THE ACQUISITION OF KOREAN PLURAL MARKING BY NATIVE ENGLISH SPEAKERS

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ABSTRACT

This study investigated the L2 acquisition of Korean plural marking by English-speaking learners within a feature-reassembly approach—a formal feature-based approach suggesting that native-like attainment of L2 morphosyntactic knowledge is determined by whether learners can reconfigure the formal features assembled in functional categories and lexical items in the L1 to those of the L2 (Lardiere, 2009). The Korean plural marker -tul shares some features with the English plural marker -s, but not others, especially regarding specificity, numeric vs. non-numeric quantification, classification, and human animacy. Moreover, Korean has another type of plural marker (also -tul) that attaches to various non-nominal elements to indicate a distributive reading. The difference in the specification of features in the plural lexical items of each language requires learners to reconfigure the relevant features, which can be modeled within a feature-reassembly approach. The two main objectives of this study are: (i) to characterize the learning task for L1 English - L2 Korean learners based on the cross-linguistic variation in number marking between the L1 and L2; and (ii) to investigate whether native-like attainment of both types of Korean plural marking is possible.

85 adult English-speaking learners at four proficiency levels (low-intermediate, high-intermediate, low-advanced, advanced) and 31 native Korean speakers performed five types of paper-and-pencil tasks—elicitation, acceptability judgment, preference, truth value judgment, and translation. The overall group results showed gradual development with increasing proficiency, but non-target-like performance lingered among several advanced learners. However,
at least some highly proficient learners successfully incorporated required features such as specificity, non-numeric vs. numeric quantification, and distributivity into their representation of Korean plural marking. The \([\pm \text{human}]\) feature restriction was not acquired by most participants even at advanced levels of proficiency.

These findings suggest that identifying the relevant features and reassembling them into language-specific lexical items is difficult but nonetheless eventually attainable for some learners. The feature-reassembly approach sheds light on persistent L2 learning problems in morphosyntactic domain, correctly predicting both the obstacles and ultimate acquirability of Korean plural marking.
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Chapter 1
Introduction

1.1. Goals and claims

The ultimate goal of this dissertation is to investigate whether native-like knowledge of Korean plural marking can be acquired by native English-speaking learners of Korean. I adopt a generative perspective, more specifically a feature-reassembly framework (Lardiere 2008, 2009). Plural marking in Korean (and other classifier languages) is not a well-documented area of study for second language (L2) learners. This study not only adds to the almost non-existent literature on the L2 acquisition of plural marking in a generalized classifier language, but also explores the nature of the complexity of the L2 learning task. Second language acquisition research in a generative perspective, which relies on theoretical models such as the Minimalist Program (Chomsky, 2000) and Distributed Morphology (Halle & Marantz 1993, 1994; Embick & Noyer 2001; Embick & Marantz 2008), intends to account for the properties of underlying L2 linguistic competence (White, 2003), and provides a detailed description of what must be acquired (Lardiere, 2009). Although it is widely assumed that the generative approach to L2 acquisition is not concerned with classroom instruction or pedagogical implications (Slabakova, 2009), the ultimate goal of L2 acquisition research, regardless of the framework, should be to provide useful information that can facilitate language learning. The current study thus aims to enhance the understanding of the nature of the L2 learning task (i.e. what must be learned) by focusing on cross-linguistic differences in number marking between the first language (L1) and L2 in terms of formal features.

One might think that plural marking in Korean should be easily acquired by English-
speaking learners within a short period of time, as it appears to have the same grammatical function as English -s and is similarly realized as a suffix on a noun. However, Korean plural marking is distinguished from English plural marking in a number of respects. First, it is widely known that unlike English plural marking, it shows optionality (e.g. S. Song, 1975) as follows.

(1.1) haksayng(-tul)-i kyosil-ey tuleka-n-ta.
    student(-PL)-NOM classroom-LOC enter-PRES-DECL
    ‘(The) students enter the classroom.’

In (1.1), the use of -tul is not obligatory, and for this reason haksayng without -tul could be interpreted as either a single student or more than one student. In addition to the optionality, it is reported that the use of -tul is relatively infrequent in Korean and is even less frequently attached to inanimate nouns (S. Song, 1975; J. Song, 1997).

If it is the case that the use of -tul is infrequent and always optional, one might question why it should be investigated, or why it is important in second language acquisition. However, there are some data showing that Korean plural marking is not always optional. Let us consider the following examples.

(1.2) a. ai-tul-un cip-ey iss-eyo?
    kid-PL-NOM home-LOC be-INT
    ‘Are your kids at home?’

b. ai-nun cip-ey iss-eyo?
    kid-NOM home-LOC be-INT
    ‘Is your kid at home?’
If the use of *-tul is truly optional in every context, there should be no difference between (1.2a) and (1.2b). However, if the speaker knows that the hearer has more than one child and intends to refer to all her children, the pluralized NP ai-tul should be used as in (1.2a). If the speaker produces a sentence without -tul like (1.2b) in the same context, the sentence would be infelicitous. Similar data pointing to the restricted occurrence of -tul can be found in the following context.

(1.3) a. na-nun ecey ku chayk-tul-ul sa-ss-ta.
   I-NOM yesterday DEM book-PL-ACC buy-PAST-DECL
   ‘I bought those books yesterday.’

b. na-nun ecey ku chayk-ul sa-ss-ta.
   I-NOM yesterday DEM book-ACC buy-PAST-DECL
   ‘I bought that book yesterday.’

In this demonstrative context, the NP chayk in (1.3b) refers to only a singular entity, while the pluralized NP chayk-tul in (1.3a) refers to more than one book. That is, the ambiguity between the NP with -tul and without -tul disappears in a demonstrative context like (1.3a). Based on these facts, I would argue that the obligatory context of -tul correlates with specificity (this issue will be presented in detail in Chapter 2), and we cannot simply conclude that the use of -tul is truly optional.

Furthermore, the use of Korean plural marking is constrained by the occurrence of classifiers and quantifiers. I have observed that English-speaking learners of Korean often produced ungrammatical or unnatural sentences involving -tul which are similar to English quantified structures: for example, *twu kenmul-tul ‘two buildings.’ This suggests that the
learners incorrectly assume that Korean allows direct counting without a classifier, like English. Unlike English, however, numerical quantifiers ordinarily require classifiers in Korean. Furthermore, as will be discussed in Chapter 2, the use of -tul interacts with various factors, for example, whether a classified noun to which the marker is attached is human. Consider the following sentences.

(1.4) a. ai(-tul) sey myeng kid(-PL) three CL ‘three kids’

b. chayk(-*tul) sey kwen book(-*PL) three CL ‘three books’

These data clearly show that there are complex co-occurrence restrictions that L2 learners need to master in order to achieve native-like proficiency.

More surprisingly, Korean has another type of plural marking, which can be added not only to nominals but also to non-nominal elements, such as adverbs or locative phrases, triggering a distributive interpretation whereby a set of individuals denoted by a plural subject are distributed over an action or state denoted by a predicate (e.g. Y. Kim, 1994). This type of plural marking is referred to as “extrinsic” plural marking (J. Song, 1997) which is illustrated in (1.5).
This type of plural marking is unique to Korean as the phenomenon cannot be found even in Japanese, a typologically close language. In order to use extrinsic -tul, L2 learners need to be aware of situations in which it can be used felicitously. In the previous literature, it has been reported that extrinsic plural marking signals the presence of a plural subject and triggers a distributive reading, as mentioned above (this issue will be addressed in detail in Chapter 3). As far as I could determine, the extrinsic plural marking is not commonly taught in the classroom, and even advanced learners are unlikely to be aware of it.

To summarize, despite the fact that the correct use of two types of -tul requires complicated knowledge about acceptable or obligatory contexts, the learning burden that L2 learners face when acquiring this marker has been overlooked in second language acquisition (SLA) studies, presumably due to the simplicity of its form and the misconceptions of its usage. This dissertation aims to formally articulate the properties of -tul, which I will argue can be represented in terms of formal features, and to show the extent to which its properties differ from English number marking. Since L1–L2 parametric differences are often considered one of the crucial sources of learning difficulty, it is important to determine how to define such differences in plural number marking between the native language and target language. To summarize, there are two main goals of this study:
• To characterize L2 learners’ learning task based on the cross-linguistic variation in number marking between the L1 and L2.

• To investigate whether native-like attainment of two types of Korean plural marking is possible by English-speaking learners.

As will be discussed below, the notion of parameters has recently been extended to differences in the selection and assembly of formal features in functional categories. In the following section, I will provide a brief discussion of the theoretical background for the development of the notion of “parameters,” which has influenced L2 acquisition research, and for how formal features came to gain such a crucial role.

1.2. Theoretical background for the feature-reassembly approach

1.2.1. Morphosyntactic features & parameters

In this section, I present the general developmental pattern of the notion of parameters, and how important a role the morphosyntactic features of recent syntactic theory play in L2 acquisition. Unlike L1 children, L2 learners’ task is to reset the existing parametric values of their native language to the appropriate L2 values (Haegeman, 1988). The following section will show that the notion “parameters” has evolved from macro-parameters to micro-parameters. This significant shift in theory has influenced generative L2 acquisition theory, and resulted in the articulation of feature-based L2 approaches.
Parameters in Principles & Parameters theory

Universal Grammar (UG) is a theory about the innate human language faculty, which is hypothesized to consist of principles and parameters (Chomsky, 1981, 1986). Principles of UG constrain the form of all human language grammars as well as the operation of linguistic rules, while parameters (e.g., Null Subject Parameter) are responsible for cross-linguistic variation. Parameters, within Principles & Parameters (henceforth, P&P) theory, are considered an innately-predetermined finite set of plus-or-minus options, which must be valued based on the primary linguistic data (PLD). To account for the ease and rapidity with which children acquire their native language(s), it was originally postulated that the number of parameters should be small, with each parameter closely related to a cluster of relevant effects (Chomsky, 1981). For example, the Null Subject Parameter, which determines whether or not a subject must be overtly present, was claimed to be associated with seemingly unrelated properties such as post-verbal subject inversion or that-trace effect (Rizzi, 1982, 1986). This fact alleviates children’s burden when they learn their native language because once the value of a parameter is set, the other relevant effects (or so-called deductive consequences) associated with that parameter would also be automatically acquired.

Similar to L1 acquisition, generative L2 research conducted within the P&P framework focused on whether or not L2 learners showed the hypothesized clustering effect associated with a particular parameter as L1 acquirers do (e.g. White 1985 for Null Subject parameter; White, 1990/1991 for verb-movement parameter). For example, White (1990/1991) investigated whether French speaking learners of English were able to show the clustering effects associated with the verb-movement parameter, such as adverb placement or question formation. She divided the participants into three groups (adverb, question, and control), and tested them on adverb
placement after giving explicit instruction either on adverbs or question formation depending on their group. The findings indicate that the L2 learners instructed in English adverb placement showed an increase in accepting and using the Subject-Adverb-Verb order than the group instructed in question formation. Since the question group did not show much improvement in adverb placement, unlike the adverb group, this was taken to suggest that instruction on one property associated with an L2 parameter does not generalize to other relevant properties. To date, no studies about this issue have clearly demonstrated that the (re)setting of a parameter in the L2 accompanies the deductive consequences with the parameter, suggesting that the individual phenomena are acquired separately (Carroll, 2001; Bley-Vroman, 2009). Accordingly, as discussed by Lardiere (2009), the notion of parameter resetting followed by the automatic acquisition of clustering effects or deductive consequences must be called into question in SLA.

Parameters in Minimalist Program

In Minimalist theory (Chomsky 1993, 1995, 2000, and subsequent work), features gained prominence in describing cross-linguistic differences by shifting to a feature-driven system of movement. Features are considered the elementary units of linguistic structure and, as a bundle, they make up lexical or functional categories such as C(omplementizer), T(ense), or D(eterminer). Since the locus of parameterization is assumed to be functional categories, it can be said that formal features are strongly tied to parametric differences among languages. In early Minimalism (Chomsky, 1993, 1995), cross-linguistic variation could be defined in terms of a specific value of a feature of a functional head (e.g., a strong V-feature in T in French vs. a weak V-feature in T in English).

In more recent versions of the Minimalist Program, the locus of parametric differences
has been shifted from the specific value of a feature in a functional head to the presence of a certain feature on individual lexical items in functional categories. It is hypothesized that UG makes available a set of features, and each language selects a subset of those features, which are assembled into lexical items. Specifically, according to Chomsky (2000), parameter setting constitutes “at least selection of the features [F], construction of lexical items Lex, and refinement of C_{HL} (p.13)” Thus, parametric differences may arise from the language-specific selection of features from the universal inventory (i.e., the presence or absence of a particular feature) and/or different combinations of features into lexical items in functional categories. Baker (2008b) labels this idea “The Borer-Chomsky Conjecture”. In his terms, this view is formulated as follows: “All parameters of variation are attributable to differences in the feature of particular items (e.g., the functional heads) in the lexicon” (Baker, 2008b, p.353).

Since in the Minimalist Program cross-linguistic variation has been reduced to morphological properties of the lexicon, some researchers have tried to reestablish the role of parameters characterized in the earlier Government & Binding (GB) or P&P framework. Specifically, on the assumption that syntactic parameters are limited to features of functional elements, Kayne (2005) argues that the original assumption of a limited number of parameters (with clusters of deductive consequences) needs to be replaced with a more fine-grained system. He suggests that every parameter is a micro-parameter, and each parameter does not necessarily “have an equally wide range of effects” (p. 5). Proponents of micro-parameters deal mainly with morphosyntactic properties associated with functional heads such as clitic behavior or participle agreement in closely-related languages. The number of micro-parameters has exploded, and
although the micro-parametric approach has been taken up by many linguists\(^1\) the original highly restrictive explanatory power of parameters has therefore been argued to be seriously weakened (Lardiere 2008, 2009)\(^2\).

Based on the issues given above, it is worth noting that there is little doubt that features in the lexicon have gained a prominent role as the most valid primitive units used to account for language variation, and they are at the heart of Chomskyan syntactic theory (Liceras, Zobl, & Goodluck, 2008). The theoretical shift to the presence/absence of features has accordingly influenced generative L2 research, emphasizing the reassembly of features. Even if researchers trying to apply feature theory to acquisition data may confront some controversial issues, the importance of features in the research of L2 acquisition should not be underestimated since they also provide new and creative perspectives on phenomena that have not been explained in previous frameworks (Liceras, et al. 2008).

1.2.2. Why is the feature-reassembly approach necessary for L2 acquisition?

Turning to L2 acquisition, it should be noted that many L2 researchers have taken steps to suggest the importance of the acquisition of features in functional categories. For example, Carroll (2001) suggests that “since the entire theory of parameters has been reduced to differences in the characteristics of the functional categories, it follows that if parameter-resetting

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\(^1\) Given this, Baker (2008b) argues that generative linguists should notice the existence of macro-parameters in the presence of proliferated micro-parameters. According to Baker, there are some parameters of a more or less macro-parametric sort that cannot be discovered by comparing dialects of Indo-European languages and thus “the generative linguistic community should be trying harder to seek them out” (p.353).

\(^2\) Following Lardiere’s (2009) view, what I intend to focus on here is that macro-parameters are not sufficient to account for the complexity of L2 acquisition, not the endorsement of either macro-parameters or micro-parameters.
is to occur, it has to be triggered by the acquisition of the relevant functional categories and their properties” (p.104). In addition, Travis (2008) claims that “any study of language acquisition done within Chomskyan syntactic theory is now a study of the acquisition of features” (p.23). Some recent L2 proposals have addressed the acquisition of feature-related factors, even though they do not take the same perspective. The learnability issue of uninterpretable features not selected in the L1 has attracted many L2 researchers’ attention (e.g. Hawkins & Hattori, 2006; Tsimpli & Dimitrakopoulou, 2007). These features (e.g Case and [wh] features) motivate purely syntactic operations without involving semantic content. On the other hand, beyond the selection of uninterpretable features in functional domains, as mentioned above, cross-linguistic variation should be related to the way in which features are assembled in lexical items in functional categories.

The advantages of examining features for the study of language variation is that they offer more adequate empirical coverage of the data, which is recognized in the acquisition research as well. Recently, Stringer (2012) argues that variation in the syntax of motion events correlates with grammatically relevant semantic features (e.g. PATH, LOC, PLACE, etc.) combined on lexical heads in syntax, suggesting that language-wide parameter settings cannot account for linguistic variation in this domain. Given this, what he claims is that a parametric valuation for a whole language (i.e. a ‘verb-framed’ vs. ‘satellite-framed’ grammar) cannot be maintained and L2 learners are required to acquire the lexical semantics of each particular verb, adposition, and locative noun that are related to the expression of motion events in each language (e.g. Japanese verb aruku is assembled with <V, [MANNER]>, while the English counterpart walk is with <V, [MANNER]_(PATH)>). In a similar vein, the current study will focus on the
role of features for the study of L2 acquisition of plural marking in Korean, describing the complex learning task that L2 learners face.

Regarding number marking, the necessity of a finer-grained system to encode the differences, rather than a parameter at the level of whole languages, has been recognized in Lardiere’s (2009) work. There is a well-known parameter referred to as the Nominal Mapping Parameter (Chierchia, 1998a, 1998b), which identifies the general typological properties of three groups of languages in terms of whether or not they have a generalized classifier system or plural marker. However, it is unlikely that the subtle differences between plural lexical items in each language can be accounted for by this parameter, as argued by Lardiere (2009) and others (see Chapter 2 for further detail).

An alternate attempt to account for variation in number marking with bundles of some particular features has been made by Gebhardt (2009). He suggests a small set of syntactic features, which reside in the head of functional categories such as Number Phrase, arguing that “as the semantic interpretation of [pl] is too gross to explain the facts in all languages, more-and less-refined features are available, and languages pick and choose among them” (p.31). For this purpose, building on the feature-geometry model of Harley & Ritter (2002), he proposes the more general number feature [individuation] along with its dependent feature [group], as well as other features such as [rel(ative)]\(^3\) and [abs(olute)]\(^4\) relevant to quantifiers. Comparing the quantified DP structures in Mandarin, English, and Persian from a cross-linguistic perspective, he suggests different feature bundles in functional categories across the three languages. Based on the features associated with number marking in Gebhardt (2009), in order to explain the L2

\(^3\) “A more-specific quantity feature for many, some, etc.” (Gebhardt, 2009, p.8)

\(^4\) “A more-specific quantity feature for numerals.” (Gebhardt, 2009, p.8)
empirical data, this dissertation adopts the feature-reassembly approach advanced by Lardiere (2008, 2009) which suggests that the L2 learning problem lies in the assembly of features in language-specific lexical items.

It is only recently that we have begun looking at the feature-reassembly issue in SLA in more detail (e.g., Choi & Lardiere, 2006; Choi, 2009; Renaud, 2011; Dominguez, L., Arche, M. J., & Myles, F., 2011), so I hope that this project will provide an additional contribution to generative L2 research by conducting an in-depth study within this still relatively new framework. This dissertation presents empirical evidence from English-speaking learners investigating whether most of the features relevant to Korean plural marking are acquirable. In particular, the findings in this study will be discussed based on the predictions made by the feature-reassembly approach. The discussion will shed light on the following two specific issues: (i) the extent to which language-specific assembly of features in the Korean plural marking is acquired by the learners; and (ii) whether native-like attainment is possible.

Given the gradual development of L2 acquisition, this study will address a question raised by White (2009) as to whether all features have equal status in terms of difficulty—i.e. whether they are “equally hard to reassemble” (p.347). Following McCarthy (2008, 2012), who built a model of morphological variation and development, this study proposes that the development in the morphology involves a gradual addition of features in a hierarchical feature structure (Harley & Ritter, 2002), suggesting that more embedded features (i.e. the more specified ones) are acquired later than the unmarked ones. It should be noted that the

5 The feature hierarchy presented in this study is not an actual feature geometry, but a feature co-occurrence hierarchy.
6 This idea about the hierarchical co-occurrence feature restrictions has been initially proposed in Hwang and Lardiere (in press).
hierarchical co-occurrence feature restrictions could function as a model from which these hypotheses follow, and lead to testable predictions about developmental stages in the acquisition of Korean plural marking, alleviating concerns that the feature-reassembly approach does not offer anything predictive.

In short, this dissertation will provide a discussion of developmental patterns based on the hierarchical feature co-occurrence restrictions, which are likely to occur in the acquisition of Korean plural marking by English-speaking learners.

1.3. Why is Korean plural marking appropriate for the feature-reassembly framework?

Recall the L2 acquisition of Korean plural marking (or plural marking in any classifier language) is not a widely-researched area. Thus, the current study aims to fill this gap, and for this purpose I will investigate whether and how native speakers of English learning Korean plural marking can remap the relevant features of English plural marking onto Korean. In this way, we can verify the validity of the feature-reassembly approach, evaluating its predictive power (an issue raised by White, 2009). As will be discussed in Chapter 2, some of the features associated with Korean plural marking are the same as those of the English plural while other features significantly differ, especially regarding specificity, numeric vs. non-numeric quantification, classification, and human animacy. In other words, the ways in which feature are assembled in -s are different from those in -tul. Moreover, with respect to extrinsic plural marking, English-speaking learners are required to recruit the relevant features that are situated on completely different morpholexical items in the L1. The formally articulated differences of the feature-reassembly approach would make it possible to provide a plausible account for the L2 learning task regarding Korean plural marking.
1.4. Organization of the dissertation

To summarize, there are two main goals of this study. One objective is to characterize L2 learners’ learning task based on cross-linguistic variation in number marking between the L1 and L2. For this purpose, the properties of Korean plural marking, both intrinsic and extrinsic, and other relevant factors such as classification, quantification, and distributivity, will be formally articulated using features based on the feature-reassembly approach. The other objective is to investigate whether native-like attainment of Korean number marking is possible by English-speaking learners, assessing the developmental predictions made based on the feature-reassembly approach.

The remaining chapters of this dissertation are organized as follows. Chapter 2 provides a discussion of the basic description of intrinsic plural marking, showing various properties interacting with other conditioning factors such as numeric vs. non-numeric quantification, classification, and human property of nouns. Based on the descriptive account, the formal features involved in the use of *-tul* will be identified. The cross-linguistic properties of plural marking in English and Korean will also be discussed. Adopting Gebhardt’s (2009) feature-driven analysis, I will provide a syntactic analysis of the various relevant quantified structures to plural marking and classifiers.

Chapter 3 examines the properties of extrinsic plural marking and identifies the features required for its use by closely reviewing a number of previous studies. I will show that its presence not only requires a plural subject, but also reflects the distributive reading of a sentence. While most of the previous studies on extrinsic *-tul* have focused on either syntactic or semantic properties, I will attempt to provide a unified analysis to integrate two theoretical properties. For
this purpose, I will propose that the distributivity which extrinsic plural marking triggers is projected in the syntax as a functional category, and subject to the syntactic operation Agree.

Chapter 4 considers some L2 approaches to ultimate attainment, describing what they suggest and how their claims can be applied to the acquisition of Korean plural marking. I will also briefly evaluate each approach in predicting the acquisition of the observed differences between plural lexical items in the L1 and L2. Looking at these approaches in more detail, this dissertation adopts a feature-based approach to provide a useful framework to account for the sources that cause the learning problems with respect to Korean plural marking. The predicted developmental patterns based on the feature-reassembly approach will be presented, which suggest that the L2 acquisition of plural marking would be completed at very advanced proficiency level. In the meantime, a discussion will be provided regarding whether its morphosyntactic knowledge is attainable by the L2 learners.

Chapter 5 presents the research questions addressed in this dissertation and discusses the methodology of the empirical study for the data collection. Chapter 6 reports the descriptive results and statistical analyses of five tasks (Elicitation Task, Preference Task, Acceptability Judgment Task, Truth Value Judgment Task, and Translation Task) administered to adult English-speaking learners of Korean. For each task, the group and individual results obtained by statistical methods will be reported. Two statistical results (i.e. all learners and only non-heritage learners) will be presented in order to alleviate the concerns about the inclusion of heritage learners.

Chapter 7 discusses the major findings in light of the feature-reassembly approach, investigating whether the learners in this study have acquired the relevant features. I will also evaluate the predictions discussed in Chapter 4, which are mainly based on the feature-
reassembly approach.

Finally, chapter 8 concludes the dissertation with implications for further study, summarizing the major findings of this dissertation.
Chapter 2

Korean intrinsic plural marking

This chapter provides a descriptive account and theoretical analysis of Korean intrinsic plural marking, examining its various syntactic and semantic properties.

Korean has two homophonous kinds of plural marking: intrinsic and extrinsic. The intrinsic marker -tul attaches to a noun to pluralize it, while the extrinsic marker -tul optionally attaches not only to nouns but also to non-nominal elements such as adverbs or locative phrases in clauses with plural subjects. This chapter provides a description of the syntactic and semantic properties of intrinsic plural marking, which are different from English plural marking, and introduces a few previous studies on number marking in order to figure out how Korean plural marking can be analyzed.

Regarding intrinsic plural marking, most of the previous studies focused on the controversial issue of whether Korean intrinsic -tul is a real plural marker or not, because Korean is classified as a generalized classifier language and is therefore hypothesized to lack a plural morpheme (Chierchia, 1998a, 1998b). However, -tul has been traditionally considered as a plural marker by many Korean linguists (e.g. C. Kim, 2005) though some researchers (e.g. S. Park, 2008, 2009) argue that it is not, as it shows idiosyncratic properties that differ from a regular plural marker in other languages (some of these arguments will be presented in Section 2.2.2).

It has been widely stated that the use of intrinsic plural marking is optional (e.g. S. Song, 1975; Y. Kim, 1994). Since bare nominals are ambiguous between plural and singular readings, it has been assumed that two morphemes indicate plurality in Korean: one with -tul and one without -tul (I call it zero-plural in this dissertation) (Baek, 2002; Kwak, 2003; Jun, 2004).
However, it has also been observed that there are some contexts in which -tul can, cannot, or must be used, indicating that it is not always optional (e.g. C. Kim, 2005; Kwon & Zribi-Hertz, 2004 for the obligatory use of -tul). Based on these observations, this chapter identifies the formal features involved in the use of -tul. Along with the descriptive account, I will provide a syntactic analysis of -tul using a feature-driven system. The cross-linguistic properties of plural marking in English and Korean will also be discussed.

The organization of Chapter 2 is as follows. In Section 2.1, before presenting Korean plural marking I briefly provide some theoretical analyses regarding Number, such as Nominal Mapping Parameter by Chierchia (1998a, 1998b) and Borer’s (2005) proposal. Section 2.2 discusses the controversial issue of whether plural markers in classifier languages are real plural markers or not. Section 2.3 examines the syntactic and semantic properties of the intrinsic plural marker and its relevant conditioning factors, such as classifiers. In Section 2.4, I provide a theoretical analysis based on the identified formal features. Section 2.5 presents the results of corpus data. Finally, this chapter is summarized in Section 2.6.


The section provides an overview of the Nominal Mapping Parameter by Chierchia (1998a, 1998b) and Borer’s (2005) analysis in order to investigate whether or not Korean plural marking fits the properties of a generalized classifier language as the researchers suggest.

2.1.1. Nominal Mapping Parameter

Chierchia’s (1998a, 1998b) studies proposing the Nominal Mapping Parameter (henceforth, NMP) are among the most significant studies on Number and Noun Phrases (NPs). The NMP is
proposed to account for cross-linguistic variation of NPs in terms of the mapping between the syntactic category N and its semantic denotation. Chierchia used two features, [±arg] and [±pred] to set up a typology of NP denotations. The feature [±arg] determines whether members of the category N can be mapped onto arguments (kind-denoting nouns that occur as bare NPs; for example, mass nouns such as money in English can appear as a bare NP), while another feature [±pred] determines whether Ns can be mapped onto predicates (that are licensed by overt articles; for example, count nouns in English like book need to be licensed by the or a). There are three combinations of valued features, with languages each allowing one combination of valued features. English is classified as a mixed [+arg, +pred] language, which allows both kind-denoting bare nouns and predicative NPs (count nouns). In other words, English bare singulars need to be used with articles ([+pred]), while bare plurals can denote kinds as arguments ([+arg]). In this type of language, there is a clear mass/count distinction. For count nouns, plural marking can indicate the singular/plural contrast, while mass nouns cannot be pluralized as given in (2.1).

(2.1) a. table/tables
   b. *waters/*furnitures

7 The properties of the three combinations can be summarized as follows (C. Kim, 2005, p.38)

a. N => [+arg, -pred] (Chinese, Japanese; e.g. Girl saw boy is possible)
free occurrence of bare arguments; all nouns are mass nouns; no plural morphology; generalized classifier system
b. N => [-arg, +pred] (French, Italian; e.g. Neither *Girls saw boys nor *Water is over there is possible)
no bare arguments; count/mass distinction; plural morphology; no generalized classifier system
c. N => [+arg, +pred] (English, Russian; e.g. Girls saw boys is possible, but *Girl saw boy is not)
bare mass nouns and plural (and possibly singular) arguments; count/mass distinction; plural morphology; no generalized classifier system
On the other hand, Korean is classified as a [+arg, -pred] language, which allows bare nouns to appear freely as arguments without determiners. According to the NMP, there is no mass/count distinction⁸ in this type of language, and thus all nouns (including countable nouns such as dog or book) are assumed to be mass nouns that are inherently plural. Thus, it is proposed that the presence of plural marking is not necessary. Moreover, nouns are considered to be “a whole, qualitatively homogeneous sublattice⁹” (1998b, p.68), where atomic individuals cannot be selected. In order to be counted, the nouns need to be used with numeral classifiers as in (2.2b), because classifiers can make mass nouns countable by individuating them.

(2.2)  
a. *sey chayk-tul  
three book-PL  
b. chayk sey kwen  
book three CL  
‘three books’

Thus, this type of language has a generalized classifier system to express an appropriate counting level.

However, it has been argued that the NMP does not explain all of the empirical data, and

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⁸ Many researchers have argued that there is a count/mass distinction in Korean (e.g. Kang, 1994), because plural marker -tul cannot be attached to a mass noun such as mul ‘water’. Thus, sakwa-tul ‘apple-PL’ is grammatical, whereas mul-tul ‘water-PL’ is unacceptable. This issue will be considered in section 2.3.5.4.

⁹ Chierchia (1998b) defines sublattice as “something that has the same structure as the whole domain” (p.60). Given this, he suggests that mass nouns come out of the lexicon with inherent plurality, and their basic lexical entry denotes not a set of atomic elements, but a non-atomic sublattice. On the other hand, the basic lexical entry of a count noun such as table is related to individual atoms, and “the set-forming operator PL” is necessary for pluralities of table-s (p.68).
reveals some problems (Borer, 2005; Gebhardt, 2009). The most important issue here regarding the NMP would be whether or not classifier languages employ plural marking. According to the NMP, Korean should lack a plural marker, because it has a generalized classifier system as shown in (2.3a).

(2.3) a. haksayng sey myeng-i kyosil-eyse nawa-ss-ta.
    student three CL-NOM classroom-from come.out-PAST-DECL
    ‘Three students came out from a classroom.’

b. salam-tul-i kyosil-ey manhi moye-ss-ta.
    person-PL-NOM classroom-LOC a lot gather-PAST-DECL
    ‘A lot of people gathered in a classroom.’

However, as shown in (2.3b), Korean has a morpheme -tul denoting more than one entity, and it has been traditionally considered a plural marker (e.g. Kang, 1994; Im, 2000; Baek, 2002; C. Kim, 2005, and many others). Chinese is another classifier language that has a morpheme used to refer to a plural referent, -men (Li 1999). If Li’s (1999) idea is correct (I will return to this in section 2.2.1), it seems to contradict the NMP. Like -men, Korean -tul has also been controversial in terms of whether it should be considered a plural marker. Thus, determining whether a plural lexical item in classifier languages can be considered a true plural marker would be a crucial issue for assessing parameter resetting in L2 acquisition. If classifier languages have a plural marker, it appears that parameter (re)setting from the L1 NMP value to the value of the L2 NMP may not be helpful to L2 learners acquiring Korean or Chinese plural marking (Lardiere, 2009).
2.1.2. Borer (2005)

Borer (2005) argues, in contrast to Chierchia, that all nouns across languages are mass in the lexicon, regardless of the presence or absence of a classifier system. In other words, there is “no parameter” (p.93) in terms of lexical properties of nouns. According to her, all nouns, which are mass in all languages, shift to count nouns when they are embedded within a Classifier Phrase. In other words, whether a classifier functional node is present or not determines the nouns’ interpretation. Thus, in Borer’s (2005) system a classifier projection is considered to be universal across languages, even in non-classifier languages such as English. Borer claims that plural inflection in English is located in Classifier Phrase, indicating that plurality is not number specification and plurals are morphologically classifiers.

(2.4)

\[
(\text{DP}) \\
D \quad \#P \\
\quad \quad \text{Three} \\
\quad \quad \quad \langle e\rangle \quad \text{CLP} \\
\quad \quad \quad \quad \quad \text{Cat} \quad \langle e\rangle_{\text{DIV}} \quad \text{L} \rightarrow \text{N} \\
\quad \quad \quad \quad \quad \quad \quad \quad \quad \text{Cat}
\]

(Borer, 2005, p.109)

As shown in (2.4), plural inflection is the realization of a dividing feature, which is located in the head of CIP. The open value \(<e>_{\text{DIV}}\) converts a noun into a count noun and it can be assigned range by either a classifier or a plural morpheme. On the other hand, nouns are interpreted as mass in the absence of the dividing structure. Thus, it is argued that plural -s in English and classifier inflection in classifier languages serve the same function and appear in complementary
distribution. This predicts that a classifier and plural marker cannot co-occur in the same construction, even though it is possible to have both plural morphology and classifiers in the same language. Accordingly, the unacceptability of co-occurrence of a plural morpheme and classifier (as will be shown in example (2.11b) in Chinese) can be correctly accounted for by her analysis. To support this claim, Borer also presents the following examples from Armenian.

(2.5) a. Cardinal, no classifier, no plural
   Yergu  hovanoc  uni-m
   Two    umbrella  have-1sg
   ‘I have two umbrellas.’

b. Cardinal, classifier, no plural
   Yergu had  hovanoc  uni-m
   Two    CL umbrella  have-1sg
   ‘I have two umbrellas’

c. Cardinal, no classifier, plural
   Yergu  hovanoc-ner  unim
   Two    umbrella-PL  have-1sg
   ‘I have two umbrellas’

d. *Cardinal, classifier, plural
   *Yergu had  hovanoc-ner  unim
   Two    CL umbrella-PL  have-1sg
   ‘I have two umbrellas’   (Borer, 2005, pp.94-95)

In contrast to Borer’s claim, however, some languages do allow the co-occurrence of a classifier and plural morphology. Gebhardt (2009) points out that Borer’s analysis poses an empirical problem in Persian, because the co-occurrence of a classifier and plural marker is allowed as in
Likewise, in Korean, the plural morpheme \(-\text{tul}\) can appear with a classifier as in (2.7), if the noun is human.

\[(2.6)\] 
\[
\text{paenj ta doxtaer-ha} \\
\text{five CL girl-PL} \\
\text{‘the five girls’} \quad \text{(Gebhardt, 2009, p.191)}
\]

\[(2.7)\] 
\[
\text{salam-tul sey myeng-i kyoil-ey moye-ss-ta.} \\
\text{person-PL three CL-NOM classroom-LOC gather-PAST-DECL} \\
\text{‘Three people gathered in a classroom.’}
\]

If we follow the traditional view in assuming that the lexical item \(-\text{tul}\) is a plural marker, it challenges Borer’s view as well as Chierchia’s view. Indeed, S. Park (2008, 2009) argues that \(-\text{tul}\) is not a real plural marker because of the contextual restrictions on its distribution. In the following section, I address the issue of whether plural markers in classifier languages are true plural markers or not.

### 2.2. Plural markers in classifier languages: are they true plural markers or not?

#### 2.2.1. Chinese plural marker \(-\text{men}\)

Let us consider some analyses of Chinese plural marking. As stated above, the NMP assumes that the use of classifiers is closely associated with the absence of a plural morpheme; in fact, it has been argued that the plural suffix \(-\text{men}\) in the classifier language Mandarin Chinese is not a
true plural marker but instead a collective marker, based on its restricted distribution (Iljic, 1994; Cheng & Sybesma, 1999). To support this claim, Cheng and Sybesma (1999) and Iljic (1994) provided the following example in (2.8) where \(-men\) cannot co-occur with a quantity expression such as \([\text{numeral} + \text{classifier}]\).

(2.8)  *san-ge haizi-men
       three-CL child-MEN (Cheng & Sybesma, 1999, p.537)

They argue that the ungrammaticality of (2.8) can be accounted for by the fact that the collective meaning of \(-men\) (referring to a group as a whole) is not compatible with the quantity expression, which expresses the quantity of individuals.

However, Li (1999) argues that the analysis of \(-men\) is a collective marker cannot capture some facts. For example, the \(-men\) cannot be attached to a definite expression with a demonstrative, even when it intends to indicate a group of people as shown in (2.9).

(2.9)  *zhege/nage ren-men
       this-CL/that-CL person-MEN

‘this/that person and the others’ (Li, 1999, p.79)

Moreover, she also notes that the co-occurrence of \(-men\) and the distributive marker \(dou\) is acceptable (e.g. \(xuesheng-men dou likai le\ ‘each of the students has left’, p.80), as opposed to the semantic account of \(-men\) as a collective marker. Based on these observations, Li argues that the analysis \(-men\) as a collective marker seems doubtful. Rather than a collective marker, Li analyzes the \(-men\) as a plural morpheme, which realizes a number feature; this clearly suggests that it can
indicate the plural reading, even when it does not seem to be associated with the collective reading. However, since it is true that -men behaves differently than English -s, Li provides a structural account for -men compared to English -s.

According to Li, nominal expressions of a non-classifier language like English can be structured as follows:

\[(2.10)\] three students

\[\text{DP} \quad \text{NumP} \quad \text{NP}\]

\[\text{D} \quad \text{spec} \quad \text{Num'} \quad \text{PL} \quad \text{N} \quad \text{Student}\]

The noun has to be moved to Num in order to realize the plural feature there. In other words, the noun ‘student’ needs to be raised to Num for agreement with the quantifier ‘three’ via Spec-head agreement, because English has obligatory Num-N agreement relation (Li, 1999). It is argued that the difference between English and a classifier language like Chinese is that the latter has an additional projection for a classifier between NumP and NP as in (2.11).
Li (1999) proposes that the plural feature in both Chinese and English is generated in Number, but the positions where they are realized are different due to the presence of a Classifier projection. According to her, the plural feature in Chinese is realized as -men, which is attached to an element in D, while English -s is attached to an element in N. In (2.11c), it is argued that the noun *xuesheng ‘student’ cannot be raised to Num due to the presence of an intervening head, Cl. In other words, following this mechanism, common nouns, which must be [+human], can be suffixed with -men only when there are no intervening heads (such as classifiers) blocking the movement. It appears that this structure gives a proper explanation for the unacceptability of a noun phrase with -men co-occurring with a quantity, [Num + Cl] expression as in (2.11b).

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10 As per the Head Movement Constraint (Travis, 1984)
While the use of Chinese -men is subject to some restrictions, it is difficult to define it as a collective marker without any relation to plural markers because it is true that it indicates plurality (Li, 1999). Following the Li’s analysis, I assume that Chinese has number morphology expressed on the noun, contrary to Cheng and Sybesma (1999) and Iljic (1994). In sum, the difference between English -s and Chinese -men can be accounted for by this structural account without underestimating the plural properties of -men; thus, -men can be considered to be a plural marker in Chinese.

2.2.2. Korean plural marker -tul

The question of whether the Korean lexical item -tul is a plural marker has been a controversial issue, because it shows some properties that are different from other typical plural markers. Nevertheless, many linguists have analyzed it as a plural marker. Recently, C. Kim (2005) argues that -tul is a plural marker which is the same as its English counterpart -s, based on the semantic properties that it shares with English -s: pluralized nouns with -tul exclude a singular interpretation (in (2.3b) above, salam-tul ‘person-PL’ has to refer to more than one person), and the meaning of a mass noun such as mul ‘water’ must be shifted into a count noun meaning kinds of water or waters in containers by using -tul (i.e. mul-tul ‘water-PL’).

S. Park (2008, 2009) argues against Kim and other traditional analyses (Kang, 1994; Baek, 2002 and many others), suggesting that -tul is not a plural marker, but a distributive marker. In order to support her claim, she presents some collective predicates that disallow -tul-marked nouns.
(2.12) Collective predicates II (be a group of four, be a large group, etc.)

a. swuhak-kwa-nun kyoswu-ka ney myeng-i-ta.
   mathematics-dep-TOP profersos-NOM four CL-be-DECL
   ‘The professors in Mathematics department are a group of four.’

b. ?? swuhak-kwa-nun kyoswu-*tul*-i ney myeng-i-ta.
   mathematics-dep-TOP profersos-PL-NOM four CL-be-DECL

(2.13) The professors of Mathematics department are a group of four.

(S. Park, 2008, p.283)

As shown in (2.12b), ‘collective predicates II’ does not allow -*tul*-marked nouns (or is at best only marginal), whereas English plural -s can occur in the same context as in (2.13). However, even though S. Park used the disallowance of -*tul* in collective predicates as one of the crucial pieces of evidence supporting her claim, there is another type of collective predicate that allows the use of -*tul*.

(2.14) Collective predicates I (gather, surround, meet, etc.)

a. swuhakkwa kyoswu-ka kyosil-ey moy-ess-ta.
   math-department professor-NOM classroom-LOC gather-PAST-DECL
   ‘Professors of a Math-department gathered in the classroom.’

b. swuhakkwa kyoswu-*tul*-i kyosil-ey moy-ess-ta.
   math-department professor-PL-NOM classroom-LOC gather-PAST-DECL
   ‘(All) the professors of a Math-department gathered in the classroom.’

(S. Park, 2008, p.282)

Unlike ‘collective predicates II’, this type of collective predicate allows -*tul*-marked nouns. This
seems to contradict S. Park’s claim that -tul is a distributive marker, since collectivity is not compatible with distributive quantification. Following Dowty (1987), S. Park (2008) accounts for the discrepancy between the two types of collective predicates using the idea of ‘distributive sub-entailment’. Specifically, ‘collective predicates I’ involve ‘distributive sub-entailment’, which implies that “every participant has the property of taking part in some action” (p.283), whereas ‘collective predicates II’ do not\textsuperscript{11}. According to her, the reason that the use of -tul is allowed in the ‘collective predicates I’ type is because they are not genuine collective predicates.

S. Park also claims that -tul always triggers a distributive reading in four collective aspectual classes (i.e., activities, accomplishments, states, and achievements). However, it is not the case that a collective reading is always blocked by the use of -tul as in (2.15).

\footnote{\textsuperscript{11} Even though -tul can occur in the ‘collective predicates I’ type, -tul triggers a different meaning from bare NPs. For example, sentence (2.14b) with -tul implies that all the professors of the department ‘‘partook in’ the gathering event’’ (p.283), whereas sentence (2.14a) without -tul does not necessarily imply the number of participants. Based on the meaning difference, she suggests that -tul is closely associated with distributivity, arguing against the claim that -tul is a simple plural marker.}
(2.15) -Tul-marked nouns in four aspectual classes

   student-PL-NOM box-ACC carry-PAST-DECL
   ‘(All) the students carried a box’ (√collective, √distributive)

   child-PL-NOM box-ACC make-PAST-DECL
   ‘(All) the children made a box’ (√collective, √distributive)

   this bag-PL-TOP carry-to too be.heavy-DECL
   ‘(All) these bags are too heavy to carry’ (*collective, √distributive)

   child-PL-NOM candy-ACC discover-PAST-DECL
   ‘(All) the children discovered a candy.’ (??collective, √distributive)

(S.-Y. Park, 2008, p.286)

Here, -tul-marked nouns can yield a collective as well as distributive reading with activity and accomplishment predicates. It seems that this fact also goes against S. Park’s analysis, since the collective reading cannot be derived if her claim that -tul is a distributive marker is correct. In order to solve this problem, she adopts Brisson’s (2003) analysis dividing the four collective predicates into two categories depending on whether they have a ‘DO’ sub-part or not.

12 “DO” means a subcomponent of the meaning that activities and accomplishments have in common. The basic idea of “DO” is an “activity” (Brisson, 2003, p.157).
(2.16) a. Activities, Accomplishments

Unlike States and Achievements, collective Activities and Accomplishments are decomposed into two VPs as seen in (2.16a), which provides another possible insertion site for a distributive operator. If the operator is inserted into a ‘DO’ sub-part, it triggers a collective reading. If the operator is inserted into a higher VP, it yields a distributive reading. Accordingly, States and Achievements predicates can yield only distributive readings, because they do not involve ‘DO’ sub-part, which triggers a collective interpretation. Thus, S. Park argues that *tul* signals the presence of a distributive operator and always gives rise to a distributive interpretation, but that a collective reading in some predicates arises due to the distinctive VP structure.

If we summarize S. Park’s analysis, her claim is that *tul* always gives rise to an interpretation involving distributive quantification and it cannot yield collective readings in state and achievement events, while English *s* can trigger either a collective or distributive reading.
regardless of predicates types. However, consider the following counterexamples, where intrinsic -tul can appear regardless of distributivity.

\[(2.17)\] a. i salam-tul-i han grwup-i-ta\(^{13}\). 
\[\text{this person-PL-NOM one group-be-DECL}\]
‘These people are one group.’

\[\text{child-PL-NOM candy-ACC together discover-PAST-DEC/find-PAST-DEC}\]
‘(All) the children discovered candy together’

In (2.17a), contrary to S. Park’s claim that -tul-marked nouns cannot appear with the collective predicates like be a group of four or be a large group, salam-tul ‘person-PL’ occurs with exactly this type of collective predicate. Moreover, for (2.17b) (given above as (2.15d) and repeated here with an adverb), the collective adverb hamkkey ‘together’ is permitted and even triggers the collective reading, despite the presence of a -tul-marked noun ai-tul. These facts can lead us to have some doubt about S. Park’s suggestion that intrinsic -tul is a distributive marker, rather than a genuine plural marker.

To summarize, since S. Park’s analysis seems independently problematic, intrinsic -tul is normally considered to be a plural marker in Korean, the plural meaning of which is similar to the English equivalent -s. However, it should be noted that the use of -tul is restricted by other

\(^{13}\) A similar example is presented in S. Park (2009):
(i) namhaksayng-tul-un han thim-i-ta.
\[\text{male student-PL-TOP one team-COP-DECL}\]
‘Male students are one team.’
(S. Park, 2009, p.47)
She briefly mentioned in a footnote that this example was offered by a reviewer, and it cannot be accounted for by her analysis.
conditioning factors such as the presence of classifiers and/or some formal features, unlike English -s. In the following section, the idiosyncratic properties of Korean plural marking are presented and analyzed.

