를 미워했다고 생각하니?
　　B: 아무도 나는 영희가 미워했다고 생각해.　　　　　　　Y　　　　　N

(21) A: 다희는 그 돈을 어떻게 했니?
　　B: 다희가 친구에게 돈을 맡았어요.　　　　　　　　　　Y　　　　　N

(22) A: 너는 준수가 정말 그녀를 사랑했다고 믿니?
　　B: 아니, 아무도 나는 준수가 사랑하지 않았다고 믿어.　　Y　　　　　N

(23) A: 민기가 누구를 좋아하니?
　　B: 민기가 좋아해요 영희를.　　　　　　　　　　　　　Y　　　　　N

(24) A: 너는 준수가 정말 그녀를 사랑했다고 믿니?
　　B: 아니, 나는 아무도 준수가 사랑하지 않았다고 믿어.　　Y　　　　　N

(25) A: 미나는 아까 누구와 전화했니?
　　B: 다희가 미나는 싫어하는 그 사람과 전화했어.　　　　Y　　　　　N

(26) A: 너는 민기가 정말 그 사람을 믿었다고 생각하니?
　　B: 아니, 아무도 나는 민기가 믿었다고 생각하지 않아.　　Y　　　　　N

(27) A: 수미가 무슨 과목을 잘하니?
　　B: 영어를 수미가 잘해요.　　　　　　　　　　　　　Y　　　　　N

(28) A: 너는 미나가 누구를 미워한다고 생각하니?
　　B: 나는 윤기를 미나가 미워한다고 생각해.　　　　　　Y　　　　　N

(29) A: 철수가 어떤 사람을 좋아했어요.
　　B: 그래? 누구를 철수가 좋아했니?　　　　　　　　　Y　　　　　N

(30) A: 너는 철수가 정말 그 사람을 때렸다고 믿니?
B: 아니, 나는 아무도 철수가 때리지 않았다고 믿어.   Y   N

(31) A: 준수가 어떤 것을 찾았어요.
B: 그래? 무엇을 준수가 찾았니?   Y   N

(32) A: 수미가 어제 누구를 만났니?
B: 아무도 수미가 만났어.   Y   N

(33) A: 누가 우리 반에서 노래를 제일 잘 부르니?
B: 다희는 우리 반에서 노래를 제일 잘 불러요.   Y   N

(34) A: 너는 수미가 어제 누구를 만났다고 생각하니?
B: 나는 아무도 수미가 만났다고 생각해.   Y   N

(35) A: 철수가 정말 누구를 때렸니?
B: 아무도 철수가 때렸어.   Y   N

(36) A: 민기가 아까 무엇을 보았니?
B: 고양이를 민기는 괴롭히는 개를 보았어.   Y   N

(37) A: 너는 영희가 정말 그 사람을 미워했다고 생각하니?
B: 아니, 나는 아무도 영희가 미워했다고 생각하지 않아.   Y   N

(38) A: 미나가 어제 누구를 만났니?
B: 미나가 만났어요 준수를.   Y   N

(39) A: 너는 미나가 누구를 미워한다고 생각하니?
B: 윤기를 미워한다고 나는 미나가 생각해.   Y   N

(40) A: 너는 준수가 정말 그녀를 사랑했다고 믿니?
B: 아니, 아무도 나는 준수가 사랑했다고 믿지 않아.   Y   N

(41) A: 아기가 예쁜 옷을 입었네.
B: 수미가 아기에게 예쁜 옷을 입었어요.   Y   N

(42) A: 민기가 정말 누구를 믿었니?
　　　 B: 아무도 민기가 믿었어.　　　　　　　　　　　Y　　　　　　　N

(43) A: 윤기와 다희중 누가 공부를 잘하니?
　　　 B: 윤기는 공부를 잘 해요.　　　　　　　　　　Y　　　　　　　N

(44) A: 너는 준수가 누구를 좋아한다고 믿니?
　　　 B: 다희를 나는 준수가 좋아한다고 믿어.　　　Y　　　　　　　N