2.3. Syntactic and semantic properties of intrinsic -tul

2.3.1. Description of Korean intrinsic plural marking

I have suggested that Korean has a suffix -tul to express plurality, but the use of -tul shows some idiosyncratic properties that differ from the plural morphemes in other languages. Its optionality is one of these properties, as shown in (2.18), which is grammatical regardless of the presence of plural-marker -tul.

(2.18) ku kos-ey-nun salam(tul)-i manh.ta.
       DEM place-LOC-TOP person(PL)-NOM be.a lot-DECL
       ‘There are many people in the place’

However, the use of -tul is not always optional. In some contexts it is obligatorily used, as shown in (2.19) and (2.20). When the plurality of referents is established within the discourse context or nouns with plural referents co-occur with a demonstrative, plural marking is obligatory (C. Kim, 2005; Kwon & Zribi-Hertz, 2004). Given this, this dissertation will claim that the use of -tul correlates with specificity (This issue will be addressed in section 2.3.3).
(2.19) Pluralized nouns with a demonstrative

\[
\begin{array}{l}
\text{ku ai-tul-un cacenke-lul tha-ss-ta.} \\
\text{DEM child-PL-TOP bicycle-ACC ride-PAST-DECL}
\end{array}
\]

‘The children rode a bicycle’

#’The child rode a bicycle’

(2.20) Pluralized nouns in a discourse context

\[
\begin{array}{l}
\text{Swumi-nun eeey chinkwu sey myeng-ul man-ass-ta.} \\
\text{Swumi-TOP yesterday friend three CL-ACC meet-PAST-DECL}
\end{array}
\]

‘Swumi met three friends yesterday’

\[
\begin{array}{l}
\text{chinkwu-tul-un motwu kyelhonhay-ss-ta.} \\
\text{friend-PL-TOP all marry-PAST-DECL}
\end{array}
\]

‘The friends are all married’

In addition, unlike English plural marking, there are some syntactic restrictions on the use of intrinsic -tul with respect to classifiers or quantifiers.

(2.21) -tul with a classifier

a. \*chayk-tul twu kwen-i chayksang wiey iss-ta.
    book-PL two CL-NOM desk on exist-DECL
    ‘There are two books on the desk.’

b. haksayng-tul twu myeng-i kyosil-eyse nawa-ss-ta.
    student-PL two CL-NOM classroom-from come.out-PAST-DECL
    ‘Two students came out from the classroom.’

In contrast to Chinese, pluralized nouns can be followed by a numeral classifier, but only when a noun is [+human] as seen in (2.21b). If a noun is [-human], -tul cannot occur with a classifier as
shown in (2.21a) (Baek, 2002; Noh, 2008). Thus, it is clear that the [+human] feature plays a role in Korean plural marking. On the other hand, as shown in the examples in (2.22), nouns may be (optionally) pluralized following non-numeric quantifiers such as *manhun* ‘many’ or *motun* ‘all’ regardless of the nouns’ semantic features (such as human).

(2.22) *-tul* with non-numeric quantifier

a. i tosekwan-ey-nun manhun chayk(-*tul*)-i iss-ta.
   this library-LOC-TOP many book-PL-NOM exist-DECL
   ‘There are many books in this library.’

b. motun haksayng(-*tul*)-i sensayngnim-kkey senmul-ul tuly-ess-ta.
   all student-PL-NOM teacher-to(HON) gift-ACC give(HON)-PAST-DECL
   ‘All the students gave a gift to their teacher.’

In contrast to English *-s*, we observe that pluralized nouns, especially with the [-human] feature, cannot be preceded by a numeric quantifier as in the examples in (2.23).

(2.23) *-tul* with numeric quantifier

   two book-PL-ACC bookstore-LOC buy-PAST-DECL
   ‘(I) bought two books at a bookstore.’

b. *cip aph-ey sey catongcha-*tul*-i iss-ta.
   house front-LOC three car-PL-NOM exist-DECL
   ‘There are three cars in front of the house.’

In sum, it seems that Korean plural marker *-tul* has some idiosyncratic properties which interact with syntactic conditioning factors (i.e. classifiers or quantifiers) and the inherent property of
nouns (i.e. humanness). In the following sections, I examine the properties involved in the use of the plural morpheme -tul in more detail.

2.3.2. Basic properties of intrinsic -tul: -tul vs. ø

As discussed above, the morpheme -tul is widely considered a plural marker in Korean (e.g. Kang, 1994; Im, 2000; Baek, 2002; C. Kim, 2005, and many others), but its use is not generally obligatory, as shown in (2.24).

(2.24) haksayng-i koysil-ey iss-ta.
     student-NOM classroom-LOC exist-DECL
     ‘The student(s) are in the classroom.’

The example in (2.24) indicates that bare nominals are ambiguous between a singular and plural denotation. For example, even without explicit plural marking -tul as in (2.24) haksayng can be interpreted as either a single student or more than one student. Thus, some researchers suggest that there are two types of plurals in Korean: one with overt plural marking -tul and the other without it (i.e. zero-plural) (Baek, 2002; Kwak, 2003; Jun, 2004). However, since these two types of plurals are not always interchangeable, it has been recognized that there is a meaning difference between the -tul-marked plural and zero-plural. Link (1984) suggests that the notion of plurality can be distinguished between the sum and group readings. According to him, sums are merely the collections of the individual members that can be accessed, whereas groups are primitive entities whose individual members cannot be accessed. He illustrated the distinctions between two meanings by using brackets around sums as shown in (2.25) (Link, 1984, pp 247-248).
Based on this distinction, Baek (2002), Kwak (2003), and Jun (2004) argue that -*tul* triggers sum readings, individuating the members in the set denoted by the NP, while the zero-plural has group readings forming an entity “whose members are lumped into one object” (Kwak, 2003). The group reading is referred to as collective plurality, while the sum reading is referred to as distributive plurality.

As shown in Table 2.1, unlike the English plural system, it should be noted that Korean plurals express the distinction between collective and distributive readings. To support this, the following examples are presented (from Kwak, 2003; Jun, 2004).
In the examples in (2.26) the distributive particle *kakca* ‘each’ is only compatible with the *-tul*-marked plural (having distributive meanings) and not the zero-plural, which involves the collective nature of groups. Likewise, the following examples support the fact that the zero-plural cannot be compatible with the distributive reading, indicating that the group/collective reading is the only meaning it has.

(2.27) a. sonyen-*tul*-i **meli-lul** kkuteky-ess-ta.  
    boy-*PL*-NOM head-ACC nod-PAST-DECL  
    ‘The boys nodded (their heads).’

b. sonyen-i **meli-lul** kkuteky-ess-ta.  
    boy-*NOM* head-ACC nod-PAST-DECL  
    ‘(The) boy nodded (their heads).’ (Joh, 2008, p.222)

In example (2.27a), the *-tul*-marked NP can co-occur with the inherently distributive predicate *kkutekyta* ‘nod’. On the other hand, in example (2.27b), the bare nominal is not ambiguous between plural and singular meaning, since it can only be interpreted as singular. This observation suggests that the zero-plural cannot be compatible with an inherently distributive predicate due to its group reading. The researchers who suggest the separate use of two plurals support their claim using this observation (Baek, 2002; Kwak, 2003; Jun, 2004).
However, *pace* their claim, -*tul* can also be compatible with collective adverbs such as *hamkkey* ‘together’ as shown in (2.28a). It can also appear in the context where a group reading is obligatory, as shown in (2.28b){footnote[14]}. Moreover, the collective predicate *eywessata* ‘surround’ can co-occur with a -*tul*-marked plural as in (2.28c) (Joh, 2008).

(2.28) a. haksayng-*tul*-i  *hamkkey* koysil-ul  chengsohay-ss-ta.
    student-PL-NOM  together  classroom-ACC  clean-PAST-DECL
    ‘The students cleaned a classroom together’

    b. swuhak-kwa  haksayng-*tul*-i  han thim-i-ta.
    mathematics-dept.  student-PL-NOM  one team-be-DECL
    ‘The students in the mathematics department are one team’

    c. sonyen-*tul*-i  ku seng-ul  eywess-ass-ta.
    boy-PL-NOM  DEM castle-ACC  surround-PAST-DECL
    ‘The boys surrounded the castle.’

(2.28) a. haksayng-*tul*-i  *hamkkey* koysil-ul  chengsohay-ss-ta.
    student-PL-NOM  together  classroom-ACC  clean-PAST-DECL
    ‘The students cleaned a classroom together’

    b. swuhak-kwa  haksayng-*tul*-i  han thim-i-ta.
    mathematics-dept.  student-PL-NOM  one team-be-DECL
    ‘The students in the mathematics department are one team’

    c. sonyen-*tul*-i  ku seng-ul  eywess-ass-ta.
    boy-PL-NOM  DEM castle-ACC  surround-PAST-DECL
    ‘The boys surrounded the castle.’

Thus, the suggestion that a distributive reading is the only meaning that the -*tul*-marked plural has is doubtful. In this sense, some researchers point out that the -*tul*-marked plurals have not only distributive readings but also group readings (Joh, 2008; Kang, 2007). In accordance with their claim, I suggest that -*tul* is a regular plural suffix, which corresponds to English -*s*, while the zero-plural is a defective plural form, which is only interpreted as a group reading. The modified version of table 2.1 is given in Table 2.2.

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footnote[14]: Similar examples to (2.28a) and (2.28b) have been presented in (2.17b) and (2.17a), respectively.
Based on Table 2.2, bare nominals appear to be ambiguous between the singular denotation and collective plurality, not between the singular meaning and plural reading, since the use of zero-plurals triggers only group readings (Joh, 2008). Taking into consideration this observation, the use of zero-plurals is restricted only to collective plural contexts, and thus it can be concluded that it is a defective plural form. I argue that -tul is the regular plural marker in Korean, which involves both collective and distributive plural-related meanings.

### 2.3.3. An additional meaning of -tul: Specificity

While it has been proposed that -tul is the regular plural marker in Korean, in this section I suggest an additional meaning that -tul marks: specificity.

Kwon and Zribi-Hertz (2004) suggest that Korean -tul-marked NPs disallow narrow scope readings, unlike French or English plural marking.
(2.29) a. Chelswu-nun cengchiin-tul-ul manna-ko sipheha-n-ta.
   Chelswu-TOP politician-PL-ACC meet-COMP want-PRES-DECL

   ?? want > politician-tul: ‘Chelswu wants to meet politicians.’
   √ politician-tul > want: ‘There are some politicians who Chelswu wants to meet.’

b. Chelswu wants to meet politicians.

(adapted from Kwon & Zribi-Hertz, 2004, p.147)

In example (2.29a), they argue that the sentence can be appropriately interpreted as ‘There are some politicians that Chelswu wants to meet’, indicating that the pluralized NP cengchiin-tul takes wide scope over the modal. On the other hand, in the English counterpart (2.29b), the indefinite plural NP politicians does not necessarily refer to certain particular politicians, indicating that it takes narrow scope. I assume that this property of -tul closely correlates with specificity. Even though there has been controversy about how to define specificity, it is widely assumed that specificity is indicated by one or both of the following conditions: (i) it is considered to be about some particular referent; (ii) it has the widest possible scope (Kamp & Bende-Farkas, 2006; Farkas, 2002). Particularly, the property of -tul-marked NPs regarding wide scope becomes clearer when they are used with modals, negation, or intentional predicates. The pluralized NP in example (2.29) not only presupposes the existence of a particular group of politicians, but also takes wide scope over modals. Thus, the example from Kwon and Zribi-Hertz (2004) provides support for the claim that -tul is associated with specificity.

Another piece of evidence that -tul-marked NPs indicate specificity is that they are not

---

15 The notion of specificity in linguistics is very diverse. Seven types of specificity were identified by Von Heusinger (2011): (i) referential-specificity, (ii) scopal-specificity, (iii) epistemic specificity, (iv) partitive specificity, (v) topical-specificity, (vi) noteworthiness as specificity, and (vii) discourse prominence as specificity.
compatible with a kind-taking predicate such as ‘rare’ or ‘widespread’ as shown in (2.30) (Kurafuji, 2004; Nemoto, 2005 for Japanese plural marker *tachi*)\textsuperscript{16}.

(2.30) \textit{???i os kakey-ey-nun namca sonnim-tul-i tumul-ta.}  
this clothing shop-LOC-TOP male customer-PL-NOM be.rare-DECL  
‘Male customers are rare in this clothing shop.’

In addition, *-tul*-marked NPs are not felicitously used in clearly defined non-specific contexts as seen in (2.31). It has been suggested that Korean morpheme *amu* induces a non-specific reading, because the function it carries is “arbitrary choice”, which denotes ‘no matter what object x it may be’ (Lee, Chung, & Nam, 2000). Unlike Korean *amu*, the English counterpart Free Choice *any* can be compatible with either singular or plural.

(2.31) \textit{amu haksayng(??tul)-ina i hangsa-ey chamkaha-l.swu.iss-ta.}  
any student(-PL) this event-in participate-can-DECL  
‘Any student(s) can participate in this event’

I assume that *-tul* is produced when the speaker has a particular plural referent in mind, and thus it cannot be compatible with *amu* ‘any’, which does not fulfil the conditions on specificity. Thus, in (2.31) the use of the pluralized NP *haksayng-tul* is infelicitous in this non-specific context,

\textsuperscript{16} This study does not argue that there is a distinction between [+human] and [-human] nouns with respect to specificity, but there may be differences in terms of degree of acceptability, as some native speakers accept sentence (2.30). According to them, the pluralized [+human] nouns are somewhat acceptable in generic/kind-predication sentence, whereas the pluralized [-human] nouns are clearly disallowed in the same sentence; Nemoto (2005) provided the same observation. This issue will be discussed in Section 7.1.1 in Chapter 7.
where the speaker is not intending to indicate particular students he has in mind. Since a specific referent has a property that is noteworthy from the speaker’s perspective (Ionin, Ko, & Wexler, 2004), the correlation of -tul with specificity can be supported by the infelicitous use of -tul with amu ‘any’.

Another example can be found in classifier structure. According to Christina Kim (2005), an NP without -tul in the classifier context could be either specific or non-specific.

(2.32) [ye ca twu myeng-i phathi -e o -myen] Dave-nun kippe -hal -ke -ta.

Women two CL-NOM party-LOC come-if Dave-TOP happy-be.FUT-fact-DECL

‘If two women come to the party, Dave will be happy.’

(i) ‘There are two women (e.g. Lauren and Katya), and if they come to the party, Dave will be happy.’

(ii) ‘If there are (at least) two women at the party, Dave will be happy.’

(Christina Kim, 2005, p. 219)

With respect to specificity in a classifier phrase, Christina Kim (2005) argues that if a case marker is located between a noun phrase and a numeral classifier as in (2.33), the case-medial order necessarily involves only the non-specific reading and rules out the specific reading.

---

17 The condition on epistemic specificity is satisfied when the speaker intends to refer to a particular referent that he has in mind (Karttunen, 1968). However, the “vague” function of “having in mind” has been characterized in different ways (Von Heusinger 2011), since it depends on the speaker’s intention.
If her claim is on the right track, the use of -tul must be infelicitous in the case-medial position, which creates non-specific context. As predicted, the use of -tul makes the sentence unnatural as shown in (2.34), since the nominative case marker -i appears between a noun phrase and a numeral classifier.

Conversely, based on these observations, it can be suggested that -tul must be used when the speaker intends to refer to a particular plural referent. This is illustrated in examples in (2.35).
(2.35) a. Swumi-nun ai-lul salangha-n-ta.
   Swumi-TOP child-ACC love-PRES-DECL
   ‘Swumi loves children’

b. Swumi-nun caki ai-lul salangha-n-ta.
   Swumi-TOP her own child-ACC love-PRES-DECL
   ‘Swumi loves her own child’

c. Swumi-nun caki ai-tul-ul salangha-n-ta.
   Swumi-TOP her own child-PL-ACC love-PRES-DECL
   ‘Swumi loves her own children’

In (2.35a), the speaker is not intending to refer to a particular group of children. On the other hand, in (2.35b) and (2.35c) the speaker is intending to refer to a particular child/group of children, who are her own. Thus, -tul must be used as in (2.35c) if she has more than one child. The NP without -tul in example (2.35b) must be interpreted as singular.

In addition, the property of specificity can be established via discourse context. As briefly presented above, when we refer to a specific noun whose plurality is recognized in previous context, the use of -tul is required as shown in (2.36) because the noun became specific (Kwon & Zribi-Hertz, 2004).
In example (2.36), since the chayk sey kwen ‘three books’ has been previously mentioned in the discourse, the plurality of the BOOK referent is established. Thus, -tul needs to be used to refer to the books as in (2.36a).

In sum, unlike the English plural marker -s, -tul is closely connected to specificity and therefore is not felicitously used in clearly defined non-specific contexts such as in the presence of amu ‘any’ or kind-taking predicates. When a speaker refers to a particular plural referent (which became specific via discourse-context), the occurrence of -tul is strongly preferred.

2.3.4. Pluralized NPs in a demonstrative context

In Section 2.3.2, I showed that bare nominals are ambiguous between a collective plural and singular interpretation. However, under a demonstrative context nouns must be specified in terms of number whether they are plural or singular.
The NP *ku haksayng* in (2.37a) cannot be interpreted as plural due to the presence of a demonstrative *ku*, which explicitly marks definiteness. In other words, as (2.37b) shows, the use of *-tul* to refer to a plural referent is obligatory when a demonstrative is present. Thus, we need to consider why the collective plural (i.e. zero-plural) is not available in a demonstrative context.

Joh (2008) suggests that this is because demonstratives are not compatible with the collective group reading due to a supremum (iota or sigma) introduced by them. The supremum operator $\sigma$ singles out the maximal element from the entities in the domain of the predicate it operates on. Let us consider a couple of examples regarding plurality.

(2.38) a. $[[haksayng-tul]] = \{a, b, c, a+b, b+c, a+c, a+b+c, \uparrow(a+b), \uparrow(b+c), \uparrow(a+c), \uparrow(a+b+c)\}$

b. $[[haksayng-ø]] = \{a, b, c, \uparrow(a+b), \uparrow(b+c), \uparrow(a+c), \uparrow(a+b+c)\}$

According to Joh (2008), ‘$a+b+c$’, the sum of all entities, is selected in (2.38a) because the $\sigma$ operator has to select the largest/maximal object in the denotation. On the other hand, in (2.38b), the $\sigma$ operator cannot appropriately pick out the maximal object from the denotation “since the extension of the group always contains multiple objects whose size cannot be compared and has
no maximal entity.” (Joh, 2008, p.95) As a result, the zero-plural must be interpreted as singular when it appears with a demonstrative, because demonstratives do not allow the collective group reading.

From a syntactic perspective, C. Kim (2005) suggests that overt D material such as a demonstrative forces an obligatory projection of Num in the projection of D based on the following mechanism adopting Chomsky’s Agree.

(2.39) \[
\begin{array}{c}
\text{DP} \\
\text{Spec} \\
\text{ku} \\
\text{Spec} \\
\text{haksayng} \\
\text{NumP} \\
\text{Num} \\
\text{[αφ]} \\
\text{NP} \\
\text{Agree} \\
\text{haksayng-tul [+pl]} \\
\end{array}
\]

(C. Kim, 2005, p.92)

C. Kim (2005) proposes that an uninterpretable number feature in D must agree with an interpretable [+plural] or [-plural] feature in Num. This is illustrated in (2.39), where the overt demonstrative \textit{ku} ‘that’ forces the projection of NumP, requiring \textit{-tul} to be overtly realized to express plurality in co-occurrence with the demonstrative. Meanwhile, English obligatorily projects D and thus \textit{-s} at Num is always marked when it is necessary. In sum, C. Kim (2005) argues that \textit{-tul} is the equivalent to \textit{-s}, and the difference between the two morphemes can be
accounted for by syntactic variation regarding the realization of D.

In addition, I assume that definiteness of demonstratives is closely related to specificity. Gebhardt (2009) suggests that the notion of definiteness can be eliminated by postulating two more underlying primitive features, related to the speaker and the addressee: [i.know] and [you.know], adopting the feature geometry for pronouns established by Harley and Ritter (2002). Given this, definiteness is a composite made up of two features, while specificity involves only the [i.know] feature. Hence, it can be assumed that definiteness entails specificity, and thus the presence of a demonstrative makes the context specific as well as definite. Another similar claim in support of the relationship between definiteness and specificity is proposed by Enç (1991). She argues that definite NPs are always specific, while indefinite NPs are ambiguous with respect to specificity. According to her, an NP modified by a demonstrative or a definite article is definite, and thus specific. Accordingly, -tul must be used when a speaker produces a nominal denoting more than one entity in the demonstrative context, and the ambiguity of the zero-plural disappears in the presence of a demonstrative. This can also account for the fact that specificity correlates with the use of -tul.

We have shown so far that the use of plural morpheme -tul is associated with specificity, on the assumption that it is a regular plural marker. The following section discusses the role of classifiers in Korean, which cannot be detached from the use of plural marking.

2.3.5. The role of classifiers in numerically-quantified structures in Korean

It is assumed that a generalized classifier language such as Korean requires classifiers to count

---

18 In the feature geometry for pronouns established by Harley and Ritter (2002), the feature [participant] is further specified for [speaker] and [addressee]. Gebhardt (2009) applied this idea to determiners or some lexical items to reflect participants’ knowledge states or presuppositions regarding specificity.
all nouns regardless of whether they are mass or not. As discussed above, assuming that "-tul is a plural marker, Korean does not fit in among the categories of typical classifier languages that Chierchia (1998) claims. Moreover, Borer’s (2005) claim does not account for the co-occurrence of a numeral classifier with "-tul" when human nouns are counted. Given this, it may not be possible to consider the use of the plural marker "-tul" without taking the role of classifiers into consideration. In the following subsections, I will provide an overview of the Korean classifier system and the formal features relevant to classifiers, showing how classifiers correlate with the realization of "-tul."

2.3.5.1. Korean classifiers

Before discussing the role of classifiers in Korean, I will provide an overview of Korean classifiers, and a brief review of language acquisition studies.

It is known that Korean is a generalized classifier language with a rich classifier system and more than 100 classifiers are present (Woo, 2001, cited in Koo, 2008). Earlier studies on numeral classifiers in diverse languages generally focused on categorizing them for classification based on the universal set of parameters (e.g. Adams & Conklin, 1973), because it is believed that classifiers define the cognitive processes underlying linguistic classification and reflect “the general phenomenon of human categorization” (Craig, 1986, p.2). Adams and Conklin (1973) suggest that animacy, shape, and function are the universal semantic features to categorize numeral classifiers, providing a hierarchy based on markedness as presented in (2.40).
(2.40) Numeral Classifier Accessibility Hierarchy

Animate human > animate nonhuman > shape > function

Using these features, some researchers (e.g. Koo, 2008; Lee & Lee, 2002) divide the Korean classifiers into several groups according to the property of object being counted. Table 2.3 presents some examples for each category.

Table 2.3 Korean numeral classifiers

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. animate: human</td>
<td>Myeng</td>
<td>Human</td>
</tr>
<tr>
<td></td>
<td>Pun</td>
<td>Honorific human</td>
</tr>
<tr>
<td>2. animate: nonhuman</td>
<td>Mari</td>
<td>Animal</td>
</tr>
<tr>
<td>3. shape</td>
<td>Al</td>
<td>Round, small</td>
</tr>
<tr>
<td></td>
<td>cang</td>
<td>Thin, flat</td>
</tr>
<tr>
<td></td>
<td>thol</td>
<td>Small, grain</td>
</tr>
<tr>
<td></td>
<td>carwu</td>
<td>Long, handle</td>
</tr>
<tr>
<td></td>
<td>Songi</td>
<td>Blossom</td>
</tr>
<tr>
<td>4. function</td>
<td>Pyeng</td>
<td>Bottle</td>
</tr>
<tr>
<td></td>
<td>Khyelley</td>
<td>Pair, hand, foot</td>
</tr>
<tr>
<td></td>
<td>bel</td>
<td>pair</td>
</tr>
<tr>
<td></td>
<td>kwen</td>
<td>Bound reading material</td>
</tr>
<tr>
<td></td>
<td>tay</td>
<td>Vehicle, mechanical device</td>
</tr>
<tr>
<td>5. inanimate: general</td>
<td>Kay</td>
<td>Small and medium-sized</td>
</tr>
<tr>
<td></td>
<td></td>
<td>countable nouns</td>
</tr>
</tbody>
</table>

(adapted from Lee & Lee, 2002, p.271)

As shown in Table 2.3, classifiers provide semantic information about the type of noun they can
combine with. Given this, it is widely accepted that to choose an appropriate classifier is “determined by the inherent semantic features of the noun being quantified or counted” (Yamamoto & Keil, 2000, p.379). Since the use of classifiers based on the semantic categories is closely related to conceptual development, it is assumed that the classifier system poses a challenge to children acquiring their native language (Yamamoto & Keil, 2000). Thus, it has been claimed that the hierarchy in (2.40) is closely related to the order of L1 acquisition. The least marked distinction is human/nonhuman classification, while the classification based on the function is the most marked one. Based on the scale of markedness, it is predicted that the less marked properties should be acquired more easily than the more marked one. Regarding this, some previous L1 and L2 studies on numeral classifiers focused on investigating whether language acquirers of a classifier language can use the correct classifiers, and the hierarchy reflects the order of acquisition (e.g. Yamamoto & Keil, 2000 for Japanese; Hansen & Chen, 2001 for Mandarin).

Turning to Korean, Lee and Lee (2002) examined the acquisition of numeral classifiers by Korean/English bilingual children, investigating whether L2 acquisition follows the markedness hierarchy of semantic features of classification. They tested 14 classifiers presented in Table 2.3 to 23 children (Mean age: 10;6) using an elicitation production task. They found that the learners did not have any problem with the human classifier myeng and the general inanimate classifier kay, showing 100% and 91% correct responses, respectively. However, their findings are not consistent with the hierarchy, because the classifiers related to function such as pyeng and kwen are acquired earlier than the animate non-human mari and shape cang and thol.

In sum, the various Korean classifiers can be categorized into several groups based on semantic features of the nouns. Studies about the acquisition of classifiers focused on the type of
classifiers, not on whether language learners can acquire the numeral-classifier structures. The relevant fact for our purposes would be that since the correct use of classifiers is connected to the inherent semantic features of the noun being quantified, learners are required to recognize the features of the nouns. Among the features, it should be noted that the \([\pm\text{human}]\) feature is associated with the use of plural marker \(-tul\), because the co-occurrence of classifiers and \(-tul\) is possible only for human nouns. I will return to this issue in Section 2.3.5.6 in more detail.

2.3.5.2. Two possible word orders

As discussed above, Korean is a classifier language which requires the use of classifiers when a noun is quantified as shown in (2.41) and (2.42). When the numeral classifiers are used, in Korean there are two constructions: pre-nominal numeral-classifier and post-nominal numeral-classifier.

(2.41) a. chayk tases kwen  
book five CL  
(post-nominal numeral-classifier)

b. tases kwen-uy chayk  
five CL-GEN book  
(pre-nominal numeral-classifier)

(2.42) a. sensayngnim sey pun  
teacher three CL(HON)

b. sey pun-uy sensayngnim  
three CL(HON)-GEN teacher

As shown in examples above, numerals must be adjacent to classifiers, and the two kinds of word order can be used equivalently regardless of whether nouns are human or not. For the pre-
nominal numeral classifier construction, it should be noted that it requires the genitive case marker -uy, even though it is similar to the word order of classifier structures in English. There is no meaning difference between two structures, but it is known that the post-nominal numeral-classifier construction is more common in spoken language while the pre-nominal numeral classifier construction is more frequently used in written language (C. Lee, 2000).

2.3.5.3. The role of classifiers

It is generally assumed that the role of classifiers is to individuate an appropriate counting level, and thus to make mass nouns countable (Chierchia, 1998a). With respect to individuation and number, Cowper and Hall (2009) suggest that there are two features as shown in (2.43).

(2.43) a. #: individuated
     b. >1: plural

They claim that the # feature encodes individuation and so a nominal without the projection of # should be interpreted as mass, assuming that most nouns are not lexically marked for individuation. Accordingly, nouns that are considered as mass nouns such as coffee can be interpreted as count in the presence of a number projection as shown in (2.44). In this structure, plural is dependent on the # feature, not appearing as an independent syntactic head.
Cowper and Hall also categorized another group of English nouns, which resist individuation by syntactic number (e.g. *furnitures). Unlike the structure in (2.44) where # projects syntactically, English nouns such as *furniture* can have the structure where # is an adjunct to N as follows.

(Cowper & Hall, 2009, p.3)

(2.45)

(Cowper & Hall, 2009, p.5)

Even though the *furniture*-class nouns are considered as a few exceptional lexical items in English, they propose that count nouns in Mandarin have the structure for this type of nouns. Regarding the obligatory use of classifiers in Mandarin, they suggest that there are two ways of elaborating the # feature; plurality and classification. Classifier languages such as Mandarin elaborate the feature with classification, while non-classifier languages such as English do it using plurality. Given this, they clearly state that “individuation can be elaborated in only one
way—either the type of unit (CL) or the number of units (>1) may be grammatically encoded, but not both at once” (p.13). This claim is in accordance with Borer’s (2005) argument in that plurality and classification exhibit a complementary distribution.

Consider a numerical-classifier structure in Mandarin. According to Cowper and Hall, since the function of CL is to individuate mass nouns for counting, an individuated noun carrying the feature # must appear as a complement as in (2.46).

\[(2.46)\quad \text{san ben shu} \]
\[
\text{Three CL book}
\]

Although both Cowper and Hall’s and Borer’s claims seem appealing in that they clearly define the function of classifiers as individuation, it should be noted that their claim does not provide an appropriate account for the co-occurrence of a plural morphology and classifier in Korean. Thus, it would be necessary to look for another framework, which can provide adequate empirical coverage for Korean data. In the following subsection, the common beliefs about classifier languages that do not always hold for Korean will be presented.
2.3.5.4. Two common beliefs about classifier languages

In this section, the common properties that classifier languages are assumed to have will be discussed. In classifier languages, it is widely accepted that a numeral cannot directly combine with a noun in the absence of a classifier. According to Nomoto (2010), given the obligatory use of classifiers, there have been two assumptions on the role of classifiers in classifier languages: “massness of nouns” and “classifiers for counting”. The first assumption seems to be related to the Nominal Mapping Parameter (NMP), which suggests that all nouns in a classifier language are mass nouns that lack individuation, so the direct counting without classifiers is not allowed (Chierchia, 1998, cf. Cowper & Hall, 2009, who argue that most nouns even in non-classifier languages such as English are unspecified for individuation\(^{19}\)). The second assumption suggests that classifiers exist for counting in classifier languages. Chierchia (1998a; 353-354) states that “numerals will not be able to combine directly with nouns: a classifier will be necessary to individuate an appropriate counting level”. It is assumed that classifiers provide the operator, which makes mass nouns countable. To summarize these two common beliefs about classifier languages, all nouns are mass due to lack of the count-mass distinction, and thus classifiers are required for counting.

As Nomoto (2010) points out for Japanese, both assumptions are also problematic in Korean, because there is the count-mass nouns distinction (cf. Cheng & Sybesma, 1999 for Chinese), and numerals can modify nouns directly (even though the direct counting is restricted

\(^{19}\) According to Cowper and Hall (2009), Nouns coffee and dog are not distinguished in terms of the count-mass property. Their interpretations are determined by whether there is the # projection is present or not. Thus, since the # projection gives a count interpretation, its absence may cause a mass interpretation.
to human nouns with small number).

**Existence of count-mass distinction in Korean**

Nomoto (2010) suggests that there are a few criteria to determine if the count-mass distinction exists in a language.

First, it must be determined whether a noun can take plural morphology or not. If a noun is compatible with plural morphology, it should be considered as count; a noun that cannot take the plural marker should be considered as mass. As discussed above, in contrast to Chierchia’s claim, it is notable that Korean does have a productive plural marker. According to Kang (1994), not all common nouns in Korean are compatible with *-tul as shown in (2.47).

(2.47) a. cip-*tul
   house-PL

   b. *mul-*tul
   water-PL

As shown in (2.47), Korean plural marker *-tul can be attached to some nouns but not others. The nouns that *-tul can be attached to are regarded as count nouns, while the nouns that *-tul cannot be attached to are considered as mass nouns. Thus, it appears that there is a clear distinction between count and mass nouns in Korean.

Another characteristic of languages with the count-mass distinction suggested by Nomoto is quantifier selection, positing that count and mass nouns take different quantifiers. In English, the quantifier *many can take a count noun, while the quantifier *much can take only a mass noun (e.g. *many waters, *much tables). Kang (1994) uses *kak ‘each’ and *yele ‘several’ to
test this issue.

(2.48) a. kak/yele  salam
each/several  person

b. *kak/*yele  mul
each/several  water

The examples in (2.48) show that the use of quantifiers is sensitive to the count-mass distinction, because a count noun such as salam ‘person’ is compatible with the quantifiers whereas a mass noun such as mul ‘water’ is not.

Non-obligatory use of classifiers in the presence of a numeral

It is observed that direct counting without a classifier is possible in Korean as in (2.49).

(2.49) a. sey  ai /  ai  sey myeng
      Three  kid /  kid  three CL
      ‘three kids’

b. twu  yeca /  yeca  twu myeng
      two  woman /  woman  two CL
      ‘two women’

In these examples, both constructions with and without classifiers are acceptable. Even though these cases are not productive due to some restrictions (I return to this issue in the next section), it can be stated that the “classifiers for counting” assumption is not always true in Korean.

In sum, in this section, we have considered some idiosyncratic properties of Korean
classifiers that are not compatible with typical assumptions about classifier languages. However, if it is true that the count-mass distinction exists in Korean, we need to account for why count nouns ordinarily require the use of a classifier for counting, unlike count nouns in non-classifier languages. In the next section, this issue will be discussed by considering the relationship between numerals and classifiers.

2.3.5.5. The relationship between a numeral and a classifier

With respect to the count-mass distinction, we have shown that classifiers are needed to individuate mass nouns in order for them to be countable. However, Cheng and Sybesma (1999) argue that for a classifier language “the fact that all nouns require a classifier does not mean that all nouns are mass nouns” (p.517), suggesting that there is the count-mass nouns distinction in Mandarin. According to them, regardless of whether nouns are count or mass, numerals require the presence of a syntactic marker of countability, which can be realized by either number morphology or classifier.

For Korean, it is widely assumed that numerals require the presence of classifiers. K. Choi (2011) examines the syntactic relationship between a numeral and a classifier, on the assumption that nouns in Korean cannot be directly modified by numerals as in (2.50a) and require a measure-phrase-like expression kwen as in (2.50b).
In order to explain this observation, K. Choi (2011) provides a structure for the post-nominal numeral-classifier construction where a numeral NumeralP has ClP as its complement. He suggests that the numeral and the classifier each project distinct heads, Numeral and Cl, and in order to get the correct surface order, the Cl head moves to the Numeral head as shown in (2.51).

Unlike other analyses where the relationship between the numeral and classifier is not clearly defined, he provides an account for why classifiers are required in the presence of a numeral, using a syntactic structure where NumeralP requires ClP as a complement.
As mentioned above, however, there are some cases where direct counting without classifiers is possible (Kang, 1993). The sentences in (2.52) are acceptable, and this would indicate that direct counting is not always prohibited.

(2.52) a. twu haksayng-i palphyo-lul hay-ss-ta.
   two student-NOM presentation-ACC do-PAST-DECL

b. haksayng-twul-i palphyo-lul hay-ss-ta.
   student-two-NOM presentation-ACC do-PAST-DECL

‘Two students gave a presentation.’

Choi’s analysis does not account for the examples in (2.52) without classifiers. In order to explain the [Numeral+N] structure, K. Choi (2011) argues that nouns such as haksayng ‘student’ and ceyca ‘pupil’ have the “numerability” property (i.e. [+numerable] feature), which indicates “the ability of a noun to combine with a numeral directly” (p.525). When nouns with the [+numerable] feature are selected, NumeralP does not require ClP as a complement as shown in (2.53).
As shown in (2.52), there are two possible word orders: N-Numeral (haksayng twul ‘student+two’) and Numeral-N (twu haksayng ‘two+student’). For the latter word order, he suggests that head movement of N to Num occurs in the structure in (2.53), while for the former it does not. Thus, the head movement is optional when a numeral combines with an NP with the [+numerable] feature.

However, he does not clearly define which nouns have the [+numerable] feature. Based on the examples he gave, it seems that some human nouns have the feature, but he does not provide any other restrictions about forming the [Numeral + N] structures.

Regarding the same issue, C. Lee (2000) argues that the kinds of nouns for the construction are very limited to common nouns that are very familiar in everyday life\(^20\). Kang (1993) also suggests that the nouns that can be felicitously used to form this construction are

\(^{20}\) C. Lee (2000) does not make a distinction between human and non-human nouns with respect to the possibility of the construction of [Numeral + N], presenting a couple of examples where non-human collective nouns are used in the construction such as twu cip ‘two households’ and twu nala ‘two countries’.
usually human nouns, whereas non-human nouns are not usually allowed in this structure as in (2.54).

(2.54) *tases kapang
      five bag
      ‘five bags’

However, not all human nouns allow the construction without classifiers as shown in (2.55).

(2.55) *ney wuntongsenswu
      four athelete
      ‘four atheletes’

Thus, taken together, nouns with the [+numerable] feature could be defined as common human nouns that are familiar in everyday life but with a few exceptions.

Another restriction is related to numbers. Even though human nouns such as ai ‘child’ or haksayng ‘student’, which are considered to have the [+numerable] feature, are used, direct counting is not acceptable when the numeral modifying the noun is over five (C. Lee, 2000). Thus, the examples in (2.56) are not allowed.

(2.56) *payk haksayng
      one hundred student

Based on these observations that restrict the [Numeral + N] construction, it has been argued that
numerically-quantified structures without classifiers are not productive (C. Lee, 2000). In response, the canonical quantificational construction in Korean for both count and mass nouns includes a classifier (Kang, 1993).

In sum, numerically-quantified structures without classifiers are restricted to nouns with the [+numerable] feature only when small numbers are involved. Thus, in Korean the use of a classifier to count nouns is ordinarily, regardless of the noun type, required as in other classifier languages. In order to develop a formal account for this fact, K. Choi (2011) provides a syntactic structure where numerals in NumeralP require a ClP as a complement. In the following section, the features associated with the use of classifiers will be identified.

2.3.5.6. Features associated with the use of classifiers

Individuation

Gebhardt (2009) distinguishes classifiers and number in terms of features adapting Harley and Ritter’s (2002) feature geometry system. He suggests that both classifiers and number have the feature [individuation], but only number has the sub-divided features, [group] for plural and [minimal] for singular as shown in (2.57).
(2.57a) \[ \text{[individuation]} \quad \text{available in classifier languages} \]
\[ \text{[group]} \quad \text{[minimal]} \quad \text{available in number-marking languages} \]
(Gebhardt, 2009, p. 25)

(2.57b) Partial feature geometry for number items

<table>
<thead>
<tr>
<th>Classifiers</th>
<th>plural morphology</th>
<th>singular morphology</th>
</tr>
</thead>
<tbody>
<tr>
<td>[indiv]</td>
<td>[indiv]</td>
<td>[indiv]</td>
</tr>
<tr>
<td>[group]</td>
<td></td>
<td>[minim]</td>
</tr>
</tbody>
</table>

(Gebhardt, 2009, p.99)

Thus, the feature [individuation] is the only feature that classifiers like Mandarin *ge* involve without further entailing plural or singular, while English plural *-s* has the dependent feature [group] whose presence entails the feature [individuation]. Unlike Cowper and Hall’s (2009) claim, which is provided in Section 2.3.5.3, it should be noted that Gebhardt argues that two separate functional projections for ClP and NumP should be available to accommodate the data where classifier and plural morphology occur together in a structure. I will return to this issue in the following subsection.

To summarize, classifiers have the function of individuation, and thus they specify for an [individuation] feature. In the following subsections, I will present other features relevant to numeral-classifier structures.

*Two types of quantifiers: [q-rel] and [q-abs]*

It is observed that English is indifferent to types of quantifiers, because a pluralized NP can be quantified by either a numerical or non-numerical quantifier (e.g. *three books* vs. *many books*). In
other words, the use of -s is obligatory regardless of whether the quantifiers are numerical or not. On the other hand, unlike English, Korean quantifiers show different uses according to their types, requiring different elements that they can occur with.

Numerical quantifiers require classifiers in Korean. As shown below, sentence (2.58a) in which the numerical quantifier sey ‘three’ takes a classifier is grammatical, while sentence (2.58b) where non-numerical quantifier motun ‘all’ takes a classifier is unacceptable.

(2.58)  a. chayk  sey  kwen
        book  three  CL

           b. *chayk  motun  kwen
                book  all  CL

Instead, the non-numerical quantifiers such as motun ‘all’ and manhun ‘many’ can appear with a pluralized NP. In contrast, numerical quantifiers do not allow pluralized NPs. This is illustrated in examples (2.59). Sentence (2.59a) shows that the numerical quantifier sey ‘three’ cannot take a pluralized NP chayk-tul ‘book-PL’, whereas sentence (2.59b) indicates that the non-numerical quantifier manhun can modify the NP.

(2.59)  a. *sey  chayk-tul
        Three book-PL
        ‘three books’

           b. manhun  chayk-tul
                many  book-PL
                ‘many books’
This observation enables us to distinguish numerical quantifiers from non-numerical quantifiers in Korean. Specifically, numerical quantifiers occur with classifiers while non-numerical quantifiers allow the use of plural marking.

Gebhardt (2009) provides the following feature geometry for quantifying determiners. According to this feature geometry, the higher [q] feature can be further divided into two sub-features: [rel] for non-numerical quantifiers and [abs] for numerical quantifiers.

![Feature Geometry](attachment:feature_geometry.png)

Gebhardt (2009) argues that only the higher [q] feature is available for the relationship between the quantifier and the NumP in English, based on the indifference toward quantifier types. In Korean number marking, on the other hand, it can be argued that there should be specification of the next-lower division of the [q] feature: [abs] and [rel] features (Hwang & Lardiere, 2013), based on the different use of two types of quantifiers. In order to capture the differences between numerical and non-numerical quantifiers, we suggest that the [abs] and [rel] features should appear as formal features, and enter into syntactic relations. Section 2.4 will provide a syntactic analysis of Korean numeral-classifier structures based on these features.

### The role of [±human] feature distinction

This section considers the different use of -tal according to noun type regarding the [human] feature in the presence of classifiers. As will be shown, the distinction of [±human] features plays a crucial role in creating an idiosyncratic structure in which both a CIP and NumP are
available.

The plural marker -tul cannot be suffixed to non-human nouns when they are counted using numeral classifiers as shown in (2.61).

(2.61) -tul with a classifier

*chayk-tul twu kwen-i chaksang wiey iss-ta.
book-PL two CL-NOM desk on exist-DECL

‘There are two books on the desk.’

This observation is in accordance with Borer’s claim where the co-occurrence of plural marking and classifiers is not allowed in the same structure. However, it is observed that plural marking behaves differently in the case of [+human] nouns compared to non-human classifiers. The plural suffix -tul is allowed to be suffixed to human nouns even when a numeral classifier is used. In other words, either ai-tul sey myeng (child-PL three CL) or ai sey myeng (child-ø three CL) is acceptable. This is illustrated in example in (2.62).

(2.62) haksayng-tul/ø twu myeng-i kyosil-eyse nawa-ss-ta.
student-PL two CL-NOM classroom-from come.out-PAST-DECL

‘Two students came out from the classroom.’

As shown in the examples above, the value of the binary feature [human] determines the allowance of the co-occurring classifiers and plural markers. In other words, [+human] nouns can appear with plural morphology in the presence of a classifier, whereas [-human] nouns do not allow the plural marker -tul in the same structure. It should be noted that the [human] feature
is not an ad hoc feature postulated only for explaining the co-occurrence of plural marking and classifiers, but a feature that has already been independently motivated; the [human] feature can also be found to interact with other constructions in Korean (e.g. honorification).21

As mentioned above, the co-occurrence of plural morphology and classifiers in Korean challenges previous studies focusing on data from prototypical classifier languages such as Mandarin, where a plural marker and classifier cannot appear together in the same structure (Borer, 2005; Cowper & Hall, 2009). However, there are languages other than Korean which also present empirical problems for these claims. Plural marking and classifiers co-occur within the same phrase in Persian and Jakaltek Maya as seen in (2.63).

(2.63) a. se ta gorbe-ha (Persian)
   Three CL cat-PL
   ‘three cats’ (Gebhardt, 2009, p.20)

   b. ca-wañ heb’ naj winaj (Jakaltek Maya)
   2-CL.NM.HUMAN PL.HUMAN CL.N.MAN man
   ‘the two men’ (Butler, 2011, p.43)

As seen in these examples, it is not always the [human] feature that plays a role in allowing the co-occurrence of classifiers and plural morphology. However, it should be noted that these data

21 It has been observed that humanness restriction is involved in the use of honorification in Korean, based on the fact that honorific verbs do not allow a non-human subject (e.g. Kim-Renaud, p.c.; J.-B. Kim & Sells, 2007; Choe, 2011). Kim and Sells (2007) present the properties of Korean honorification, and one of them is as follows: “The use of a subject-honorific verb recognizes the superior social status of the maximal human referent of the subject (the target) in relation to the hearer, by elevating the target” (Kim & Sells, 2007, p.328, italics added). Thus, it can be suggested that the [human] feature plays a crucial role in the correct use of honorification.
provide evidence that the co-occurrence of plural morphology and classifiers is indeed allowed in other languages, showing that the previous analyses do not provide adequate empirical coverage for the data.

Turning to Korean, we might ask whether it is the distinction between human and non-human classifiers, rather than the [human] feature of nouns, that plays an important role in accounting for the non-uniform behavior of plural marking. As shown in Table 2.3, there are various classifiers according to the kind of noun. If we divide the Korean classifiers in terms of the human property of nouns that they attach to, there are only a couple of classifiers for human nouns (i.e. myeng and pun) as shown in Table 2.3 above, while there are diverse kinds of classifiers for non-human nouns according to the category of nouns. Based on the fact that classifiers for human nouns behave differently from other classifiers as an exceptional case, one might suggest that human classifiers should not be genuine classifiers but rather modifiers of nouns such as adjectives. If they are not genuine classifiers, we do not have to instantiate two separate projections and this fact would not challenge Borer’s or Cowper and Hall’s claim. However, I assume that human classifiers are genuine classifiers like other non-human classifiers because they do not show any differences from the non-human ones including word order except the allowance of plural morphology. Thus, in order to explain the co-occurrence of plural marker and classifiers, it would be necessary to posit two separate functional phrases, NumP and ClP, as argued by Gebhardt (2009).

To summarize so far, the distinction between [+human] and [-human] features is required for the correct use of plural marking in Korean in numeral-classifier structures. On the

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22 There could be one more human classifier, nom. It is used when a speaker intends to downgrade the people who she/he refers to.
assumption that human classifiers are genuine classifiers, the co-occurrence of \textit{-tul} and a classifier provides crucial counterevidence to Borer’s and many other’s claims, indicating that the presence of two separate projections, NumP and ClP, needs to be allowed. Accordingly, in order to account for the different behavior of human nouns from non-human ones, it would be plausible to assume that the [human] feature appears as a formal feature in a syntactic structure.

If we consider the hierarchical co-occurrence feature restrictions for the [q] feature, there should be an additional node under the [abs] feature. That is, the [abs] feature that requires the use of classifiers needs a dependent feature that makes the distinction between the presence and absence of plural morphology. This is illustrated in (2.64) (Hwang & Lardiere, 2013).

(2.64) Feature co-occurrence hierarchy for quantified noun phrases in Korean\textsuperscript{23}

\begin{center}
\begin{tikzpicture}
  \node (q) [circle,draw] {[q]};
  \node (rel) [circle,draw, below of=q] {[rel]};
  \node (abs) [circle,draw, below of=q] {[abs]};
  \node (human) [circle,draw, below of=abs] {[human]};
  \draw [->] (q) -- (rel);
  \draw [->] (q) -- (abs);
  \draw [->] (abs) -- (human);
\end{tikzpicture}
\end{center}

Hwang and Lardiere (2013) provide the hierarchical co-occurrence feature restrictions for contextual complexity on the assumption that the [human] feature of classified nouns is dependent on the [abs] feature. With respect to L2 acquisition, following McCarthy (2008), which accounts for L2 morphological variability by using feature underspecification, the most embedded [human] feature is predicted to be acquired latest. If L2 learners have not acquired the [human] feature yet, we predict that they would not recognize that plural marking can attach to a

\textsuperscript{23} It should be noted that (2.64) is not a true feature geometry hierarchy, but represents the co-occurrence restrictions of quantified noun phrases in Korean (Hwang & Lardiere, 2013).
classified human noun.

In the following section, I will present how the relevant features such as [abs], [rel] and [human] to Korean plural marking and classifiers can enter into checking relations in syntax.

2.4. Analysis within Distributed Morphology

2.4.1. Basic theoretical background: Distributed Morphology

In order to account for the L2 acquisition of features in a more systematic way, this dissertation uses the assumptions and fundamental ideas of Distributed Morphology (Halle & Marantz 1993, 1994; Embick & Noyer 2001; Embick & Marantz 2008) and Minimalist Program (Chomsky, 2000). This section outlines the basic properties of Distributed Morphology and Minimalism to clarify the theoretical framework adopted in this dissertation.

Let me briefly introduce some core properties of Distributed Morphology. The core idea of Distributed Morphology that there is no lexicon in which phonological, semantic, and syntactic information is contained. In particular, DM assumes “Late Insertion” of Vocabulary Items (i.e. phonological expressions inserted in the terminal nodes), which takes place post-syntactically. Syntactic terminal nodes are headed by bundles of abstract features called morphemes. These feature bundles may be manipulated in the syntax, and are then sent to PF. Since morphemes lack phonological content, the operation Vocabulary Insertion relates the feature bundles to a phonological string. The relation between a phonological string and the context for its insertion correlates with features and contextual restrictions as given in (2.65).
The two Vocabulary Items in (2.65) are competing for the same position, but the context determines which one is inserted. As a consequence, the most highly specified candidate (i.e., the Vocabulary Item that maximally matches the features or the contextual restrictions) is inserted, whereas a Vocabulary Item that contains features not present in the morpheme cannot be inserted following the Subset Principle (Halle, 1997). The DM framework is adopted in this study to show how lexical items (Vocabulary Items) are inserted for particular feature bundles in the heads of NumP, CIP and quantifier phrases.

In syntactic operations within recent Minimalist framework manipulating bundles of features, it is assumed that there is a syntactic checking/Agree relationship between the features. The operation Agree takes place in order for uninterpretable features to be checked or deleted by their interpretable counterparts. In order to establish an Agree relationship, there must be a pair of features: a probe (with uninterpretable feature \([u-F]\)) and a goal (with interpretable matching feature \([F]\)), which appears in the probe’s c-command domain (Chomsky, 2000). The directionality for searching a goal in a c-command domain has been relaxed or changed in some recent literature, arguing that “upward” directions should be allowed in a certain language (Baker, 2008a).

\[
(2.66) \quad X \ldots Y
\]

\[
[iF] \quad [uF]
\]

As shown in (2.66), “upward” Agree means that if the uninterpretable feature \([F]\) on \(Y\) finds \(X\)
with its matching interpretable feature, which c-commands Y, they can enter into an Agree relationship, and value the uninterpretable feature [F] of Y. To the best of my knowledge, there have been no studies assuming the “upward” direction of Agree in Korean. Nevertheless, I assume that “upward” Agree in Korean DP structures should be allowed, since the “upward” direction can consistently account for the Korean examples provided in this study. A more detailed discussion of the c-commanding condition between probe and goal will be provided in Section 3.3 in Chapter 3.

In the following section, I will outline Gebhardt’s (2009) framework relying on the basic notions of Distributed Morphology and Minimalism, which this dissertation adopts for theoretical analysis of Korean intrinsic plural marking.

**2.4.2. Gebhardt’s (2009) analysis**

Gebhardt (2009) tried to account for cross-linguistic differences among Persian, Mandarin and English with respect to quantified structures using bundles of particular features. As a feature system, he adapted the hierarchical feature geometry for pronouns offered by Harley and Ritter (2002), and applied it to number marking and quantifications. In the geometry, features are considered privative rather than binary values. The more marked feature is added as a daughter node, while the unmarked value is assumed to be underspecified. Consider third person pronouns in English and Persian.
As shown in (2.67), the difference between two pronouns in terms of their feature geometry is that Persian *u*, which can mean either *she* or *he*, specifies for [animate] but does not have a dependent feature such as [feminine] or [masculine], unlike English *she*. In addition, the presence of the [feminine] feature, the most embedded one, entails the presence of the [animate] feature, but not vice versa. Based on these core assumptions, Gebhardt (2009) tried to apply the feature geometry to number marking and quantifications in Mandarin, Persian, and English.

English lacks a generalized classifier system, while other two languages are classifier languages. However, there are also differences between the two classifier languages, Persian and Mandarin. Gebhardt found that in Persian plural marking can co-occur with a classifier, as opposed to Borer’s claim, while in Mandarin it is not allowed. In order to account for these differences, he used a feature-based analysis, suggesting that different feature bundles in the functional heads cause differences among the languages. He argued that “the set of features that appear in the heads of the projections in DP is small and universal, but variations in where the features spell out accounts for the nonuniform behavior of classifiers and number morphology across languages” (p.125).

With respect to the syntactic positions of plural morphology, it is cross-linguistically
accepted that inflectional plural morphology in the DP occupies the head of a functional projection, called Number Phrase (NumP)\(^{24}\) (e.g. Ritter, 1991 for Hebrew; Embick & Noyer, 2007 for English; Harbour, 2007 for Kiowa). As for the syntactic position of classifiers, it has been argued that classifiers head their own functional projections, Classifier Phrase (ClP) (e.g. Borer, 2005; Simpson, 2005; Cheng & Sybesma, 1999). Even though these syntactic positions are generally accepted, as discussed above, a number of researchers have made proposals that clearly exclude the co-occurrence of plural morphology and classifiers (e.g. Chierchia, 1998; Borer, 2005). One of the crucial differences between these and Gebhardt’s (2009) proposals is that Gebhardt assumes two separate functional projections, NumP and ClP, within the same DP, following the generally accepted analyses of the positions of plural marking and classifiers.

In this chapter, we have shown so far which features are related to the plural lexical item \(-tul\), and how they differ from the ones assembled in English plural marking. Using the Gebhardt’s framework, I will show how syntactic operations such as Agree manipulate bundles of features in functional heads of quantified structures, trying to capture the differences in number marking between English and Korean.

\textit{English quantified structure}

Before discussing Korean quantified structures, let us consider English quantified structures. As discussed above, English does not distinguish between \([q\text{-abs}]\) and \([q\text{-rel}]\), because English plural

\(^{24}\) Some researchers argue that not all plurals reside in the head of a NumP (e.g. Ghomeshi, 2003; Butler, 2011). Butler (2011), for example, suggests a typology of where plural morphology Merges within the DP, indicating different syntactic positions (e.g. she proposes that plural morphology in Yucatec Maya does not merge at the level of a functional projection, NumP, but is adjoined to the DP). According to her, Korean plural marker is adjoined to the Quantifier Phrase because it has been argued as a distributive marker (S. Park, 2008, 2009).
can be combined with either numerals or non-numerical quantifiers such as *all* and *some* (e.g. some cats, three cats). It is known that number marking in English is realized in either classifiers for mass nouns (e.g. three cups of coffee) or plural morphology for count nouns.

Gebhardt (2009) suggests that the feature bundle for English plural marker *-s* consists of [*u-n*] and [*group*] features. For the uninterpretable [*u-n*] feature, he explains that it is a subcategorization feature indicating that *-s* attaches to a noun as an affix. The uninterpretable [*u-n*] feature on plural morphology is checked and deleted by interpretable counterpart in the head of nP as shown in (2.68).

(2.68)  
\[
\begin{array}{c}
WQP \\
\text{Three/some} & \text{NumP} \\
\{u\text{-group}\} & -s \\
[q] & nP \\
\{u\text{-n}\} & n \\
\{\text{group}\} & \text{cat} \\
[n] & \\
\end{array}
\]

(adapted from Gebhardt, 2009, p.103)

Based on these observations, he provides the functional heads and relevant features in English regarding numeral-classifier structures as follows.
(2.69) English heads and associated features

<table>
<thead>
<tr>
<th>Head</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) noun:</td>
<td>[n]</td>
</tr>
<tr>
<td>(ii) plural:</td>
<td>[u-n, group]</td>
</tr>
<tr>
<td>(iii) classifier:</td>
<td>Not independently available: number feature is [group], not [indiv]</td>
</tr>
<tr>
<td>(iv) numeral WQD:</td>
<td>[q, u-group] for plural, [q, u-minim] for singular</td>
</tr>
<tr>
<td>(v) nonnumeral WQD:</td>
<td>[q, u-group] for plural, [q, u-minim] for singular</td>
</tr>
</tbody>
</table>

(Gebhardt, 2009, p.106)

Co-occurrence of plural morphology and classifiers

As indicated above, the co-occurrence of CL and PL in Korean presents an empirical problem that the previous analyses on number cannot accommodate. In some other classifier languages, as shown above, the same structure is observed (e.g. Persian). Gebhardt (2009) provided an account of the data in Persian by allowing the independent projections of CLP and NumP as illustrated in (2.70).
He argued that the co-occurrence of a classifier and plural marker is allowed in this language, because CIP can take NumP as complement as well as nP. As shown in (2.70), all uninterpretable features are appropriately checked via probe-goal relations, and the structure does not have any problem in the process of derivation. Thus, according to him, it is possible to postulate separate projections of CIP and NumP to accommodate the structures where a classifier and plural marker appear together. In line with his analysis, I assume that the two functional categories, NumP and CIP, are independently generated in order to explain Korean quantified structures containing both human classifiers and -tul.

**Some notes on the interpretability of features**

The interpretability of features plays an important role in the application of the syntactic
operation Agree. Gebhardt assigned an uninterpretable feature to a subcategorization feature, which determines the category of the elements that will be able to Merge with that lexical item. For example, a verb *kiss* has N-feature, which indicates that the elements that Merge with *have* must have the N-feature, and thus the structures such as *kiss with* or *kiss eat* are ungrammatical because the uninterpretable [u-n] feature of the verb cannot be checked (Adger, 2003). In the same vein, the uninterpretable [u-n] feature is assigned to plural marker -*s* because it always requires a noun having the interpretable [n] feature as a complement.

However, it seems that he does not apply this rule to the [abs] feature in the head of QP. Gebhardt posited an uninterpretable [u-abs] feature under the functional head Q and an interpretable one under the head of a ClP. However, he does not make it clear why the Q head involves an uninterpretable feature rather than an interpretable one. In contrast, assuming that a classifier has a subcategorization feature that requires numerals, it is plausible to suggest that the interpretable [abs] feature resides in the head of QP, while the uninterpretable counterpart does so in the head of ClP.

Keeping this issue in mind, I assume that subcategorization features are uninterpretable, which requires an element having the interpretable counterpart because it needs to be checked.

2.4.3. Analysis of Korean quantified structures

To summarize what we have seen so far with respect to Korean number marking, the following properties are observed in Korean.

- Korean has an overt plural marker -*tul*.
- The plural lexical item -*tul* are associated with the [n], [group], and [specificity] features.
• Korean is a rich-classifier language, but nonetheless there exists a count-mass noun distinction.

• Numerals ordinarily require classifiers, which are associated with the [individuation] feature, regardless of whether nouns are count or mass.

• Some nouns (i.e. with [+numerable] feature) allow numerals to appear without classifiers (but only with small numbers).

• Two types of quantifiers are used differently, indicating that there is specification of [q-abs] and [q-rel] features.

• Korean allows the co-occurrence of plural morphology and classifiers in case of [+human] nouns, while it is not allowed in case of [-human] nouns.

Noun+PL

If we consider the feature bundle of plural marker -tul, the uninterpretable [u-n] feature, which indicates that it is suffixed to a noun, and the [group] feature for plural are included as in English plurals. In addition to these features, as shown in the previous sections, the [specificity] feature is also included in Korean plural marking, because the use of intrinsic -tul correlates with specificity. We propose that uninterpretable [u-specif] is under the head of Num and interpretable [specif] under the D head, based on the observation that -tul reflects specificity of the noun that it attaches to, which is determined by context or demonstratives (Lardiere 2009; Hwang & Lardiere, 2013). This indicates that the presence of -tul requires a D bearing the interpretable [specificity] feature in a DP, and then D[Specificity] and Num[u-specificity] must enter into an Agree relationship (Hwang & Lardiere, 2013).

Then, following the Gebhardt’s framework, consider how a pluralized NP with -tul can
be derived.

(2.71) salam-tul
person-PL
‘The people’

In (2.71), the head Num serves as a probe, because it has the uninterpretable [u-specif] feature, while the head D should be its goal due to the interpretable [specif] matching feature. Since the probe is in a c-command relation with its goal, they can enter into an Agree relationship and the uninterpretable [u-specif] feature is deleted. The same mechanism is applied to the deletion of the [u-n] feature\textsuperscript{25}. Then, the features on Num are spelled out as -tul.

\textit{The distinction between [rel] vs. [abs] features}

As noted above, unlike English in which plural marker -s can appear with either a numeral or

\textsuperscript{25} Since I assume “upward” Agree in Korean DP structure, there should be an obvious concern about the directionality of Agree as the probe Num is not c-commanded by the goal n. I speculate that “downward” Agree is possible when nP is selected by either Num or Cl head. I will leave this problem for future research.

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non-numerical quantifier, we have observed that -\textit{tul} can appear with non-numerical quantifiers but not with numerical ones unless the nouns have the [+numerable] feature as in (2.72).

(2.72) a. manhun kenmul-\textit{tul}  
    many building-\textit{PL}  
    ‘many buildings’

b. *ney kenmul-\textit{tul}  
    four building-\textit{PL}  
    ‘four buildings’

Based on the distinction between [rel] and [abs] features, I would argue that the use of -\textit{tul} correlates with the [rel] feature. This observation suggests that Num carries the [rel] feature as follows.

(2.73) a.  

\begin{center}
\begin{tikzpicture}

\node (dp) {DP} ;
\node (qp) [below=of dp] {QP} ;
\node (nump) [below=of qp] {NumP} ;
\node (nP) [below=of nump] {nP} ;
\node (n) [below=of nP] {n} ;
\node (kenmul) [below=of n] {kenmul} ;
\node (num) [right=of nP] {Num} ;
\node (manhun) [right=of num] {manhun} ;
\node (q) [below=of dp] {Q} ;
\node (d) [below=of dp] {D} ;

\draw (dp) -- (qp) ;
\draw (qp) -- (nump) ;
\draw (nump) -- (nP) ;
\draw (nP) -- (n) ;
\draw (n) -- (kenmul) ;
\draw (nump) -- (num) ;
\draw (num) -- (manhun) ;
\draw (qp) -- (q) ;
\draw (d) -- (dp) ;

\draw (q) -- ([xshift=-1cm]q) node [midway, above] {[specif]} ;
\draw (q) -- ([xshift=1cm]q) node [midway, above] {[rel]} ;
\draw (num) -- ([xshift=-1cm]num) node [midway, above] {[u-specif]} ;
\draw (num) -- ([xshift=1cm]num) node [midway, above] {[u-n]} ;
\draw (manhun) -- ([xshift=-1cm]manhun) node [midway, above] {[group]} ;
\draw (manhun) -- ([xshift=1cm]manhun) node [midway, above] {[-n]} ;
\end{tikzpicture}
\end{center}
Thus, -tul can be analyzed as the realization of Num that has the [rel] feature as well as other features. On the other hand, the [rel] feature in Num can account for the incompatibility of -tul with numerical quantifiers.

(2.73) b.

As shown in (2.73b), since there are no uninterpretable features that have not been checked by their matching features, it appears that the derivation should not crash. However, it should be noted that the [rel] and [abs] features co-occur in the structure. According to Gebhardt (2009), these two features indicate different type of quantification, relative and absolute respectively, and thus the co-occurrence of the features should cause a semantic mismatch. This co-occurrence might not be a crucial problem in the derivation, but it is not ideal (Gebhardt, 2009).

Noun+Numeral+CL

Turning to quantified structures containing classifiers, as presented above, classifiers always
combine with numerical quantifiers, not non-numerical ones. Thus, I assume that Korean classifiers involve the [u-abs] feature and its interpretable counterpart is under the Q head where the actual meaning associated with this feature resides. In the head Cl, I included the general number feature [indiv] rather than the [group] feature because classifiers can occur with all numerals including one. Consider the following ungrammatical structure where a classifier appears with a non-numerical quantifier.

\[(2.74) \text{*chayk manhun kwen} \]

\begin{verbatim}
book many CL
\end{verbatim}

The ungrammaticality of (2.74) can be accounted for by the uninterpretable [u-abs] feature on CL because it cannot be checked by the [rel] feature in the head of QP.

In addition, as in other typical classifier languages such as Mandarin, since classifiers usually take an NP as a complement the uninterpretable [u-n] feature, which needs to be checked by the interpretable [n] feature involved in a noun, is also included in Cl\textsuperscript{26}. The derivation of the

\textsuperscript{26} As noted in footnote 25, there should also be an obvious concern about the directionality of Agree since the probe Cl is not c-commanded by the goal n. I speculate that “downward” Agree is possible when nP is selected by either Num or Cl head. I will leave this problem for future research.
Noun+Numeral+Cl construction is illustrated in (2.75).

(2.75) chayk sey kwen
       book three CL
       ‘Three books’

In (2.75), every uninterpretable feature in the derivation has been checked by its interpretable counterparts in a c-command relation and thus the structure is well formed. After the syntactic operations, Cl moves to the Q head for the correct word order.

Noun+PL+Numeral+CL

As discussed in the previous sections, pluralization is allowed even in the presence of a classifier for human nouns. This would indicate that a ClP for human nouns could take either a NumP or an NP as its complement.

Given this issue, I propose that the functional head Cl for human classifiers has a different feature bundle from other (non-human) classifiers. In particular, the difference between two types of classifiers is that human classifiers lack the [u-n] feature. According to Gebhardt, if
a classifier can take either a NumP or an NP as a complement the [u-n] feature is not specified on the Cl head. Furthermore, I assume that the [human] feature appears as a formal feature in a syntactic structure on the Cl head, because human classifiers should correspond with a noun having the [human] feature. If human classifiers co-occur with non-human nouns, semantically anomalous sentences such as *ai-tul* *sey* *kay* ‘kid-PL three CL (for small object)’ will be generated.

To summarize, the Cl head for human classifiers contains the [indiv]\(^{27}\), [u-abs], and [human] features but does not have the [u-n] feature, as shown in (2.76).

\(^{27}\) Following Gebhardt, the [group] feature, rather than the [indiv] feature, should be on human Cl, because the numeral ‘one’ cannot be consistent with a pluralized noun in any case. In other words, since human classifiers cannot take a NumP when the numeral is one, human Cl should be specified with [group]. However, I decided not to adopt this claim because it does not affect the analysis and I intend to focus on the role of classifiers, i.e. individuation.
After syntactic operations, Num is spelled out as -tul, and Cl is spelled out as myeng as well. On the other hand, different feature bundles on Cl can account for the ungrammaticality of pluralization on non-human nouns in the presence of a classifier as shown in (2.77).
At first glance, we notice that the \([u-n]\) feature on Cl cannot be checked because the possible goal, the interpretable \([n]\) feature on a noun, cannot c-command it. Moreover, since the \([u-n]\) on Cl is a subcategorization feature that indicates that a classifier takes an NP as a complement, the interpretable \([n]\) feature on a noun is not associated with it. Thus, the derivation can account for the ungrammaticality of numeral-classifier structures including pluralization on a non-human noun such as (2.77).

**Korean functional heads and their associated features**

Based on these analyses we have shown so far, the features in Korean DP structures can be listed as in (2.78).
(2.78) Korean functional heads and associated features

<table>
<thead>
<tr>
<th>Head</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) noun:</td>
<td>[n]</td>
</tr>
<tr>
<td>(ii) plural marker -tul:</td>
<td>[u-n, group, rel, u-specif]</td>
</tr>
<tr>
<td>zero-plural</td>
<td>[u-n, group, rel]</td>
</tr>
<tr>
<td>(iii) classifier:</td>
<td>[u-n, indiv, u-abs]</td>
</tr>
<tr>
<td>classifier (human):</td>
<td>[indiv, u-abs, human]</td>
</tr>
<tr>
<td>(iv) numeral quantifier:</td>
<td>[abs]</td>
</tr>
<tr>
<td>(v) nonnumeral quantifier:</td>
<td>[rel]</td>
</tr>
</tbody>
</table>

The Vocabulary Items with respect to Korean number marking are presented in (2.79).

(2.79) Num, [u-n, group, rel, u-specif] ↔ -tul

    CL, [u-n, indiv, u-abs] ↔ kay, kwen, tay, etc.

    CL, [indiv, u-abs, human] ↔ myeng

2.5. Corpus data

In the section, I analyze corpus data including -tul since the Korean plural-marker shows some variations in its use, and input frequency could be a crucial issue that affects language acquisition.

If the input of the target structure is extremely rare or not used in the actual data, successful acquisition of the structure would not be possible, because the properties of input play a crucial role in determining the kind of knowledge L2 learners establish (Ellis, 2002). Assuming the Full Transfer/Full Access (Schwartz & Sprouse, 1996), L2 learners restructure their interlanguage at the initial stage of acquisition, which is transferred from their L1, in response to properties of the
L2 input. In addition, the feature-reassembly approach assumes that successful acquisition should be possible if learners are able to detect relevant features in the input (Lardiere, 2009). Given these suggestions, it should be necessary to demonstrate that the relevant information is actually present in the input, which triggers L2 grammar’s change.

For this purpose, the relevant Korean structures were searched in a large corpus. The data in this dissertation come from Sejong Corpus collected by the 21st Century Sejong Project, which is one of the largest Korean corpora. The corpus consists of samples of naturally occurring language in various spoken contexts such as lectures, conversations, and monologues, and written contexts such as newspapers, magazines, books, and other publications. In order to analyze the corpus data, I used the KKMA(kkokkoma) system designed for web-based application (http://kkma-sc.snu.ac.kr/), which is a tool for utilizing the Sejong corpus. In each sub-section, the relevant data involving -tul were extracted using the searching system, and they were manually checked by a native Korean speaker to filter the irrelevant instances.

2.5.1. Previous corpus study of Korean plural marking

Noh (2008) looked at diachronic changes in the use of intrinsic -tul. Using Sejong corpus, she demonstrates that the use of -tul has increased by comparing the data from 1880 to 1940’s with that from 1980 to 2000’s.
As shown in Table 2.4, Noh’s findings, mostly based on written language data, indicate that only 63.98 cases among 10000 words were found in the early data while 148.50 cases were found in the later data. She suggests that the increased use of -tul is attributable to the influence of English, because in English -s must be used on count nouns, while Korean -tul is not always obligatory.

This study shows the increased use of -tul using real data, but the variety in the data is somewhat narrow because mostly written data were examined. Thus, the current study investigates both written and spoken data consisting of a variety of data in the Sejong corpus.

*Pluralized human nouns with CL*

I have shown that pluralization on human nouns in the presence of a classifier is acceptable, unlike the case of non-human nouns, and this structure does not fit the typical properties of
classifier languages. For instance, either *haksayng sey myeng* ‘student three CL’ or *haksayng-tul sey myeng* ‘student-PL three CL’ is possible. Corpus data were used to investigate whether the structures with addition of plural marking are found in real data, and which structures are found most frequently. For this purpose, the classifier *myeng* for human nouns from Sejong corpus has been searched, and 16436 written and 858 spoken tokens were found. Two sets of data were used to check for a difference between spoken and written languages. 500 occurrences were randomly extracted from the sets of both written and spoken language. The extracted instances were manually checked by a native Korean speaker to filter irrelevant structures such as (2.80), which does not contain the head noun for classifier construction and the addition of plural marking on nouns is investigated here. Accordingly, only instances containing a noun were included.

(2.80) *wuli-ka payk-myeng-ul ppop-ca.*
we-NOM hundred CL-ACC choose-PR
‘Let’s choose 100 people.’

In addition, in order to compare structures with *-tul* to ones without *-tul*, instances containing *han myeng* (one CL) were also eliminated from the analysis. We ended up with 287 and 105 instances from written and spoken data, respectively. An example of a classifier construction with *-tul* from the corpus is given in (2.81) while (2.82) is an example of one without *-tul*.

(2.81) with *-tul*
*yetelp myeng-uy yeca-tul-kwa swuta-lul ttel-ess-ta.*
eight CL-GEN woman-PL-with chat-ACC have-PAST-DECL
‘(Someone) had a chat with eight women’
Table 2.5 shows the frequency of the use of -tul with the human classifier myeng in two different register contexts.

<table>
<thead>
<tr>
<th></th>
<th>With -tul</th>
<th>Without -tul</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written</td>
<td>53 (18.5%)</td>
<td>234 (81.5%)</td>
<td>287</td>
</tr>
<tr>
<td>Spoken</td>
<td>40 (38.1%)</td>
<td>65 (61.9%)</td>
<td>105</td>
</tr>
<tr>
<td>Total</td>
<td>93</td>
<td>299</td>
<td>392</td>
</tr>
</tbody>
</table>

Table 2.5 shows that -tul is allowed to attach to a noun in the presence of a classifier for human nouns, even though the occurrence of -tul is less frequent than its nonoccurrence in possible contexts (18.5% with -tul vs. 81.5% without -tul for written data; 38.1% with -tul vs. 61.9% without -tul for spoken data). In order to investigate whether there is a relationship between register context and the addition of -tul to a noun, a chi-square statistics was computed. As shown in Figure 2.1, the association between register type and the use of -tul in classifier structure is statistically significant ($\chi^2 = 16.367$, df = 1, p = .000), with -tul being more frequently added to a noun in spoken language than in written language.
C. Lee (2000) argues that -tul is usually not suffixed to nouns in post-nominal numeral classifier constructions, and the suffixation of -tul is slightly better in the pre-nominal numeral classifier construction such as *yel myeng-uy sonyen-tul ‘ten CL-GEN boy-PL’. However, contra his claim the results displayed in Table 2.6 indicate that the addition of -tul to nouns is allowed in the post-nominal numeral CL construction, especially in spoken language.

<table>
<thead>
<tr>
<th>Table 2.6</th>
<th>Distribution of Noun+tul in two word order patterns regarding CL structures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-nominal numeral CL construction</td>
</tr>
<tr>
<td>Written</td>
<td>44 (83.0%)</td>
</tr>
<tr>
<td>Spoken</td>
<td>17 (42.5%)</td>
</tr>
</tbody>
</table>

In short, the data demonstrate that plural marker -tul can be attached to a human noun even in classifier construction, unlike other typical classifier languages, which show the complementary
distribution of plural marker and classifiers. In addition, the data also confirm that the addition of -tul is allowed both the post-nominal numeral CL as well as the pre-nominal numeral CL construction, especially in spoken register.

Pre-nominal numeral classifier vs. Post-nominal numeral classifier

As introduced above, an NP can either precede or follow a numeral classifier with a genitive case marker -uy. In order to examine which word order pattern is more frequently used, we searched for instances containing a classifier for books kwen in the corpus. 1459 tokens from written language and 42 cases from spoken language were found. Due to the small number of cases in spoken data, 500 instances were randomly extracted only from written corpus data, and as in the previous section, the instances without a noun were filtered by hand. After removing the irrelevant cases, the remaining 290 instances were analyzed. The examples taken from the corpora are given in (2.83) and (2.84) below.

(2.83) Pre-nominal numeral classifier
yel kwen-uy notu-lul cwunpihay-ss-ta.
ten CL-GEN notebook-ACC prepare-PAST-DECL
‘(Someone) prepared 10 notebooks’

(2.84) Post-nominal numeral classifier
cip-eyse nao-l.ttay chayk twu kwen-ul kaciko.wa-ss-ta.
house-from come.out-when book two CL-ACC bring-PAST-DECL
‘(Someone) brought two books when s/he came out from house’

Table 2.7 shows the frequency of two word order patterns (i.e. pre-nominal numeral CL vs. post-nominal numeral CL) in written language.
When considered as a simple overall distribution of structures, as seen in Table 2.7, the post-nominal numeral classifier construction is predominant, accounting for around 60% of the data.

In addition, in order to check whether there are differences according to the nouns’ animacy, the instances containing the classifier myeng were used again. Another five hundred cases were randomly selected from each written and spoken data. As in the data above, the found instances were subsequently manually checked to filter cases without a noun. As a result, 357 instances from written and 117 instances from spoken data remained.

In line with the results of the classifier kwen, the results indicate shows that the post-nominal numeral classifier construction is more frequently used in both written and spoken data. Table 2.8 also shows that the post-nominal numeral classifier construction is more frequent in spoken corpus data than in written corpus data. There is a significant relationship between language register and the word order pattern ($\chi^2 = 15.344$, df = 1, p = .000).
This finding is consistent with other previous study. Park and Kim (1996) suggest that the Post-nominal numeral classifier is overwhelmingly used (i.e. more than 60%), and it is likely to use it more in spoken language (cited in C. Lee (2000)).

*Omission or suppliance of classifiers*

I have shown that the canonical quantificational construction in Korean for both count and mass nouns includes a classifier, but there are some cases where direct counting without classifiers is possible (Kang, 1993) as shown in (2.85). This structure is similar to English word order for quantified nouns, even though it is acceptable without plural agreement.

(2.85) sey haksayng(tul)-i swukcey-lul ceychwulhay-ss-ta.
three student(PL)-NOM homework-ACC submit-PAST-DECL

‘(The) three students submitted homework.’

However, it has been suggested that this type of construction is not widely acceptable because there are restrictions of kinds of nouns, and only small number (i.e. less than five) are allowed (C. Lee, 2000). As shown in Section 2.3.5.5, I posited the [numerable] feature in the syntactic structure in order to account for this quantified structure.

This section examines how frequently the construction without a classifier occurs, comparing it with the construction without a classifier. For this purpose, the numeral *sey* ‘three’ was searched, and five hundred sentences were randomly extracted from each written and spoken data. The sentences were manually checked, and some instances, which were not related to quantified nouns, were excluded. Thus, time expressions such as *sey si pan* ‘three thirty’ or *sey si
kan ‘three hours’, ordinals such as sey pen ccay ‘third’, and frequency such as sey pen ‘three times’ were not counted for analysis. As a result, of the five hundred sentences 253 and 132 instances from written and spoken data, respectively, remained for the analysis. The examples taken from the corpus are given in (2.86) and (2.87).

(2.86) with a classifier

cip sey chay-lul  hankkkeypeney  sa-ss-ta.
house three  CL-ACC   all at once  buy-PAST-DECL

‘(Someone) bought three houses all at once’

(2.87) without a classifier

sey chinkwu-nun  motwu  tolaka-ss-ta.
three  friend-TOP    all  return-PAST-DECL

‘All three friends returned to (home)’

Table 2.9 shows the distribution of omission and suppliance of classifiers in written and spoken language.

<table>
<thead>
<tr>
<th></th>
<th>Suppliance</th>
<th>Omission</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written</td>
<td>137 (54.2%)</td>
<td>116 (45.8%)</td>
<td>253</td>
</tr>
<tr>
<td>Spoken</td>
<td>99 (75.0%)</td>
<td>33 (25.0%)</td>
<td>132</td>
</tr>
<tr>
<td>Total</td>
<td>236</td>
<td>149</td>
<td>385</td>
</tr>
</tbody>
</table>

The results displayed in Table 2.9 indicate that in written language the direct counting without a classifier is used productively, showing little difference between omission and suppliance.
However, in spoken language there is a clear difference between the two structures (75% for suppliance; 25% for omission). Figure 2.2 illustrates the frequency of omission and suppliance of classifiers in written and spoken data.

Thus, in order to statistically test the difference, a chi-square test was used. The association between register type and omission of classifier is statistically significant ($\chi^2 = 15.895, \text{df} = 1, p = .000$), indicating that classifiers are overwhelmingly supplied in spoken language when counting.

I also examined whether differences between human and non-human nouns in supplying classifiers. Table 2.10 shows the distribution of omission and suppliance of classifiers in terms of the [+human] feature of nouns.
Table 2.10  Distribution of omission and suppliance of classifiers (human/non-human nouns)

<table>
<thead>
<tr>
<th></th>
<th>Suppliance</th>
<th>Omission</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-human N</td>
<td>193 (71.2%)</td>
<td>78 (28.8%)</td>
<td>271</td>
</tr>
<tr>
<td>Human N</td>
<td>43 (37.7%)</td>
<td>71 (62.3%)</td>
<td>114</td>
</tr>
<tr>
<td>Total</td>
<td>236 (61.3%)</td>
<td>149 (38.7%)</td>
<td>385</td>
</tr>
</tbody>
</table>

For non-human nouns, classifiers are overwhelmingly supplied, accounting for around 70% of total number of non-human nouns. On the other hand, for human nouns, classifiers are omitted in more than half of the sentences. This finding is consistent with the claim that the nouns with the [+numerable] are usually human nouns.

2.5.2. Summary for corpus data

This section has examined whether the data considered for theoretical analysis are actually present in the corpus data. The corpus analysis showed that the addition of -tul to human nouns in classifier context actually occurs in the native speaker (NS) data. We have also found that the co-occurrence of -tul and human classifiers takes place more frequently in spoken language than in written language. For the word order pattern, the frequency of post-nominal numeral classifiers is considerably higher than that of pre-nominal numeral classifiers in both written and spoken language (even though it occurs significantly more frequently in spoken than in written data). For the direct counting without a classifier, the extracted data including sey ‘three’ from the NS corpus confirmed that the [numeral + Noun(-tul)] structure, which is constructed similarly to English quantified nouns, occurs in actual data, as some linguists claim. However, it turned out that classifiers are overwhelmingly supplied in spoken language and the omission of classifiers is found usually for human nouns. This result confirms that nouns with the [numerable]
feature are usually human nouns.

2.6. Summary

This chapter has shown the idiosyncratic properties of Korean quantified structures with respect to intrinsic plural marking and classifiers. As presented above, the previous analyses (e.g. Chierchia, 1998; Borer, 2005) do not provide an adequate account for Korean, as they cannot accommodate all the empirical data. Adopting Gebhardt’s (2009) feature-driven analysis, I have presented the features required for the use of plural marker -tul and other conditioning factors such as classifiers, and syntactically analyzed the various quantified structures. The corpus data with respect to intrinsic plural marking have also been investigated in order to examine whether the input containing various structures is actually available for language learners.

Chapter 3 addresses another type of Korean plural marking—extrinsic plural, which exhibits unique properties that differ from plural markers in other languages. As in Chapter 2, I will analyze the extrinsic plural marker based on its features, and will investigate the corpus data in order to determine if the input for acquisition is rare.
Chapter 3

Korean extrinsic plural marking

Chapter 2 considered the properties of Korean intrinsic plural marking and discussed how it can be analyzed based on its formal features. This chapter provides a descriptive overview and theoretical analysis of another type of Korean plural marking, referred to as “extrinsic plural marking”. This type of plural marking attaches not only to nouns but also to various elements such as adverbs, wh-words, locative phrases, etc., as shown in (3.1).

(3.1) a. ese-tul o-sey-yo.
    please-PL come-HON-IMP
    ‘Please come.’

b. eti-ey-tul ka-sey-yo?
    where-LOC-PL go-HON-INT
    ‘Where do you go?’

Regarding the syntactic properties of the extrinsic plural marker, it has been suggested that it behaves like a syntactic agreement marker as it requires a plural subject in the same clause (S. Song, 1975; Park and Sohn, 1993; Chung, 2004, and many others). Regarding its semantic properties, it has been argued that it triggers a distributive reading (Moon, 1995; Y. Kim, 1994; Park & Sohn, 1993; J. Song, 1997, and many others), and so the closest lexical item in English is likely each (of the).

The goal of this chapter is to examine the properties of extrinsic plural marking and identify the features required for its use by closely reviewing a number of previous studies. As in
Chapter 2, it is important to uncover the features associated with the extrinsic plural marker, because the fundamental research question tested in this dissertation is whether L2 learners are able to overcome cross-linguistic differences by acquiring the relevant features. Since most of the previous studies on extrinsic -tul have focused on either syntactic or semantic properties, I will try to provide a unified analysis.

This chapter is organized as follows. Section 3.1 discusses the use of extrinsic -tul, presenting the various categories to which it can be attached. In Section 3.2, some previous syntactic and semantic analyses of extrinsic -tul are presented, and based on these the features involved in its use are identified. Section 3.3 outlines my own analysis of how the features associated with extrinsic plural marking enter the derivation and the Agree operation that takes place between the features. In Section 3.4, I use corpus data to investigate the frequency of extrinsic -tul in the input and categories to which it is most frequently suffixed. Section 3.5 summarizes this chapter.

3.1. Basic properties of Korean extrinsic plural marking
As mentioned above, extrinsic -tul can be attached to any categories within a sentence. It seems that the properties of Korean extrinsic plural marking are very unique (J. Song, 1997). J. Song (1997) provides a comprehensive discussion about various categories that can directly host extrinsic -tul. Those categories are presented below.
(3.2) Direct object nominals
Kid-PL-NOM  friend-to  gift-PL-ACC  give-PAST-DECL
‘Each of the kids gave a gift to their friend’

(3.3) Indirect object nominals
salam-tul-i  ku cengchiin-eykey-tul  cilmunhay-ss-ta.
person-PL-NOM  DEM politician-to-PL  ask-PAST-DECL
‘Each of the people asked (questions) to the politician’

(3.4) Oblique nominals: locative, instrumental, etc.
ai-tul-i  hakkyo-eyse-tul  tolawa-ss-ta.
child-PL-NOM  school-from-PL  come.back-PAST-DECL
‘Each of the children came back from their school.’

(3.5) Adverbs
masisskey-tul  mek-ess-ni?
deliciously-PL  eat-PAST-INT
‘(Did you) enjoy having (something)?’

(3.6) Wh-words
way-tul  moim-ey  an wa-ss-eyo?
why-PL  meeting-to  NEG come-PAST-INT
‘Why didn’t you come to the meeting?’

However, some restrictions are imposed on the suffixation of extrinsic -tul to some categories. For instance, extrinsic -tul cannot be directly attached to the stems of verbs and
adjectives, as shown in (3.7).

(3.7) a. ai-tul-i  yelsimhi  kongpuha(*-tul)-yss-ta.
Kid-PL-NOM  hard  study(*PL)-PAST-DECL
‘The kids studied hard’

b. ai-tul-i  yeppu(*-tul)-ta.
kid-PL-NOM  pretty(*PL)-DECL
‘The kids are pretty’

According to J. Song, extrinsic -tul can be suffixed to verbs and adjectives after conjunctive devices. Looking first at verbs, the conjunctive devices such as -a(se)/-e(se)/-ko, which connect two verbs, can bear the extrinsic plural marking as indicated in (3.8).

(3.8) Verbs

haksayng-tul-i  mikwuk-eyse  tola-tul wa-ss-ta.
student-PL-NOM  America-from  back-PL come-PAST-DECL
‘Each of the students came back from the US.’

Like verbs, adjectives can host the extrinsic plural marking using a conjunctive device such as -e(se) ‘because’ as shown in (3.9).

(3.9) Adjectives

haksayng-tul-i  ely-ese-tul  hwalongcek-ita.
student-PL-NOM  young-CONJ-PL  active-be.DECL
‘Each of the students is young, so they are active’
In addition, it is also observed that extrinsic 
\textit{-tul} can be positioned at the end of a sentence, especially imperatives or interrogatives as shown in (3.10). Since extrinsic \textit{-tul} usually signals the presence of a plural subject, it has also been observed that it is frequently used in colloquial contexts such as imperatives, interrogatives, and exhortatives, where an overt subject is not necessary (S. Song, 1988; C. Kim, 2005; Kwon & Zribi-Hertz, 2004). The speaker can address all of the people who are in the situation by adding \textit{-tul} after the interrogative or imperative markers. In other words, if the speaker attaches \textit{-tul} at the end of the sentence, she does not have to utter the same question or imperative more than once to address each of the people who she wants to address, making it an economical way to address multiple people at one time (J. Song, 1997).

(3.10) Illocutionary markers

\begin{enumerate}
\item a. \textit{swukcey hay-ss-ni-tul?}
\text{homework do-PAST-INT-PL}
\text{‘Did (each of you) do your homework?’}
\item b. \textit{kuman com ca-la-tul.}
\text{now please sleep-IMP-PL}
\text{‘Please (each of you) get some sleep now’}
\end{enumerate}

It should be noted that as shown in the examples provided so far, extrinsic plural \textit{-tul} is located outside of the case marker, unlike intrinsic \textit{-tul}. For instance, in examples (3.3) and (3.4), the extrinsic \textit{-tul} is positioned after case markers such as \textit{eykey} (dative case marker) and \textit{eyes} (oblique case marker denoting location). However, there is one exception to this positional restriction: as indicated in (3.2), the plural marker \textit{-tul} cannot be positioned after the accusative case marker \textit{-ul} (or \textit{-lul}), regardless of whether it is intrinsic or extrinsic (Kuh, 1987, cited in J.}
Song, 1997)\textsuperscript{28}. The example in (3.11) illustrates this restriction (Example (3.2) is repeated below as (3.11) with the change of the position of \textit{-tul}).

(3.11) ai-tul-i chinkwu-eykey senmul-ul-(\textit{*tul}) cwu-ess-ta.  
kid-PL-NOM friend-to gift-PL-ACC give-PAST-DECL

‘Each of the kids gave a gift to their friend’

Even though the categories to which extrinsic \textit{-tul} attaches are varied, there are some restrictions. Specifically, for verbs and adjectives the conjunctive devices must host the extrinsic plural marker. In addition, the extrinsic \textit{-tul} must be positioned outside all case markers except for the accusative.

3.2. Previous analyses of extrinsic plural marking

3.2.1. Syntactic properties

In this section, I will closely examine the syntactic properties of extrinsic plural marking, focusing the syntactic conditions that allow its use. In so doing, a number of previous analyses of these syntactic properties will be reviewed. It has been reported that extrinsic \textit{-tul} requires a plural subject (S. Song, 1975; Park & Sohn, 1993; Chung, 2003, 2004, and many others).

\textsuperscript{28}Unlike this claim, some Korean linguists use the examples where extrinsic \textit{-tul} is positioned after the accusative case marker (e.g. Park & Sohn, 1993; An, 2007), and even suggest that it is preceded by all case markers including the accusative case marker (Moon, 1995).

(i) yel-myeng-uy ai-tul-i nwunsalam-ul-tul mantul-ess-ta.  
ten-CL-POSS child-PL-NOM snowman-ACC-PL make-PAST-DECL

‘Ten children made a snowman’ (Moon, 1995, p.357-358)  

However, as a native speaker of Korean, this sentence is not acceptable to me. I agree with Song’s claim that extrinsic \textit{-tul} cannot be positioned after the accusative case marker.
The sentence (3.12) indicates that the pluralized NP subject is required due to the presence of extrinsic plural marking, as it becomes ungrammatical if the subject is not plural. In addition, in case of complex sentences, the plural subject must be located in the same clause as the extrinsic plural marker. Compare the pair of examples in (3.13).

   ‘I think that the students study hard’

   ‘The students think that I study hard’

As shown above, (3.13b) is not acceptable because the plural subject haksayng-tul ‘student-PL’ is not located in the same clause as the constituent with -tul, while in (3.13a) the plural subject and the constituent with -tul are in the same clause and the sentence is grammatical. To summarize, an element suffixed with -tul must have a plural referent as a subject in the same clause. To put this observation more precisely, the plural subject in the same clause must c-command the constituent suffixed with the non-nominal plural marker -tul (J. Park, 2009; Yim, 2003). These conditions can be boiled down to the syntactic condition in (3.14) that has been suggested in the literature.
(3.14) Syntactic licensing condition

A constituent to which the non-nominal plural marker -tul attaches must be in the same clause as a plural subject that c-commands it. (J. Park, 2009, p.145)

Due to this syntactic property of extrinsic -tul, it has been argued that it is an agreement marker which agrees with a plural subject (Park & Sohn, 1993; Yim, 2003). I will review two previous analyses supporting this view. First, Park and Sohn (1993) postulate the following structure where a number feature heads its own projection (NumP).

(3.15) a. ai-tul-i cyusu-lul-tul masi-ess-ni?
    child-PL-NOM juice-ACC-PL drink-PAST-INT
    ‘Did the children drink juice?’

They propose that the plural subject ai-tul-i checks off the [+pl] feature in Num through a Spec-head relation, and this feature is involved later in checking the phrase with extrinsic -tul. In order to be checked, the extrinsic -tul phrase cyusu-lul-tul raises to Spec of NumP, where it enters into Spec-head agreement with the number feature in Num at LF.
Park and Sohn’s analysis is based on an earlier version of the Minimalist framework (Chomsky, 1993). More recent versions of the Minimalist Program (Chomsky, 2000) employ Agree as a mechanism to capture syntactic agreement. In order for Agree to apply to this structure, it should be determined whether the [plural] features in the phrase with extrinsic -tul and a head in NumP are interpretable or uninterpretable. For example, if we assume that the [plural] feature in Num serves as a probe on the assumption that it has an uninterpretable [plural] feature, it would be able to c-command cyusu-lul-tul even before it moves to the Spec of NumP. However, the uninterpretable [plural] feature in Num must Agree with the plural subject ai-tul-i in its base position (Spec of VP) first, because it is closer than cyusu-lul-tul. It is not clear how the phrase with the extrinsic -tul can be associated with the Num head or the plural subject as an agreement marker, since the uninterpretable [plural] feature in Num is valued and eliminated after agreement with the subject. While the extent to which Park and Sohn’s structure can work within the latest Minimalist framework is not evident, their idea to postulate NumP on top of the entire clause as shown in (3.15b), above even Mood Phrase (MP), deserves some attention.