(45) A: 너는 수미가 어제 그 사람을 만났다고 생각하니?
　　　 B: 아니, 나는 아무도 수미가 만났다고 생각하지 않아.　Y　　　　　N

(46) A: 민기가 어제 쇼핑가서 어떤 물건을 샀어요.
　　　 B: 그래? 민기가 무엇을 샀니?　　　　　　　　Y　　　　　　　N

(47) A: 윤기가 누구를 때렸니?
　　　 B: 윤기가 때렸어요 철수를.　　　　　　　　　Y　　　　　　　N

(48) A: 철수가 정말 그 사람을 때렸니?
　　　 B: 아니, 아무도 철수가 때리지 않았어.　　　　Y　　　　　　　N

(49) A: 너는 민기가 누구를 믿었다고 생각하니?
　　　 B: 유나를 믿었다고 나는 민기가 생각해.　　　Y　　　　　　　N

(50) A: 철수가 어떤 사람을 좋아했어요.
　　　 B: 그래? 철수가 누가 좋아했니?　　　　　　　Y　　　　　　　N

(51) A: 수미는 어제 무엇을 샀니?
　　　 B: 민기가 수미는 좋아하는 그 책을 샀어.　　　Y　　　　　　　N

(52) A: 수미가 어제 그 사람을 만났니?
　　　 B: 아니, 아무도 수미가 만나지 않았어.　　　　Y　　　　　　　N

(53) A: 너는 영희가 정말 그 사람을 미워했다고 생각하니?
　　　 B: 아니, 아무도 나는 영희가 미워했다고 생각하지 않아.　Y　　　　　N

(54) A: 이 책은 누구꺼니?
　　 B: 어떤 사람 나에게 이 책을 선물로 주었어.　　　　Y　　　　　N

(55) A: 너는 수미가 누구를 때렸다고 믿니?
　　 B: 나는 민기를 때렸다고 수미가 믿어.　　　　　　 Y　　　　　N

(56) A: 유나가 무엇을 샀니?
　　 B: 장난감을 유나가 샀어요.　　　　　　　　　　 Y　　　　　N

(57) A: 너는 수미가 어제 그 사람을 만났다고 생각하니?
　　 B: 아니, 아무도 나는 수미가 만나지 않았다고 생각해.　Y　　　　　N

(58) A: 준수가 어떤 것을 찾았어요.
　　 B: 그래? 준수가 무엇이 찾았니?　　　　　　　　 Y　　　　　N

(59) A: 너는 준수가 누구를 좋아한다고 믿니?
　　 B: 나는 다희를 좋아한다고 준수가 믿어.　　　　　 Y　　　　　N

(60) A: 너는 민기가 정말 그 사람을 믿었다고 생각하니?
　　 B: 아니, 나는 아무도 민기가 믿지 않았다고 생각해.　 Y　　　　　N

(61) A: 민기가 어제 쇼핑가서 어떤 물건을 샀어요.
　　 B: 그래? 민기가 무엇이 샀니?　　　　　　　　　 Y　　　　　N

(62) A: 너는 준수가 정말 누구를 사랑했다고 믿니?
　　 B: 아무도 나는 준수가 사랑했다고 믿어.　　　　　 Y　　　　　N

(63) A: 너는 준수가 누구를 좋아한다고 믿니?
　　 B: 나는 다희를 준수가 좋아한다고 믿어.　　　　　 Y　　　　　N

(64) A: 너는 철수가 정말 누구를 때렸다고 믿니?
　　 B: 나는 아무도 철수가 때렸다고 믿어.　　　　　　 Y　　　　　N

(65) A: 준수가 정말 누구를 사랑했니?
　　 B: 아무도 준수가 사랑했어.　　　　　　　　　　 Y　　　　　N

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(66) A: 수미가 어떤 사람을 만났어요.
　　 B: 그래? 수미가 누가 만났니?　　　　　　　　　　Y　　　　　　N