Secondly, Yim (2003) attempts to account for extrinsic -tul on the assumption that it is a subject agreement marker, under a more recent version of the Minimalist Program than that assumed in Park and Sohn (1993). He assumes that an element marked with extrinsic -tul bears uninterpretable phi-features (as in English T bears uninterpretable phi-features), and the pluralized subject has interpretable phi-features as in (3.16b).
(3.16) a. ai-tul-i cip-ey-tul ka-ss-ta.
   child-PL NOM house-to-Agr go-PAST-DECL
   ‘The children went home’

   b. [vP ai-tul-i [v’[vP cip-ey-tul ka-ss-ta]]]
   φ-features[+] φ-features[-]
   Case[ ]
   *Agree (*c-command)

   child-PL NOM toy-ACC quickly-Agr construct-PAST-DECL
   ‘The children constructed a toy/toys quickly’

   b. [vP ppalli-tul [vP ai-tul-i changnankkam-ul coliphay-ss-ta]]
   φ-features[-] φ-features[+]
   *Agree(c-command)

Yim (2003) applies the strictest formulation of Agree by Chomsky (2000), which is shown in (3.18), to the examples in (3.16) and (3.17).
(3.18) Agree operates between a probe $\alpha$ and a goal $\beta$ iff

a. $\alpha$ has uninterpretable $\varphi$-features;

b. $\beta$ has identical, interpretable $\varphi$-features;

c. $\beta$ has an unchecked feature of structural Case;

d. $\alpha$ c-commands $\beta$;

e. there is no potential alternative goal $\gamma$ such that $\alpha$ c-commands $\gamma$ and $\gamma$ c-commands $\beta$;

f. the structural relation between ($\alpha$, $\beta$) was not created by Merge ($\alpha$, $\beta$).

(from Carstens, 2000: 349ff)

Assuming that this assumption is correct, Yim argues that the operation Agree (Chomsky, 2000) runs into a critical problem. Specifically, to be in accordance with the Agree operation, *cip-ey-tul* must be a probe since it carries uninterpretable $\varphi$-features, while the subject *ai-tul* must serve as its goal because it has interpretable $\varphi$-features as well as an unchecked Case feature. However, as illustrated in (3.16b), the probe fails to c-command its goal, and therefore does not account for grammaticality of (3.16a). In (3.17b), on the other hand, *ppalli-tul* can serve as a probe, as it can c-command its goal *ai-tul-i*, meeting the requirements of (3.18). However, he points out that it sounds unnatural to claim that the adverb checks structural Case feature of *ai-tul-i*. This strict interpretation of Agree lead Yim to conclude that Agree fails to account for the agreement between the plural subject and element with extrinsic -tul as shown in examples above.

However, if we abandon the restricted version of Agree and adopt a more general version, what Yim suggests is a problem for the Agree system may not be a true problem. Indeed, some of the properties in (3.18) have been adjusted in many studies (e.g. Richards, 2004; Carstens, 2011; Baker, 2008a). For example, Baker (2008a) relaxed the c-commanding condition
between probe and goal by allowing the “upward” directions in certain languages. As will be presented in Section 3.3, if we adopt this version of Agree with respect to its directionality, the issues regarding the c-commanding position Yim raised would not be a problem. In addition, given the condition for an active goal in (3.18c), Carstens (2011) argues that the property of requiring unchecked Case feature cannot be applied to all languages, showing that Gender feature satisfies the requirement for a licit goal in Bantu language. Riedel (2009) also suggests that active (i.e. uninterpretable) features on one element (i.e. either a probe or goal) may be enough to motivate the Agree operation, implying that the activity condition might not be necessary for a goal as long as a probe has uninterpretable features. Thus, their adjusted notions of Agree suggest that the c-commanding and activity conditions can be relaxed.

Following Yim’s analysis, I propose that the extrinsic -tul bears the uninterpretable \([u-pl]\) feature, which must be valued/eliminated by the interpretable counterpart of a plural subject. As Yim points out, since the relation between two features cannot be accounted for by the most restrictive version of Agree, I will adopt a more general version of Agree. I return to this issue in detail in Section 3.3.

### 3.2.2. Semantic properties

#### 3.2.2.1. Distributive reading

This section examines the semantic meanings that the extrinsic plural -tul triggers. It has been argued that the extrinsic plural marker always triggers a distributive reading over the individual parts of a plural subject (Moon, 1995; Y. Kim, 1994; Park & Sohn, 1993; J. Song, 1997, and many others). For instance, Y. Kim (1994) suggests a pronominal test to show the distributive effect of extrinsic -tul.
In (3.19a), a group reading is predominant, and so the singular pronoun *kukes* can be used to refer to the piano that the people lifted together. However, in (3.19b) with extrinsic -*tul* attached to the dative object *Kim-eykey*, only the distributive reading is available. Thus, the plural pronoun *kukes-tul* must be used to refer to the questions that each of the teachers asked.

There are at least two important issues to note regarding the distributive reading. First, the distributive interpretation relies on semantically interpretable features, such as universal quantification, that are also selected in English but are realized on different English lexical items such as ‘each’ or ‘each of the …’ (Lardiere, 2009). This semantic property of extrinsic -*tul* leads a number of researchers to claim that it is an overt distributive marker (Y. Kim, 1994; J. Song, 1997, among many others).

The second issue is that the views of researchers who argue for the distributive meaning associated with extrinsic plural marking can actually be distinguished in terms of what is distributed: that is, whether it is a whole VP vs. a local element bearing -*tul* that is distributed (C. Kim, 2005). Let us begin by reviewing the view that takes the whole VP to be what is distributed.
According to this first view, the extrinsic -tul takes an entire VP and distributes it over the individual members of a plural subject regardless of the position of -tul (e.g. Y. Kim, 1994). This view is grounded on the idea that distributivity, which is a property of a VP, is triggered by the presence of a D(istributivity)-operator as indicated below (Brisson, 1998).

(3.20) a. The boys ate a sandwich.
   b. \( D \text{ate.a.sandwich'(the.boys')} \)
   c. \( \forall x [x \in [[\text{the.boys'}]] \rightarrow \text{ate.a.sandwich'(x) }] \)  
     (Brisson, 1998, p.35)

Following the analysis of the standard D-operator, researchers in favor of the global distribution of -tul argue that -tul is the D-operator taking the whole VP, which introduces universal quantification over the plurality of a subject. In keeping with this view, Y. Kim (1994) provides the formal denotation of extrinsic -tul functioning on a whole VP predicate adopting the analysis of Roberts (1987) as follows.

(3.21) \( D\text{VP}: = \lambda x \forall y [\text{atomic-i-part-of (y,x)} \rightarrow \text{VP(y)}] \)

If we apply the denotation in (3.21) to the examples in (3.22), the obtained denotations will be identical as in (3.23).
(3.22) a. ai-tul-i kyosil-eyse-*tul* sinnakey nol-ass-ta.
    kid-PL-NOM classroom-LOC-PL cheerfully play-PAST-DECL

b. ai-tul-i kyosil-eyse sinnakey-*tul* nol-ass-ta.
    kid-PL-NOM classroom-LOC cheerfully-PL play-PAST-DECL

‘Each of the kids played cheerfully in the classroom.’

(3.23) ∀y [atomic-i-part-of (y, the kids) → play cheerfully in the classroom (y)]

This view of global distribution\(^{29}\) would predict that there is no meaning difference between two sentences in (3.22): (3.22a) with -*tul* attached to the locative phrase kyosil-eyse, and (3.22b) with -*tul* attached to the adverb sinnakey (C. Kim, 2005). That is, both of the sentences could be interpreted as ‘Each of the kids played cheerfully in the classroom’.

At this point, I turn to other studies that argue for the local distributive effect by extrinsic plural marking. As already mentioned above, they argue that extrinsic -*tul* is used to distribute the elements it marks such as places, activities, or manners over the individual members of a set, rather than distributing the entire VP. More specifically, the position of extrinsic -*tul* indicates what is distributed over the individual parts of a plural subject (J. Song, 1997). Consider the following examples.

---

\(^{29}\) The terms ‘global distribution’ and ‘local distribution’ regarding what is distributed are introduced in C. Kim (2005).
Under the view of extrinsic -tul as a local distributive marker, (3.24a) can be interpreted as ‘For each of the children, it was a book that s/he read quickly’, indicating that the entities that were read are distributed individually over multiple agents (J. Song, 1997, p.208). In the case of (3.24b), on the other hand, extrinsic -tul attached to the adverb ppalli describes the way each member of the set carries out the action specified, and the manner is distributed over each individual agent involved. Based on these observations, J. Song suggests that different positions of extrinsic -tul induce different meanings.

Notice, however, that even though the claim about local distribution seems plausible, we should question whether the meaning differences arguably attributed to the different positions of -tul can be assured by native speakers, pace J. Song’s claim. Given this observation, consider the following pair of examples.

(3.25) a. masiskey-tul siksikha-sey-yo.
   deliciously-PL meal have-HON-IMP

b. masiskey siksik-tul ha-sey-yo.
   deliciously meal-PL have-HON-IMP

‘Enjoy your meal’
In these examples, the speaker wants to tell each of the people in the situation to enjoy their meal. According to the local distribution view, only the element bearing extrinsic -tul is distributed. Accordingly, for (3.25b) where extrinsic -tul is attached to the verbal noun siksa ‘meal’, the speaker intends to focus on the distributive meaning of the activity which each person performs. Even though this interpretation can arise, it may be hard for a native speaker to exclude the manner from what is distributed in (3.25b). Likewise, for (3.25a) where the adverb bears extrinsic -tul, I wonder how we can assure that the other parts of the VP (such as activity) are not distributed. In other words, it seems that the whole VP denoting the eating-deliciously event needs to be distributed individually over the plural subject nominal in both (3.25a) and (3.25b). If my observation is correct, a different conclusion can be drawn regarding to these two sentences: the difference between the two sentences in (3.25) is the element that is focused (J. Song, 1997), rather than what is distributed. In (3.25a) the speaker emphasized the manner in which the hearers will have their meal, while in (3.25b) she focused the activity specified (I return to the function of focus in Section 3.2.2.2).

Note that I do not have a theoretical explanation for how to block local distribution. Rather, I simply wish to point out that a relatively uncontroversial generalization is that what is distributed by extrinsic plural marking is a whole VP, not a local category to which extrinsic -tul attaches (Lardiere, p.c.). Put differently, I do not endorse a view that the different positions induce different meanings, because even native speakers feel it is difficult to identify the meaning difference between the sentences with extrinsic -tul attached to different elements, as in (3.24) and (3.25). For this reason, in this dissertation the different distributive sense arguably contributed by the positions of extrinsic plural marking within a VP is not considered for any of the tasks. Instead I set up several tasks to test whether or not L2 learners can acquire the use of
extrinsic plural marking whose major function is to help cause distributive meanings, eliminating the collective reading.

On the assumption that the global distribution of extrinsic -tul would be more reliable, I try to associate its distributive meaning with a VP predicate, presenting it in the syntactic structure. For this, I propose that there is a functional category labeled ‘Distributive Phrase’ right on top of VP.

Some arguments against distributive reading

Researchers like C. Kim (2005) take a different view, claiming that the meaning of extrinsic plural marking cannot be appropriately captured by the standard D(istributive)-operator, underestimating its distributive reading. According to him, the denotation in (3.21) is too strong to accurately capture the distributive meaning associated with extrinsic -tul. More specifically, he argues that the denotation cannot account for the compatibility of extrinsic -tul with the collective adverb hamkkey ‘together’ in (3.26b), as opposed to English each.

(3.26) a. #The students together bought a balloon each.
    b. (ku) haksayng-tul-i hamkkey phungsen hana-lul-tul sa-ss-ta.
       that student-PL-NOM together balloon one-ACC-PL buy-PAST-DECL
       ‘(The) students together bought a balloon.’

   (C. Kim, 2005, p.133)

Moreover, he also points out that some collective predicates such as meet allow the presence of extrinsic -tul. In (3.27), the verb manna-ta ‘meet’ requires a plural subject, yielding a collective reading. The denotation in (3.21) predicts the sentence in (3.27a) to be semantically anomalous,
because it distributes the property of the VP ‘meeting in the library’ over each individual of the plural subject, interpreting the sentence in (3.27a) as (3.27b).

   Bill-and Mary-NOM library-LOC-PL meet-PAST-DECL
   ‘Bill and Mary met in the library’

b. #Bill-un tosekwan-eyse mann-ass-ko Mary-to tosekwan-eyse manna-ss-ta.
   Bill-TOP library-LOC meet-PAST-and Mary-even library-LOC meet-PAST-DECL
   ‘#Bill met in the library and Mary met in the library’

However, it is doubtful that the examples in (3.26) and (3.27) that C. Kim utilizes for his argument are true counterexamples undermining the function of extrinsic plural marking which induces the standard D-operator. First, the example in (3.26b) containing the collective adverb hamkkey is not acceptable for me, pace C. Kim’s judgment. Second, it has been argued that another interpretation is available for sentences like (3.23) where -tul co-occurs with a collective predicate (J. Park, 2009). J. Park (2009) suggests that there should be another type of distributive reading, which is different from distributivity of the kind observed in (3.27b) (i.e. argument distributive reading). As shown in (3.28), for example, there are at least two types of distributive reading, along with a collective reading, whose availability needs to be checked—namely, argument distributive and event distributive readings.
(3.28) Bill-kwa Mary-ka tosekan-eyse-*tul* manna-ss-ta.
Bill-and Mary-NOM library-LOC-PL meet-PAST-DECL
‘Bill and Mary met in the library’
(i) Collective: “Bill and Mary met each other in the library.” (X)
(ii) Argument distributive: “Bill and Mary each met somebody else.” (X)
(iii) Event distributive: “There was an event of Bill and Mary’s meeting each other and the event of their meeting was repeated more than once in the library” (√)
(J. Park, 2009, p.147)

While in (3.28) the collective reading is eliminated due to the use of extrinsic plural marking as predicted, the argument distributive reading in (3.28ii) is not available either. Nonetheless, the sentence is still judged grammatical. In order to explain the unexpected compatibility of extrinsic *-tul* with the collective predicate, J. Park (2009) argues that the *meeting-in-the-library* event takes place more than once, a kind of distributive reading which comes from the use of extrinsic *-tul*. Thus, it is the event distributive reading triggered by the extrinsic *-tul* that makes the sentence with the collective predicate in (3.28) grammatical, satisfying the semantic property of distributivity. To support his analysis, he argues that not all collective predicates allow the use of extrinsic *-tul*; only collective predicates having the ability to denote a plural event are compatible with *-tul*.

(3.29)
#Wuli pan haksayng-*tul-i* hakkyo-eyse kacang-*tul* khun gurwup-i-ess-ta.
Our class student-PL-NOM school-LOC most-PL big group-be-PAST-DECL
Lit. ‘The students in our class were the most big group’ (J. Park, 2009, p.146)
In sentence (3.29) where the syntactic condition is satisfied, the use of extrinsic -*tul* is not allowed since the collective predicate ‘group’ cannot denote a plural event.

Following J. Park’s analysis based on the fact that a distributive reading entails multiple occurrences of an event, we maintain the claim that extrinsic -*tul* marks distributivity, and confirm that its use triggers the distributive reading, eliminating the collective reading.

*The relation between distributive quantification and a plural subject*

As discussed above, the use of extrinsic plural marking triggering the distributive meaning always requires a plural subject. It has been suggested that distributive quantification should work on a contextually-relevant set denoted by a plural subject. von Fintel (1994) argues that quantifiers (including determiners and adverbial ones) have contextually-licensed resource domain variables to reduce the quantification domain.

(3.30) a. Everyone had a great game. (von Fintel, 1994, p.28)

   b. Every chicken laid three eggs last week. (Brisson, 1998, p.86)

In (3.30a), the universal quantifier is unlikely to refer to everyone on the world. We can interpret the sentence as ‘everyone of a specific group last night had a great time’. Likewise, in (3.30b), it is tenable to assume that the speaker refers to some contextually salient set of chickens, rather than denoting every chicken in the world. Thus, according to von Fintel (1994), there should be a resource domain variable such as C to restrict quantification to contextually-relevant subgroups of a plurality.
However, Brisson (1998) argues that the distributive quantification does not necessarily have the variable C, because it does not work in the same way as in the other determiner quantification in (3.30). Specifically, according to Brisson, “since distributive quantification is always over a definite plural, we already have a specific, contextually relevant set: the set that the definite plural refers to” (p.87). This claim amounts to saying that the presence of distributivity itself requires a definite plural without the help of a certain variable to reduce the domain of quantification.

Interestingly, this suggestion could be connected to the property of intrinsic plural marking. As suggested in Chapter 2, pluralized NPs with intrinsic -tul should refer to a specific plural entity.

(3.31) a. #haksayng-i ppali-tul kyosil-eyse nawa-ss-ta.
   student-NOM quickly-PL classroom-from come.out-PAST-DECL

b. haksayng-tul-i ppali-tul kyosil-eyse nawa-ss-ta.
   student-PL-NOM quickly-PL classroom-from come.out-PAST-DECL
   ‘Each of the students came out from the classroom quickly.’

The use of extrinsic -tul in these examples requires a referentially-plural subject, which can be obtained by adding intrinsic plural marking to haksayng ‘student’ (Hwang & Lardiere, 2013). Accordingly, our generalization that the use of extrinsic -tul triggers a distributive reading, along with the fact that the extrinsic plural marker requires a pluralized subject with intrinsic plural
marking, lends indirect support to the idea that the intrinsic plural marking correlates with specificity.

### 3.2.2.2. Other possible meanings

In contrast to traditional analyses claiming the distributive meaning of extrinsic -*tul*, An (2007a, 2007b) argues that it has a maximizing/exhaustive effect (like the English quantifier *all*). The following examples illustrate this issue.

(3.32) a. yehaksayng-tul-i   hoswu-ey   ttwietul-ess-ta.
girl student-PL-NOM    lake-in    jump-PAST-DECL
‘Some/The girls jumped in the lake.’

b. yehaksayng-tul-i   hoswu-ey-*tul*   ttwietul-ess-ta.
girl student-PL-NOM    lake-in-PL    jump-PAST-DECL
‘The girls *all* jumped in the lake.’ (An, 2007b, p.7)

She proposes that there is a clear meaning difference between (3.32a) and (3.32b). As for (3.32a) without -*tul*, it does not necessarily mean that all the girls jumped in the lake, whereas (3.32b) with -*tul* implies that all the girls in the discourse context set must participate in the jumping-in-the-lake event. However, according to my own intuition and that of several informants, (3.32b) is felicitously uttered even when there are some girls remaining who did not jump in the lake, as

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30 Based on this, it could be suggested that extrinsic plural marking involves uninterpretable [specificity] feature as well as [u-pl] feature (Hwang & Lardiere, 2013), which needs to be valued/deleted by the interpretable counterpart of intrinsic plural marking. However, the uninterpretable [specificity] feature of extrinsic -*tul* was not further developed and tested in this dissertation, so it remains for future study.
presented in (3.33). In this case, An’s claim that extrinsic -tul always contributes to a maximizing effect might be weakened.

(3.33) Scenario: There were 20 female students. 10 girls of them jumped in the lake.

Speaker A: yehaksayng-tul-i  

hoswu-ey-tul  

twietul-ess-ta.  

‘The girls all jumped in the lake.’

Unlike An’s maximizing effect suggesting that all the individuals who are relevant to the context of the sentence must participate in the action specified, Joh (2005) suggests a different kind of maximizing effect, claiming that extrinsic -tul consists of two semantic components: distributivity and maximality. Adopting J. Song (1997)’s suggestion that the position of extrinsic -tul causes a meaning difference, Joh argues that extrinsic -tul induces different semantic effects in terms of both distributivity and maximality according to where extrinsic -tul actually occurs within the VP. In line with local distribution, regarding the maximality effect she claims that extrinsic plural marking “indicates that, in this distribution, each individual denoted by the agent nominal must be exhausted” (p.177). Thus, according to her suggestion, what is obtained due to extrinsic -tul in (3.32b) is not that all the girls who are contextually relevant jumped in the lake, but that each girl who actually participated in the jumping event jumped in the lake with no exceptions. Let us consider another pair of examples (adapted from J. Song, 1997).
(3.34) a. ai-tul-i ppalli mul-(ul)-tul masi-ess-ta.
child-PL-NOM quickly water-ACC-PL drink-PAST-DECL
‘The children drank water quickly’

b. ai-tul-i ppalli-tul mul-ul masi-ess-ta.
child-PL-NOM quickly-PL water-ACC drink-PAST-DECL
‘The children drank water quickly’

Joh’s approach predicts that the salient interpretation arisen from (3.34b) where extrinsic -tul is marked on the adverb is as follows: ‘the children drank water and each of them who drank water did so quickly, with no exceptions’. As for the reading available from (3.34a) with extrinsic -tul attached to a direct object, it can be spelled out as ‘the children drank water and what each of them drank was water with no exceptions.’ Joh’s claim for the maximizing effect seems to be plausible, but as with the local distributive meaning, it might be difficult even for native speakers to get the subtle difference from (3.34) which is correlated with the element to which extrinsic -tul is attached.

Let us consider another example.

(3.35) haksayng-tul-un tosekwan-eyse yelsimhi-tul kongpuhay-ss-ta.
student-PL-TOP library-LOC hard-PL study-PAST-DECL
‘The students studied hard in the library’

The example in (3.35) can be interpreted as ‘the students studied in the library and each of them who studied did so hard with no exceptions’. Let us consider two possible situations with respect to the sentence as follows.
a. Scenario A: Kelly, Emily and Jodie are classmates, and they had a mid-term last Monday. On Sunday, they went to the school library. Kelly and Emily studied hard for 6 hours in the library, but Jodie studied little and chatted with her friend for several hours. (NO)

b. Scenario B: Kelly, Emily and Jodie are classmates. On Sunday, they went to the school library. Kelly and Emily went there to prepare for their mid-term, while Jodie went there to work. Kelly and Emily studied hard for 6 hours, and Jodie worked hard re-shelving books. (YES)

According to the local maximizing effect suggested by Joh, (3.35) cannot be felicitously uttered in the situation A, because there is an exception (Jodie) implying that not all the students who studied did so hard. On the other hand, (3.35) can be felicitously used in the situation B, since all the students who participated in the studying event studied hard with no exceptions. However, the native speakers I consulted could rarely tell the subtle difference in the maximizing effect between these two situations when judging the sentence in (3.35). For this reason, I did not test the maximizing effect in this dissertation (whatever the maximizing effect may be), because it is hard to ensure that extrinsic -tul triggers the maximality.

As discussed in Section 3.2.2.1, it has been suggested that the position of extrinsic plural marking is also related to the function of focus. J. Song (1997) argues that the occurrence of extrinsic plural marking is not random, suggesting that the position of extrinsic -tul is related to a focused element that the speaker wants to emphasize within a sentence. In other words, even if different speakers describe the same situation, they might attach -tul to different elements according to their intention.
In (3.37), the extrinsic *-tul is attached to the manner adverb, *culkepkey. According to J. Song, what the speaker intends to assert is the manner in which each of the children wanted to perform the activity, on the assumption that the hearer does not know how they wanted to sing a song with their friends. He argues that “the occurrence of extrinsic plural marking is far from random, but rather it is externally motivated by S’s intention to indicate what S wishes to assert” (p.222). Following his suggestion, the [focus] feature might be added to the extrinsic *-tul. However, L2 learners’ knowledge about the role as a focus particle was not tested in this dissertation due to the difficulty in designing appropriate tasks. Thus, the issue of focus is left aside in this dissertation and remains for further study.

In sum, regarding the semantic properties of extrinsic plural marking I would suggest, following the majority of the previous analyses, that the most apparent semantic property of extrinsic *-tul is a distributive reading, even though some researchers have attempted to argue against this claim (e.g., An, 2007a, 2007b).
3.2.3. Summary

In Section 3.1 and 3.2, I have presented the basic properties of extrinsic plural marking. To summarize what we have seen so far, it is generally assumed it must be c-commanded by a plural subject in a local domain. The properties that extrinsic -\textit{tul} has can be summarized as follows.

- It can be attached to various categories.
- It requires a plural subject in a c-command domain.
- It triggers a distributive reading over each member of the plural subject.

We have considered some features involved in the use of extrinsic -\textit{tul}. Based on the discussions provided above, it has been suggested that the following features are required for the use of extrinsic plural marking. It should be noted that the lexical feature composition of extrinsic -\textit{tul} involves an uninterpretable [plural] feature, which must be licensed by an interpretable [plural] feature on the subject\textsuperscript{31} (Yim, 2003), and the [distributive] feature for semantic meaning.

- [\textit{u-pl}]
- [\textit{distr}]

\textsuperscript{31} Since extrinsic -\textit{tul} requires a plural subject, it can be considered as an agreement marker. However, this study is not endorsing the agreement marker view, because some of its properties do not fit the properties of a canonical agreement marker (i.e. optionality and semantic effect). Nevertheless, this view does not argue that Korean does not have an agreement marker, because other types of agreement marker (e.g. sentence final particles) have been observed in Korean by other researchers (e.g., Pak, Portner, & Zanuttini, 2008).
3.3. Feature-based analysis of extrinsic plural marking

In this section, I offer some proposals to capture the syntactic and semantic properties of extrinsic -tul discussed so far. The uninterpretable features are valued and deleted by the operation Agree. I propose that extrinsic -tul must establish Agree relations between a head in DistrP and the plural subject to make their features valued.

With respect to Agree, in Section 3.2.1 we have shown that the most restrictive version of Agree cannot adequately account for sentences with extrinsic plural marking. As shown in (2.66) in Chapter 2 repeated here as (3.38), I assume that Agree may take place between a higher interpretable and a lower uninterpretable feature, and an uninterpretable feature on one element is enough to establish an Agree relation.

(3.38) X…………Y
       [IF]       [uF]

Baker (2008a) suggests that the probe does not need to be the c-commanding element, and argues that the directionality of Agree is parameterized at a whole-language level. Thus, since a direction applies to a language as a whole, as in intrinsic plural marking, I assume the “upward” direction of Agree can account for examples with extrinsic plural marking in a more consistent way. Discussion about the “upward” direction has mainly revolved around Bantu languages (Baker, 2008a; Diercks, 2010), and to the best of my knowledge there have not been any studies suggesting the “upward” direction for Korean. Thus, this study contributes to the theoretical literature as the first study that hypothesizes the “upward” direction in Korean, even though I
cannot completely exclude the possibility of some unforeseen theoretical consequences that this assumption might cause.

I propose that the distributive feature heads its own functional projection, DistrP, the head of which establishes an Agree relation with extrinsic plural marking. The postulation of this category is not entirely novel. In fact, several researchers have tried to capture distributivity syntactically. For example, Brisson (2003) postulates two separate heads within the VP (aspectual head and lexical head) to make a room for the insertion of the D(istributive)-operator (see (2.16) in Chapter 2). Beghelli and Stowell (1997) also propose Distributive Phrase (DistP) where a D(istributive)-operator resides, and assume that distributive-universal quantifiers such as every and each undergo movement to Spec of DistP and participate in Spec-head agreement with its head Dist to check their [+distr] features.

Regarding the position of DistrP, I assume that the DistrP is located above VP following the analysis of the standard D-operator functioning on the whole VP. This assumption is based on the observation that a whole VP is distributed over the individual members of a plural subject regardless of the position of -tul within the VP, as discussed in Section 3.2.2.1. Since the presence of extrinsic plural marking reflects the distributive reading of an entire VP, I assume that the Distr head of the functional category has interpretable features, while the -tul itself bears uninterpretable ones, which needs to be deleted/valued before LF. Accordingly, if it were used in the non-distributive context, the sentence with -tul would not be acceptable as its uninterpretable feature cannot be deleted.

In addition, we need to consider the flexible positions of -tul within a sentence. I propose a μ Phrase as a place where -tul can be situated, which is adjoined to a phrasal category. Since
extrinsic -tul can be attached to any type of phrasal category, the adjoined phrase is indicated as XP.

Based on these assumptions, I proposed a syntactic structure for extrinsic plural marking, which is given in (3.39)\textsuperscript{32}.

\begin{equation}
(3.39) \quad \begin{array}{c}
\text{vP} \\
\text{DP} \\
\text{[pl]} \\
\text{DistrP} \\
\text{v'} \\
\text{v} \\
\text{[distr]} \\
\text{XP} \\
\mu P \\
\mu \\
\text{[u-pl]} \\
\text{[u-distr]} \\
\text{-tul}
\end{array}
\end{equation}

Since I assume that the [pl] and [distr] features in \( \mu \) are uninterpretable, they must be valued (and deleted) by entering into an Agree relationship. The uninterpretable [pl] feature in the \( \mu \) head must establish an Agree relation with the interpretable counterpart in the plural subject, while the uninterpretable [distr] feature in \( \mu \) must do so with the interpretable counterpart in the Distr head. The Vocabulary Item -tul in (3.39) is inserted into \( \mu \) after the uninterpretable features are deleted before LF.

\textsuperscript{32} This idea that a phrase for extrinsic -tul is adjoined to any category that it is attached to was adopted from C. Kim (2005), even though he basically assumes that extrinsic -tul is combined with a bound variable anaphor rather than associating it with distributivity.
Consider (3.40a) and its derivation in (3.40b) (The operation occurs on abstract features; phonological forms are shown for clarity).

(3.40)

a. ai-tul-i yelsimhi-\textit{tul} kongpuhay-ss-ta.
child-PL-NOM hard-PL study-PAST-DECL
‘The children studied hard’

b.

\[\begin{array}{c}
\text{TP} \\
\text{vP} \\
\text{DP} \\
\text{[pl]} \\
\text{ai-tul-i} \\
\text{VP} \\
\text{AdvP} \\
\text{yelsimhi} \\
\text{μP} \\
\text{V} \\
\text{μ'} \\
\text{μ} \\
\text{kongpuhay-} \\
\text{[μ-pl]} \\
\text{[μ-distr]} \\
\text{-tul} \\
\end{array}\]

In this structure, the pluralized subject could be the element that can delete the uninterpretable [pl] feature, because it e-commands the μ head and involves an interpretable [pl] feature. Thus, the interpretable [pl] feature in DP and uninterpretable [pl] feature in μ enter into an Agree relationship. Likewise, the uninterpretable [distr] feature in μ can be deleted by the interpretable
counterpart in the head of DistrP. Post-syntactically, the Vocabulary Item \(-tul\) is inserted into the \(\mu\).

The same mechanism can apply to the following example where the extrinsic \(-tul\) co-occurs with an object.

(3.41)
a. haksayng-tul-i mul-tul masi-ess-ta.
   student-PL-NOM water-PL drink-PAST-DECL
   ‘The students drank water’

b.  

\[
\begin{array}{c}
\text{TP} \\
\text{vP} \\
\text{T} \\
\text{DP} \\
\quad \text{[pl]} \\
\quad \text{ai-tul-i} \\
\quad \text{VP} \\
\quad \quad \quad \text{DistrP} \\
\quad \quad \quad \quad \quad \text{v'} \\
\quad \quad \quad \quad \quad \text{ess-ta} \\
\quad \quad \quad \quad \text{v} \\
\quad \quad \text{Distr} \\
\quad \quad \text{V'} \\
\quad \quad \quad \quad \quad [\text{distr}] \\
\quad \quad \quad \quad \text{V} \\
\quad \quad \text{DP} \\
\quad \quad \quad \text{[u-pl]} \\
\quad \quad \quad \text{[u-distr]} \\
\quad \quad \quad \mu \\
\quad \quad \quad \mu' \\
\quad \quad \quad \mu \\
\quad \quad \text{mul} \\
\end{array}
\]
In example (3.41a), extrinsic -tur is attached to the object of the sentence. As in the previous example, μP is adjoined to the object DP, and the uninterpretable [pl] feature is valued by the interpretable [pl] feature in the subject DP as they enter into an Agree relationship. The interpretable [distr] feature in the Distr head values the uninterpretable counterpart in μ. Let us consider another example containing extrinsic -tur attached to a complementizer -ko.
3.42
a. salam-tul-i [i kos-i yumyengha-ta-ko]-tul ha-n-ta.
   person-PL-NOM [this place-NOM be.famous-DEC-COMP]-PL say-PRES-DECL
   ‘People say that this place is famous’
b. 

3.4. Corpus data containing extrinsic plural marking

For extrinsic plural marking, since this type of -tul is not generally instructed in a classroom, it is likely that the naturalistic input outside classroom would be the sole input L2 learners have
experienced\textsuperscript{33}. Thus, it would be worthwhile to demonstrate that it actually exists in the input L2 learners have been hearing in naturalistic environment. We can predict that it would be a very difficult task for L2 learners if extrinsic -\textit{tul} is infrequently used, even if they have been exposed to considerable naturalistic spoken input.

As mentioned earlier, extrinsic -\textit{tul} frequently occurs in colloquial contexts such as imperatives, interrogatives, and exhortatives, where an overt subject is usually absent (S. Song, 1988; C. Kim, 2005). This fact can be associated with its pragmatic use related to intimacy with hearers or social hierarchy between a speaker and hearer. For example, since it is frequently used in imperatives or questions, it can be naturally produced by a speaker who may be higher on a hierarchical status than the hearer (e.g. a teacher speaking to her students). In addition, when a speaker intends to express intimacy with hearers in an informal situation, its use should be felicitous and natural. This study did not investigate whether the learners have acquired the pragmatic use, but it is necessary information for the production of extrinsic plural marking in a felicitous situation.

In this section, I will investigate how much input for extrinsic plural marking exists in reality, by examining a TV drama series as well as a large corpus.

3.4.1. Intrinsic -\textit{tul} vs. Extrinsic -\textit{tul}

In order to investigate whether the use of extrinsic plural marking is infrequent, -\textit{tul} has been searched from the Sejong corpus, using used the KKMA system designed for web-based application (http://kkma-sc.snu.ac.kr/), which is a tool for utilizing the Sejong corpus. 197,197

\textsuperscript{33} I found a textbook including a short note on extrinsic plural marking. This issue will be addressed in Chapter 7.
written and 9,641 spoken instances were found. In order to randomly extract some of the instances including the -*tul* affix, I used web page numbers, which were set for one page having 100 cases. For example, for spoken data, 97 page numbers (96 pages for 100 cases, and 1 page for 41 cases) were available. In order to select 1,000 instances, I randomly clicked on 10 page numbers out of 96, and printed them out. The same process was performed for written data. Then, whether -*tul* was used intrinsically or extrinsically was determined manually. In other words, two types of -*tul* were manually identified in a collection of 2,000 corpus-extracted sentences, 1,000 from written language and 1,000 from spoken language. I compared spoken data with written data to see the contexts in which extrinsic -*tul* was more frequently used. Table 3.1 displays the overall distribution of two types of -*tul* in both written and spoken corpus data.

<table>
<thead>
<tr>
<th></th>
<th>Intrinsic -<em>tul</em></th>
<th>Extrinsic -<em>tul</em></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written</td>
<td>995 (99.5%)</td>
<td>5 (0.5%)</td>
<td>1000</td>
</tr>
<tr>
<td>Spoken</td>
<td>967 (96.7%)</td>
<td>33 (3.3%)</td>
<td>1000</td>
</tr>
<tr>
<td>Total</td>
<td>1962 (98.1%)</td>
<td>38 (1.9%)</td>
<td>2000</td>
</tr>
</tbody>
</table>

The results indicate that the use of extrinsic -*tul* is infrequent compared to that of intrinsic -*tul* in both written and spoken data (0.5% vs. 99.5% for written data; 3.3% vs. 96.7% for spoken data). The results also show that extrinsic -*tul* is more frequently used in spoken language than in written language (33 tokens in spoken data vs. 5 tokens in written data). C.-E. Kim (2012) also searched the Sejong corpus, and found a similar result (39 tokens in spoken data vs. 8 tokens in
written data), suggesting that extrinsic -tul is extremely infrequent in both spoken and written language in Korean. Even though it cannot be concluded that the use of extrinsic -tul is frequent in Korean input, the corpus data at least confirm that it actually occurs in real data. In the following section, the issue of frequency for extrinsic plural marking is examined in colloquial informal speech by examining the transcripts of TV drama.

### 3.4.2. TV drama

Although we have shown that extrinsic -tul is rarely used in the input, whether it is enough for acquisition should be investigated. Regarding the issue about how much input is necessary to acquire a specific structure in L1 acquisition, Legate and Yang (2002) explored 11214 adult sentences in CHILDES. In order to get the frequency required for the setting of the subject-drop parameter, they counted the frequency of there-type expletive sentences, and found that the criterial percentage was around 1.2 (140/11214).

Based on this criterion (even though it is for L1 acquisition), if we demonstrate the input frequency of extrinsic -tul is over 1.2 percent in corpus data, we can suggest that the input is sufficient for successful acquisition. Given this, I also collected some data from a TV drama that is assumed to reflect real-world data (Tagliamonte & Roberts, 2005). The TV drama I used here The glory of a family consists of 50 episodes, and aired on Seoul Broadcasting System from October 2008 to April 2009. I used unofficial transcripts, which were available on the Internet. The transcripts comprise approximately 50 hours of data, 194252 words and 38403 sentences.

---

34 C.-E. Kim (2012) examined all data in the Sejong corpus, but identified only the instances of -tul attached to a case marker (e.g. haksayng-eykey-tul ‘student-DAT-EPM’, swukcey-lul-tul ‘homework-ACC-EPM’).

35 C.-E. Kim (2012) examined the L1 acquisition of extrinsic plural marking. In Chapter 4, the difficulty of its acquisition will be discussed referring to the results of Kim’s study.
found 1682 instances containing -tul, and I manually determined whether it was intrinsic or extrinsic. Table 3.2 shows the frequency differences regarding two types of plural marking.

Table 3.2  Frequency differences between two types of -tul based on TV drama data

<table>
<thead>
<tr>
<th></th>
<th>Intrinsic -tul</th>
<th>Extrinsic -tul</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Num. of occurrences</td>
<td>1396 (83.0%)</td>
<td>286 (17.0%)</td>
<td>1682</td>
</tr>
<tr>
<td>Percentage based on total number of sentences (38403)</td>
<td>3.63%</td>
<td>0.74%</td>
<td>4.34%</td>
</tr>
</tbody>
</table>

In line with the analysis of the data from Sejong corpus, the results show that the use of intrinsic plural marking is predominant, accounting for around 83% of the instances. Table 3.2 also indicates the percentage of each type of plural marking based on the total number of all sentences in TV corpus. The instances containing intrinsic -tul occur in about 3.6% of the total sentences, while the ones containing extrinsic -tul are less than 1%. Based on these findings, we could suggest that input for intrinsic plural marking is sufficient for L2 learners to acquire it. On the other hand, it would be difficult to conclude for extrinsic -tul that it can be acquired within a short period of time, because the percentage does not reach the criterial threshold of 1.2% for successful acquisition that Legate and Yang (2003) suggested. However, I would argue that this result does not mean that successful acquisition is not ultimately possible, but it would be predicted to be much more difficult than the one of intrinsic -tul and thus delayed until the end stage of L2 development.

In addition, I also analyzed the data to determine which elements extrinsic -tul frequently attaches to, because this could affect the order of acquisition depending on the elements. Since L2 learners may not be aware that the extrinsic plural marking can be attached to
various non-nominal elements, the most frequent element may be acquired earlier than other elements. I distinguished 14 categories to analyze the data including the eight categories adopted from J. Song (1997), which were presented in Section 3.1. The categories are presented below and illustrated with examples from the TV drama data, except the category of indirect object nominals, where no examples are found.

1. Direct object nominals
cemsim-tul tu-siy-ss-eyo?
lunch-PL eat(HON)-HON-PAST-INT
‘Did you all have lunch?’

2. Indirect object nominals
person-PL-NOM the child-DAT-PL money-ACC give-PAST-DECL
‘People gave the child money’ (J. Song, 1997, p.209)

3. Oblique nominal
way yeki-se-tul ca?
why here-LOC-PL sleep?
‘Why are you sleeping here?’

4. Adverbs
ese-tul tule-yo.
please-PL eat(HON)-IMP
‘Please eat’
5. Wh-words
eti-tul ka-se-yo?
where-PL go-HON-INT
‘Where are you going?’

6. Verb (conjunctive device)
mence tul-e-tul ka-kera.
first enter-CONJ-PL go-IMP
‘Go home first’

7. Adjective (conjunctive device)
coa-se-tul kure-si-n kecan-a?
good-CONJ-PL behave like that-HON-PAST GERUND-INT?
‘Did (they) behave like that because they felt good?’

8. Illocutionary markers
anc-a-tul.
sit-IMP-PL
‘Have a seat’

9. Compound verb: One of the compound verb types is adverb + verb. The verb hata ‘do’ is frequently combined with an adverb to create a compound verb (Sohn, 1999), and the extrinsic plural marking can host the adverb.
coyonghi-tul com hay-la.
quiet-PL please do-IMP
‘Please be quiet’
10. Compound adjectives; The compound adjectives consist of a noun and an adjective. The noun could be either a free or a bound noun, and the most frequently used adjective is *hata* ‘be’ (Sohn, 1999). The extrinsic plural marking is attached to the noun.

`taytan-tul  ha-si-pnita.`  
*great-PL  be-HON-DECL*

‘(You) are great’

11. Auxiliary construction; The auxiliary verbs add additional meaning to main clause predicates that follow the infinitive suffix -e/-a (Sohn, 1999). The extrinsic plural marking is attached to immediately after the suffix in the auxiliary construction.

`yel-e-tul  pwa.`  
*open-CONJ-PL  AUX(experience.try)*

‘Try to open (it)’

12. Verbal noun; The Sino-Korean words exhibiting verbal properties function as a verb by combining with a light verb *hata*. The extrinsic plural marking can be attached to the verbal nouns.

`cikum  thoykun-tul  ha-sey-yo?`  
*now  leave work-PL  do-HON-INT*

‘Are (you all) leaving now?’

13. Embedded CP; The extrinsic plural marking can be attached to embedded clauses.

`ce  katun  ai  silta-ko-tul  ha-sey-yo?`  
*me  like  kid  hate-COMP-PL  say-HON-INT*

‘Did (they) say that (they) hate a kid like me?’
14. Idiomatic expression; There are some Korean idiomatic expressions are sentences as themselves, and also predicates of a whole sentence. The extrinsic -tul can be attached to the subject part of the idiomatic expression.

mwenka kkwungkkwungi-tul-i iss-e.
something secret design-PL-NOM have-DECL
‘(Somebody) has something secret behind the scene’

Table 3.3 shows the distribution of frequency of elements, which attach to extrinsic -tul.

<table>
<thead>
<tr>
<th></th>
<th>Number of occurrences</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. direct object nominals</td>
<td>24</td>
<td>8.39%</td>
</tr>
<tr>
<td>2. indirect object nominals</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>3. oblique nominals</td>
<td>3</td>
<td>1.04%</td>
</tr>
<tr>
<td>4. adverb</td>
<td>117</td>
<td>40.9%</td>
</tr>
<tr>
<td>5. wh-words</td>
<td>28</td>
<td>9.79%</td>
</tr>
<tr>
<td>6. verb (conjunctive device)</td>
<td>22</td>
<td>7.69%</td>
</tr>
<tr>
<td>7. adjective (conjunctive device)</td>
<td>1</td>
<td>0.34%</td>
</tr>
<tr>
<td>8. illocutionary markers</td>
<td>4</td>
<td>1.39%</td>
</tr>
<tr>
<td>9. compound verb</td>
<td>19</td>
<td>6.64%</td>
</tr>
<tr>
<td>10. compound adjective</td>
<td>3</td>
<td>1.04%</td>
</tr>
<tr>
<td>11. auxiliary construction</td>
<td>5</td>
<td>1.74%</td>
</tr>
<tr>
<td>12. verbal noun</td>
<td>38</td>
<td>13.28%</td>
</tr>
<tr>
<td>13. embedded CP</td>
<td>12</td>
<td>4.19%</td>
</tr>
<tr>
<td>14. idiomatic expression</td>
<td>10</td>
<td>3.49%</td>
</tr>
<tr>
<td>Total</td>
<td>286</td>
<td>100%</td>
</tr>
</tbody>
</table>

As seen in Table 3.3, the most frequent element is adverbs, which account for approximately 40%
of the total number of occurrence, followed by verbal nouns and \textit{wh}-words. Accordingly, the developmental order of acquisition could be different. Based on these findings, it could be predicted that \textit{-tul}-marking on adverbs can be acquired earlier than on other elements. In other words, L2 learners should be first aware of the use of extrinsic plural marking with adverbs, and gradually relax the initial distributional bias of the adverbs as they extend its use to other non-nominal elements.

In order to investigate whether extrinsic \textit{-tul} is ultimately acquirable, the present study requires participants to be exposed to naturalistic spoken input or immersed in a Korean-speaking environment, predicting that L2 learners could benefit from a high degree of exposure to the target language (The correlation between learners’ length of stay and performance will be discussed in Section 7.2.3 in Chapter 7).

3.4.3. Summary for corpus data

This section has provided the distributional properties of extrinsic plural marking, examining the elements with which it is frequently used in a large corpus. The findings from the corpus analysis could help us account for L2 learners’ behavior regarding plural marking, because the error or frequency patterns in L2 learners’ data could reflect frequencies in appropriate native speakers’ corpora.

Concerning extrinsic plural marking, English-speaking learners of Korean face the difficult task of identifying its correct form and mapping it onto its appropriate meaning and function. The task should be greatly complicated by its lack of structural congruity, because the plural marker is attached to non-nominal elements, which cannot be pluralized in the L1. Moreover, its frequency is significantly lower than intrinsic plural marking \textit{-tul}. The data from
TV drama indicated that the occurrence of extrinsic -tul accounts for around 0.74% of the total number of sentences in the data. Since it turned out that its frequency is so low, it is predicted that acquisition of extrinsic -tul would be delayed until very advanced stages of L2 development. In addition, we have shown that the elements to which the extrinsic plural marking is attached showed different frequencies. Given this, there might be a developmental order of acquisition according to the elements, suggesting that L2 learners would gradually extend its use on various elements.

### 3.5. Summary

This chapter has examined the properties of Korean extrinsic plural marking, and identified the features required for its use: [u-pl] and [distr]. I have shown that its presence not only requires a plural subject, but also reflects the distributive reading of a sentence. For the [u-pl] feature regarding a syntactic licensing condition, a plural subject must c-command a constituent with extrinsic -tul, valuing its uninterpretable [pl] feature. For the [distr] feature, on the other hand, I assume that what is distributed is a whole VP, rather than the local elements bearing -tul. Based on this observation, I proposed a Distributive Phrase immediately on top of VP, and the interpretable feature in the head of DistrP values the uninterpretable one in μ, where the Vocabulary Item -tul is inserted.

For the learning problems with respect to extrinsic plural marking, English-speaking learners are required to extend the use of -tul to various non-nominal elements, recruiting features that are situated on completely different morpholexical items in the L1. Since extrinsic -tul occurs much less frequent rate in the input than intrinsic one, it would be predicted that its complete acquisition could be delayed until very advanced stages of L2 development. In the
following chapter, I will present L2 approaches to the question of ultimate attainment, reviewing some previous empirical studies. I will also examine the learning problems L2 learners would face in terms of a feature-based approach, and whether the acquisition of Korean plural marking is ultimately possible.
Chapter 4
L2 approaches to ultimate attainment

The goal of this dissertation is to investigate the extent to which English-speaking learners of Korean can acquire Korean plural marking, and whether the native-like attainment of such morphosyntactic knowledge is ultimately possible. This chapter examines some previous discussions about the ultimate status of L2 acquisition, examining them to find the most appropriate tools to model possible L2 learning problems caused by the observed differences between the plural lexical items in English and Korean.

Regarding ultimate attainment in SLA, some studies have shown that adult L2 learners often fail to attain nativelike competence in morphosyntax (e.g. Johnson & Newport, 1989; DeKeyser, 2000; Hyltenstam & Abrahamsson, 2000). Assuming L2 grammar is constrained by UG, one explanation is that the operation of UG does not work in the same way for learners after a maturational critical age as it does for native speakers, negatively affecting L2 acquisition (Bley-Vroman, 2009). On the other hand, some studies have shown that many L2 learners have attained native-like knowledge of complicated grammar structures (e.g. White & Genesis, 1996; Montrul & Slabakova, 2003), casting doubt on the Critical Period Hypothesis. Given the coexistence of unsuccessful and successful cases among adult learners, we might question what negatively affects adult L2 acquisition, and conversely how those successful cases arise. In fact, recent investigations have often focused on identifying the specific linguistic factors that are strongly related to persistent learning problems in adult SLA, rather than considering UG as a whole. Assuming an L1 influence on L2 grammars among those linguistic factors, some L2 approaches have considered that morphosyntactic features play a prominent role in the outcome.
of morphosyntactic L2 development (e.g. Hawkins & Hattori, 2006; Tsimpli & Dimitrakopoulou, 2007; Lardiere, 2008, 2009).

In Chapter 2 and 3, we have shown that the Korean lexical items for plurality are assembled with different features than their English equivalent, or the required features are situated on a completely different morpholexical item in the L1. Given the cross-linguistic differences of this feature-driven analysis, this dissertation investigates the extent to which English-speaking learners are able to acquire the correct distribution of relevant features associated with intrinsic and extrinsic -tul plural marking, and the features with which even highly advanced learners have persistent difficulties.

The organization of this chapter is as follows. In Section 4.1, I will provide overviews of some L2 approaches to ultimate attainment, showing what these approaches predict for L2 acquisition based on some previous empirical studies. I will also briefly suggest how these approaches can be applied to the acquisition of Korean plural marking, and assess the efficacy of each approach in predicting the acquisition of the observed differences between plural lexical items in the L1 and L2. This dissertation ultimately adopts a feature-based approach to provide a useful framework to account for the sources of learning problems with respect to Korean plural marking. Section 4.2 presents a discussion of some previous studies on the acquisition of Korean plural marking. Based on the feature-reassembly approach, Section 4.3 provides a developmental path that English-speaking learners are predicted to follow through various developing stages while acquiring Korean plural marking, discussing whether this morphosyntactic knowledge is attainable by learners. Section 4.4 summarizes and concludes this chapter.
4.1. L2 approaches to ultimate attainment

This section will consider some L2 approaches that suggest that some specific linguistic modules may cause persistent learning problems, and other approaches that claim nevertheless that adult L2 acquisition could be successful in principle. In order to find an approach that best accounts for the learning problems regarding Korean plural marking, these divergent L2 approaches will be discussed and examined giving detailed consideration to some previous empirical studies.

4.1.1. The role of UG in SLA

It is widely assumed that L1 learners are equipped with rich and abstract knowledge of their native language that goes well beyond what is observable in the input (e.g., knowledge of subejacency violations) within a short time, posing a learnability problem known as the poverty of the stimulus (henceforth, POS). According to Chomsky (Chomsky, 1981), such abstract knowledge, which constitutes domain-specific principles of UG, is not learned because human brains are innately predisposed to represent such grammatical knowledge. Thus, the uniform success of L1 acquisition in typically developing children can only be accounted for by the fact that UG is actively involved in primary language acquisition.

For L2 acquisition, previous L2 studies within generative grammar framework have investigated whether L2 acquisition is constrained by UG as in L1 acquisition, seeking evidence for similarities between L1 and L2 acquisition. To answer this question, some L2 researchers have investigated whether or not L2 learners have abstract knowledge which could not be derived either from properties of the learners’ L1 or the input (e.g., Martohardjono, 1993; Dekydtspotter, Sprouse, & Anderson, 1997). For example, Martohardjono (1993) tested three different L1 learner groups (Chinese, Indonesian, and Italian) on wh-movement constraints and
found that the three groups, regardless of their L1, showed knowledge of the distinction between strong vs. weak violations of grammatical principles, indicating that non-native language development is constrained by the principles of UG. However, explanatory problems arose as syntactic theory evolved because the notions Martohardjono used, such as the Empty Category Principle (ECP), are not needed anymore in the Minimalist framework. With respect to this, Schwartz and Sprouse (2000) argue that despite the shifts in syntactic theories, Martohardjono identified a clear-cut POS phenomenon that can serve as evidence for UG access in SLA, and the conceptual point raised by her tests remains the same. According to Schwartz and Sprouse, investigating POS phenomena is the only way to argue for UG access in SLA despite the evolution of syntactic theories.

On the other hand, Hawkins (2001) argues that although the POS-oriented studies play an important role in establishing the involvement of UG in L2 grammar, they fail to provide the most compelling evidence for the UG-derived L2 grammar. Bley-Vroman (1990, 2009) argues that it is also necessary to account for the differences between L1 and L2 acquisition because the two kinds of acquisition are obviously different in many aspects, including the lack of uniformly successful outcomes in L2 acquisition. Based on this, Hawkins (2001) suggests that L2 studies should explain the differences found between L1 and L2 acquisition, focusing on how the interaction of UG with other components (or certain components of UG) changes beyond childhood.

In Minimalism, as Jackendoff (2005) states, the rich and highly articulated UG concept of the language faculty has been eliminated. As mentioned in previous chapters, the “varied and intricate conditions” (Chomsky, 2005) can be accounted for by the language-specific selection of features from the universal inventory (i.e., the presence or absence of a particular feature) and/or
different combinations of features into lexical items in functional categories. As Chomsky (2005) argues, as the fine-grained differences between languages have exploded in the evolution of the theory, the innate biological capacity of the faculty of language could not be contemplated. In other words, it is unlikely that all the differences between languages are built in the human biological system, because if acquisition is a matter of selection among options provided by UG, the number of options should be small (Chomsky, 2005). In this vein, the rich concept of UG has been shifted to a vision, which sparsely involves a linguistically genetic endowment (Bley-Vroman, 2009, p.182). Given this change, Bley-Vroman (209) argues that “a theory of UG can be developed in which all one needs to say is that language maps between sound and meaning, that elements from a lexicon can be combined, that units can combine recursively to form larger units, and that there is some sort of displacement property that accounts for movement” (p.182).

In order to resolve the tension between descriptive and explanatory adequacy for optimal learnability, Chomsky (2005) assumes that “acquisition is a parameter setting and divorced entirely from the remaining format for grammar: the principles of UG” (p.8), minimizing the role of the genetic endowment. Accordingly, the burden of explaining language acquisition has been replaced with language-independent principles of data processing, structural architecture, and computational efficacy (Chomsky, 2005, p.9).

As mentioned in Chapters 2 and 3, some formal features that are part of UG are assembled in plural lexical items. For successful L2 acquisition of Korean plural marking, it can be determined by whether access to the universal inventory of features is still available to L2 learners, and whether they can assemble the features into language-specific plural lexical items. Based on the discussions presented above, the acquisition of features, categories and constraints of particular languages can be accounted for by the language-independent mechanisms of data
processing and computational efficiency (Lardiere, 2012, p.110). The elimination of linguistic-specific principles necessitates the explanation of differences between L1 and L2 acquisition, due to the unreliable and non-convergent outcomes of L2 acquisition (Bley-Vroman, 2009). As Bley-Vroman notes, the non-domain-specific principles of the language faculty does not mean that a linguistic module does not exist. Thus, with respect to non-native-like L2 acquisition, SLA research has paid attention to an isolated linguistic module which could cause persistent L2 problems, on the assumption that other aspects of UG remain intact in adult L2 acquisition. The following section will consider this issue.

4.1.2. L2 approaches based on specific linguistic modules

Due to these incongruous results about ultimate attainment mentioned above, recently the issue about whether or not L2 learners have access to a rich UG has not been discussed in a way pursuing a categorical yes/no answer (Montrul & Slabakova, 2003). Instead, fine-grained analyses about some specific linguistic modules have been pursued as suggested below.

SLA researchers working within the generative framework have begun to explore the possibility that, because language is not a monolithic phenomenon but has a modular structure composed of a lexicon, a set of formal features, a universal computational system, different interacting modules, and interfaces (Chomsky, 1995), validity and apparent incompleteness in L2 acquisition could be explained if there existed multiple critical or sensitive periods….In recent years, efforts have been made to isolate precisely which linguistic modules, submodules, features, or interface areas are affected, how, and why.

(Montrul & Slabakova, 2003, p.354)

In line with this claim, L2 researchers have looked to determine specific linguistic areas that may
cause L2 learning problems. This subsection provides a brief sketch of these approaches.

For example, morphosyntactic features have been considered a candidate for the source of persistent L2 learning problems. It is hypothesized that UG makes available a set of features and each language selects a subset of those features, which are assembled into lexical items (Chomsky, 2000). The role of formal features has been especially emphasized in generative L2 research, since they are the most valid primitive units used to account for language variation, and are at the heart of Chomskyan syntactic theory (Liceras, et al., 2008). As mentioned in Chapter 1, thus, parametric variation between two languages may arise due to different selections of features, and different assembly of the selected features into lexical items. Accordingly, for successful language acquisition, learners are not only required to select the new features of the target language, but also determine how the selected features are assembled into lexical items in the target language as presented in (4.1).

(4.1) Language acquisition = (Feature selection + Feature assembly)

Feature Selection: F ----CHL------→ [FL1]
Feature Assembly: [F L1] ------→ [LexL1] (Dominguez, et al., 2011)

Based on these processes, generative L2 research has developed two different views. Some researchers argue that adult L2 learners fail in the selection of formal features that are not selected in their L1 if they are exposed to the L2 after a critical period. This idea has been referred to as the Failed Functional Features Hypothesis (Hawkins & Chan, 1997). In the same vein, as syntactic theory has evolved the [±-interpretable] contrast was taken up by various researchers, and the different role of these two types of features has been the focus of their
studies. According to them, only uninterpretable features (which are not selected in learners’ native language) are permanently discarded, even though all other UG resources are still accessible, so those uninterpretable features will be a source for non-convergent L2 acquisition. This idea is called the Representational Deficit Hypothesis (Hawkins, 2005; Hawkins & Liszka, 2003), or the Interpretability Hypothesis (Hawkins & Hattori, 2006; Tsimpli & Dimitrakoupoulou, 2007). In sum, these approaches clearly support the Critical Period Hypothesis based on the selection of parameterized formal features, suggesting that the ultimate attainment of unselected features is not possible for late learners.

On the other hand, there is another feature-based approach that does not support the CPH, which suggests that ultimate attainment of L2 morphosyntactic knowledge is possible in principle. The feature-reassembly approach (Lardiere, 2008, 2009) suggests that the difference in featural configurations of L2 lexical items or functional categories from their L1 counterparts is the source of L2 learning problem. Under this view, since L2 learners bring their established L1 lexical items and functional categories with certain feature arrangements to the L2 learning task, it is necessary to remap or reconfigure these features onto lexical items in the L2, but ultimate acquisition is attainable. This hypothesis is built on the Full Transfer/Full Access hypothesis proposed by Schwartz and Sprouse (1996), which states that L2 learners’ native language constitutes the initial state of L2 learning, and restructuring a target grammar is attainable on the basis of positive evidence even though they suggest that fossilization will occur when positive evidence is not sufficient to restructure the learners’ initial grammar. These approaches assume transfer of features from the L1 in initial stages, but predict developmental changes in the interlanguage grammar in response to properties of the L2 input.

There have been some other approaches proposing that other specific parts of linguistic
modules may cause L2 learning problems even for very advanced or near-native learners, rather than focusing on L1 influence. An approach, based on the Feature Reassembly model, argues that inflectional morphology remains problematic for even advanced learners, while other linguistic modules such as semantics follow smoothly once the associated morphology has been acquired. This is called the *Bottleneck Hypothesis* (Slabakova, 2006, 2008, 2009), suggesting that inflectional morphology is the “bottleneck” of L2 acquisition.

Some researchers argue that target structures involving an interface with respect to multiple linguistic domains are problematic, while other structures involving only narrow syntactic properties do not cause any problems. In other words, the narrow syntactic properties can be fully acquired but L2 learners cannot attain native-like representation of structures involving an interface with another domain, particularly an extragrammatical one. This proposal has been called the *Interface Hypothesis* (Sorace, 2011; Sorace & Filiaci, 2006).

Given the approaches to the challenge of L2 acquisition based on specific linguistic modules, in the following subsections we will discuss the conceptual and empirical arguments of these approaches in more detail, and how they can be applied to the acquisition of Korean plural marking.

### 4.1.2.1. The Interface Hypothesis

Sorace (2005) claims that purely syntactic properties involving uninterpretable features can be acquired in L2 grammars, in contrast to the Interpretability Hypothesis, while language structures involving the syntax-discourse interface are problematic for L2 learners. Based on this claim, Sorace and her colleagues put forward the Interface Hypothesis (Sorace & Filiaci, 2006; Sorace, 2011), which suggests that endstate L2 learners have a persistent problem with extragrammatical
interfaces such as contextual discourse with the syntax, while narrow syntactic properties with respect to functional morphology can be fully acquired. Let us consider an empirical study supporting the Interface Hypothesis.

Sorace and Filiaci (2006) examined L2 acquisition of Italian pronominal subjects by English-speaking learners, who are at near-native proficient level. The participants performed a Picture Verification Task (PVT) in which they were asked to indicate which of the three pictures represented the meaning of each experimental sentence. This task investigated the interpretation of null and overt subjects in the context of forward and backward anaphora as shown in examples (4.2) and (4.3).

(4.2) Mentre lei l/pro, simette il cappotto, la mamma i/dà un bacio allafiglia k. (backward)
while she wears the coat, the mother gives a kiss to the daughter
‘While she/pro is wearing her coat, the mother kisses her daughter.’

(4.3) La mamma i/dà un bacio allafiglia k mentre lei l/pro, simette il cappotto. (forward)
the mother gives a kiss to the daughter, while she wears the coat
‘The mother kisses her daughter, while she/pro is wearing her coat.’

(Sorace & Filiaci, 2006, p.352)

Example (4.2) shows the context of backward anaphora, since the subordinate clause precedes the main clause, while example (4.3) represents the context of forward anaphora, in which the main clause precedes the subordinate clause. The participants’ task was to find the proper antecedents of the null or overt subject pronouns of the subordinate clauses within the main clauses; a subject NP or an object NP. They found that the L2 learners showed different performance from native speakers in terms of the type of pronominal subjects. For null subjects
in both backward and forward anaphora conditions, there was no significant difference in choosing the antecedents between the two groups. For the forward anaphora condition, the participants in both groups chose either the subject or object of the main clause. For the backward anaphora condition, the both groups preferred the NP subject as the antecedent of the null subject. On the other hand, for overt pronouns, there was a significant difference between the monolingual control group and L2 learner group, especially in the backward anaphora condition. In this condition, Italian native speakers preferred an extralinguistic referent (63.6%), which is not mentioned in the matrix clause, as an antecedent of the overt pronoun, while the most-chosen antecedent by the non-native group was the subject of a main clause (46.9%). They argued that to choose the extralinguistic referent “requires going outside the linguistic context, thus contravening a well-known preference for finding pronoun antecedents within the clause” (p.359). Thus, for the different performance between two pronominal forms, they suggested that the near-native speakers can completely acquire the structures requiring only syntactic computations, but they showed residual optionality in structures involving an interface with other cognitive domain such as contextual discourse. They argued that the latter type of structures remain non-targetlike even at the end-state L2 grammars, because L2 learners have processing difficulties in incorporating different types of information from more than one domain.

However, the presumed unattainability of L2 knowledge at the interfaces of syntax and other domains appears to be debatable. Some researchers (Dekydtspotter & Sprouse, 2001; Yuan, 2010; Yuan & Dugarova, 2011) demonstrated that native-like grammar knowledge could be attained at the interface between the syntax and other domains. Among them, recently, Yuan (2010) found that not all structures involving the syntax-semantics interface are problematic, examining the L2 acquisition of Chinese wh-words used as existential polarity words (EPWs) by
English and Japanese speakers.

(4.4) wo bu xiang mai shenme (shenme=existential polarity word)
I not want buy what
‘I don’t want to buy anything’ (Yuan, 2010, p.220)

Chinese *wh*-words are variables, and their interpretation as an EPW must be licensed by one of seven elements in its c-commanding scope; negators, non-factive verbs, uncertain adverbs, ruguo ‘if’ in conditional clauses, yes-no particle -ma, the sentence final particle -le indicating inference, and A-not-A.

(4.5) *shenme ren meiyou kanjian women
What person not see us
‘Somebody didn’t see us’

In (4.5), since the EPW *shenme ren* is not properly c-commanded by its licenser, the negator meiyou, the sentence is ungrammatical.

In addition, semantically, the *wh*-EPWs must meet the requirement for a non-fact, and cannot occur in the contexts where the truth value is determined in a definite manner such as simple affirmative sentences as shown in (4.6) or factive verbs, such as houhui ‘to regret’.

(4.6) *Li Ming diu-le shenme
Li Ming lose-PFV what
‘Li Ming lost something’ (p.226)
In sum, since the Chinese EPWs involve interfaces between syntactic and semantic properties, L2 learners are required to integrate multiple types of information to process them. Following the Interface Hypothesis, this grammatical structure would cause persistent learning problems even for advanced learners. Yuan tested five English-speaking groups and five Japanese-speaking groups based on their proficiency levels, using an acceptability judgment task consisting of the seven potential EPW licensors mentioned above. As the Interface Hypothesis predicts, he found that advanced L2 groups failed to correctly distinguish grammatical and ungrammatical sentences containing EPWs licensed by some of the elements. Among the seven licensors, the English Advanced group presented three licensors (i.e. the yes-no question particle -ma, the inferential particle -le, and A-not-A) as having no licensing power, while the Japanese Advanced group did not show the acquisition of two elements (i.e. the inferential particle -le, and A-not-A) as EPW licensors. However, for the test items with EPWs licensed by some other elements (i.e. negators, non-factive verbs, uncertainty adverbs, and ‘if’ words), L2 advanced learners in both English and Japanese groups showed successfully acquired knowledge with respect to semantic contexts. Thus, the author concludes that this issue regarding the interfaces cannot be treated in a domain-wide fashion, but a variable-dependent account is necessary. With respect to the different status of EPW licensors in L2 acquisition, Yuan suggested that the distinction between lexical-word licensors (i.e. negators, non-factive verbs, uncertainty adverbs, and ‘if’ words) and functional-morpheme licensors (i.e. the yes-no question particle -ma, the inferential particle -le, and A-not-A) plays an important role in determining the success of acquisition at the semantics-syntax interface in L2 Chinese grammars. In addition, some variables such as input and cross-linguistic influence should be involved in success or failure in the acquisition of linguistic structures involving interface relations, rather than considering interfaces in a holistic manner.
Accordingly, Yuan claims that the findings in this study can partially support the Interface Hypothesis, but do not fully support it because end-state L2 learners acquired some conditions involving the interface.

*Possible L2 learning problems based on the Interface Hypothesis*

In order to analyze possible L2 learning problems of Korean plural marking based on the Interface Hypothesis, we should consider those properties of Korean plural marking that have to do with “interfaces”. Lardiere (2011) points out this issue in her reply to Sorace (2011), arguing that Sorace was not clear in the formulation of “language structures involving an interface between syntax and other cognitive domains (p.1)” In this phrase, whether the “other cognitive domains” could include extragrammatical components such as discourse as well as formal grammar-internal components is in question. Regarding this issue, a distinction between two kinds of interfaces has been made; internal and external interfaces (White, 2008 cited in Sorace & Serratrice, 2009). The internal interface refers to the interface of sub-modules of language such as the syntax-semantics interface, while the external interface refers to one between a grammatical module and non-linguistic cognitive system such as the syntax-discourse (Sorace & Serratrice, 2009).

In any case, Korean intrinsic plural marking could fall into the category of an interface structure, because its obligatory use correlates with specificity that can be established via contextual discourse. As discussed in Chapter 2, Kwon and Zribi-Hertz (2004) argue that if referent of a noun is previously determined as plural in context, *-tul* is required. From the perspective of the Interface Hypothesis, then, even L2 learners at end-state should show persistent problems in comprehending and producing Korean plural marking when it is related to
the discourse factor of referential specificity. However, if we find evidence that these learners do not differ from native speakers, this would suggest that the Interface Hypothesis is too strong. Thus, an additional explanation would be required for how the correct use of the L2 structure involving the interface could be acquired.

4.1.2. The Bottleneck Hypothesis

Slabakova (2009) attempted to answer the question ‘What is easy and what is hard to acquire in a second language?’ According to her, inflectional morphemes are hard to acquire, because they carry all of the formal features to account for syntactic and semantic cross-linguistic differences. This leads her to claim that inflectional morphology is the real bottleneck of L2 acquisition. To support this view, she compared findings on the L2 acquisition of various modules including inflectional morphology, syntax, the syntax-semantics interface, the syntax-discourse interface, and semantics-pragmatics interface (Slabakova, 2006, 2008). Since inflectional morphemes encode all of the formal features of grammatical properties, she argues that it should be natural to assume that the knowledge of syntactic and semantic properties automatically follows without posing considerable difficulty once the acquisition of the corresponding functional morphology is completed.

Montrul and Slabakova (2003) seek to support the Bottleneck Hypothesis. They investigated whether native-like attainment of the preterite-imperfect contrast in Spanish can be achieved by English-speaking learners. In English, simple past tense encodes both a one-time finished event interpretation and a habitual interpretation, while the English past progressive encodes an ongoing event in the past. On the other hand, in Spanish, the imperfective ending -aba encodes habitual and ongoing interpretations, while the perfective ending encodes only a
one-time finished event (see Table 4.2 for examples). English-speaking learners need to learn that the perfective-imperfective contrast is grammaticalized in Spanish, unlike in English. The Spanish aspectual interpretation is a well-researched area of difficulty for L2 learners (Dominguez, et al., 2011) despite the abundant input due to its complex semantics. The learners in this study were not immersed in Spanish at the time of testing, and their initial exposure took place after or around puberty (mean age of first exposure: 14.85, range: 12-24). The learners were divided into three groups (near-natives, superior, and advanced), and performed two types of tasks (a sentence-conjunction judgment task and a truth-value judgment task). The results of these tasks showed that the near-native group performed like the natives, while the superior and advanced groups showed significantly different performance from that of the natives in the tasks, showing that the near-native learners have fully acquired the subtle semantic properties associated with aspect. While these findings demonstrated that the full acquisition of the aspectual contrast in Spanish is possible, it was also noted that many proficient L2 learners had difficulties with the contrast. Montrul and Slabakova concluded that native-like attainment of this area is achievable by adult L2 learners and suggested that the claim that a critical period universally applied to this domain is too strong. Their findings could be interpreted as suggesting that mapping semantics to new inflectional morphology slows acquisition, and that difficulties in learning inflectional morphology persist until very advanced stages of L2 development.

Citing the findings of studies that found L2 difficulties of inflectional morphology (Slabakova & Gajdos, 2008; Dąbrowska & Street, 2006), Slabakova suggests that inflectional morphology poses difficulty even for some native speakers who do not pay attention to it. Moreover, since inflectional morphology involves various hidden characteristics that are difficult to detect in the input, it helps learners acquire those other hidden properties. Extending the idea
to teaching techniques, she suggests that L2 learners would benefit from the Focus on Form approach (Doughty, 2001), and practicing inflectional morphology in meaningful context.

Possible L2 learning problems based on the Bottleneck Hypothesis

We have shown that the Bottleneck Hypothesis argues that inflectional morphology, rather than other linguistic modules, is the critical problem that L2 learners need to overcome to achieve native-likeness. Applying this to the acquisition of Korean plural marking, the Bottleneck Hypothesis might predict that L2 learners would have difficulties with Korean plural marking, because -tul is an inflectional morpheme that carries morphosyntactic features\(^{36}\). Briefly, the important issue of the Bottleneck Hypothesis related to this dissertation is that it points out the difficulty of morphology, and notes that morphological variation remains even at very advanced levels.

This approach provides a logical argument about why inflectional morphemes are difficult to acquire compared to other linguistic elements, but it suggest any concrete difficulties that L2 learners might have with respect to the inflectional morphology. In other words, for Korean plural marking, this approach would simply predict that it is not easy to acquire, but within this approach the specific L2 learning task about what must be acquired is not addressed. Moreover, this hypothesis predicts that other relevant syntactic and semantic properties would follow once inflectional morphology is acquired, but it is questionable whether or not this idea could be applied to Korean plural marking. For instance, it does not seem clear that we can

\(^{36}\) According to Kwon and Zribi-Hertz (2004), French and Korean plural markers are differently grammaticalized in terms of inflection. They assume that Korean -tul is a lexeme, which lacks inflectional nature, while French plural marker spells out an inflectional feature. However, unlike their claim, -tul is attached to a noun as a suffix, and carries several formal features.
conclude that L2 learners have acquired the semantic property of extrinsic -tul even though they can produce it. Specifically, learners could use it simply to indicate that the subject is plural (like a kind of plural agreement marker) without recognizing its semantic meaning. Evidence that the semantic property is acquired later, or its acquisition guarantees the acquisition of other syntactic properties, would diverge from the Bottleneck Hypothesis. These concerns lead us to consider another approach that can more accurately describe the learning task confronting L2 learners in the acquisition of Korean plural marking.

4.1.2.3. The Interpretability Hypothesis

There are some researchers who attempt to emphasize the role of formal features in generative L2 research, arguing for Travis’ claim that “any study of language acquisition done within Chomskyan syntactic theory is now a study of the acquisition of features” (Travis, 2008, p.23). As mentioned above, features are part of UG, which constitutes a universal set of features or inventory and are categorized according to their interpretability. Some of the researchers who incorporate the [±interpretable] contrast in their hypotheses weigh the two types of features differently. They suggest that a learning problem is associated with uninterpretable features exclusively due to their “functional usefulness” (Hawkins & Hattori, 2006)\(^{37}\). They argue that the different learnability status of the two types of features may continue to affect even advanced L2

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\(^{37}\) Hawkins and Hattori (2006, pp.271-272) argue that having uninterpretable features of the UG inventory throughout life could cause functional disadvantages, because they are “specified on a small number of closed class items belonging to functional categories”, and it may be economical to only have those options available in primary language learning. Thus, the unselected features during primary language acquisition are not available any more. Meanwhile, interpretable features are involved in constructing new open class items. Since all individuals, regardless of their age, need to learn new lexical items, to have interpretable features available throughout life is necessary. Based on these claims, they argue that only uninterpretable features are subject to a critical period.
grammars in cases where an uninterpretable feature in the L2 is not present in the L1 (Tsimili, 2003; Tsimili & Dimitrakopoulou, 2007), suggesting that L2 acquisition is firmly constrained by properties of the L1 (Lardiere, 2009).

The Failed Functional Features Hypothesis (henceforth, FFFH) suggests that L2 inflectional variability is attributable to a failure of selection of parameterized formal features (Hawkins & Chan, 1997). It is hypothesized that parameter-resetting is not possible beyond a critical period if the selection involves a formal feature that is not instantiated in L1. Thus, adult learners who were exposed to the target language after puberty will not be able to overcome the parametric differences between their L1 and L2. Since formal features could include interpretable ones, recent work has restricted unacquirable features to uninterpretable ones, reformulating the FFFH with the Interpretability Hypothesis (Hawkins & Hattori, 2006; Representational deficit Hypothesis, Tsimili, 2003; Tsimili & Dimitrakopoulou, 2007). According to the Interpretability Hypothesis, which clearly distinguishes between uninterpretable and interpretable features, the locus of the learnability problem is in the narrow syntax; uninterpretable features are subject to maturation, and thus are candidates for persistent divergence in non-native grammars of adult L2 learners unless they are present in their L1 or the learners are exposed to the target language in the early years of life. On the other hand, interpretable features remain accessible throughout life, and thus should not be problematic for adult L2 learners even if they are not instantiated in their native language. Let us consider some studies testing the Interpretability Hypothesis.

Tsimili and Dimitrakopoulou (2007) reported an empirical study supporting the Interpretability Hypothesis. They examined the use of resumptives in English wh- subject and object extraction by intermediate and advanced native Greek speakers learning English. In Greek,
a resumptive clitic pronoun co-indexed with the extracted *wh*-phrase from an embedded clause is optionally acceptable as in (4.7a), while it is not allowed in either subject or object gaps in English *wh*-questions. In addition, discourse-linked *wh*-phrases as in (4.7b) enhance the degree of acceptability of resumptive clitics.

(4.7) a. Pjon ipes oti (ton) prosevalan xoris logho?
   Whom said\textsuperscript{3SG} that (him)-insulted\textsuperscript{3PL} without reason
   ‘Who did you say that they insulted (*him) without a reason?’

b. Pjon fititi ipes oti (ton) aperipsan sti sinedefksi?
   Which student said\textsuperscript{3SG} that (him)-rejected\textsuperscript{3PL} at-the interview
   ‘Which student did you say that they rejected at the interview?’

(Tsimpli & Dimitrakopoulou, 2007, p.220)

They predicted that L1 specification of resumptive pronouns clustered with uninterpretable Case and agreement features would deter the successful acquisition of *wh*-interrogatives in L2 grammar. As shown in (4.8) and (4.9), they investigated L1 Greek learners’ acceptability of resumptive pronouns after *wh*-extractions in English.
(4.8) Grammatical and ungrammatical object extraction

a. Which student / Who do you think that Jane likes t /*him?

b. Which book / What do you remember that Peter read t /* it carefully?

(4.9) Grammatical and ungrammatical subject extraction (+/-that)

a. Which politician / Who have you suggested t /*he /*that-he should not resign?

b. Which party / What does John think t /*it /*that-it was very boring?

(Tsimpi & Dimitrakopoulou, 2007, p.227)

Animacy is specified in English wh-phrases and pronouns, and discourse-linked wh-phrases are realized as which-XP phrases, while Greek wh-phrases and pronouns do not specify those interpretable features. Since resumptive pronouns are absent in L2 English, L1 Greek learners are assumed to use their L1 knowledge about resumptive pronouns for L2 English pronouns.

The results showed that the participants, even advanced Greek learners of English, judged ungrammatical sentences including resumptive elements as grammatical, revealing an L1-like acceptance of illicit resumptive pronouns. Based on this finding, it is proposed that the L1 specification of resumptive pronouns associated with uninterpretable features prevents the adult learners from resetting parameters. However, the learners showed animacy effects on the acceptability of resumptive pronouns, accepting them more when the pronouns were inanimate, as well as when the pronouns were associated with inanimate d-linked antecedents. Tsimpi and Dimitrakopoulou (2007) claim that this result indicates that L2 learners use the interpretable [animacy] and [d-linking] features as a compensatory method, and these features “can improve L2 performance so that it approximates target output” (p.236), but learners’ performance is not constrained by appropriate L2 target representation.
Hawkins and Hattori (2006) also investigated L2 acquisition data in light of the Interpretability Hypothesis, asking native Japanese learners of English to interpret bi-clausal multiple \textit{wh}-questions. It is known that the L1, Japanese, lacks an uninterpretable syntactic feature (i.e. \textit{[\textit{uwh*:}]} that forces \textit{wh}-movement because Japanese is a \textit{wh}-in-situ language. On the other hand, in English the uninterpretable feature makes sentences involving superiority or subjacency violations ungrammatical as shown in (4.10b) for superiority and (4.10c) for subjacency.

(4.10) a. When did Sophie’s brother warn [Sophie would phone who <\textit{when}>]?  
   b. * Who did Sophie’s brother warn [Sophie would phone <\textit{who} > \textit{when}]?  
   c. * When did Sophie’s brother warn [who Sophie would phone <\textit{who} > <\textit{when}>]?  
   (Hawkins & Hattori, 2006, p.286)

Thus, it is expected that L1 Japanese-L2 English learners who have acquired the feature can reject ungrammatical sentences containing either one or both of those violations. The Japanese learners who are highly proficient in English performed a truth value judgment task, which consists of a story, a bi-clausal question, and three possible answers which are pragmatically plausible given the story. The appropriateness of these answers is determined by how the learners interpret the question which appears to allow two possible scope readings. If they have acquired the knowledge that embedded reading is not allowed due to the violations of either subjacency or superiority, they should reject the embedded interpretations. Their findings indicated a significant difference between the learners and native speakers when they judged embedded scope interpretations in ungrammatical cases, suggesting that the highly proficient learners failed to
represent the uninterpretable feature in interrogative C, as predicted by the Interpretability Hypothesis.

It is not clear how the Japanese-speaking learners in this study were classified as highly proficient learners, because no information about their proficiency levels is provided. This is not a trivial issue, because the claim is about whether the native-like attainment of uninterpretable features is possible or not. Since the learners’ length of residence varies from 9 months to 18 years, it might be difficult to assume that their proficiency levels are identical, or that all of them are end-state learners. If they were not all end-state learners, it would not be reliable to claim that the uninterpretable feature [u\_wh\*:] is not ultimately acquirable by adult L2 learners. Indeed, they reported one learner fell within the same range with the native control group, whose performance could be considered as a counter-example to their claim. However, they explained this learner’s performance was due to a response bias, rather than the successful acquisition of [C, Q, u\_wh\*:].

As discussed above, the Interpretability Hypothesis claims that second language acquisition is determined by L1 properties, and the inability after puberty to select new uninterpretable features may cause L2 learners’ inflectional variability and errors. Since this hypothesis “has the virtue of clearly defining the role of L1 knowledge in the ultimate attainment acquisition of an L2 grammar” (Lardiere, 2009. p.190), researchers can make categorical predictions, which can be falsifiable. There are many studies testing the Interpretability Hypothesis (or FFFH), but some findings are unpredicted by this hypothesis (e.g., Prevost & White, 2000; White, Valenzuela, Kozlowska-Macgregor, & Leung, 2004). For example, White et al. (2004) investigated the acquisition of the Spanish gender feature on nouns and gender agreement for determiners and adjectives by two L1 groups, English and French speaking learners, comparing the FFFH with the Full Transfer/Full Access. It is widely said that the phi-
features of nouns are “interpretable”, while the corresponding features of determiners and adjectives are “uninterpretable”. Romance languages including French and Spanish have gender, while English does not. In English, nouns and determiners show limited number agreement as shown in (4.11), whereas adjectives do not. On the other hand, in Spanish, determiners and adjectives show number and gender agreement as shown in (4.12).

(4.11) a. this black hat
    b. these black hats

(4.12) a. los sombreros negros
      the-MP hat-MP black-FP
      ‘the black hats’
    b. las chaquetas negras
      the-FP jacket-FP black-FP
      ‘the black jackets’

(White, et al. 2004, p.108)

The two L1 group learners were divided into two proficiency levels, and were tested on the production and picture identification tasks. The FFFH hypothesizes different performance between two L1 group learners, predicting that even advanced learners whose L1 is English will have persistent difficulties with gender agreement. On the other hand, the Full Transfer/Full Access predicts that advanced learners should perform equally well on both number and gender agreement regardless of whether their L1 has gender feature or not. In contrast to the FFFH or the Interpretability Hypothesis, White et al. (2004) found significant effects for proficiency levels but not for L1; their findings indicate that native English speakers learning Spanish did not reveal difficulties with gender agreement associated with uninterpretable features on determiners.
and adjectives, showing non-significant differences from native speakers. Based on these findings, they argue that post-puberty learners are able to acquire the uninterpretable gender feature as well as the interpretable one regardless of whether the L1 has the feature or not, supporting the Full Transfer/Full Access.

Possible L2 learning problems based on the Interpretability Hypothesis

As stated above, the Interpretability Hypothesis focuses on the non-native-like outcome of the acquisition of uninterpretable features that are not selected in L1, but suggests that interpretable features are not problematic at all stages of L2 acquisition. Turning to the acquisition of Korean plural marking, the features assembled are rather different from those of English plural marking, even though the plural lexical items share some of features.

It should be noted that most of the formal features (including uninterpretable ones) involved in Korean plural lexical items (e.g. [specificity], [individuation], [human], [u-pl], etc.) are present in the L1. As shown in Chapter 2, however, the split [q] features, [abs] and [rel], are present exclusively in the L2, while only the more general [q] feature is available in the L1. According to the Interpretability Hypothesis, it is hypothesized that the role of the L1 is deterministic, so native-like attainment would not be possible if one or both of the unselected uninterpretable features are involved in acquisition. Thus, if we assume that uninterpretable [abs] and [rel] features are involved in the use of plural marking in the target language, L2 learners would permanently show divergent grammars from those of native speakers. If we find that advanced L2 learners are indistinguishable from native speakers in performing tasks regarding those features, the result could not support the Interpretability Hypothesis.
4.1.2.4. Full Transfer/Full Access

The Full Transfer/Full Access (henceforth, FT/FA) approach hypothesis proposed by Schwartz and Sprouse (1994, 1996) hypothesizes that L2 learners’ L1 knowledge constitutes the entirety of the L2 initial state (Full Transfer), and that the initial representation is restructured in light of the differences between the input and learners’ initial knowledge interacting with UG38 (Full Access). According to Full Transfer part, L2 learners of different L1 backgrounds will show different initial grammar knowledge, and behave differently from each other in developing L2 grammar. This is because L2 learners bring fully established L1 properties such as functional categories and feature specification to the L2 acquisition task, and this constitutes the starting point. According to Full Access, Schwartz and Sprouse argue that fossilization will occur if input to force restructuring is not present or too sparse. In other words, they predict that L2 learners’ grammar will not converge on the target grammar if “either the data needed to force restructuring simply do not exist” or “the positive data needed are highly obscure, being very complex and/or very rare” (Schwartz & Sprouse, 1996, p.42).

Schwartz and Sprouse (1994, 1996) examined the data from a case study of a Turkish speaker who were learning German named Cevdet. They analyzed V2 effect in German, where a subject follows a verb when some element other than a subject (such as objects or prepositional phrases) is the first element in the clause as shown in (4.13).

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38 The innate rich and highly articulated UG underlies this “Full Access” view.
They found that Cevdet produced incorrect *V3 sentences at Stage 1, and continued to do so even at Stage 3. At Stage 2 he started producing correct V2 sentences, but only when pronominal subjects were involved as in (4.14a). For the sentences involving non-pronominal subject as in (4.14b), he still used *V3 sentences.

(4.13) a. Der Mann liest heute den Roman
   The man reads today the novel
   ‘The man is reading the novel today.’

b. Den Roman liest der Mann heute
   the novel reads the man today

c. Heute liest der Mann den Roman
   today reads the man the novel

d. *Heute der Mann liest den Roman
   today the man reads the novel

(Schwartz & Sprouse, 1994, pp.324-325)

(4.14) a. dann trinken wir bis neun Uhr
   Then drink we until nine o’clock
   ‘Then we will drink until nine o’clock’   (Schwartz & Sprouse, 1994, p.336)

b. *in der Turkei der Lehrer kann den Schuler schlagen
   in the Turkey the teacher can the pupil beat
   ‘In Turkey the teacher can hit the pupil’   (Schwartz & Sprouse, 1994, p.337)

Schwartz and Sprouse suggested that the asymmetry between pronominal and non-pronominal subject could not be explained by either his L1 or the target language. In other words, they assumed that neither L1 nor positive evidence told him that V3 sentences are not acceptable in
German. This observation could be evidence that Cevdet used a UG option, adopting a portion of the grammar of an existing natural language (i.e. French)\(^{39}\) to overcome the poverty of the stimulus problem.

In sum, the FT/FA provides an account for the gradual development in L2 grammar, which could improve to target-like properties. However, since this approach is mainly concerned with initial stages of L2 acquisition, it does not address the issues of the developmental patterns L2 learners might show, and whether native-like attainment is ultimately possible. Moreover, “Full Access” may not be helpful to account for the lack of uniformly successful outcomes in L2 acquisition despite abundant positive L2 input (Choi, 2009), because Schwartz and Sprouse used the notion of “Full Access” to explain L2 learners’ interlanguage grammar caused by the poverty of the stimulus problem. Accordingly, an additional explanation would be necessary for why adult L2 acquisition is not uniformly successful if L2 learners can use the options of UG (Lardiere 2007).

**Possible L2 learning problems based on FT/FA**

If we apply the FT/FA approach to the acquisition of Korean plural marking, it is predicted that English-speaking learners would initially assume that -ttul is the equivalent to -s without recognizing the differences between them. After the initial stage, L2 learners’ initial assumption would change to the target-like properties corresponding to the L2 input. If the input is abundant enough, it is expected that L2 learners should reach the native-like level of grammar, because

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\(^{39}\) Lardiere (2007) notes that it is difficult to predict or justify why Cevdet would settle on a “French” option that is present in French interrogative clauses, where it is presumably licensed by a [+Q] feature that is not present in German or Turkish declarative clauses; a more plausible explanation is that the asymmetry in Cevdet’s data reflected his analysis of a much more highly frequent subset of the input data—declarative clauses with pronominal subjects.
Full Access assumes that L2 learners have a UG-constrained grammar. Based on the corpus data provided in Chapter 2, we could predict that L2 learners would not have persistent difficulty in restructuring their interlanguage grammar with respect to intrinsic plural marking because the input is sufficient. On the other hand, for extrinsic plural marking, it is predicted that fossilization is likely to occur because it is quite rare in the input. Given this, if we find L2 learners’ target-like performance on extrinsic plural marking, additional explanation for why their L2 grammar is not fossilized despite the sparse input would be required.

Since the feature-reassembly approach, which will be presented below, relies on the Full Transfer in terms of L1 influence, both the feature-reassembly approach and the FT/FA approach would predict that learners initially assume plural lexical items in the L2 have the same grammatical functions the same features as the ones in the L1. These approaches also predict that L2 learners would show a gradual development as proficiency level increases. The developmental patterns that English-speaking learners would be predicted to go through will be provided in Section 4.3.2.

4.1.2.5. The feature-reassembly approach

The feature-reassembly approach (Lardiere, 2008, 2009) suggests that a substantial and difficult part of the L2 learning task lies in learning how and under what conditions different combinations of features are expressed on lexical items in the L2 rather than due to the failure of feature selection, because bundled features are configured in language-specific ways. Lardiere (2009) emphasizes the necessity of features to explain SLA through an extensive discussion about the notion of parameters, suggesting that macro-parameters such as the Nominal Mapping Parameter (Chierchia, 1998a, 1998b) are not sufficient to account for the complexity of the L2
acquisition task.

This approach is supported by the feature-based theory (Hegarty, 2005), which suggests that functional categories consist of hierarchically-ordered bundles of features (i.e. feature matrices). He argues that non-adult-like L1 acquisition data can be explained as flexibility of featural combinations in functional categories. For example, a feature bundle of a full interrogative C consists of [WH] and [Q]. For young children, it is observed that they produce non-target-like questions with wh-fronting but without subject-aux inversion (e.g. Where daddy go?). According to Hegarty, this is because the children project C with the [WH] without the [Q] feature, which is a necessary element for a full CP structure in adult grammar. Thus, based on the feature-based theory, the construction of feature bundles in functional categories and lexical items builds toward adult-like grammar as acquisition develops. In line with this theory, Lardiere (2009) suggested that even if the same set of features (regardless of their interpretability) does exist in both the L1 and the L2, L2 learners are required to reassemble their native features and possibly some newly acquired features into the corresponding lexical counterparts (if these exist) of the target language (Lardiere, 2008, 2009). More specifically, she stated the following challenges that L2 learners would face in the process of reassembling the features:

- With which functional categories are the selected features associated in the syntax, and how might this distribution differ from the feature-matrices of functional categories in the L1?
- In which lexical items of the L2 are the selected features expressed, clustered in combination with what other features?
Are certain forms optional or obligatory, and what constitutes an obligatory context? More specifically, what are the particular factors that condition the realization of a certain form (such as an inflection) and are these phonological, morphosyntactic, semantic or discourse-linked? (Lardiere, 2009, p.175)

Even though it takes some time to successfully accomplish the feature-reassembly process, it is assumed to be ultimately achievable by L2 learners in principle, as long as any morphosyntactic feature contrasts are detectable in the input (e.g., the difference between chayk ‘book’ and chayktul ‘book-PL’) (Lardiere, 2009).

Recently, there have been some studies whose findings support the feature-reassembly approach. Choi and Lardiere (2006) and Choi (2009) investigate this hypothesis by examining the acquisition of Korean wh-expressions by English native speakers. Unlike English wh-expression, Korean wh-words can receive multiple readings depending on the kinds of particles (i.e. a question particle vs. a declarative particle).

   John-TOP Mary-NOM THING-ACC buy-PAST-Q know-DECL

   John-TOP Mary-NOM THING-ACC buy-PAST-DC-C know-DECL

   (Choi, 2009, p.18)

(4.16) a. John knows [cp what, [Ø [Mary bought t_i]].

   b. John knows [cp (that) Mary bought something].

   (Choi, 2009, p.44)

In these examples, the same lexical item mwuse expresses different readings; an interrogative
reading for (4.15a), and an indefinite reading for (4.15b). Since the interrogative and indefinite readings are determined based on the use of the sentential particles *numci* (i.e. [+Q] particle) and *ta* (i.e. [-Q] particle), respectively, Korean *wh*-expressions are considered variables. On the other hand, English *wh*-words have an inherent *wh*-operator. In the English counterparts, the [-Q] feature is morphologically realized as the functional lexical item *that* as shown in (4.16b), while the [+Q] feature is null as seen in (4.16a). Table 4.1 below presents the different selection and assembly of features in Korean and English.