(67) A: 너는 민기가 누구를 믿었다고 생각하니?
　　 B: 나는 유나를 민기가 믿었다고 생각해.　　　　　Y　　　　　　N

(68) A: 미나가 어제 누구를 만났니?
　　 B: 준수를 미나가 만났어요.　　　　　　　　　　Y　　　　　　N

(69) A: 너는 수미가 어제 그 사람을 만났다고 생각하니?
　　 B: 아니, 나는 아무도 수미가 만나지 않았다고 생각해.　Y　　　　　　N

(70) A: 영희가 어떤 사람을 때렸어요.
　　 B: 그래? 영희가 누구를 때렸니?　　　　　　　　Y　　　　　　N

(71) A: 너는 민기가 정말 누구를 믿었다고 생각하니?
　　 B: 나는 아무도 민기가 믿었다고 생각해.　　　　　Y　　　　　　N

(72) A: 사람들이 다 어디로 갔니?
　　 B: 많은 사람들 극장에 갔어.　　　　　　　　　　Y　　　　　　N

(73) A: 너는 철수가 정말 그 사람을 때렸다고 믿니?
　　 B: 아니, 나는 아무도 철수가 때렸다고 믿지 않아.　Y　　　　　　N

(74) A: 윤기가 누구를 때렸니?
　　 B: 철수를 윤기가 때렸어요.　　　　　　　　　　Y　　　　　　N

(75) A: 수미가 어떤 사람을 만났어요.
　　 B: 그래? 수미가 누구를 만났니?　　　　　　　　Y　　　　　　N

(76) A: 다람쥐가 왜 죽었니?
　　 B: 뱀이 다람쥐를 죽었어요.　　　　　　　　　　Y　　　　　　N

(77) A: 너는 민기가 정말 누구를 믿었다고 생각하니?
　　 B: 아무도 나는 민기가 믿었다고 생각해.　　　　　Y　　　　　　N

(78) A: 너는 철수가 누구를 만났다고 생각하니?
　　B: 나는 영희를 만났다고 철수가 생각해.　　　　Y　　　　N

(79) A: 너 라디오가 고장났다며?
　　B: 아니, 컴퓨터는 고장났어.　　　　Y　　　　N

(80) A: 너는 철수가 정말 그 사람을 때렸다고 믿니?
　　B: 아니, 아무도 나는 철수가 때렸다고 믿지 않아.　　　　Y　　　　N

(81) A: 유나가 무엇을 샀니?
　　B: 유나가 샀어요 장난감을.　　　　Y　　　　N

(82) A: 너는 준수가 정말 누구를 사랑했다고 믿니?
　　B: 나는 아무도 준수가 사랑했다고 믿어.　　　　Y　　　　N

(83) A: 너는 민기가 정말 그 사람을 믿었다고 생각하니?
　　B: 아니, 아무도 나는 민기가 믿지 않았다고 생각해.　　　　Y　　　　N

(84) A: 윤기와 영희는 왜 아직 안오고 있니?
　　B: 윤기 친구를 만나고 있고 영희 시장에 갔어.　　　　Y　　　　N

(85) A: 준수가 정말 그녀를 사랑했니?
　　B: 아니, 아무도 준수가 사랑하지 않았어.　　　　Y　　　　N

(86) A: 너는 민기가 누구를 믿었다고 생각하니?
　　B: 유나를 나는 민기가 믿었다고 생각해.　　　　Y　　　　N

(87) A: 너는 수미가 어제 누구를 만났다고 생각하니?
　　B: 아무도 나는 수미가 만났다고 생각해.　　　　Y　　　　N

(88) A: 민기와 수미중 누가 햄버거를 만들고 있니?
　　B: 수미 햄버거를 만들고 있어요.　　　　Y　　　　N

(89) A: 민기가 누구를 좋아하니?
　　B: 영희를 민기가 좋아해요.　　　　Y　　　　N

(90) A: 철수가 어제 누구를 만났니?
　　B: 영희를 철수는 좋아하는 그 남자를 만났어.　　　　Y　　　　　N

(91) A: 너는 영희가 정말 그 사람을 미워했다고 생각하니?
　　B: 아니, 나는 아무도 영희가 미워하지 않았다고 생각해.　Y　　　　　N

(92) A: 민기가 어제 쇼핑가서 어떤 물건을 샀어요.
　　B: 그래? 무엇을 민기가 샀니?　　　　　　　　　　　Y　　　　　N

(93) A: 너는 철수가 정말 그 사람을 때렸다고 믿니?
　　B: 아니, 아무도 나는 철수가 때리지 않았다고 믿어.　Y　　　　　N

(94) A: 누가 책상 위의 종이를 버렸지?
　　B: 수미는 종이를 버렸어.　　　　　　　　　　　　Y　　　　　N

(95) A: 너는 수미가 누구를 때렸다고 믿니?
　　B: 민기를 나는 수미가 때렸다고 믿어.　　　　　　Y　　　　　N

(96) A: 민수의 동생이 왜 우니?
　　B: 민수가 동생을 울었어요.　　　　　　　　　　　Y　　　　　N

(97) A: 수미가 무슨 과목을 잘하니?
　　B: 수미가 잘해요 영어를.　　　　　　　　　　　　Y　　　　　N

(98) A: 너는 철수가 정말 누구를 때렸다고 믿니?
　　B: 아무도 나는 철수가 때렸다고 믿어.　　　　　　Y　　　　　N

(99) A: 너는 미나가 누구를 미워한다고 생각하니?
　　B: 윤기를 나는 미나가 미워한다고 생각해.　　　　Y　　　　　N

(100) A: 영희가 어떤 사람을 때렸어요.
　　　B: 그래? 누구를 영희가 때렸니?　　　　　　　　Y　　　　　N

감사합니다!　　　　**Thank You!**

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