Table 4.1 Selection and Assembly of Features of *wh*-expressions in the C domain

<table>
<thead>
<tr>
<th>Properties</th>
<th>Korean</th>
<th>English</th>
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<tbody>
<tr>
<td>CP</td>
<td></td>
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</tr>
<tr>
<td>[EPP] (or [<em>wh</em>])</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>[Operator] (Spec/CP)</td>
<td>Null</td>
<td>Moved <em>wh</em>-word</td>
</tr>
<tr>
<td>[+Q, +wh]</td>
<td>Overt</td>
<td>Null</td>
</tr>
<tr>
<td>DP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Q-operator]</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>[Variable]</td>
<td><em>wh</em>-item</td>
<td>Part of <em>wh</em>-item</td>
</tr>
<tr>
<td></td>
<td>(<em>nwukwu = [D, human]</em>)</td>
<td>(who = [wh, D, human]*)</td>
</tr>
</tbody>
</table>

(Choi, 2009, p.46)

The features for generating *wh*-expressions (i.e. *[wh] and [Q]*) are selected in both Korean and English, but their assembly is different: In English the *wh*-operator and [Q] features are assembled in a single lexical item (i.e. *wh*-word), while these two features are separated into different lexical items in Korean. Choi and Lardiere (2006) demonstrate that L2 learners have difficulties interpreting Korean *wh*-expressions, suggesting that the learning problem resides in
the reassembly of features into the lexical items rather than in the feature selection. In the most recent version of this study, Choi (2009) divided the participants into two proficiency levels (high-intermediate vs. advanced), and administered two types of tasks: translation and truth-value judgment tasks. The results of these tasks revealed that participants showed better performance as proficiency increases. In addition, in accordance with the feature-reassembly approach, the findings also demonstrate that native-like attainment is possible, offering as evidence four learners out of 24 in the advanced group who perfectly performed on the tasks.

Recently, there have been a few studies examining the source of L2 morphological problems, comparing the feature-selection approach with the feature-reassembly approach. Dominguez, et al. (2011) investigate the acquisition of Spanish aspect by native English speakers, investigating which of these approaches can provide a more appropriate explanation of persistent L2 learning problems. They offered two hypotheses based on the feature-selection and feature-assembly approaches.

(4.17) H1: Learnability problems in L2 acquisition are determined by the (im)possibility of selecting new features ([F_{L1}] \rightarrow [F_{L2}])

H2: Learnability problems in L2 acquisition are determined by the (im)possibility of reassembling existing features into new configurations (i.e. [F_{L1}] \rightarrow [F_{L2}] and [LEX_{L1}] \rightarrow [LEX_{L2}]).

The cross-linguistic differences with respect to aspect between Spanish and English are presented in Table 4.2.
Table 4.2  Relevant properties of perfective and imperfective aspect (Table 3 in Dominguez, et al., 2011)

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Number occasions</th>
<th>Status</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfective</td>
<td>1</td>
<td>Finished</td>
<td>He was sick all day</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>El <em>estuvo</em> enfermo todo el dia</td>
</tr>
<tr>
<td>(Imperfect)</td>
<td></td>
<td>Unfinished</td>
<td>He was sick when I saw him</td>
</tr>
<tr>
<td>Continuous</td>
<td>❱</td>
<td></td>
<td>El <em>estaba</em> enfermo cuando lo vi</td>
</tr>
<tr>
<td>(Imperfect)</td>
<td>&gt; 1</td>
<td>Period unfinished</td>
<td>He used to walk in the park</td>
</tr>
<tr>
<td>Habitual</td>
<td></td>
<td>Each instance finished</td>
<td>El <em>caminaba</em> por el parquet</td>
</tr>
<tr>
<td>(Imperfect)</td>
<td>1</td>
<td>Unfinished</td>
<td>He was walking in the park</td>
</tr>
<tr>
<td>Progressive</td>
<td></td>
<td></td>
<td>El <em>caminaba</em> por el parquet</td>
</tr>
</tbody>
</table>

As shown in Table 4.2, Spanish shows a clear morphological distinction between perfective and imperfective meanings by using the same verbal suffix *-aba* for three imperfective meanings. On the other hand, English used the same past tense form for the perfective and imperfective (continuous meaning) without drawing a line between these two meanings. Accordingly, even though the features related to the aspecual distinction (i.e. perfective (finished), continuous, habitual, progressive) are present in both the L1 and the L2, English speakers need to learn the specific morphological configuration in Spanish.

They divided L1 English-speaking learners into three groups based on their proficiency levels, and found that the advanced learners did not significantly differ from the native control group in habitual and progressive meanings. However, they performed significantly worse on the continuous meaning than the natives, which required reassembly of the features into new morphological configuration. Thus, they concluded that feature reassembly, rather than feature
selection, is a source of persistent L2 learning problems, suggesting that the feature-assembly approach can only account for the difference found in the acquisition of the three aspectual meanings. Although they did not mention ultimate attainment, their findings showed a gradual development as proficiency improves. Moreover, since they did not provide individual results, we can assume that there might have been some advanced learners who attained native-like performance on the continuous meaning.

Another study examining this issue is Renaud (2011). Unlike the study by Dominguez, et al. (2011), which does not deal with the acquisition of new features, she focused on the L2 acquisition of the French verbal paradigm by L1 English speakers including a new feature, specifically subject-auxiliary agreement and past-participle agreement. For subject-auxiliary agreement in French and English with respect to ‘to have’, she observed that in English only the third person singular, she/he/it has, has a unique realization while all other forms are spelled out as have. On the other hand, in French, all the forms of avoir ‘to have’ are realized differently depending on the subject as shown in (4.18). Based on the various morphological realizations of avoir ‘to have’ in French, she argues that the selection of features in T (i.e. person and number) is similar in English and French, but feature bundles differ in their assembly.

(4.18) a. j’ai b. tu as c. nous avons
I have you have we have

For past-participle agreement, it is assumed that French has [uGender] in T, based on the presence of subject (or object)-verb agreement with respect to gender, whereas English does not include the feature in T.
Thus, in order to successfully acquire these structures, L1 English learners of French need to reassemble the relevant features including ones that are not selected in their L1. The findings of an acceptability judgment task show that lower proficiency learners behave differently from native speakers of French, suggesting that they have not acquired the two agreement structures in the verbal domain in French. However, advanced learners exhibited native-like performance on the two structures (i.e. subject-auxiliary agreement and past-participle agreement), indicating that even the [uGender] feature not instantiated in their L1 has been successfully acquired and that the relevant features are completely incorporated into the representation of agreement structures, in opposition to the predictions of the feature-selection approach. Based on these results, she concludes that it is the feature-reassembly approach that can provide the fine-grained account for the observed L2 empirical data in the verbal domain in French.

Possible L2 learning problems based on the feature-reassembly approach

In this section, I will outline the problems English-speaking learners of Korean are predicted to have in the acquisition of -tul in terms of the feature-reassembly approach. I have shown that L2 learners have the L1 lexical item -s, which could correspond to -tul, but the L2 lexical item is constructed with a different set of features from the one in the L1 and is subject to complex featural co-occurrence restrictions.

Let us consider the cross-linguistic differences between English and Korean in relation to
plural marking in terms of features. Table 4.3 presents the selection and assembly of the features required for plural marking in both languages.

Table 4.3  Comparison of features of plural marking in Korean and English

<table>
<thead>
<tr>
<th></th>
<th>Korean (intrinsic)</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional categories</td>
<td>NumP</td>
<td>NumP</td>
</tr>
<tr>
<td>Lexical items</td>
<td>-tul</td>
<td>-s</td>
</tr>
<tr>
<td>Features</td>
<td>[n], [group], [u-specf]</td>
<td>[n], [group]</td>
</tr>
<tr>
<td>Other relevant features</td>
<td>[q-abs], [q-rel], [human]</td>
<td>[q]</td>
</tr>
<tr>
<td>Marked on</td>
<td>Nouns</td>
<td>Nouns</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Korean (extrinsic)</th>
<th>English (N/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional categories</td>
<td>DistrP</td>
<td>QP</td>
</tr>
<tr>
<td>Lexical items</td>
<td>-tul</td>
<td>Each/Each of the</td>
</tr>
<tr>
<td>Features</td>
<td>[u-pl], [distr]</td>
<td>[distr]</td>
</tr>
<tr>
<td>Marked on</td>
<td>[ ]</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Based on the differences between English and Korean presented in Table 4.3, I turn to the L2 learning process regarding the acquisition of -tul by English-speaking learners based on the feature-reassembly approach. Assuming FT/FA, English-speaking learners of Korean have their L1 plural marking involving only the [n] and [group] features at the initial stage of acquisition, but they can reconstruct L2 plural marking based on the positive evidence in the input.

For intrinsic -tul, it is likely that L2 learners first look for the closest morpholexical equivalent of an already-assembled lexical item in their L1 in the target language (Lardiere,
For English plural -s, native English speakers will likely select intrinsic -tul in Korean as the closest counterpart of the English plural marking -s or vice versa. As -tul is strongly preferred to refer to a specific plural referent and is not felicitous in clearly defined non-specific context, I suggested in Chapter 2 that intrinsic -tul is assembled with another feature (i.e., [specificity]) along with the [group] and [n] features which are shared with English plural marking. Thus, L2 learners are required to add the feature [specificity] to the plural lexical item. Moreover, there are other features related to the use of intrinsic -tul with respect to numerically-quantified structures. In English, the more general [q] feature is present, because plural morpheme -s can appear with either numerals or quantifiers (three students vs. many students). On the other hand, in Korean, the [q] feature needs to be divided into two subtypes because pluralized nouns with numerals are not usually allowed, whereas weak quantifier can be used with -tul (*sey cip-tul ‘three house-PL’ vs. motun cip-tul ‘all house-PL’). In addition, L2 learners also need to acquire the restriction on the [human] feature of classified nouns in numeral-classifier structures (e.g. *chakyk-tul sey kwen ‘book-PL three CL’ vs. ai-tul sey myeng ‘kid-PL three CL’). Thus, English-speaking learners are required to not only recruit the relevant features from other lexical items in English\footnote{Even though Standard English does not have an indicator for specificity, colloquial English has a word this for specificity as in (i) (Ionin, et al., 2004).} but also acquire new features.

\footnote{Even though Standard English does not have an indicator for specificity, colloquial English has a word this for specificity as in (i) (Ionin, et al., 2004).}

(i) Peter intends to marry a/*??this merchant banker—though he hasn’t met one yet.

With regard to the Korean extrinsic plural marker, the relevant features (i.e., [distributive] and [u-pl]) are also available in English; they must be identified and recruited from distinct morpholexical items in English such as *each* or *each of the* (Lardiere, 2009 and see Ch. 3). English-speaking learners also need to acquire the fact that extrinsic *-tul* can be attached to various non-nominal categories such as adverbs, *wh*-words, verbal nouns, etc, which cannot be pluralized in the L1. As mentioned earlier, the use of extrinsic *-tul* seems to be optional, because the absence of *-tul* does not affect the grammaticality of a sentence. Even if L2 learners produce sentences without extrinsic *-tul* in situations where the use of it is expected, they will not receive any negative evidence from their interlocutors, including native speakers. However, it should be noted that *-tul* is not optional when a speaker intends to express the distributive meaning of a plural referent (J. Song, 1997). Moreover, as shown in Chapter 3, compared to intrinsic plural marking, the extrinsic plural occurs much more rarely in the input (33 occurrences out of 1000 tokens containing *-tul* from Sejong corpus). Thus, it would be more difficult to acquire extrinsic *-tul* than intrinsic *-tul* because the input is sparse and its grammatical function is located on a completely different morpholexical item in the L1 (this issue will be discussed in Section 7.3 in Chapter 7).

For both intrinsic and extrinsic plural marking, the task of English-speaking learners is to “reconfigure or remap features from the way these are represented in the L1 into new formal configurations on possibly quite different types of lexical items in the L2” (Lardiere, 2009, p.173), since most of the relevant features are present in the L1. We assume that the complete acquisition of the two types of *-tul* would not be attained within a short period of time, as incorporating the relevant features into plural lexical items may take place one by one. However, this does not mean that the native-like knowledge of morphosyntactic properties is not attainable.
The feature-reassembly approach predicts significant delays for the acquisition of both types of plural marking, especially the extrinsic plural, because the ways in which the features are assembled are markedly different in the L1 and L2.

The following section presents a discussion of some of previous studies on the acquisition of Korean plural marking, which seem relevant to our purpose.

4.2. Previous research on the acquisition of Korean plural marking

To the best of my knowledge, almost no literature exists on L2 acquisition of plural marking in Korean or in other classifier languages such as Chinese and Japanese. There are several L1 acquisition studies on Korean classifiers (e.g. Lee & Lee, 2002; D. Lee, 2006), but these studies were limited to the semantics of the classifiers, rather than the syntactic properties of classifiers regarding the interaction of classifiers and -tul. The most relevant study to the current dissertation is Suh’s (2008) study of the acquisition of Korean intrinsic plural marking and numeral-classifier structures. She investigated whether adult English-speaking learners who were heritage speakers of Korean appropriately use and judge intrinsic -tul and quantified structures with or without it, because the distribution of -tul is more restricted than that of English -s. She tested the acceptability of the zero-morpheme and -tul in various plural contexts, such as specific and counting. The use of -tul is required in specific contexts, as discussed in Chapter 2, while its attachment on a classifier is not allowed in counting context.

Fourteen heritage speakers of Korean, who were divided into two groups based on their proficiency levels, and fifteen Korean native speakers participated in this experiment, which consisted of two types of tasks: an elicited production task and an acceptability judgment task. In the elicited production task, she included various contexts such as human and animal nouns in
neutral contexts, nouns with demonstratives in specific contexts, and nouns with classifiers in counting contexts. In this task, the two heritage groups showed different performance in neutral and specific contexts. In both contexts, the low proficiency group unexpectedly undergenerated intrinsic -tul, while the high proficiency group overgenerated it. However, in counting contexts, since neither learner groups produced -tul very often when a classifier was present, Suh argued that the learners had acquired some syntactic restrictions on the co-occurrence of -tul with classifiers.

In the acceptability judgment task, Suh tested whether the learners were able to judge sentences differently depending on the presence or absence of -tul in two contexts (specific nouns with or without -tul, and postnominal classifiers with or without -tul (i.e. Noun+Numeral+CL(Ø/tul))). The two learner groups appropriately showed a preference for -tul in specific contexts like the native speakers. In counting contexts, however, both learner groups behaved differently from the control group. It appeared that the low proficiency group considered -tul to be optional or obligatory on classifiers unlike the native speakers, while the high proficiency group treated it as being optional on classifiers (also unlike native speakers).

Based on these results, she concluded that the heritage learners were sensitive to the distribution of -tul, even though their knowledge is not totally equivalent to native speakers. From these findings, she suggested that it is not easy to acquire all of the restrictions on the use of -tul tested in the study. However, it is worth noting that heritage learners in the study performed differently according to their proficiency levels. While the lower proficiency group behaved in a more English-like way on most of the tasks, the higher proficiency learners performed in a more target-like way, indicating that they were not too influenced by English. Given the gradual development, it is plausible to assume that if more advanced learners had
participants in the study, they might have showed that native-like attainment is possible in principle.

Let us consider the acquisition of extrinsic plural marking. To the best of my knowledge, there are no L2 acquisition studies about Korean extrinsic plural marking. An L1 acquisition study about its distributive meaning by C.-E. Kim (2012) is the only one that I found. In order to test whether L1 children have knowledge about a distributive meaning, she conducted a Truth Value Judgment Task (TVJT) with Korean children aged from 5;3 to 6;8 (mean age = 6;3). While performing the task, the participants heard a short story and were asked to judge if sentence was true or not based on the story. For both distributive and non-distributive contexts, two types of sentence structures (with and without extrinsic -tul) were presented. If the participants judged the sentence with -tul as true in the distributive context, it was suggested that they have acquired distributivity. On the other hand, if they judged the same sentence as true for the non-distributive context, they may have not acquired it yet.

She compared adult native speakers of Korean with the Korean children, and found that Korean adults correctly accepted the sentence with -tul in most of the time (92%) for the distributive context, while the children accepted it only 20% of the time. On the other hand, Korean-speaking adults correctly rejected the sentence with -tul in non-distributive contexts, but Korean children accepted the sentence containing -tul at the same degree in both distributive and non-distributive contexts (96% for both contexts).

Based on these findings, C.-E. Kim argued that five and six year-old children have not recognized the distributive interpretation of extrinsic plural marking yet, indicating that they consider -tul only as a marker of plurality. The findings can be taken to suggest that the distributive reading of extrinsic plural marking is acquired later than a plural marker in L1
acquisition. If we assume that these findings can be applied to adult L2 acquisition, we can predict that extrinsic plural marking is acquired later than intrinsic plural marking, and its acquisition takes place at very advanced level. The late acquisition could be affected by the property of distributivity itself, because it is not easily detectable from the input. Another factor is that extrinsic -tul much more rarely occurs in the input than intrinsic -tul, as discussed in Chapter 3.

One crucial piece of information that both of these two studies provide would be that the complicated and exclusive properties of both types of Korean plural marking may cause significant delays in acquisition. Notice, however, that while these studies offer useful information about the acquisition of Korean plural marking, it might not be appropriate to make use of their results for the purpose of the current study. This is because the participants tested by both Suh and C.-E. Kim were not adult L2 learners who were exposed to Korean after puberty. As mentioned above, Suh’s study involved only heritage learners, while C.-E. Kim’s study is about Korean-speaking children. Since this dissertation does not take the view that after a critical age the acquisition of features is impaired, it would be essential to demonstrate that native-like attainment is possible even for adult learners who were not exposed to the target language during their early childhood. Thus, by testing adult L2 learners at different levels of proficiency, most of whom are non-heritage learners, this dissertation investigates whether native-like proficiency is attainable for late learners.

Before moving forward, it should be emphasized that since there have been no studies investigating the acquisition of both the intrinsic and extrinsic type of plural marking together, the current study will investigate L2 acquisition of the proper syntactic and semantic representation of the two types of plural marking by performing various tasks that test all of the
known restrictions in an extensive way.

4.3. Developmental predictions

4.3.1. Why is the feature-reassembly approach adopted in this study?

I have presented some L2 approaches about ultimate attainment in order to find an appropriate one to account for possible L2 learning difficulties in acquiring Korean plural marking. As discussed above, the Interpretability Hypothesis does not seem to predict any formidable learning difficulties of Korean plural marking, because it focuses on the selection of uninterpretable features. As for the Interface Hypothesis, it accounts for some possible learning difficulties of intrinsic plural marking with respect to discourse-contextual information, but it is not likely to predict any other learning problems caused by other complex restrictions. The Bottleneck Hypothesis points out the difficulty in acquiring functional morphology, but is not able to offer any specific L2 learning challenges which learners might confront during the acquisition of Korean plural marking. Thus, these considerations could suggest that the approaches mentioned above do not seem quite as useful to frame L2 learning problems and predictions in relation to the acquisition of Korean plural marking, precluding us from adopting them in this study.

For these reasons, this dissertation therefore adopts a comparative linguistic feature-based approach, implementing it to account for the empirical data of Korean plural marking collected from adult English-speaking learners. Given this, along with the usefulness and plausibility of the feature-based approach, the rationales for adopting it are as follows.

As discussed in previous chapters, the theoretical significance of morphosyntactic features should not be underestimated in L2 acquisition, because the features are needed to
formally articulate the cross-linguistic differences between L1 and L2 plural lexical items. Following Full Transfer, L2 learners initially look for a closest morpholexical equivalent of -tul from their L1, assuming that the English counterparts have the same grammatical functions as -tul. Based on the input, native English speakers will be required to remap the relevant features assembled from distinct morpholexical items onto new morphological configurations (Lardiere, 2009). Thus, a feature-based approach can provide a useful framework in terms of L1 transfer for the extent to which two plural lexical items differ.

Unlike most L2 hypotheses predicting non-native-like performance caused by specific linguistic modules/domains (e.g. interface between more than two domains, inflectional morphology, and unselected formal features in L1), the feature-reassembly approach predicts a gradual development following the FT/FA assuming that native-like attainment is possible. I do not assume that the acquisition of features involved in Korean plural marking is completed all at once, nor that the acquisition of one feature triggers others\(^1\), but instead that featural acquisition takes place one by one, and a gradual learning process is required (Lardiere, 2008; Choi, 2009). Accordingly, L2 learners in the process of acquiring plural lexical item would show divergent performances from native speakers before they have acquired all of the relevant features. Thus, the feature-reassembly approach should be able to provide a developmental path that adult L2 learners acquiring Korean plural marking would follow. Given this, the purpose of this dissertation is to examine the extent to which native English speakers come to associate Korean plural marking with the relevant features, and whether the native-like attainment is ultimately

\(^{41}\) This issue should be related to the automatic acquisition of deductive consequences in SLA. To date, no studies about this issue have clearly demonstrated that the L2 setting of a parameter accompanies the deductive consequences of the parameter, suggesting that the individual phenomena are acquired separately (Carroll, 2001; Bley-Vroman, 2009).
possible.

To summarize, the feature-reassembly approach is chosen to account for L2 learning task regarding Korean plural marking in this dissertation. As outlined above, the formal features are needed to articulate the observed differences between the plural lexical items in the L1 and the L2, and the feature-reassembly approach best predicts possible L2 learning difficulties for Korean plural marking. Within this approach, it is expected that reconfiguring the relevant features associated with Korean plural marking would take place one by one, so the task would not be completed within a short period of time, and learners would show a gradual development.

4.3.2. Developmental predictions based on feature-reassembly approach

Based on the feature-reassembly approach, the following predictions will be made according to developmental stages:

For intrinsic plural marking,

We predict that at the initial stages of L2 development native English speakers will not have noticed the different use of Korean plural marking from the English one at all, assuming the Korean plural lexical item consisting of only [n] and [group] features. Learners at this stage have not started the process of reassembly yet.

a. They will incorrectly accept the use of -tul in non-specific context

b. They will produce -tul in both specific and non-specific contexts. -tul will be used in specific context because English plural marking is obligatory to denote plural entities, not because they have acquired the feature [u-specificity].
c. They will not differentiate the two subtypes of the [q] feature, incorrectly accepting pluralized nouns with numerals.

d. They will not be aware that classifiers are required when counting nouns regardless of count or mass nouns.

At intermediate proficiency levels learners will have recognized some of the different uses of Korean plural marking from the English one, and they will start recruit some of the relevant features associated with -tul and reassemble it, though the process is yet not completed. They would show all or some of the following tendencies.

a. They will show variability in the use of -tul in non-specific context.

b. They will show variable use/interpretation of -tul in specific context.

c. They will exhibit some knowledge of two subtypes of [q] feature, but sometimes incorrectly accepting the pluralized nouns with numerals.

d. They will notice the use of classifiers when counting, but fail to differentiate the use of -tul depending on the [human] feature of classified nouns.

We predict that at advanced stages of L2 development English-speaking learners will have completed the process of reassembling the relevant features, showing accurate production and interpretation of plural marking in specific contexts, and appropriate use of -tul in quantified structures. For the [human] feature of classified nouns, according to the feature co-occurrence hierarchy, the addition of nodes takes place gradually from unmarked/underspecified features to more highly specified ones, indicating that the highly-specified features will be acquired later (McCarthy, 2012). Thus, the acquisition of the distinction would be delayed until very advanced stages of L2 development.
For extrinsic plural marking,

At initial stages of L2 development native English speakers will not have noticed this type of plural marking at all, so they are likely to incorrectly identify extrinsic -tul as the intrinsic one. The reassembly of features for extrinsic -tul will not yet have begun in their representation.

a. They will not extend the use of -tul to non-nominal elements such as adverbs, wh-words, etc.

b. They will not be able to interpret the meaning of extrinsic -tul.

At intermediate stages of L2 development learners will have noticed the use of extrinsic -tul, and will start recruiting the relevant features from a completely different morpholexical item in English, but the process will not yet be complete.

a. They will notice the use of -tul attached to non-nominal elements, but only a few categories.

b. They will be likely to notice that it agrees with the plurality of subject.

c. They will not be likely to recognize the distributive meaning of extrinsic -tul.

We predict that the complete acquisition of extrinsic plural marking would take place at very advanced proficiency level. For the [distr] feature, as mentioned above, the difficulty of its acquisition has been recognized in a recent L1 study by C.-E. Kim (2012). The findings of her study help us predict that the complete acquisition of extrinsic -tul including the [distr] feature would be delayed until very advanced stages of L2 development.

These developmental patterns based on the feature-reassembly approach could reflect learners’ proficiency level. In other words, L2 learners at an advanced level would have completed the process of feature-reassembly, whereas lower proficiency learners are still in the process. If they have completed the reassembly of features, their knowledge in terms of syntactic and semantic properties would converge on native speakers’ grammar. It should also be noted
that exposure to naturalistic input is a minimum requirement for acquisition even though it is
difficult to define how much naturalistic input learners need for the acquisition of plural marking,
because some of the phenomena with respect to Korean plural marking, especially with extrinsic
one, are not explicitly taught in classroom.

4.4. Summary

This chapter has considered some L2 approaches to ultimate attainment, describing what they
suggest and how their claims can be applied to the acquisition of Korean plural marking. I have
shown that the feature-reassembly approach can frame the acquisition of plural marking based on
the formally articulated differences between plural lexical items in English and Korean. The
developmental predictions made based on the feature-reassembly approach have been presented,
indicating that acquisition would be complete at very advanced proficiency level.

The hypothesized predictions will be evaluated in the following chapters, in order to
examine the acquirability of morphosyntactic knowledge for the two types of Korean plural
marking, and to investigate the extent to which the differences articulated by the feature-
reassembly approach can be acquired by adult L2 learners. For this purpose, empirical data from
English-speaking learners collected from various types of tasks will be presented and analyzed.

In Chapter 5, I lay out the research questions addressing plural marking in L2 Korean.
Chapter 5 will also introduce the tasks, which are designed to test whether English-speaking
learners have acquired various properties of both types of plural marking, as well as describe the
procedures of the experiment.
Chapter 5

Methodology

This chapter describes an experimental study investigating the acquisition of Korean plural marking by native English speakers, presenting the experimental procedure and participants’ background information. This study was comprised of five tasks: Elicitation, Acceptability Judgment, Preference, Truth Value Judgment, and Translation, which were administered as pen-and-paper tasks. 85 English speakers (including eight heritage learners) served as participants for the experiment, and 31 native speakers of Korean served as controls. Since this study explores whether L2 learners can successfully acquire Korean plural marking, the learners’ proficiency level is an important variable in interpreting the results. However, it has been reported that there have been few studies that provided reliable proficiency measures (Lee-Ellis, 2009). Thus, in order to improve on this issue, the current study carried out a C-Test developed by Lee-Ellis (2009) as an independent method for measuring learners’ proficiency level. As a result of their scores in the C-Test, the learners were divided into four groups whose scores are significantly different from each other.

This chapter is organized as follows. Section 5.1 introduces the specific research questions for this study, and Section 5.2 describes detailed information about the participants such as their biodata and Korean learning history. Section 5.3 presents the five tasks, and explains the rationale behind them. It also gives their examples and the scoring criteria. Finally, Section 5.4 illustrates how the experiment was administered and the statistics analyses were performed.
5.1. Research questions

The goal of this dissertation is to investigate whether native English speakers can successfully acquire the Korean plural marker *-tul*. As discussed in the previous chapters, unlike English plural marking, which is obligatory for count nouns, some syntactic and semantic restrictions are observed in the use of *-tul*. Thus, L2 learners need to acquire all of the restrictions regarding the use of *-tul* as shown in Chapter 4. This dissertation investigates whether the properties of two types of Korean plural marking are ultimately acquirable by advanced learners. For this purpose, two specific research questions are addressed:

1. Regarding Korean intrinsic plural marking, are adult native English speakers aware that the use of *-tul* is required in specific contexts? Do they correctly produce *-tul* in obligatory contexts? Do they correctly judge sentences containing *-tul* in terms of its syntactic and semantic features?

2. Regarding Korean extrinsic plural marking, are adult native English speakers aware of its use? Do they correctly interpret it?

5.2. Participants

Adult English-speaking learners of Korean and native speakers of Korean\textsuperscript{42} participated in this study. Four of the 89 learners who initially participated in this study were excluded due to incomplete tasks. As a result, the data from 85 learners were included for the analyses. Most of the participants were studying Korean in university courses at the intermediate or above in Korea.

\textsuperscript{42} For the Translation Task, Korean-English bilinguals served as a control group.
and the US at the time of testing but 10 were not enrolled in any Korean courses\(^{43}\), as summarized in Table 5.1.

Table 5.1 Participants’ affiliations

<table>
<thead>
<tr>
<th>List</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Korean courses at universities in the US</td>
<td>64</td>
</tr>
<tr>
<td>2. Korean courses at universities in Korea</td>
<td>7</td>
</tr>
<tr>
<td>3. Graduate students at universities in Korea</td>
<td>4</td>
</tr>
<tr>
<td>4. Not enrolled in any Korean related courses at the time of testing</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>85</td>
</tr>
</tbody>
</table>

It should be noted that eight learners out of 85 were heritage learners. One might wonder if the inclusion of heritage learners could affect results of the study, because they were exposed to naturalistic input since they were born in the same way as L1 children\(^{44}\). Though I do not make any specific claims about the Critical Period Hypothesis, in order to alleviate the concerns I will present two statistical results of all learners and only non-heritage learners in parallel in Chapter 5.

Participants’ proficiency level

The learners were divided into four groups (low-intermediate, high-intermediate, low-advanced, and advanced) on the basis of their scores in a C-Test (Lee-Ellis, 2009) to measure their overall

\(^{43}\) Even though they were not enrolled in Korean classes at the time of testing, all of them reported that they had formal Korean language instruction.

\(^{44}\) However, Montrul (2011) found that heritage learners as well as adult L2 learners show morphological errors, suggesting that heritage learners may have some sort of representational deficit due to reduced input and limited use of the target language.
proficiency levels. According to Lee-Ellis (2009), the C-test demonstrates excellent reliability, validity indices, and high practicality, and functions as a useful method for L2 researchers to test learners’ overall proficiency levels. The C-Test consists of four passages in which some words are missing. The learners are asked to read the passages carefully and write in the missing words. Unlike other tasks in this study, the C-Test has a time limit, so the learners were required to complete the test in 30 minutes. Spelling errors were not counted against them as long as the words that the learners wrote were identifiable. There were three different scoring methods as in Table 5.2.

Table 5.2 Scoring methods for C-Test

<table>
<thead>
<tr>
<th>Scoring method</th>
<th>Examples</th>
<th>Credit</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial credit</td>
<td>영화 + 류</td>
<td>2 points</td>
<td>Lexicon and Particle</td>
</tr>
<tr>
<td></td>
<td>(Movie + Obj-Particle)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>영화*, 영*류</td>
<td>1 point</td>
<td>Lexicon or Particle</td>
</tr>
<tr>
<td></td>
<td>영**</td>
<td>0 point</td>
<td>None</td>
</tr>
<tr>
<td>Dichotomous: Item</td>
<td>영화를</td>
<td>1 point</td>
<td>Lexicon and Particle</td>
</tr>
<tr>
<td></td>
<td>영화*, 영*를</td>
<td>0 point</td>
<td>Lexicon or Particle</td>
</tr>
<tr>
<td></td>
<td>영**</td>
<td>0 point</td>
<td>None</td>
</tr>
<tr>
<td>Dichotomous: Feature</td>
<td>영화</td>
<td>1 point</td>
<td>Lexicon</td>
</tr>
<tr>
<td></td>
<td>류</td>
<td>1 point</td>
<td>Particle</td>
</tr>
</tbody>
</table>

(Lee-Ellis, 2009. p. 254)

As shown in Table 5.2, each test item consists of two features such as lexicon and particle. Among the scoring methods, partial credit scoring was given in this study. Thus, 2 points per item was given to a correct answer for both lexicon and particle, 1 point for a partially correct
answer for either lexicon or particle, and no points for an incorrect answer for both features as shown in Table 5.2. The perfect score for this C-Test is 200 (25 items in each of the four passages), and the cut-off points to divide the four groups were 81 for low-intermediate (81 and lower), 123 for high-intermediate (87-123), 141 for low-advanced (127-141), and higher than 141 for advanced (146 and higher). The cut-off points for the groups were decided by searching for a break-off spot on the learners’ scores.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean (Min-Max)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>(N=All learners/Non-heritage)</td>
<td>All learners/Non-heritage</td>
<td></td>
</tr>
<tr>
<td>Low-Intermediate (N=13/12)</td>
<td>66.4(14-81)/65.7(14-81)</td>
<td>19.86/20.61</td>
</tr>
<tr>
<td>High-Intermediate (N=31/30)</td>
<td>107.5(87-123)/108.2(92-123)</td>
<td>8.74/8.00</td>
</tr>
<tr>
<td>Low-Advanced (N=19/17)</td>
<td>134.7(127-141)/134.3(127-141)</td>
<td>4.44/4.42</td>
</tr>
<tr>
<td>Advanced (N=22/18)</td>
<td>165.7(146-185)/165.0(146-185)</td>
<td>12.87/12.47</td>
</tr>
</tbody>
</table>

A one-way ANOVA showed that there were significant differences among the four learner groups (Welch’s $F^{45}(3, 34.421) = 168.859, p = .000$ for all learners: Welch’s $F^{46}(3, 30.439) = 154.910, p = .000$ for non-heritage learners), with a post hoc Games-Howell analysis indicating significant differences between the advanced group and the other learner groups, between the low-advanced and the other learner groups, and between the high-intermediate and low-intermediate groups.

45 Since the assumption of Homogeneity of Variance was violated for this data (Levene’s statistics: $F(3, 81) = 5.073, p = 0.003$), I used the adjusted $F$ ratio reported as Welch’s statistics.

46 Since the assumption of Homogeneity of Variance was violated for this data (Levene’s statistics: $F(3, 73) = 5.422, p = 0.002$), I used the adjusted $F$ ratio reported as Welch’s statistics.
**Participants’ background**

The participants completed a background questionnaire, which was designed to obtain information regarding their language learning history as well as their basic biodata, including age and gender. Most of the learners have had not only formal Korean language instruction at a university, but have also been exposed to considerable naturalistic spoken input in Korea (or at home for heritage learners). Detailed information about the participants is summarized in Table 5.4.

<table>
<thead>
<tr>
<th>Groups</th>
<th>N (F/M/heritage)</th>
<th>Mean Age (range)</th>
<th>Length of Stay in Korea (months)</th>
<th>Mean age of first exposure to Korean</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS controls</td>
<td>31 (24/7/N/A)</td>
<td>27.8 (19-40)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>LI (0-81)</td>
<td>13(3/10/1)</td>
<td>24.7(21-42)</td>
<td>16.8(0-24)</td>
<td>19.7(19-23)</td>
</tr>
<tr>
<td>HI (87-123)</td>
<td>31(4/27/1)</td>
<td>26.0(20-65)</td>
<td>37.5(0-420)</td>
<td>20.6(17-29)</td>
</tr>
<tr>
<td>LA (127-141)</td>
<td>19(2/17/2)</td>
<td>24.2(18-41)</td>
<td>48.3(0.75-192)</td>
<td>19.5(13-25)</td>
</tr>
<tr>
<td>A (146-185)</td>
<td>22(3/19/4)</td>
<td>23.5(19-29)</td>
<td>35.3(7-96)</td>
<td>19.2(16-24)</td>
</tr>
</tbody>
</table>

5.3. Materials

In order to test both types of *-tul*, five types of tasks were designed: an elicitation task, an acceptability judgment tasks, a preference task, a truth value judgment task, and a translation

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47 Two participants in the low-intermediate group and one participant in the high-intermediate group had not resided in Korea.

48 For heritage learners, their age of first exposure is assumed to be age 0. Each group has at least one heritage learner, and they were eliminated for the mean age of first exposure. In other words, the data in this category included only non-heritage learners.

49 One non-heritage participant in the high-intermediate group had resided in Korea for 35 years.
task. The instructions for each task were given in English for the learners and in Korean for the native speakers.

5.3.1. Acceptability Judgment Task (for intrinsic -tul)

The Acceptability Judgment Task (henceforth, AJT) was designed to test if L2 learners are aware of various restrictions on the use of intrinsic -tul such as prohibition of pluralized non-human nouns with a numeric quantifier. If the learners have not mastered the difference in use between the Korean plural marking and the English one, they would incorrectly accept the sentences involving a numeric quantifier such as *sey kong-tul (three ball-PL); if they have not learned the [human] feature restriction, they would not reject those in which a pluralized non-human noun is used with a classifier such as *chayk-tul sey kwen (book-PL three CL). On the other hand, the learners who have acquired these properties may be able to correctly reject these types of sentences. For this task, participants were asked to categorically judge 26 sentences (13 test items and 13 distracters) as grammatical or ungrammatical. Test items represent both target and non-target uses of -tul. The six categories of test items are presented in (5.1).
(5.1) Categories for test items

a. Classifier with pluralized [-human] nouns (N=2; incorrect ones)

*chayk-tul twu kwen-i chayksang wiey iss-eyo.
book-PL two CL-NOM desk on exist-DECL
‘There are two books on the desk’

b. Numeric quantifier with pluralized nouns (N=2; incorrect ones)

*na-nun ecey paykhwacem-eyse sey paci-tul-ul sa-ss-eyo.
I-TOP yesterday department store-LOC three pant-PL-ACC buy-PAST-DECL
‘I bought three pants in the department store yesterday’

c. Pluralization on the classifier itself (N=2; incorrect ones)

*ecey haksayng ney myeng-tul-ul manna-ss-eyo.
yesterday student four CL-PL-ACC meet-PAST-DECL
‘(Someone) met four students yesterday’

d. Pluralized nouns in clearly defined non-specific contexts (N=3; incorrect ones)

??amu haksayng-tul-ul ina ku il-ul ha-l.swu.iss-eyo.
any student-PL-or the work-ACC do-can-DECL
‘Any student(s) can do the work.’

e. Classifier with pluralized [+human] nouns (N=2; correct ones)

three CL-GEN kid-PL-NOM house front-LOC play-PRES-KES-ACC see-PAST-DECL
‘(Someone) saw three kids playing in front of the house’

f. Weak quantifier with pluralized nouns (N=2; correct ones)

ecey na-wa hamkkey kyosil-ey iss-ten motun salam-tul-i pantayhay-ss-eyo.
yesterday me-and together classroom-in be-PAST.REL all person-PL-NOM oppose-PAST-DECL
‘The people who were in the classroom with me yesterday opposed (something)’

50 The ‘kes’ in Korean nominalizes a preceding VP or S. It is indicated ‘KES’ in the glosses.
The test items and distractors were randomly ordered in the task. The participants were also asked to provide correct sentences if they rated the items ‘ungrammatical’. One example of the AJT is given in Figure 5.1.

![Example of test items in AJT](image)

**Scoring**

In scoring the AJT, the test items were divided according to their grammaticality. For grammatical sentences, one point was given to items that the participant judged as ‘yes’ (that is, grammatical). For ungrammatical sentences, one point was given to the items that are judged as ‘no’ (that is, ungrammatical). However, even if the participant correctly judged an incorrect item as ‘no’, no point was given if the correction provided by the participant was not correct as shown in (5.2).
(5.2) Test item

na-nun  sikyey-tul sey kay-lul  chinkwu-hanthey  cwu-ess-eyo.
I-TOP  watch-PL three CL-ACC  friend-to  give-PAST-DECL
‘I gave three watches to my friend’

a. Plural marking was addressed, but the corrections were incorrect.
I-NOM  watch three CL-PL-ACC  friend-to  give-PAST-DECL

For (5.2), even though plural marking was addressed in the correction, the provided correction
sikyey sey kay-tul ‘watch three CL’ was not a correct construction because -tul is not allowed on
classifiers. In short, one point was given only if the participant judged a grammatical sentence as
‘yes’ or an ungrammatical as ‘no’ and also fixed it in a correct way.

In some cases, even though the participants may have correctly judged the
ungrammatical test items as ‘no’, their corrections might have addressed different parts than the
pluralized NPs, as exemplified in (5.3).

(5.3)  Plural marking was not addressed in the corrections.
Test item:  na-nun  tases ankyeng-tul-i  iss-eyo.
I-TOP  five glasses-PL-NOM  have-DECL

Correction: na-nun  tases ankyeng-tul-ul  iss-eyo.
I-TOP  five glasses-PL-ACC  have-DECL

For (5.3), the learner changed the nominative case marker i to the accusative case marker -ul
without addressing the lack of classifier on the pluralized NP tases ankyeng-tul ‘five glasses-PL’
In this case, the item was excluded from the total items.
On the other hand, for grammatical sentences, it is important to consider the corrections learners provided when they gave incorrect answers.

(5.4) Plural marking was not addressed in the correction
Test item:
tosekwan-ey  **iss-ten**  manhun chayk-tul  cwungeyse  hana-lul  kolla-ss-eyo. NO
library-LOC  be-PAST.REL  many book-PL  among  one-ACC  choose-PAST-DEC
Correction:  tosekwan-ey  **iss-ess-ten**  
library-LOC  be-PAST-PAST.REL

As shown in (5.4), the learner marked this ‘incorrect’ even though the item is a grammatical sentence, but the correction was not relevant to plural marking. In this case, as in (5.3) the item was discarded from the total of test items.

Thus, one point was given only if the sentence was judged correctly and provided corrections addressing plural marking were correct. Since the participants had different totals of test items for the reasons described above, percentage scores were calculated. Scores were calculated as a percentage of the total number of points divided by the total number of test items.

5.3.2. Preference task (for extrinsic -*tul*)
The preference task was designed to measure learners’ knowledge of the fact that the extrinsic plural marker can be attached to various non-nominal elements in Korean, as well as other syntactic restrictions on its use. In this task, L2 learners would be able to choose the sentences where -*tul* attached to non-nominal elements such as adverbs if they have acquired the appropriate use of extrinsic -*tul*. If they have not learned it, they might fail to choose those
sentences. The participants were asked to read 13 situations (6 test items\(^{51}\) and 7 distracters). The elements extrinsic -\textit{tul} attaches to are given below.

\((5.5)\) Categories for the elements

a. Adverbs (N = 2)

\begin{center}
\begin{tabular}{ll}
ese-\textit{tul} & tu-sey-yo. \\
please-PL & eat(HON)-HON-IMP \\
\end{tabular}
\end{center}

b. Wh-words (N = 2)

\begin{center}
\begin{tabular}{ll}
way-\textit{tul} & kulehkey wus-e? \\
why-PL & so laugh-INT \\
\end{tabular}
\end{center}

c. Oblique nominals (N = 1)

\begin{center}
\begin{tabular}{ll}
hakkyo-ey-\textit{tul} & kassta.wa-ss-e? \\
school-LOC-PL & be.back-PAST-INT \\
\end{tabular}
\end{center}

d. Verbal noun (N = 1)

\begin{center}
\begin{tabular}{ll}
swukcey-\textit{tul}-un & hay-ss-eyo? \\
homework-PL-TOP & do-PAST-INT \\
\end{tabular}
\end{center}

Of the six test items, one item was designed to test whether the learners could correctly reject the use of extrinsic -\textit{tul} in the situation where the speaker does not address more than one person. For each item in this preference task, the participants looked at a picture of people doing things, and read a description, in English, of what was going on in the situation. They were asked to choose what a designated person in the picture might say in that situation from among four sentences written in Korean. Of the four sentences for each situation, one was a test sentence.

\(^{51}\) Initially seven test items were administered. However, one of the test items was excluded, because the test item had an error in context, which was written in English, and the error could affect learners’ performance.
containing extrinsic -tul, another one was a sentence without -tul, and the other two were distractors. The participants were told that for each item there could be more than one appropriate sentence, so they could mark ‘yes’ on more than one sentence. The general structure of the Preference task is illustrated in Figure 5.2. This item has a picture in which a woman is serving a roast turkey to three people at a table.

The family is about to have dinner. The woman who made dinner is bringing it to them. As she puts it on the table, what would she say?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 여서들 드세요</td>
<td>YES</td>
<td>(with -tul)</td>
</tr>
<tr>
<td></td>
<td>ese-tul</td>
<td>tu-sey-yo.</td>
</tr>
<tr>
<td></td>
<td>please-PL</td>
<td>eat(HON)-HON-IMP</td>
</tr>
<tr>
<td></td>
<td>‘Please have (something)’</td>
<td></td>
</tr>
<tr>
<td>b. 여서 먹으세요</td>
<td>(distractor)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ese</td>
<td>mek-usey-yo.</td>
</tr>
<tr>
<td></td>
<td>please</td>
<td>eat-HON-IMP</td>
</tr>
<tr>
<td></td>
<td>‘Please have (something).’</td>
<td></td>
</tr>
<tr>
<td>c. 여서 드세요</td>
<td>YES</td>
<td>(without -tul)</td>
</tr>
<tr>
<td></td>
<td>ese</td>
<td>tu-sey-yo.</td>
</tr>
<tr>
<td></td>
<td>please</td>
<td>eat(HON)-HON-IMP</td>
</tr>
<tr>
<td></td>
<td>‘Please have (something)’</td>
<td></td>
</tr>
<tr>
<td>d. 여서 먹으셨어요?</td>
<td>(distractor)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ese</td>
<td>mek-usey-ess-eyo?</td>
</tr>
<tr>
<td></td>
<td>please</td>
<td>eat-HON-PAST-INT</td>
</tr>
<tr>
<td></td>
<td>‘Did you eat please?’</td>
<td></td>
</tr>
</tbody>
</table>

Figure 5.2 Example of test items in preference task

---

52 The picture was not provided here due to the copyright issue.
53 The verb mek- ‘eat’ requires a suppletive honorification form, and thus it needs to be replaced with tu- in addition to the regular honorific affix -(u)si. Thus, this sentence is not acceptable in Korean. The sentence in (d) is ruled out for the same reason.
Scoring

In scoring the five test items in which a speaker addresses a group of people, if the participants gave ‘yes’ to a sentence containing extrinsic -tul, one point was awarded. Even though they may have marked ‘yes’ on the other items including incorrect distractors besides the sentence involving -tul, selection of extrinsic -tul was counted as a correct answer. If they gave one ‘yes’ only to a sentence without extrinsic -tul, np point was given. For the one test item where the use of extrinsic -tul is not felicitous, if they marked ‘yes’ on the sentence containing -tul, no point was awarded.

However, for the test items in which the learner marked ‘yes’ on all the four sentences, those items were excluded from the total of test items, because this might be a result of a tendency to respond ‘yes’ to all sentences, and not necessarily indicative of acquired knowledge regarding extrinsic -tul. Thus, since not all participants had the same number of test items, percentage scores which were calculated as a percentage of the total number of points divided by the total number of test items were used.

5.3.3. Elicitation task (for intrinsic -tul)

This elicitation task was developed for eliciting the intrinsic plural -tul. In this task, participants were given 12 pictures (including six distracters) which depicted situations where a tourist was traveling in a foreign country. For each picture, participants were asked to make a question about objects in the pictures at which the tourist was pointing. Some words were given below each of the pictures, and the participants were asked to use them while forming questions. This task was comprised of two parts.
For three test items, we intended to investigate whether learners were able to produce intrinsic -tul to refer to specific plural entities. As discussed earlier, the use of -tul is obligatory when nouns are specific. Since participants were asked to refer to specific plural entities in the pictures they were currently seeing, the use of -tul is required. In addition, the addition of demonstratives, which require obligatory use of -tul, is also possible (given that the tourist is pointing at the object). If the learners mistakenly believe that -tul is always optional and have not acquired the obligatory use of -tul in the specific context, they might not produce it.

Relevant vocabulary words, which participants need to use in making questions, were given. For example, a particular test item had a picture of many white houses and the participants were asked to create a question containing the noun cip ‘house’ and hayahta ‘be white’, and were expected to produce a question like (5.6).

(5.6)  i cip-tul-un    way   hayay-yo?
       this house-PL-TOP  why   be.white-INT

‘Why are these houses white?’

The other three test items were intended to test if learners were able to produce correct classifier constructions. It was expected that the numeral-classifier NPs would be produced if the learners knew that classifiers are usually used with numerals when counting nouns in Korean, because the number of objects was given to them as a required word. However, classifiers are not given to them, so the learners had to come up with the appropriate classifier based on the kind of noun. In addition, we can also test which word order pattern (pre-nominal numeral-classifier vs. post-nominal numeral-classifier) is most frequently produced by the learners.

For example, a test item had a picture of two cars at the beach and the learners are
required to use three words when forming the question: *catongcha* ‘car’, *twul* ‘two’, and *way* ‘why’. It was expected that they would produce a sentence using the appropriate classifier *tay* for cars like (5.7).

(5.7)  

\[
\begin{align*}
\text{way} & \quad \text{catongcha} & \quad \text{twu} & \quad \text{tay-ka} & \quad \text{yeka} & \quad \text{iss-eyo}?
\text{why} & \quad \text{car} & \quad \text{two} & \quad \text{CL-NOM} & \quad \text{here} & \quad \text{be-INT}?
\end{align*}
\]

‘Why are two cars here?’

**Scoring and coding**

As mentioned above, the Elicitation task comprised two types of testing items: one testing whether participants can correctly produce -*tul* to refer to a particular group of entities in specific contexts, and another to investigate if they correctly produce numeral-classifier constructions.

In scoring the test items that required the obligatory use of -*tul*, one point was awarded for each target-like construction of plural marking and no point was awarded for an incorrect one. Even if other parts of the sentence were not perfect or incorrect, they were not counted against participants if -*tul* was used correctly. Thus, for a sentence containing -*tul*, one point was given, and for a sentence without -*tul*, no point was awarded as shown in (5.8).
(5.8) a. one point

```
i salam-tul-i mues-ul tha-ko iss-eyo?
this person-PL-NOM what-ACC ride-COMP COP-INT
```

“What are these people riding?”

b. zero point

```
i salam-i mues-ul tha-ko iss-eyo?
this person-NOM what-ACC ride-COMP COP-INT
```

For (5.8.b), no point was awarded because *tul* was not produced even though specific plural entities were addressed. In addition, there were some other sentences produced by participants which were considered for scoring. The example in (5.9) presents these cases.

(5.9) talun salam-to ikes-ul tha-l.swu.iss-eyo?

```
another person-also this-ACC ride-can-INT
```

“Can another person ride this?”

In (5.9), even though this question contained the given required words (*salam* ‘person’ and *thata* ‘to ride’), *salam* in this example does not refer to the particular group of people in the picture. Since these examples did not address the target item depicted, these cases were eliminated from analysis. Thus, percentage scores were used as not every participant had the same total number of items. Scores were calculated as a percentage of the total number of points divided by the total number of test items.

For the other test items regarding numeral classifier constructions, the sentences produced by participants were first categorized in terms of suppliance of a classifier.
(5.10) a. Suppliance

way catongcha twu tay-ka yeki iss-eyo?
why car two CL-NOM here be-INT

b. Omission

way twu catongcha-ka yeki iss-eyo?
why two car-NOM here be-INT

Example (5.10b) in which a classifier was not used to count the number of cars was categorized into the omission category, while (5.10a) was counted in the suppliance category. The omission category, in addition, was further divided into two subcategories.

(5.11) a. Number + Noun

sey chayk-(tul)
three book-PL

b. Noun + Number

chayk seys
book three

The suppliance category was also further categorized into two subcategories: inappropriate or appropriate classifier use as in (5.12).
(5.12) a. Appropriate classifier

```
catongcha twu tay
car two CL
```

b. Inappropriate classifier

```
catongcha twu *kay
car two CL
```

In addition, as discussed above, there were two possible word order patterns regarding numeral classifier constructions as in (5.13). This was designed to investigate the word order pattern that was more frequently used by learners. In the pre-nominal numeral-classifier constructions, whether or not the learner correctly produced the genitive case marker -uy was also examined.

(5.13) a. Post-nominal numeral classifier

```
kyengchal sey myeng
police officer three CL
```

b. Pre-nominal numeral classifier

```
sey myeng-(*)uy kyengchal
three CL-(*GEN) police officer
```

5.3.4. Truth Value Judgment Task

In the Truth Value Judgment Task (henceforth, TVJT), participants were asked to assign a truth-value judgment (where ‘true’ was marked ‘yes’ and ‘untrue’ was marked ‘no’) to sentences that followed a short paragraph in English. This task included two types of plural marking (i.e., intrinsic and extrinsic), and tested both whether the learners had acquired the discourse-related interpretation of intrinsic -tul (i.e., specificity) and if they can notice the distributive reading of
extrinsic *-tul* established via context.

Regarding intrinsic *-tul*, L2 learners should correctly interpret the test items if they have acquired the fact that the use of intrinsic *-tul* has to do with specificity, which could be established via context. On the other hand, regarding extrinsic *-tul*, if the learners are aware of the fact that it triggers a distributive meaning, they should provide ‘yes’ answers to a sentence containing *-tul* if the context involves distributive reading, and ‘no’ if the context does not trigger that meaning. If they have not yet acquired these factors, their performance would show inconsistency.

For this task, learners judged 30 sentences (14 test items\(^{54}\); 7 items for intrinsic and 7 items for extrinsic one, and 16 distracters) based on the contexts given in English\(^{55}\). For Korean native speakers in the control group, the contexts were provided in Korean.

\(^{54}\) The test originally included 16 test items, but we decided to exclude one item from each category for analyses. The contexts of those items were not clear, so most native controls did not provide consistent answers. Thus, two plural marking types became to have 7 test items each.

\(^{55}\) In order to minimize the possibility that the learners’ answers resulted from misunderstanding the stories, the contexts were presented in English.
a. Context for intrinsic -tul
Steve was working at home yesterday. There was too much noise outside, distracting him from his work. When he came out, six kids were playing soccer in front of his house.

아이가 시끄럽게 놀았다.                 _____NO______
ai-ka sikkulepkey nol-ass-ta.
child-NOM noisily play-PAST-DECL
‘A child played noisily.’

b. Context for extrinsic -tul
Cara and Sam went to a shopping mall together to buy some clothes. Cara bought only a skirt, while Sam bought a jacket, a T-shirt, a dress shirt and a pair of jeans. After shopping, they had dinner at a restaurant.

Cara와 Sam은 옷을 많이 샀다.       _____NO______
Cara-wa Sam-un os-ul manhi-tul sa-ss-ta.
Cara-and Sam-TOP clothes-ACC a lot-PL buy-PAST-DECL
‘Cara and Sam each bought many clothes.’

Figure 5.3 Examples of test items for TVJT

The participants read the stories and had to decide whether the subsequent sentence was a natural sentence based on the story they read. In the case of example (a) in Figure 5.3, the sentence without -tul does not follow felicitously from the story because the use of -tul is not optional if a noun has been established in the previous context as plural (Kwon & Zribi-Hertz, 2004). Thus, if the learners are aware of this property of -tul, they should indicate that the sentence does not match the story. Example (b) in Figure 5.3 for extrinsic -tul follows the same rationale. The sentence containing extrinsic -tul does not match the story in which only Sam bought many clothes, because it does not trigger the distributive reading.
Scoring

In the TVJT, one point was given when participants correctly accepted or rejected a test item. No point was awarded for incorrect responses. Since the total number of test items was same for all participants, the raw scores (i.e. the number of correctly answered items) were used.

5.3.5. Translation Task

The multiple choice translation task was designed to test if learners had acquired interpretations of both types of -tul. In the translation task, participants were asked to read 18 sentences in Korean (9 test items and 9 distracters). Each Korean sentence included four interpretations in English, and participants were asked to choose which interpretation was most appropriate for the Korean sentences.

In this task, monolingual Korean controls were excluded from analysis, as it was possible that their performance might not reflect their actual knowledge due to insufficient English language proficiency. Before carrying out the tasks, Korean native speakers were required to complete a background questionnaire about their foreign language proficiency, in which they were asked to self-assess proficiency in four skills: speaking, listening, reading and writing. Only Korean-English bilinguals who rated their English proficiency as ‘high’ in more than one skill were included.
### Scoring

For the translation task, one point was given if participants chose the correct answer, while no point was awarded if they chose an incorrect answer. As in the TVJT, the raw scores (i.e. the number of correct answers) were used.

### 5.4. Procedures

This section describes the experimental procedure and explains the statistical analyses employed in this dissertation. A diagram summarizing a brief general overview of the procedure is shown in Figure 5.5.
As shown in Figure 5.5, before beginning the actual tasks, all learners were required to sign the informed consent form stating they agreed to the experimental procedures. After that, the background questionnaire was given to review their Korean language learning history (e.g. the length of time learning Korean, the length of stay in Korea, etc.). Then, the learners performed the C-Test for 30 minutes. After handing in the completed C-Test to the researcher, the actual tasks for Korean plural marking were given to them.

The participants received a booklet of the tasks from the researcher, and started working through them in a given order. For each task, there were two versions in which the testing items were differently ordered\textsuperscript{56}. Since the order of performing tasks can affect the test taker’s performance, the tasks were carefully ordered. The elicitation task was carried out always as the first task, because the learners could benefit from the stimuli in other tasks. The preference task preceded the TVJT since the test items containing extrinsic \textit{-tul} in the TVJT could affect the learners’ performance on the preference task. The translation task was administered last, because the learners might notice the distributive meaning of extrinsic \textit{-tul} while working on the

\textsuperscript{56} Two versions were generated by reversing the order of one version.
translation task. Since the translation task was a multiple choice task, choosing one correct answer among the four options could help learners to get the clear meaning of extrinsic plural marking, helping them focus on the correct answer by eliminating other incorrect answers.

Given all of the above-mentioned considerations, we came to have three different versions of the booklet, which consisted of different orders of the tasks as in (5.14). The three versions were randomly distributed to the participants.

(5.14) Three orders of the tasks
a. elicitation task-preference task-GJT-TVJT-translation task
b. elicitation task-GJT-preference task-TVJT-translation task
c. elicitation task-preference task-TVJT-GJT-translation task

The participants were not allowed to go back to previous items once they gave answers, because there was a possibility that they would change their responses based on test items containing -tul in the other tasks. There was no time limit, so they were allowed to freely leave once they completed the tasks.

The participants’ scores were used for statistical analysis using the SPSS statistics program. One-way ANOVAs were performed for each task to see whether there were significant differences between groups (four learner groups and one native control group) with post hoc analyses carried out to figure out which group was significantly different from other groups. Where within-group comparisons were necessary, repeated-measures ANOVAs were also performed to investigate whether or not the participants behaved differently according to within-group factors.
In the following chapter, the statistical analyses, which have been conducted to answer the research questions, are presented. Chapter 6 reports the group results as well as individual data for each task obtained through the various statistical methods.
Chapter 6

Results

This chapter reports the empirical results of statistical analyses that were performed to answer the research questions presented in Chapter 5. As discussed in Chapter 5, five tasks (elicitation task, preference task, Acceptability Judgment Task (AJT), Truth Value Judgment Task (TVJT), and translation task) were carried out to investigate whether adult English-speaking learners of L2 Korean show native-like performance with respect to two types of Korean plural marking. For each task, descriptive statistics (means, ranges and standard deviations) will be presented, and a separate analysis using ANOVAs conducted for group comparison will be reported. Each section provides group results using ANOVAs with post hoc analyses to figure out where between-group differences lie. For the AJT, preference and elicitation tasks, some additional analyses using subcategories will be reported. In these cases, chi-square tests or one-way repeated measures ANOVAs with the subcategories as within-subjects factors were performed depending on the nature and purpose of the statistical analyses. Along with overall group results, I also present individual results, as looking only at group results might hide some learners’ data which showed target-like performance.

This chapter is organized as follows. Section 6.1 considers the results of the AJT, reporting group and individual data. Section 6.2 describes the group and individual data of the preference task. Section 6.3 considers the results of the elicitation task, which is divided into two parts. These two parts are coded and reported separately. Section 6.4 presents the TVJT, and Section 6.5 reports the results of the translation task. Finally, Section 6.6 summarizes the major findings of the five tasks. For each task, as mentioned in Chapter 5, in order to alleviate concerns
about the inclusion of heritage learners, two statistical results (one of all learners, and the other one of only non-heritage learners) will be presented.

6.1. Results of the Acceptability Judgment Task

Overall group results

For the AJT, descriptive statistics of the results (of all learners and non-heritage learners) are shown in Table 6.1. Presented here are the means of participants’ percentage of correct answers out of total test items, as well as the ranges and standard deviations per each proficiency level. The data shown in the table indicate a clear developmental pattern: the high-intermediate learners performed better than the low-intermediate, and the advanced learners produced more correct answers than both intermediate group learners and the low-advanced learners.

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean (Min-Max)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All/NH</td>
<td>All/NH</td>
<td>All/NH</td>
</tr>
<tr>
<td>Low-Intermediate</td>
<td>12/13</td>
<td>33.8(25.0-55.5)/32.5(25.0-55.5)</td>
<td>9.22/8.18</td>
</tr>
<tr>
<td>High-Intermediate</td>
<td>30/31</td>
<td>45.1(25.0-83.3)/44.9(25.0-83.3)</td>
<td>16.09/16.34</td>
</tr>
<tr>
<td>Low-Advanced</td>
<td>17/19</td>
<td>47.3(18.2-76.9)/44.6(18.2-76.9)</td>
<td>17.54/16.58</td>
</tr>
<tr>
<td>Advanced</td>
<td>18/22</td>
<td>64.3(33.3-100.0)/63.9(33.3-100.0)</td>
<td>16.41/17.74</td>
</tr>
<tr>
<td>Natives</td>
<td>31</td>
<td>85.2(61.5-100.0)</td>
<td>8.89</td>
</tr>
<tr>
<td>Total</td>
<td>116</td>
<td>58.5(18.2-100.0)/58.2(18.2-100.0)</td>
<td>23.03/23.7</td>
</tr>
</tbody>
</table>

Group differences based on percentage scores are displayed graphically in Figure 6.1, which
shows a gradual development according to the learners’ proficiency levels.

Figure 6.1  Mean percentage scores (AJT)

In order to determine if the differences among the four learner groups and one native control group were statistically significant on the task, a one-way analysis of variance (ANOVA) was performed. The result indicated that there were statistically significant differences among the groups (Welch’s $F^{57}(4, 46.067) = 89.790, p = .000$ for all participants; Welch’s $F(4, 41.442) = 99.482, p = .000$ for non-heritage learners).

To investigate the source of these statistically significant differences, post hoc Games-Howell analyses were conducted. The differences that emerged from these analyses are

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57 Since the assumption of Homegeneity of Variance was violated for this data (Levene’s statistics: $F(4, 111) = 4.561, p = 0.002$ for all participants; $F(4,103) = 4.886, p = .001$ for non-heritage learners), I used the adjusted $F$ ratio reported as Welch’s statistics, even though significant $p$-values were obtained from the ANOVA’s $F (F(4,111) = 47.985, p = .000$ for all participants; $F(4,103) = 49.354, p = .000$).
summarized in Table 6.2.

### Table 6.2 Post hoc pair-wise comparisons (AJT)

<table>
<thead>
<tr>
<th>Paired comparisons</th>
<th>$p$ (All/NH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-intermediate &lt; High-intermediate</td>
<td>0.043*/0.018*</td>
</tr>
<tr>
<td>Low-intermediate &lt; Low-advanced</td>
<td>0.061/0.100</td>
</tr>
<tr>
<td>Low-intermediate &lt; Advanced</td>
<td>0.000**/0.000**</td>
</tr>
<tr>
<td>Low-intermediate &lt; Natives</td>
<td>0.000**/0.000**</td>
</tr>
<tr>
<td>High-intermediate &lt; Low-advanced</td>
<td>0.992/1.000</td>
</tr>
<tr>
<td>High-intermediate &lt; Advanced</td>
<td>0.001**/0.007**</td>
</tr>
<tr>
<td>High-intermediate &lt; Natives</td>
<td>0.000**/0.000**</td>
</tr>
<tr>
<td>Low-advanced &lt; Advanced</td>
<td>0.023*/0.017*</td>
</tr>
<tr>
<td>Low-advanced &lt; Natives</td>
<td>0.000**/0.000**</td>
</tr>
<tr>
<td>Advanced &lt; Natives</td>
<td>0.000**/0.001**</td>
</tr>
</tbody>
</table>

NOTE: Starred (*) entries indicate statistically significant differences at $p < 0.05$, and double starred (**) entries indicate at $p < 0.01$.

The post hoc analyses indicated that all learner groups showed significant differences from the native control group; significant differences are also found between the low-intermediate and the high-intermediate as well as between the low-advanced and advanced groups. The advanced group was superior to all other learner groups. Although all learner groups showed significant differences from the native group, learners’ performance improves with proficiency. This means that the advanced group was more sensitive to the syntactic and semantic restrictions of Korean intrinsic plural marking than lower group learners were, showing significantly greater accuracy at judging grammaticality of the sentences containing -tul. On the other hand, even advanced group significantly differed from the native control group, and this finding may suggest that L2
learners had difficulty in acquiring all of these restrictions.

**Individual results**

Even though the group results showed all learner groups failed to show native-like performance in the AJT, these group results may hide some learners who performed in a native-like way. To investigate this issue, an individual analysis was conducted. The individual analysis was based on the consistency of responses each participant showed. Participants were categorized according to the response patterns they showed in the AJT: (1) incorrect, (2) optional, and (3) correct. The subjects who performed with less than 30% accuracy were classified into the incorrect response pattern, and the ones who performed with over 70% accuracy into the correct response pattern. The subjects who showed between 30-70% accuracy were classified into the optional response pattern. Table 6.3 summarizes the distribution of response patterns for each group.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Incorrect</th>
<th>Optional</th>
<th>Correct</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All/NH</td>
<td>All/NH</td>
<td>All/NH</td>
<td></td>
</tr>
<tr>
<td>LI</td>
<td>5(38.5%)/5(41.7%)</td>
<td>8 (61.5%)/7(58.3%)</td>
<td>0(0%)/0(0%)</td>
<td>13/12</td>
</tr>
<tr>
<td>HI</td>
<td>3(9.7%)/3(10.0%)</td>
<td>25(80.6%)/24(80.0%)</td>
<td>3(9.7%)/3(10.0%)</td>
<td>31/30</td>
</tr>
<tr>
<td>LA</td>
<td>4(21.1%)/4(23.5%)</td>
<td>13(68.4%)/12(70.6%)</td>
<td>2(10.5%)/1(5.9%)</td>
<td>19/17</td>
</tr>
<tr>
<td>A</td>
<td>0(0%)/0(0%)</td>
<td>13(59.1%)/11(61.1%)</td>
<td>9(40.9%)/7(38.9%)</td>
<td>22/18</td>
</tr>
<tr>
<td>Natives</td>
<td>0 (0%)</td>
<td>1 (3.2%)</td>
<td>30 (96.8%)</td>
<td>31</td>
</tr>
</tbody>
</table>

Figures 6.2-1 and 6.2-2 illustrate how these three response patterns were distributed from low-
intermediate through native control groups.

Figure 6.2-1  Percentage of participants per response pattern (AJT; All learners)

Figure 6.2-2  Percentage of participants per response pattern (AJT; Non-heritage learners)
As seen in Figures 6.2-1 and 6.2-2, there is a different distribution of individual responses among four learner groups and one native control group. For the L2 learner groups in general, the majority of learners fell into the optional response pattern. In the low-intermediate group, around 40% of learners exhibited the incorrect response pattern, and none of the learners in the group fell into the correct response pattern. In the high-intermediate and low-advanced groups, a majority of learners displayed an optional response pattern, while only around 10% achieved a target-like level of judgment in relation to Korean intrinsic plural marking.

It appears that the number of learners who fell into the correct response group increases with their proficiency levels. In the advanced group, around 40% of learners show the correct response pattern, and none of them showed the incorrect response pattern. These findings suggest that L2 learners perform in a more target-like way in making correct judgments of Korean intrinsic plural marking as their proficiency improves, even though they may have had difficulty in its acquisition. Indeed, one learner (non-heritage) in the advanced group provided 100% correct answers, and this evidence indicates that the successful acquisition should be possible in principle.

*Analysis for grammatical categories*

This section considers separate analyses for six categories of the test items. As presented in chapter 5, the test items in the AJT were comprised of six grammatical categories. Table 6.4 summarizes the mean percentage scores of each group in each category.
Table 6.4  Mean percentage scores of each category (AJT)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LI</td>
<td>11.5/12.5</td>
<td>15.4/12.5</td>
<td>16.7/13.6/9</td>
<td>2.6/0.0</td>
<td>84.6/87.5</td>
<td>100.0/100.0/9</td>
</tr>
<tr>
<td>HI</td>
<td>35.5/36.7</td>
<td>38.3/38.3</td>
<td>33.9/33.3</td>
<td>5.4/5.5</td>
<td>85.0/84.5/64</td>
<td>98.3/98.2/66</td>
</tr>
<tr>
<td>LA</td>
<td>47.4/44.1</td>
<td>50.0/47.1</td>
<td>36.8/29.4</td>
<td>11.4/9.8</td>
<td>84.2/85.3</td>
<td>87.5/86.7/86.7/58</td>
</tr>
<tr>
<td>A</td>
<td>65.9/69.4</td>
<td>68.2/72.2</td>
<td>68.2/63.9</td>
<td>34.1/32.4</td>
<td>75.0/69.4</td>
<td>90.9/91.7</td>
</tr>
<tr>
<td>N</td>
<td>88.7</td>
<td>87.1</td>
<td>95.2</td>
<td>55.4</td>
<td>98.4</td>
<td>100.0</td>
</tr>
</tbody>
</table>

a. Classifier with pluralized [-human] nouns  
b. Numeric quantifier with pluralized nouns  
c. Pluralization on the classifier itself  
d. Pluralized nouns in clearly defined non-specific contexts  
e. Classifier with pluralized [+human] nouns  
f. Weak quantifier with pluralized nouns

Figure 6.3 shows the performance of each group in all of the tested grammatical categories. At first glance, Figure 6.3 seems to show that the low-intermediate and high-intermediate groups

---

58 One learner’s value is missing in LI.  
59 One learner’s value is missing in LI.  
60 One learner’s value is missing in LI.  
61 One learner’s value is missing in LI.  
62 One learner’s value is missing in HI.  
63 One learner’s value is missing in HI.  
64 One learner’s value is missing in HI.  
65 Two learners’ values are missing in HI.  
66 Two learners’ values are missing in HI.  
67 Three learners’ values are missing in LA.  
68 Two learners’ values are missing in LA.
performed much worse on the ungrammatical sentences ((a), (b), (c), and (d) categories) than on the grammatical ones ((c) and (f) categories).

Figure 6.3 Mean percentage scores of each category (All learners)

In order to examine whether participants performed differently in these six categories, repeated-measures ANOVAs were performed for each group. All the groups showed significant differences for the categories (all learners: \( F(5, 60) = 34.508, p = .000 \) for the low-intermediate, \( F(5, 150) = 43.467, p = .000 \) for the high-intermediate, \( F(5, 90) = 12.700, p = .000 \) for the low-advanced, \( F(5, 105) = 5.923, p = .000 \) for the advanced, and \( F(5, 150) = 18.079, p = .000 \) for the native control group; non-heritage learners: \( F(5, 55) = 35.203, p = .000 \) for the low-intermediate, \( F(5, 145) = 40.939, p = .000 \) for the high-intermediate, \( F(5, 80) = 12.345, p = .000 \) for the low-

\(^{69}\) In order to include all the data, missing values were replaced with some estimates automatically generated by SPSS 20.
advanced, $F(5, 85) = 5.156, p = .000$ for the advanced, and $F(5, 150) = 18.079, p = .000$ for the native control group), and post-hoc comparisons with the Bonferroni test were conducted. Table 6.5 displayed pair-wise comparisons showing significant differences.

Table 6.5 Post-hoc pair-wise comparisons (six categories in AJT)

<table>
<thead>
<tr>
<th>Group</th>
<th>Pairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Intermediate</td>
<td>$a &lt; c^{<strong>}, a &lt; f^{</strong>}, b &lt; e^<em>, b &lt; f^{**}, c &lt; e^</em>, c &lt; f^{<strong>}, d &lt; e^{</strong>}, d &lt; f^{**}$</td>
</tr>
<tr>
<td>High-Intermediate</td>
<td>$a &gt; d^{<strong>}, a &lt; c^{</strong>}, a &lt; f^{<strong>}, b &gt; d^{</strong>}, b &lt; e^{<strong>}, b &lt; f^{</strong>}, c &gt; d^{<strong>}, c &lt; e^{</strong>}, c &lt; f^{<strong>}, d &lt; e^{</strong>}, d &lt; f^{**}$</td>
</tr>
<tr>
<td>Low-Advanced</td>
<td>$(a &gt; d^{70}), b &gt; d^<em>, c &lt; e^</em>, c &lt; f^{<strong>}, d &lt; e^{</strong>}, d &lt; f^{**}$</td>
</tr>
<tr>
<td>Advanced</td>
<td>$a &gt; d^<em>, b &gt; d^</em>, c &gt; d^{<strong>}, (d &lt; e^{*71}), d &lt; f^{</strong>}$</td>
</tr>
<tr>
<td>Natives</td>
<td>$a &gt; d^{<strong>}, b &gt; d^*, c &gt; d^{</strong>}, e &gt; d^{<strong>}, f &gt; d^{</strong>}$</td>
</tr>
</tbody>
</table>

NOTE: Starred (*) entries indicate statistically significant differences at $p < 0.05$, and double starred (**) entries indicate at $p < 0.01$.

The statistical results confirmed the first impression gleaned from Figure 6.3. For the both low-intermediate and high-intermediate groups, the learners’ performance in all grammatical categories ((a), (b), (c), and (d)) was statistically different from their performance in ungrammatical ones ((e) and (f)), showing that they failed to correctly reject ungrammatical test items. On the other hand, in the two grammatical categories, learners consistently showed correct judgments (over 80%). The low-advanced group performed differently in the ungrammatical (c) and (d) categories than in the grammatical categories, where learners showed correct judgments.

\(^{70}\) The significant difference was found only when all learners were included for analysis.

\(^{71}\) The significant difference was found only when all learners were included for analysis.
This could suggest that these learners failed to consistently correctly judge across all of the ungrammatical categories, even though they were able to correctly reject ungrammatical sentences of some categories. The advanced group incorrectly judged only the ungrammatical (d) category, which showed a significant difference from the grammatical categories. This means that these learners performed equally well on the other ungrammatical and grammatical categories, in line with the native control group. As indicated in Table 6.4 and Figure 6.3, even native speakers’ judgments on this are not as high as one would anticipate in the (d) category, which looks at the infelicity of occurrence of -tul in non-specific context. Thus, there were significant differences between this category and the other categories. This issue will be discussed in Chapter 7.

Table 6.6 shows the statistical results of each category. One-way ANOVAs were carried out to see the categories in which learners performed differently from the NS group.
Table 6.6 Results of AJT according to the six categories

<table>
<thead>
<tr>
<th>Categories</th>
<th>Groups showing significant difference from the Native control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. a numeral + CL with a pluralized non-human nouns</td>
<td>low-intermediate, high-intermediate, low-advanced</td>
</tr>
<tr>
<td>b. a numeral alone with a pluralized noun</td>
<td>low-intermediate, high-intermediate, low-advanced</td>
</tr>
<tr>
<td>c. pluralization on the classifier itself</td>
<td>low-intermediate, high-intermediate, low-advanced</td>
</tr>
<tr>
<td>d. pluralization in nouns in clearly-defined non-specific contexts</td>
<td>low-intermediate, high-intermediate, low-advanced</td>
</tr>
<tr>
<td>e. a numeral + CL with a pluralized human noun</td>
<td>No groups (*Advanced non-heritage group(^\text{72}))</td>
</tr>
<tr>
<td>f. non-numeric quantifier with a pluralized noun</td>
<td>No groups</td>
</tr>
</tbody>
</table>

As shown in Table 6.6, in ungrammatical categories ((a), (b), (c), and (d)), only advanced group did not show significant differences from the native control group. On the other hand, in grammatical categories ((e) and (f)), no learner groups differed from the NSs. This indicates that only advanced group perform equally well on both grammatical and ungrammatical test items, showing no statistically significant differences from the native control group. However, it should also be noted that in category (e), the advanced group’s score (75.0 for all learners; 69.4 for only non-heritage learners) is the lowest among the four learner groups, and thus the non-heritage advanced learners showed statistically significant difference from the native control group. I will return to this issue in Chapter 7.

\(^{72}\) The significant difference between the advanced and native control groups was found only when non-heritage learners were concerned.
6.2. Results of the Preference Task

Overall group results

The overall descriptive results of the four learner groups and one native control group for the preference task are presented in Table 6.7, which reports mean percentage scores and standard deviations for each group. As mentioned in Chapter 5, six test items were administered, but only five test items involving only felicitous use of extrinsic -tul were included for analysis.\(^\text{73}\)

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean (Min-Max)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All/NH</td>
<td>All/NH</td>
<td>All/NH</td>
</tr>
<tr>
<td>Low-Intermediate</td>
<td>13/12</td>
<td>36.9 (0-80.0)/35.0 (0-80.0)</td>
<td>30.38/30.89</td>
</tr>
<tr>
<td>High-Intermediate</td>
<td>31/30</td>
<td>38.1 (0-100.0)/39.3 (0-100.0)</td>
<td>37.00/36.94</td>
</tr>
<tr>
<td>Low-Advanced</td>
<td>19/17</td>
<td>32.9 (0-100.0)/34.4 (0-100.0)</td>
<td>35.32/36.48</td>
</tr>
<tr>
<td>Advanced</td>
<td>22/18</td>
<td>59.8 (0-100.0)/58.6 (0-100.0)</td>
<td>37.93/37.09</td>
</tr>
<tr>
<td>Natives</td>
<td>31</td>
<td>95.5 (60.0-100.0)</td>
<td>11.20</td>
</tr>
<tr>
<td>Total</td>
<td>116/108</td>
<td>56.5 (0-100.0)/57.4 (0-100.0)</td>
<td>39.78/39.66</td>
</tr>
</tbody>
</table>

Figure 6.4 provides a visual presentation of mean total test scores for the preference task. A cursory glance at Figure 6.4 indicates that the advanced group performed better than the other learner groups. In addition, the high-intermediate group seemed to perform slightly better than the low-advanced group, which is not consistent with a developmental pattern.

\(^\text{73}\) The excluded test item involves infelicitous use of extrinsic plural marking. For this item, a speaker says something to only one person, and thus the sentence with -tul is not appropriate. Since what this item tests is different from the other test items involving felicitous use, it was excluded from analysis.
Statistical analyses for group comparison were performed. Since Levene’s test of Homogeneity of Variance indicates that the assumption of homogeneity of variance was not satisfied in this data ($F(4,111) = 12.053, p = .000$ for all learners; $F(4,103) = 12.291, p = .000$ for non-heritage learners), Welch’s adjusted $F$ was reported. A one-way ANOVA revealed that there were statistically significant differences in the five group (Welch’s $F(4, 40.070) = 38.160, p = .000$ for all learners; Welch’s $F(4, 35.403) = 34.592, p = .000$ for non-heritage learners). In order to find out where group differences lie, post hoc Games-Howell analyses were performed. The statistical post hoc results are presented in Table 6.8.
Table 6.8  Post hoc pair-wise comparisons (Preference Task)

<table>
<thead>
<tr>
<th>Paired comparisons</th>
<th>p(All/NH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-intermediate &lt; High-intermediate</td>
<td>1.000/0.995</td>
</tr>
<tr>
<td>Low-intermediate &gt; Low-advanced</td>
<td>0.997/1.000</td>
</tr>
<tr>
<td>Low-intermediate &lt; Advanced</td>
<td>0.311/0.347</td>
</tr>
<tr>
<td>Low-intermediate &lt; Natives</td>
<td>0.000**/0.000**</td>
</tr>
<tr>
<td>High-intermediate &gt; Low-advanced</td>
<td>0.988/0.992</td>
</tr>
<tr>
<td>High-intermediate &lt; Advanced</td>
<td>0.249/0.420</td>
</tr>
<tr>
<td>High-intermediate &lt; Natives</td>
<td>0.000**/0.000**</td>
</tr>
<tr>
<td>Low-advanced &lt; Advanced</td>
<td>0.152/0.314</td>
</tr>
<tr>
<td>Low-advanced &lt; Natives</td>
<td>0.000**/0.000**</td>
</tr>
<tr>
<td>Advanced &lt; Natives</td>
<td>0.002**/0.005**</td>
</tr>
</tbody>
</table>

NOTE: Starred (*) entries indicate statistically significant differences at p < 0.05, and double starred (***) entries indicate at p < 0.01.

All learner groups showed significant differences from the native control group, suggesting that no learner groups reached native-like level of performance in the preference task. This might suggest that English-speaking learners of Korean had difficulty in recognizing the use of extrinsic -tul. In addition, no learner groups were significantly different from each other with alpha level of 0.05. While the advanced group performed better than the other three learner groups, the differences were not significant.

Individual results

According to the group results, no learner groups fell within the same range as native speakers. An individual analysis was conducted to examine whether the group results hide some learners who showed target-like level of performance. As in the AJT, three categories were used
(incorrect for below 30%, optional for between 30% and 70%, and correct for over 70%), and the participants were classified into one of the three categories. We discuss the distribution of individual responses by comparing each group. This distribution is provided in Table 6.9.

Table 6.9 Number of participants per response pattern (Preference Task)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Incorrect</th>
<th>Optional</th>
<th>Correct</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All/NH</td>
<td>All/NH</td>
<td>All/NH</td>
<td>All/NH</td>
</tr>
<tr>
<td>LI</td>
<td>5 (38.5%)/5(41.7%)</td>
<td>6 (46.1%)/5(41.7%)</td>
<td>2 (15.4%)/2(16.6%)</td>
<td>13/12</td>
</tr>
<tr>
<td>HI</td>
<td>16 (51.6%)/15(50.0%)</td>
<td>6 (19.4%)/6(20.0%)</td>
<td>9 (29.0%)/9(30.0%)</td>
<td>31/30</td>
</tr>
<tr>
<td>LA</td>
<td>11 (57.9%)/10(58.8%)</td>
<td>4 (21.05%)/3(17.6%)</td>
<td>4 (21.05%)/4(23.5%)</td>
<td>19/17</td>
</tr>
<tr>
<td>A</td>
<td>5 (22.7%)/4(22.2%)</td>
<td>6 (27.3%)/6(27.8%)</td>
<td>11 (50.0%)/9(50.0%)</td>
<td>22/18</td>
</tr>
<tr>
<td>Natives</td>
<td>0 (0%)</td>
<td>2 (6.5%)</td>
<td>29 (93.5%)</td>
<td>31</td>
</tr>
</tbody>
</table>

Figures 6.5 illustrate how each group performed differently in terms of the three response pattern.
As Figures 6.5-1 and 6.5-2 illustrate, the general tendency in data is that the rate of correct
responses increased with proficiency. Conversely, the rate of incorrect and optional response patterns dramatically decreased in the advanced group. In the advanced group, half of the learners fell into the correct response pattern, while in the low-intermediate group only around 15% of learners were classified into the correct response pattern. This suggests that the learners became more target-like in performance as proficiency increased with respect to extrinsic -tul, indicating that successful acquisition is not impossible. This suggestion could be further supported by the evidence that four learners in the high-intermediate group, two learners in the low-advanced group, and seven learners (two of them are heritage learners) in the advanced group provided 100% correct responses for the task.

**Analysis based on grammatical categories**

The test items in the preference task consist of four grammatical categories of elements to which extrinsic -tul attached (i.e. adverbs, wh-words, oblique nominals, and verbal nouns). This section investigates whether participants performed differently depending on these categories. Table 6.10 shows the percentage scores for each group for each grammatical category.
Table 6.10  Percentage scores per category

<table>
<thead>
<tr>
<th>Group</th>
<th>Adverbs (N=1)</th>
<th>Wh-words (N=2)</th>
<th>Oblique nominals (N=1)</th>
<th>Verbal nouns (N=1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>LI</td>
<td>61.5/58.3</td>
<td>50.6/51.4</td>
<td>42.3/37.5</td>
<td>44.9/43.3</td>
</tr>
<tr>
<td>HI</td>
<td>58.1/60.0</td>
<td>50.1/49.8</td>
<td>40.3/41.7</td>
<td>47.2/47.4</td>
</tr>
<tr>
<td>LA</td>
<td>47.4/47.0</td>
<td>51.2/51.4</td>
<td>36.8/38.2</td>
<td>43.5/45.1</td>
</tr>
<tr>
<td>A</td>
<td>72.7/72.2</td>
<td>45.5/46.0</td>
<td>63.6/61.1</td>
<td>46.7/47.1</td>
</tr>
<tr>
<td>N</td>
<td>100.0</td>
<td>0.0</td>
<td>93.5</td>
<td>17.0</td>
</tr>
</tbody>
</table>

Figure 6.6  Percentage scores per grammatical category (Preference Task; All learners)

For the within-group comparisons, repeated-measures ANOVAs were performed on each group.

---

74 One learner’s score is missing in LI.
75 One learner’s score is missing in LA.
76 One learner’s score is missing in LA.
77 One learner’s score is missing in A.
78 In order to include all the data, missing values were replaced with some estimates automatically generated by SPSS 20.
In the native control group, there was no significant difference among the grammatical categories ($F(3, 90) = 1.104, p = .352$), indicating that the native speakers performed equally well on all of the categories as indicated in Figure 5.4. The advanced group also did not show significant differences between categories ($F(3, 63) = 2.516, p = .066$ for all learners; $F(3, 51) = 1.743, p = .170$ for non-heritage learners). However, three low-proficiency learner groups showed significant differences for the categories (for all learners, $F(3, 36) = 4.443, p = .009$ for the low-intermediate, $F(3, 90) = 7.489, p = .000$ for the high-intermediate, and $F(3, 54) = 3.915, p = .013$ for the low-advanced; for only non-heritage learners, $F(3, 33) = 3.476, p = .027$ for the low-intermediate, $F(3, 87) = 7.544, p = .000$ for the high-intermediate, and $F(3, 48) = 2.982, p = .040$ for the low-advanced). For each of the three learner groups, paired-samples comparisons using the Bonferroni procedure were performed; Table 6.11 displays the pairs showing the significant differences.

Table 6.11 Post-hoc pair-wise comparisons (four categories in Preference Task)

<table>
<thead>
<tr>
<th>Group</th>
<th>Pairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-intermediate</td>
<td>Adverbs &gt; Verbal nouns*</td>
</tr>
<tr>
<td>High-intermediate</td>
<td>Adverbs &gt; Verbal nouns**</td>
</tr>
<tr>
<td>Low-intermediate</td>
<td>No categories^79</td>
</tr>
</tbody>
</table>

NOTE: Starred (*) entries indicate statistically significant differences at $p < 0.05$, and double starred (**) entries indicate at $p < 0.01$.

As shown in Figure 6.6, all learner groups had the highest score with adverbs, and the lowest one with verbal nouns. The results of pair-wise comparisons confirmed this impression, indicating

^79 The p-value is significant, but pair-wise comparisons did not indicate any significant differences.
that the low-proficiency L2 learners were not aware that extrinsic -tul can also attach to verbal nouns. For the advanced group learners, it should be noted that the difference between the four categories turned out to be non-significant, indicating that they showed similar level of performance in each of them.

In addition, for between-group comparison in the four categories, one-way ANOVAs with post-hoc procedures were performed to see if there was a difference between learner groups and the native control group. The results showed that in all conditions there was a significant group difference. For adverbs, the post-hoc analyses indicated that low-intermediate and advanced group did not perform significantly differently from the native control group, whereas the high-intermediate and low-advanced L2 groups showed significant differences from the native controls (p < .01). Thus, it would appear that some learner groups showed a level of performance similar to the natives in the use of extrinsic -tul in adverb condition. For wh-words, only advanced learner group did not differ from the native control group, indicating that they were aware that extrinsic -tul is attached to that category. For oblique nominals and verbal nouns, all learner groups showed significant differences from the native control group.

6.3. Results of the Elicitation Task

The elicitation task was divided into two parts and coded separately. For the test items where the use of -tul is required, percentage scores were calculated based on the number of instances in which -tul was correctly supplied. For the other test items in which the use of classifiers is required, participants’ responses were divided into two sub-categories with respect to classifiers (omitted, supplied), and coded using 1 (for suppliance) and 0 (for omission).
6.3.1. Test items for obligatory context for -tul

**Group results**

This section reports the first part of the elicitation task with respect to the obligatory contexts of -tul. Table 6.12 presents mean percentage scores of each group in the suppliance of -tul in obligatory context.

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean (Min-Max)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All/NH</td>
<td>All/NH</td>
<td>All/NH</td>
</tr>
<tr>
<td>Low-Intermediate</td>
<td>13/12</td>
<td>70.5 (0-100.0)/68.0 (0-100.0)</td>
<td>33.44/33.68</td>
</tr>
<tr>
<td>High-Intermediate</td>
<td>31/30</td>
<td>84.9 (0-100.0)/84.4 (0-100.0)</td>
<td>25.60/25.88</td>
</tr>
<tr>
<td>Low-Advanced</td>
<td>19/17</td>
<td>94.7 (33.3-100.0)/94.1 (33.3-100.0)</td>
<td>16.72/17.63</td>
</tr>
<tr>
<td>Advanced</td>
<td>22/18</td>
<td>92.4 (66.6-100.0)/92.6 (66.6-100.0)</td>
<td>14.29/14.24</td>
</tr>
<tr>
<td>Natives</td>
<td>31</td>
<td>96.2 (50.0-100.0)</td>
<td>11.95</td>
</tr>
<tr>
<td>Total</td>
<td>116/108</td>
<td>89.3 (0-100.0)/88.9 (0-100.0)</td>
<td>21.70/22.22</td>
</tr>
</tbody>
</table>

In Figure 6.7, group differences are visually presented. It appears that the patterns of performance in the low-advanced, advanced and native groups are similar, but the low-intermediate (LI) seem to perform worse than the other groups.
For statistical analyses, I conducted a one-way ANOVA with the data in Table 6.12 for group comparison. The one-way ANOVA indicated that there were statistically significant differences among the five groups \((F(4, 111) = 4.430, p = .002\) for all learners; \(F(4, 103) = 4.731, p = .002\) for non-heritage learners\)\(^{80}\). In order to figure out where the differences lie, post hoc Scheffe analyses were carried out. The statistical results for the post-hoc comparisons are presented in Table 6.13.

---

\(^{80}\) A non-parametric Kruskal-Wallis test, which is compatible with an ANOVA, was also conducted as an alternative. A Kruskal-Wallis test indicated that there were statistically significant differences in the five groups (Kruskal-Wallis \(H(4) = 14.342, p < .01\) for all learners; Kruskal-Wallis \(H(4) = 15.381, p < .01\) for non-heritage learners). In order to figure out where the differences lie, post hoc analyses were carried out using Mann-Whitney tests, nonparametric independent-samples \(t\)-tests. Since 10 pair-wise comparisons were performed, in order to protect for the Type I error, a priori alpha level was reduced to 0.005 with a Bonferroni adjustment. In accordance with the results of the one-way ANOVA, the significant difference with the adjusted alpha level of 0.005 was found between the low-intermediate and native control group \((p=.001\) for both all learners and non-heritage learners).
Table 6.13 Post hoc pair-wise comparisons (obligatory use of -*tul* in Elicitation Task)

<table>
<thead>
<tr>
<th>Paired comparisons</th>
<th>$p$ (All/NH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-intermediate &lt; High-intermediate</td>
<td>0.344/0.264</td>
</tr>
<tr>
<td>Low-intermediate &lt; Low-advanced</td>
<td>0.035*/0.032*</td>
</tr>
<tr>
<td>Low-intermediate &lt; Advanced</td>
<td>0.060/0.047*</td>
</tr>
<tr>
<td>Low-intermediate &lt; Natives</td>
<td>0.008**/0.005**</td>
</tr>
<tr>
<td>High-intermediate &lt; Low-advanced</td>
<td>0.612/0.673</td>
</tr>
<tr>
<td>High-intermediate &lt; Advanced</td>
<td>0.787/0.784</td>
</tr>
<tr>
<td>High-intermediate &lt; Natives</td>
<td>0.325/0.304</td>
</tr>
<tr>
<td>Low-advanced &gt; Advanced</td>
<td>0.998/1.000</td>
</tr>
<tr>
<td>Low-advanced &lt; Natives</td>
<td>1.000/0.998</td>
</tr>
<tr>
<td>Advanced &lt; Natives</td>
<td>0.979/0.986</td>
</tr>
</tbody>
</table>

*p < 0.05, **p < 0.01

The results confirmed the initial impression shown in Figure 6.7. As presented in Table 6.13, a significant difference with an alpha level of 0.01 is found between the low-intermediate and native control group, and with an alpha level of 0.05 between the low-intermediate and the two advanced groups. In other words, the low-intermediate group behaved differently from the two advanced groups as well as the native control group in producing -*tul* in obligatory contexts. On the other hand, the other three learner groups did not show significant differences from the native control group. Thus, the results suggest that the learner groups beyond the low-intermediate level were within the same range as native speakers in supplying -*tul* in obligatory context, indicating that they were aware of the specific contexts that require the obligatory use of -*tul*.

**Individual results**

In order to examine how individual learners performed in producing -*tul*, an analysis of
individual data was carried out. For this elicitation task, as in other tasks, three categories were used. Since there were only three test items, the subjects who scored 0% correct responses (0 out of three) were classified into the incorrect response pattern, and the ones who scored 100% correct responses (three out of three) were categorized in the correct response pattern. The participants who provided one or two correct answers out of three were categorized in the optional response pattern. Table 6.14 presents the individual data for each group according to their response patterns.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Incorrect (0%)</th>
<th>Optional</th>
<th>Correct (100%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All/NH</td>
<td>All/NH</td>
<td>All/NH</td>
<td>All/NH</td>
</tr>
<tr>
<td>LI</td>
<td>1 (7.7%)/1 (8.3%)</td>
<td>6 (46.15%)/6 (50.0%)</td>
<td>6 (46.15%)/5 (41.7%)</td>
<td>13/12</td>
</tr>
<tr>
<td>HI</td>
<td>1 (3.2%)/1 (3.3%)</td>
<td>9 (29.03%)/9 (30.0%)</td>
<td>21 (67.7%)/20 (66.7%)</td>
<td>31/30</td>
</tr>
<tr>
<td>LA</td>
<td>0 (0%)/0 (0%)</td>
<td>2 (10.5%)/2 (11.8%)</td>
<td>17 (89.5%)/15 (88.2%)</td>
<td>19/17</td>
</tr>
<tr>
<td>A</td>
<td>0 (0%)/0 (0%)</td>
<td>5 (22.7%)/4 (22.2%)</td>
<td>17 (77.3%)/14 (77.8%)</td>
<td>22/18</td>
</tr>
<tr>
<td>Natives</td>
<td>0 (0%)</td>
<td>3 (9.7%)</td>
<td>28 (90.3%)</td>
<td>31</td>
</tr>
</tbody>
</table>

The proportion of the three response patterns for each group is visually presented in Figures 6.8-1 and 6.8-2. The initial impression shown in Figures 6.8 is that the majority of participants in most groups, except the low-intermediate group, showed a correct response pattern.
Based on the data displayed in Figures 6.8, it could be said that the patterns of the high-
intermediate, low-advanced, and advanced group were similar to those of native speakers. Notice that none of the low-advanced and advanced group fell into the incorrect response pattern as in the native control group, and the two groups have an overwhelming number of correct responses (for all learners, 17 out of 19 for the low-advanced, and 17 out of 22 for the advanced; for non-heritage learners, 15 out of 17 for the low-advanced, and 14 out of 18 for the advanced). On the other hand, the majority of learners in the low-intermediate group were not categorized into the correct response pattern (less than 50%).

Given these findings, the individual data for responses patterns confirmed that only the low-intermediate group performed differently from the native control group. This can suggest that learners beyond the low-intermediate group have acquired the obligatory use of -{	extit{tul}} in specific contexts.

6.3.2. Test items for classifier context

{	extit{Omission or suppliance of classifiers}}

This section reports how participants behaved in forming constructions with or without classifiers. The sentences produced by participants were divided into two categories regarding classifiers (i.e., omitted and supplied). Table 6.15 presents descriptive statistics for three test items.
In order to test whether there is a relation between groups and their performance in supplying classifiers, a statistical analysis was performed. Since the dependent variable was binomial (omission or supplience), a chi-square test was conducted for the data. The chi-square result indicates that there is a significant interaction between the groups and their performance with classifiers ($\chi^2 (4) = 13.037$, $p=0.011$ for all learners; $\chi^2 (4) = 17.054$, $p=0.002$ for non-heritage learners). The significant result indicates that the pattern of responses (i.e. the proportion of supplied classifiers to the proportion of omitted classifiers) among the five groups is significantly different.

In order to investigate which learner groups differed from the native control group, pair-wise multiple comparisons were conducted. Since four pair-wise comparisons (between each four learner group and the native control group) were performed, in order to protect against a

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81 Three test items were eliminated due to the irrelevance of the sentences.
82 Two test items were eliminated due to the same reason above.

---

### Table 6.15: Number and percentage of response types (classifiers in Elicitation Task)

<table>
<thead>
<tr>
<th></th>
<th>Numb (+)</th>
<th>Numb (-)</th>
<th>Total</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Num</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LI</td>
<td>13/13</td>
<td>5/4</td>
<td>18/17</td>
<td>11/10</td>
<td>7/6</td>
<td>18/16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(50.0/51.5%)</td>
<td>(50.0/48.5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HI</td>
<td>23/20</td>
<td>6/6</td>
<td>29/26</td>
<td>42/42</td>
<td>20/20</td>
<td>62/62</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(31.9/29.5%)</td>
<td>(68.1/70.5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LA</td>
<td>20/20</td>
<td>3/2</td>
<td>23/22</td>
<td>26/21</td>
<td>8/8</td>
<td>34/29</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(40.4/43.1%)</td>
<td>(59.6/56.9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>15/8</td>
<td>5/4</td>
<td>20/12</td>
<td>44/40</td>
<td>2/2</td>
<td>46/42</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(30.3/22.2%)</td>
<td>(69.7/77.8%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>11</td>
<td>8</td>
<td>19 (20.4%)</td>
<td>71</td>
<td>3</td>
<td>74 (79.6%)</td>
</tr>
<tr>
<td>Total</td>
<td>82/72</td>
<td>27/24</td>
<td>109/96</td>
<td>194/184</td>
<td>40/39</td>
<td>234/223</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(20.4%)</td>
<td>(79.6%)</td>
<td>(79.6%)</td>
<td></td>
</tr>
</tbody>
</table>
Type I error, a priori alpha level was reduced to 0.0125 with a Bonferroni adjustment\textsuperscript{83}. The statistical differences that emerged from these analyses are summarized in Table 6.16.

<table>
<thead>
<tr>
<th>Paired comparisons</th>
<th>Chi-square</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-intermediate &lt; Natives</td>
<td>11.094/11.533</td>
<td>1</td>
<td>0.001*/0.001*</td>
</tr>
<tr>
<td>High-intermediate &lt; Natives</td>
<td>3.121/2.011</td>
<td>1</td>
<td>0.077/0.156</td>
</tr>
<tr>
<td>Low-advanced &lt; Natives</td>
<td>6.956/8.339</td>
<td>1</td>
<td>0.008*/0.004*</td>
</tr>
<tr>
<td>Advanced &lt; Natives</td>
<td>2.033/0.066</td>
<td>1</td>
<td>0.154/0.797</td>
</tr>
</tbody>
</table>

P < 0.0125*

As Table 6.16 presents, the high-intermediate and advanced groups did not differ from the native control group.

Responses containing classifiers were divided into two categories: non-human and human classifiers. Let us consider whether L2 learners’ performance was different according to the type of classifier. Table 6.17 presents the numbers and percentages showing whether classifiers for non-human nouns are supplied or omitted.

\textsuperscript{83} The original alpha level of 0.05 was divided by the number of paired comparisons. For this data, four comparisons were made, and thus the p-value was adjusted to 0.0125.
Table 6.17  Number and percentages of response type (classifiers for non-human nouns (N=2) in Elicitation Task)

<table>
<thead>
<tr>
<th></th>
<th>Omitted (All/NH)</th>
<th>Supplied (All/NH)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Num+ N</td>
<td>N+ Num</td>
<td>Total</td>
</tr>
<tr>
<td>LI</td>
<td>10/10</td>
<td>5/4</td>
<td>15/14</td>
</tr>
<tr>
<td></td>
<td>(65.2/66.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HI</td>
<td>18/16</td>
<td>4/4</td>
<td>22/20</td>
</tr>
<tr>
<td></td>
<td>(36.7/34.5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LA</td>
<td>17/17</td>
<td>1/1</td>
<td>18/18</td>
</tr>
<tr>
<td></td>
<td>(47.4/52.9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>12/7</td>
<td>3/3</td>
<td>15/10</td>
</tr>
<tr>
<td></td>
<td>(34.1/27.8%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>9</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>(16.1%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>66/59</td>
<td>14/13</td>
<td>80/72</td>
</tr>
<tr>
<td></td>
<td>(35.2/34.1%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 6.9 illustrates the proportion of classifier suppliance for each group. As can be seen in Figure 6.9, the advanced group had a tendency to supply more classifiers than the less advanced group.

^84 Three test items were eliminated due to the irrelevance of the sentences.

^85 Two test items were eliminated due to the irrelevance of the sentences.
As seen in Figure 6.9, it seems that suppliance of classifiers increases with learners’ proficiency, while the rate of omitted classifiers decreases. A chi-square test was conducted for the data, and indicated that there was a significant association between the groups and whether non-human classifiers were supplied or not ($\chi^2(4) = 21.507$, $p < .001$ for all learners; $\chi^2(4) = 24.828$, $p < .001$ for non-heritage learners). In order to determine which learner groups were different from the NS group, post hoc pair-wise comparisons were performed.
The results showed that the advanced group (and the non-heritage high-intermediate group) did not significantly differ from the native control group with the adjusted alpha level of .0125. However, other groups of learners significantly differed from the native group with the alpha level (in the case of non-heritage high-intermediate learners, p-value is approaching significance).

Turning to the human noun classifier, Table 6.19 shows the participants’ performance in supplying classifiers for human nouns. The results show that the suppliance rates for human classifiers are high in all groups.

Table 6.18  Post hoc pair-wise comparisons (non-human classifiers)

<table>
<thead>
<tr>
<th>Paired comparisons</th>
<th>Chi-square (All/NH)</th>
<th>df</th>
<th>p (All/NH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-intermediate &lt; Natives</td>
<td>19.472/19.492</td>
<td>1</td>
<td>0.000*/0.000*</td>
</tr>
<tr>
<td>High-intermediate &lt; Natives</td>
<td>6.647/5.384</td>
<td>1</td>
<td>0.010*/0.020</td>
</tr>
<tr>
<td>Low-advanced &lt; Natives</td>
<td>11.405/14.403</td>
<td>1</td>
<td>0.001*/0.000*</td>
</tr>
<tr>
<td>Advanced &lt; Natives</td>
<td>4.607/1.903</td>
<td>1</td>
<td>0.032/0.168</td>
</tr>
</tbody>
</table>

*p < .0125
Table 6.19 Number and percentages of response type (human classifiers (N=1) in Elicitation Task)

<table>
<thead>
<tr>
<th></th>
<th>Omitted</th>
<th>Supplied</th>
<th>Total</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Num+ N</td>
<td>N+ Num</td>
<td>Total</td>
<td>Correct</td>
<td>Incorrect</td>
<td>Total</td>
</tr>
<tr>
<td>LI</td>
<td>3/3</td>
<td>0/0</td>
<td>3/3</td>
<td>9/8</td>
<td>1/1</td>
<td>10/9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(23.1/25.0%)</td>
<td>(76.9/75.0%)</td>
<td></td>
</tr>
<tr>
<td>HI</td>
<td>5/4</td>
<td>2/2</td>
<td>7/6</td>
<td>24/24</td>
<td>0/0</td>
<td>24/24</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(22.6/20.0%)</td>
<td>(77.4/80.0%)</td>
<td></td>
</tr>
<tr>
<td>LA</td>
<td>3/3</td>
<td>2/1</td>
<td>5/4</td>
<td>14/13</td>
<td>0/0</td>
<td>14/13</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(26.3/23.5%)</td>
<td>(73.7/76.5%)</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>3/1</td>
<td>2/1</td>
<td>5/2</td>
<td>17/16</td>
<td>0/0</td>
<td>17/16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(22.7/11.1%)</td>
<td>(77.3/88.9%)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>2</td>
<td>7</td>
<td>9</td>
<td>22</td>
<td>0</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(29.0%)</td>
<td>(71.0%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16/13</td>
<td>13/11</td>
<td>29/24</td>
<td>86/83</td>
<td>1/1</td>
<td>87/84</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(25.0/22.2%)</td>
<td>(75.0/77.8%)</td>
<td></td>
</tr>
</tbody>
</table>

Figure 6.10 visually presents the proportion of human classifiers suppliance for each group.

Figure 6.10 shows that the pattern of response of the L2 speakers is very similar to that of the native speakers.
As shown in Figure 6.10, it seems that four learner groups and one native control group performed in a similar way. A chi-square test was performed to examine whether there is a significant relationship between the groups and their performance with respect to human classifiers, and the statistical result confirmed this impression. Unlike non-human classifiers, there was no significant interaction between two variables ($\chi^2(4) = 0.469, p = .976$ for all learners; $\chi^2(4) = 2.274, p = .686$ for non-heritage learners). In other words, a majority of participants in all groups formed numeral-human classifier constructions by supplying a classifier.

In short, with respect to classifiers, lower proficiency learner groups showed a discrepancy in the suppliance of non-human versus human classifiers. For human classifiers, all learner groups performed similarly to the native control group and supplied a classifier. However, for non-human classifiers, only the advanced group performed like the native control group.
Preference for word order pattern

As discussed in previous chapters, there are two possible constructions involving classifiers: post-nominal numeral classifiers and pre-nominal numeral classifiers. This section describes the word order patterns preferred by participants.

Table 6.20 Number of participants per construction (All learners)

<table>
<thead>
<tr>
<th></th>
<th>Post-nominal numeral-CL</th>
<th>Pre-nominal numeral-CL</th>
<th>Total</th>
<th>Omission of genitive CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Intermediate</td>
<td>11 (61.1%)</td>
<td>7 (38.9%)</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>High-Intermediate</td>
<td>50 (80.6%)</td>
<td>12 (19.4%)</td>
<td>11</td>
<td>62</td>
</tr>
<tr>
<td>Low-Advanced</td>
<td>31 (91.2%)</td>
<td>3 (8.8%)</td>
<td>2</td>
<td>34</td>
</tr>
<tr>
<td>Advanced</td>
<td>37 (80.4%)</td>
<td>9 (19.6%)</td>
<td>0</td>
<td>46</td>
</tr>
<tr>
<td>Natives</td>
<td>53 (71.6%)</td>
<td>21 (28.4%)</td>
<td>0</td>
<td>74</td>
</tr>
</tbody>
</table>

It would be predicted that English-speaking learners at the initial stage of acquisition would prefer the pre-nominal numeral classifier construction, because it is similar to the English word order for quantified nouns (Hwang & Lardiere, 2013). However, Table 6.20 shows that all learner groups as well as the native control group produced the post-nominal numeral classifier construction much more frequently, as is common in spoken Korean. This result could be interpreted as evidence that all learners in this study have already passed the initial stage of acquisition, and have become accustomed to the Noun-numeral-classifier word order pattern.

For the pre-nominal numeral classifier, we have also counted errors in the omission of the genitive case marker produced by each group. As shown in Table 6.20, the genitive case marker is erroneously omitted mostly in the pre-nominal numeral classifier constructions.
produced by the two intermediate groups and the low-advanced group. However, the nine sentences produced by the advanced group did not show this kind of error, nor did the native control group. This result also indicates the developmental pattern is related to proficiency, showing that the advanced group had acquired the correct word order pattern.

6.4. Results of Truth Value Judgment Task

As presented in chapter 5, the TVJT consists of two kinds of test items testing intrinsic and extrinsic -tul, respectively. This section separately reports the statistical results of each type of -tul.

6.4.1. Intrinsic -tul

Group results

Table 6.21 presents mean scores of each group on the TVJT, while Figure 6.11 graphically shows each group’s performance.

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean (Min-Max)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>All/NH</td>
<td>All/NH</td>
</tr>
<tr>
<td>Low-Intermediate</td>
<td>13/12</td>
<td>3.54 (2-7)/3.25 (2-4)</td>
<td>1.19/0.62</td>
</tr>
<tr>
<td>High-Intermediate</td>
<td>31/30</td>
<td>3.71 (2-6)/3.70 (2-6)</td>
<td>0.97/0.98</td>
</tr>
<tr>
<td>Low-Advanced</td>
<td>19/17</td>
<td>4.37 (2-7)/4.24 (2-7)</td>
<td>1.42/1.43</td>
</tr>
<tr>
<td>Advanced</td>
<td>22/18</td>
<td>4.27 (2-7)/4.17 (2-7)</td>
<td>1.38/1.33</td>
</tr>
<tr>
<td>Natives</td>
<td>31</td>
<td>5.19 (3-7)</td>
<td>1.19/1.19</td>
</tr>
<tr>
<td>Total</td>
<td>116/108</td>
<td>4.30 (2-7)/4.24 (2-7)</td>
<td>1.34/1.32</td>
</tr>
</tbody>
</table>
In Figure 6.11 it has been observed that no learners either of the intermediate groups showed native-like performance. In order to test whether the differences among groups are significant, a statistical analysis using one-way ANOVA was used.

A one-way ANOVA indicated that there were statistically significant differences among the five groups ($F(4, 111) = 7.255$, $p = .000$ for all learners; $F(4, 103) = 9.042$, $p = .000$ for non-heritage learners). In order to examine how the groups differed from each other, post hoc Scheffe analyses were computed. The statistical results for the multiple comparisons are presented in Table 6.22.
**Table 6.22**  Post hoc pair-wise comparisons (intrinsic-*tul* in TVJT)

<table>
<thead>
<tr>
<th>Paired comparisons</th>
<th>p(All/NH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-intermediate &lt; High-intermediate</td>
<td>0.996/0.863</td>
</tr>
<tr>
<td>Low-intermediate &lt; Low-advanced</td>
<td>0.471/0.288</td>
</tr>
<tr>
<td>Low-intermediate &lt; Advanced</td>
<td>0.567/0.351</td>
</tr>
<tr>
<td>Low-intermediate &lt; Natives</td>
<td>0.003**/0.000**</td>
</tr>
<tr>
<td>High-intermediate &lt; Low-advanced</td>
<td>0.491/0.681</td>
</tr>
<tr>
<td>High-intermediate &lt; Advanced</td>
<td>0.604/0.769</td>
</tr>
<tr>
<td>High-intermediate &lt; Natives</td>
<td>0.000**/0.000**</td>
</tr>
<tr>
<td>Low-advanced &gt; Advanced</td>
<td>1.000/1.000</td>
</tr>
<tr>
<td>Low-advanced &lt; Natives</td>
<td>0.257/0.122</td>
</tr>
<tr>
<td>Advanced &lt; Natives</td>
<td>0.128/0.071</td>
</tr>
</tbody>
</table>

**p < 0.01**

Table 6.22 indicates that there were significant differences between the native control group and the two intermediate groups, even though none of the L2 groups differed significantly from each other. However, neither the low-advanced nor the advanced group showed significant differences from the native control group. This may suggest that learner groups above the intermediate level reached target-like level of performance in interpreting sentences containing Korean intrinsic plural marking.

**Individual results**

This section reports individual analyses for TVJT using three categories of response patterns: incorrect, optional, and correct. The incorrect response pattern included participants who provided less than three correct answers. The correct response pattern included subjects who got five or more correct answers. The participants who provided three or four correct answers were
classified into the optional category. Table 6.23 presents the three response patterns of individual participants for each group.

Table 6.23  Number of participants per response pattern (intrinsic -*ulu* in TVJT)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Incorrect (0-2)</th>
<th>Optional (3-4)</th>
<th>Correct (5-7)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All/NH</td>
<td>All/NH</td>
<td>All/NH</td>
<td>All/NH</td>
</tr>
<tr>
<td>LI</td>
<td>1 (7.7%)/1 (8.3%)</td>
<td>11 (84.6%)/11 (91.7%)</td>
<td>1 (7.7%)/0 (0%)</td>
<td>13/12</td>
</tr>
<tr>
<td>HI</td>
<td>2 (6.5%)/2 (6.7%)</td>
<td>22 (70.9%)/21 (70.0%)</td>
<td>7 (22.6%)/7 (23.3%)</td>
<td>31/30</td>
</tr>
<tr>
<td>LA</td>
<td>2 (10.5%)/2 (11.8%)</td>
<td>9 (47.4%)/9 (52.9%)</td>
<td>8 (42.1%)/6 (35.3%)</td>
<td>19/17</td>
</tr>
<tr>
<td>A</td>
<td>2 (9.1%)/2 (11.1%)</td>
<td>13 (59.1%)/11 (61.1%)</td>
<td>7 (31.8%)/5 (27.8%)</td>
<td>22/18</td>
</tr>
<tr>
<td>N</td>
<td>0 (0%)</td>
<td>11 (35.5%)</td>
<td>20 (64.5%)</td>
<td>31</td>
</tr>
</tbody>
</table>

Figures 6.12 illustrate the distribution of the three response patterns for each category.
Figure 6.12-1 Percentage of participants per response pattern (intrinsice -tul in TVJT; All learners)

Figure 6.12-2 Percentage of participants per response pattern (intrinsice -tul in TVJT; NH learners)
As shown in Figures 6.12, the majority of learners in the low-intermediate and high-intermediate groups fell into the optional response pattern, and only around 20% in the high-intermediate group showed a correct response pattern. In both low-advanced and advanced groups, more learners fell into the correct response pattern than in the two intermediate groups, although the optional response pattern still includes almost or more than 50% of the learners. However, the low-advanced group showed more correct response patterns than the advanced group, which might not be in accordance with the developmental pattern according to proficiency. It seems that this result is consistent with the group result that the low-advanced group showed the highest mean score (4.37 for all learners; 4.24 for non-heritage learners) among the four learner groups. Moreover, even native speakers’ responses were lower than expected (I will return to this issue in Chapter 7). However, it should be noted that one (heritage) learner in the low-intermediate, one learner in the low-advanced group, and three learners in the advanced group provided 100% correct responses.

6.4.2. Extrinsic -tul

Group results

For the TVJT with extrinsic -tul, mean scores and standard deviations for each group are presented in Table 6.24. Figure 6.13 graphically presents the mean scores of each group.
Table 6.24    Descriptive statistics (extrinsic -tul in TVJT)

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean (Min-Max)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All/NH</td>
<td>All/NH</td>
<td>All/NH</td>
</tr>
<tr>
<td>Low-Intermediate</td>
<td>13/12</td>
<td>3.85 (3-6)/3.92 (3-6)</td>
<td>.89</td>
</tr>
<tr>
<td>High-Intermediate</td>
<td>31/30</td>
<td>3.81 (2-6)/3.80 (2-6)</td>
<td>1.04</td>
</tr>
<tr>
<td>Low-Advanced</td>
<td>19/17</td>
<td>4.21 (3-6)/4.29 (3-6)</td>
<td>1.18</td>
</tr>
<tr>
<td>Advanced</td>
<td>22/18</td>
<td>4.14 (2-7)/4.00 (2-7)</td>
<td>1.32</td>
</tr>
<tr>
<td>Natives</td>
<td>31</td>
<td>4.87 (3-7)</td>
<td>1.02</td>
</tr>
<tr>
<td>Total</td>
<td>116/108</td>
<td>4.22 (2-7)/4.23 (2-7)</td>
<td>1.16</td>
</tr>
</tbody>
</table>

Figure 6.13    Mean accuracy scores (extrinsic -tul in TVJT)

In Figure 6.13, it appears that two intermediate groups were quite similar, as were the two advanced groups. I conducted statistical analyses using one-way ANOVA to compare the four learner groups and native control group.

One-way ANOVA indicates significant differences among the five groups ($F(4, 111) = $
4.172, \( p = 0.003 \) for all learners; \( F(4, 103) = 4.162, p = 0.004 \) for non-heritage learners). In order to figure out the sources of these differences, post hoc analyses using Scheffe were carried out; the results are presented in Table 6.25.

### Table 6.25  Post hoc pair-wise comparisons (extrinsic -tul in TVJT)

<table>
<thead>
<tr>
<th>Paired comparisons</th>
<th>( p ) (All/NH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-intermediate &gt; High-intermediate</td>
<td>1.000/0.999</td>
</tr>
<tr>
<td>Low-intermediate (&lt;) Low-advanced</td>
<td>0.933/0.936</td>
</tr>
<tr>
<td>Low-intermediate (&lt;) Advanced</td>
<td>0.967/1.000</td>
</tr>
<tr>
<td>Low-intermediate (&lt;) Natives</td>
<td>0.105/0.180</td>
</tr>
<tr>
<td>High-intermediate (&lt;) Low-advanced</td>
<td>0.813/0.708</td>
</tr>
<tr>
<td>High-intermediate (&lt;) Advanced</td>
<td>0.886/0.985</td>
</tr>
<tr>
<td>High-intermediate (&lt;) Natives</td>
<td>0.009**/0.009**</td>
</tr>
<tr>
<td>Low-advanced &gt; Advanced</td>
<td>1.000/0.961</td>
</tr>
<tr>
<td>Low-advanced (&lt;) Natives</td>
<td>0.385/0.565</td>
</tr>
<tr>
<td>Advanced (&lt;) Natives</td>
<td>0.232/0.144</td>
</tr>
</tbody>
</table>

**p < 0.01

As indicated in Table 6.25, there were significant differences between the native control group and the high-intermediate group. The two advanced learner groups did not show statistically significant differences from the native control group, though no significant differences among the learner groups were observed. It should be noted that the low-intermediate learner group did not perform statistically differently from the native control group, as the low-intermediate group seemed to perform slightly better (3.85 vs. 3.81 for all learners; 3.92 vs. 3.80 for non-heritage learners)—though not significantly better—than the high-intermediate group.

Based on these results, it can be suggested that high proficiency learners in two the
advanced groups were within the same range as natives in interpreting extrinsic \(-\text{tul}\), whereas lower proficiency learners were not as highly accurate. However, it should be noted that the native control group’s performance on extrinsic \(-\text{tul}\) in TVJT was not as high as expected as in the case of intrinsic \(-\text{tul}\). I will address this issue in Chapter 7.

**Individual results**

As in the other tasks, an analysis for individual results was conducted using three categories with respect to response patterns. As in the test items for intrinsic \(-\text{tul}\), the participants who provided five or more correct answers were categorized into the correct response pattern, and those who gave fewer than three correct answers were classified into the incorrect response pattern. Participants who provided three or four correct answers out of seven were categorized into the optional response pattern. The percentages of the three response patterns by the four learner groups and the native control group are provided in Table 6.26. The distribution of the response patterns across the groups is shown in Figures 6.14.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Incorrect (0-2)</th>
<th>Optional (3-4)</th>
<th>Correct (5-7)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>LI</td>
<td>0 (0%)/0 (0%)</td>
<td>11 (84.6%)/10 (83.3%)</td>
<td>2 (15.4%)/2 (16.7%)</td>
<td>13/12</td>
</tr>
<tr>
<td>HI</td>
<td>4 (12.9%)/4 (13.3%)</td>
<td>21 (67.7%)/20 (66.7%)</td>
<td>6 (19.4%)/6 (20.0%)</td>
<td>31/30</td>
</tr>
<tr>
<td>LA</td>
<td>0 (0%)/0 (0%)</td>
<td>12 (63.2%)/10 (58.8%)</td>
<td>7 (36.8%)/7 (41.2%)</td>
<td>19/17</td>
</tr>
<tr>
<td>A</td>
<td>3 (13.6%)/3 (16.7%)</td>
<td>9 (40.9%)/8 (44.4%)</td>
<td>10 (45.5%)/7 (38.9%)</td>
<td>22/18</td>
</tr>
<tr>
<td>N</td>
<td>0 (0%)</td>
<td>10 (32.3%)</td>
<td>21 (67.7%)</td>
<td>31</td>
</tr>
</tbody>
</table>

Table 6.26 Number of participants per response pattern (extrinsic \(-\text{tul}\) in TVJT)
Figure 6.14-1  Percentage of participants per response pattern (extrinsic -tul in TVJT; All learners)

Figure 6.14-2  Percentage of participants per response pattern (extrinsic -tul in TVJT; NH learners)
In Figures 6.14, it is observed that none of learners in the low-intermediate and low-advanced fell into the incorrect response pattern. In the two intermediate groups, a majority of learners showed an optional response pattern (for all learners, 84.6% for the low-intermediate and 67.7% for the high-intermediate; for non-heritage learners, 83.3% for the low-intermediate and 66.7% for the high-intermediate). We can also see that the number of learners who show a correct response pattern increases with proficiency (for all learners, 15.4% for the low-intermediate and 45.5% for advanced; for non-heritage learners, 16.7% for the low-intermediate and 38.9% for advanced). Indeed, one learner in the advanced group scored a perfect score (7 out of 7), which can suggest that the successful acquisition of extrinsic -tul may ultimately be possible.

6.5. Translation Task

As discussed in Chapter 5, the translation task had test items for both types of -tul (four test items for intrinsic plural marking, and five test items for extrinsic plural marking). However, it turned out that all participants provided 100% correct answers on the test items for intrinsic -tul. Thus, the test items for intrinsic -tul were excluded for analysis, because it is not meaningful to provide statistical analysis for group comparison. Hence, in this section, only the data for extrinsic -tul were reported and included for analysis.

Group results

This section describes the statistical results of the Translation Task. Table 6.27 displays group mean scores and standard deviations for each group.
Table 6.27  Descriptive statistics (Translation Task)

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean (Min-Max)</th>
<th>SD</th>
<th>All/NH</th>
<th>Mean (Min-Max)</th>
<th>All/NH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All/NH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-Intermediate</td>
<td>13/12</td>
<td>3.46 (1-5)/3.50 (1-5)</td>
<td>1.39/1.44</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-Intermediate</td>
<td>31/30</td>
<td>3.13 (0-5)/3.07 (0-5)</td>
<td>1.74/1.74</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-Advanced</td>
<td>19/17</td>
<td>3.16 (0-5)/3.24 (0-5)</td>
<td>1.70/1.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced</td>
<td>22/18</td>
<td>4.09 (2-5)/4.22 (2-5)</td>
<td>1.01/0.94</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natives</td>
<td>12^{86}</td>
<td>4.67 (3-5)</td>
<td>0.65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>97/89</td>
<td>3.59 (0-5)/3.61 (0-5)</td>
<td>1.52/1.51</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 6.15 illustrates the five groups’ performance on Translation task.

For the Translation Task, 19 monolingual Korean native speakers were excluded, since their English ability could affect their performance on the task. The analysis included only bilinguals, who are highly proficient in English, based on their self-assessment of English language proficiency on background questionnaire.

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An initial impression of Figure 6.15 indicates that the advanced group performed better than the other learner groups. One-way ANOVA result revealed a significant different among the groups (Welch’s $F(4, 40.525) = 6.412, p = .000$ for all learners; Welch’s $F(4, 36.979) = 6.454, p = .000$ for non-heritage learners)\(^{87}\). In order to examine where the significant differences lay among the groups, post hoc comparisons using Games-Howell were computed.

<table>
<thead>
<tr>
<th>Paired comparisons</th>
<th>$p$ (All/NH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-intermediate &gt; High-intermediate</td>
<td>0.962/0.920</td>
</tr>
<tr>
<td>Low-intermediate &gt; Low-advanced</td>
<td>0.981/0.989</td>
</tr>
<tr>
<td>Low-intermediate &lt; Advanced</td>
<td>0.622/0.560</td>
</tr>
<tr>
<td>Low-intermediate &lt; Natives</td>
<td>0.078/0.131</td>
</tr>
<tr>
<td>High-intermediate &lt; Low-advanced</td>
<td>1.000/0.997</td>
</tr>
<tr>
<td>High-intermediate &lt; Advanced</td>
<td>0.102/0.035*</td>
</tr>
<tr>
<td>High-intermediate &lt; Natives</td>
<td>0.001**/0.001**</td>
</tr>
<tr>
<td>Low-advanced &lt; Advanced</td>
<td>0.255/0.195</td>
</tr>
<tr>
<td>Low-advanced &lt; Natives</td>
<td>0.015*/0.020*</td>
</tr>
<tr>
<td>Advanced &lt; Natives</td>
<td>0.288/0.554</td>
</tr>
</tbody>
</table>

\(^{*}p < 0.05, \; \; **p < 0.01\)

These analyses revealed that the high-intermediate and low-advanced groups differed from the native control group at the alpha level of .05. The advanced group learners did not show significant differences from the native control group, indicating that they were within the same range as the native speakers in interpreting sentences containing extrinsic -tul. The low-

\(^{87}\) Since the Homogeneity of Variance was not assumed (Levene’s statistic: $F(4,92) = 5.744, p = .000$ for all learners; $F(4,84) = 5.458, p = .001$ for non-heritage learners), Welch’s adjusted $F$ was reported.
intermediate group’s performance was not significantly different from the native control group, but the difference was approaching significance (p = .078 for all learners). Based on these results, it could be suggested that the advanced group was able to correctly interpret extrinsic plural marking.

**Individual results**

Even though group results did not show significant differences among the learner groups, we could determine if individual learners performed differently according to their proficiency levels. For this purpose, individual analyses based on the consistency of responses were conducted. Participants were categorized into three response patterns: incorrect, optional, and correct. As shown in Table 6.29, the subjects who provided zero or one correct answer were classified into the incorrect pattern, while the ones who provided four or five correct responses were classified into the correct response pattern. Those who provided two or three correct responses were classified into the optional response pattern. Table 6.29 shows the distribution of the three response patterns for each group.

**Table 6.29 Number of participants per response pattern (Translation Task)**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Incorrect (0-1)</th>
<th>Optional (2-3)</th>
<th>Correct (4-5)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>LI</td>
<td>1 (7.7%)/1 (8.3%)</td>
<td>5 (38.5%)/4 (33.0%)</td>
<td>7 (53.8%)/7 (58.3%)</td>
<td>13/12</td>
</tr>
<tr>
<td>HI</td>
<td>7 (22.6%)/7 (23.3%)</td>
<td>9 (29.0%)/9 (30.0%)</td>
<td>15 (48.4%)/14 (46.7%)</td>
<td>31/30</td>
</tr>
<tr>
<td>LA</td>
<td>3 (15.8%)/2 (11.8%)</td>
<td>7 (36.8%)/7 (41.2%)</td>
<td>9 (47.4%)/8 (47.0%)</td>
<td>19/17</td>
</tr>
<tr>
<td>A</td>
<td>0 (0%)/0 (0%)</td>
<td>6 (27.3%)/4 (22.2%)</td>
<td>16 (72.7%)/14 (77.8%)</td>
<td>22/18</td>
</tr>
<tr>
<td>N</td>
<td>0 (0%)</td>
<td>1 (8.3%)</td>
<td>11 (91.7%)</td>
<td>12</td>
</tr>
</tbody>
</table>
Figures 6.16 illustrate the distribution of the three patterns across five groups.

Figure 6.16-1  Percentage of participants per response pattern (Translation Task; All learners)

Figure 6.16-2  Percentage of participants per response pattern (Translation Task; NH learners)
Figures 6.16 indicate that the rate of showing a correct response pattern increased with proficiency, while the rate of optional and incorrect response pattern decreased. The majority of learners in the advanced group fall into the correct response pattern, while only around half of the learners in other three learner groups fell into the correct response pattern. This could suggest that the learners’ performance became more like native speakers in interpreting extrinsic plural marking as their proficiency improved, indicating that this property is acquirable. This can be supported by the evidence that four learners in the low-intermediate group (4 out of 13), 10 learners (one heritage learner included) in the high-intermediate group (10 out of 31), six learners (one heritage learner included) in the low-advanced group (6 out of 19), and 10 learners (one heritage learner included) in the advanced group (10 out of 22) gave 100% correct responses.

6.6. Correlation between length of stay and performance on the tasks

This section presents correlation analyses between learners’ length of stay and their performance on the tasks. As will be discussed in Section 7.4.1, the various properties regarding intrinsic -tal are not discussed in L2 Korean textbooks or classrooms (See 7.4.1 for detailed information). Extrinsic plural marking is not usually presented in classroom instructions. Due to insufficient classroom information, L2 learners require naturalistic input to master the two types of Korean plural marking. This consideration could lead us to predict that as the length of learners’ immersion in a naturalistic environment increases, their performance will improve on Korean plural marking. In order to investigate whether this prediction is on the right track, Pearson’s Correlation Coefficients were performed for each task.
Intrinsic plural marking

a. Length of stay * AJT

r (75) = .007, p = .476 (one-tailed) for non-heritage learners; r (83) = .026, p = .405 for all learners.

b. Length of stay * Elicitation Task

r (75) = .036, p = .379 (one-tailed) for non-heritage learners; r (83) = .047, p = .334 (one-tailed) for all learners.

c. Length of stay * TVJT (Intrinsic plural marking)

r (75) = .165, p = .076 (one-tailed) for non-heritage learners; r (83) = .143, p = .095 (one-tailed) for all learners.

Extrinsic plural marking

d. Length of stay * Preference task

r (75) = .031, p = .395 (one-tailed) for non-heritage learners; r (83) = .070, p = .262 (one-tailed) for all learners.

e. Length of stay * TVJT (Extrinsic plural marking)

r (75) = -.129, p = .131(one-tailed) for non-heritage learners; r (83) = -.121, p = .135 (one-tailed) for all learners.

f. Length of stay * Translation Task

r (75) = .041, p = .361(one-tailed) for non-heritage learners; r (83) = .063, p = .282 (one-tailed) for all learners.

As shown above, the values of $r$ from all of the tasks ($p > .05$) indicate that there are no
significant correlations between learners’ length of stay and their performance on either intrinsic or extrinsic plural marking. These results mean that learners’ performance on both intrinsic and extrinsic plural marking is unlikely to be related to their length of stay in Korea. In other words, even if learners are exposed to naturalistic input for a longer period of time, they might not have achieved native-like attainment of Korean plural marking.

6.7. Summary
In this chapter, I have presented the statistical results of the five tasks used to test whether English-speaking learners acquired various properties of the two types of Korean plural marking. The group and individual results from the five tasks were obtained by statistical methods, and reported. Two statistical results (i.e. all learners and only non-heritage learners) have been presented in order to alleviate the concerns about the inclusion of heritage learners, and it has been recognized that the results were not too different from each other whether heritage learners were included or not.

In the AJT, we observed a clear developmental pattern from the low-intermediate to advanced group in correct judgments of intrinsic plural marking. According to group results, even the advanced group showed significantly different performance from the native control group, indicating that the accurate use of intrinsic -tul was persistently problematic for some advanced learners. However, individual data in the advanced group showed that around 40% of learners fell into the correct response pattern, and one learner provided 100% correct answers. In addition, the within-groups sub-analyses for sub-categories of test items revealed that the low proficiency L2 groups did not discriminate between ungrammatical and grammatical categories, failing to reject the ungrammatical sentences. However, the advanced group was able to
distinguish most ungrammatical categories from the grammatical ones.

In the Preference Task, as in the AJT, even the advanced group performed significantly differently from the native control group. However, according to the individual data, half of the learners in the advanced group showed correct response pattern in recognizing extrinsic plural marking, and some of them received perfect scores. Additionally, the within-group comparisons for the four grammatical categories were performed to investigate whether learners were aware that extrinsic plural marking could be attached to various non-nominal elements. The three low-proficiency learner groups showed different performance among the four categories, while the advanced group showed similar level of performance in each of them. In addition, for adverbs and wh-words, the advanced group’s performance was within the same range as the native control group.

In the Elicitation Task, with the exception of the low-intermediate group, other learner groups’ performance in the obligatory use of intrinsic plural marking was not significantly different from the native speakers. In classifier constructions, the advanced group supplied classifiers more than the lower proficiency groups, and their performance is similar to that of native speakers.

In the TVJT, the advanced proficiency groups did not differ from the native control group in interpreting both types of -tul, unlike the intermediate proficiency groups, whose performance was statistically significant different from the native control group.

Finally, in the translation task, only the advanced learner group did not differ from the native control group in the interpretation of extrinsic plural marking, while the other learner groups performed significantly worse than the native speaker group.

To summarize, in some of the tasks, the advanced group was not distinguishable from
the native control group, indicating that they have knowledge of various properties underlying two types of Korean plural marking. For some other tasks, even though the advanced group was significantly different from the native control group, it was found that there was a developmental increase from the low-intermediate to advanced proficiency levels in the correct use of the two types of plural marking; individual data showed that there were some L2 learners who provided 100% correct responses.

In the following chapter, these results will be analyzed and discussed in terms of the features assembled in the use of both types of Korean plural marking from the perspective of feature-reassembly.
Chapter 7
Discussion

The present study addressed the question of whether L1 English L2 learners of Korean show knowledge of various properties underlying two types of Korean plural marking, and if so, whether the performance of advanced learners is indistinguishable from that of native speakers. This chapter will consider and interpret the major findings presented in Chapter 6, which were analyzed at both the individual and proficiency group levels. Overall, the results of the present study indicate that English-speaking learners of Korean show a gradual development as their proficiency level increases. The results will be analyzed in this chapter in terms of the two research questions presented in Chapter 5.

As discussed in Chapter 2 and 3, both intrinsic and extrinsic plural marking require several features to account for their various syntactic and semantic properties. Some of these properties are shared with English plural marking, but others are not. Given this, I will discuss whether the features that are not involved with English plurals have been successfully incorporated into the representation of Korean plural marking by English-speaking learners. The predictions made in Chapter 4 will also be evaluated, identifying the features with which L2 learners have persistent difficulty.

This chapter is organized as follows. Section 7.1 considers the acquisition of the various features of intrinsic plural marking, while Section 7.2 discusses the acquisition of the features of extrinsic plural marking. In Section 7.3, the lower-than-expected performance of the native speakers in the TVJT will be addressed to determine the factor(s) that contributed to their unexpected responses. Lastly, I will discuss how the findings and information obtained from this
study can be incorporated into classroom instruction in order for L2 learners to learn Korean plural marking effectively.

7.1. Korean intrinsic plural marking

The first research question asked whether L2 learners perform like native speakers in their judgments, producing and interpreting intrinsic plural marking with the syntactic and semantic knowledge of various properties. In order to investigate the issue of intrinsic -tul, an acceptability judgment task, elicitation task, and truth value judgment task were administered. As discussed in Chapter 2, Korean intrinsic plural marking requires several features such as [specificity], [individuation], [human], and two subtypes of [q] feature, as well as [n] and [group], which are also required for English plural marking. Thus, English-speaking learners need to incorporate these features in their representation of Korean plural lexical item.

7.1.1. Acquisition of the [u-specificity] feature

As discussed above, intrinsic plural marking is associated with the uninterpretable feature [u-specificity], which means that the presence of -tul indicates nominal specificity, making it infelicitous in clearly defined non-specific context. Since the feature [u-specificity] is not involved in the realization of English plural marking, it is required to be newly incorporated into the feature bundle of plural marking.

For the obligatory use of -tul in specific context, the elicitation task was administered to test this property. In this task, L2 learners were asked to refer to a particular plural referent. As shown in Chapter 6, the results indicated that three learner groups (with the exception of the low-intermediate group) did not differ from the native control group, indicating that learners beyond
the low-intermediate level have acquired the obligatory use of -tul when referring to a specific plural entity. Based on this finding, we can suggest that the learners showed correct acquisition of the distinction between the obligatory and optional use.

Let us consider why some learners did not produce -tul in specific contexts. The correct use of -tul is associated with the fact that learners are aware of the distinction between -tul and zero-plural in terms of their feature bundles. As argued in Chapter 2, the zero-plural is a defective plural marker involving only the partial collective notion of plurality, while -tul is a regular plural suffix with specificity, which corresponds to a normal plural marker in other languages. Thus, the absence of -tul is ambiguous between the zero-plural and singular forms. If learners use a singular form, it can be assumed that NumP is not projected at all. On the other hand, if they produce the zero-plural, I assume that NumP is projected.

(7.1) a. Num, [u-specific, group, u-n, rel] ↔ -tul
    b. Num, [group(collective), u-n, rel] ↔ ø

As shown in (7.1), the zero-plural and -tul compete for the same position, the head of NumP. Thus, L2 learners have to decide which Vocabulary Item is more appropriate for the position based on the Subset Principle (Halle, 1997). Given the feature bundles in (7.1), -tul must be inserted in case where the interpretable [specificity] feature in D is present and the full notion of plurality is required, because -tul is more specific than the zero-plural. If the zero-plural is inserted for the feature bundle in (7.1a), it violates the Subset Principle and infelicitous
quantified noun phrases are generated.

The TVJT is also used to investigate whether the learners are aware that the use of *-tul* is required to refer to a plural referent that have already introduced in the discourse. The obligatory use of *-tul* with respect to discourse context should be a difficult task even for very advanced learners, because of the processing burden of integrating more than one type of information (i.e. syntax and discourse), according to the Interface Hypothesis (Sorace & Filiaci, 2006; Sorace, 2011). In other words, they are required to use information extracted from the discourse context as well as their syntactic knowledge about the [specificity] feature, in order to judge whether sentences with or without *-tul* are appropriate. However, in contrast to the predictions made by the Interface Hypothesis, the results obtained from the TVJT showed that neither two advanced groups showed a significant difference from the native control group. The individual data also confirmed better performance of the two advanced groups than the intermediate groups, showing that more learners fell within the native speakers’ range. Given this, however, one might argue that the non-significant difference between the advanced learners and the NS group could be due to the fact that the control group’s responses on this task were not as high as anticipated (5.19 out of 7). I will return to this issue in Section 7.4.

The findings from the elicitation task and TVJT suggest that the advanced L2 learners have acquired the obligatory use of *-tul* to refer to a particular plural referent. Conversely, in order to investigate if learners can correctly reject the infelicitous use of *-tul* in clearly defined non-specific context, an AJT involving three test items was performed. For this condition, a one-

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It should be noted that L2 learners’ knowledge about the collective meaning of the zero-plural was not tested in this study. However, it seems to be difficult to test the collective meaning of the zero-plural unless we find a clear way to distinguish between “using a singular form” and “producing a zero-plural”.
way ANOVA was performed, and there was a significant group difference: \( F(4, 111) = 21.425, p = .000 \). Post-hoc analyses indicated that the two intermediate groups differed from the advanced and native control groups, and the low-advanced group differed from the native control group. However, the advanced group did not perform differently from the native control group, indicating that their performance was within the same range as native speakers.

Regarding this result, it should be noted that the number of participants in the native control group who provided the expected judgments on these sentence types is lower than one would anticipate (The mean percentage score was around 55). One possible explanation is the nature of specificity. The notion of specificity in linguistics is very diverse. Seven types of specificity were identified by Von Heusinger (2011). Epistemic specificity is one of the types, which reflects a speaker’s intention to refer to a specific referent from the speaker’s perspective (Ionin, et al. 2004). The condition on the epistemic specificity is satisfied when “the speaker has a particular individual in mind (Karttunen, 1968, p.20)”. The strong view of this definition would be that the specificity condition cannot be satisfied when the speaker does not know or care who/what the referent is. However, the “vague” function of “having in mind” has been differently characterized in several ways (Von Heusinger, 2011), since it depends on the speaker’s intention.

Another possibility would be that there might be individual variation in the distinction between [+human] and [-human] nouns with respect to specificity. Let us consider one of those test items, which native speakers show inconsistent judgments ((2.30) in Chapter 2, repeated as (7.2) below).
When (7.2) was tested on a few Korean native speakers in a pilot study, most of them mentioned that -tul should be eliminated, but also mentioned that they would not say that the sentence with -tul is totally unacceptable. However, it should be noted that the absence of intrinsic -tul led to greater felicity with a kind-taking predicate. While I would not argue that there is a distinction between [+human] and [-human] nouns with respect to specificity in this dissertation, some native speakers mentioned that there might be differences in terms of degree of acceptability. According to them, the pluralized [+human] nouns are more acceptable in generic/kind-predication sentences, whereas the pluralized non-human nouns are not allowed in these sentences. This is observed by Nemoto (2005), considering the following sentence.

(7.3) nwu-ka khemphyuthe (*tul)-lul mantul-ess-ni?
      who-NOM          computer(*PL)-ACC    make-PAST-INT?

‘Who invented computers?’

(Nemoto, 2005, p.394)

In this generic/kind-predication sentence where it is unlikely that the computer denotes a specific one, the use of -tul is clearly prohibited. Thus, there might be a difference between [+human] and [-human] nouns in terms of acceptability in generic/kind-predication sentences.

Lastly, there may have been a problem in the testing method in the AJT. In the AJT, the participants were asked to judge the sentences using a forced-choice method ("yes" or "no"), not a 5 or 7 point Likert scale, which is often used in other L2 studies. Since a more careful
evaluation is required for judging the subtle meaning of specificity involved in -tul, it would be predicted that some native speakers show some variable judgments. Given this, they might have not thought that the sentences incorrectly containing -tul in non-specific context were 100% ungrammatical, and thus incorrectly judged them as “yes”. In other words, even though they thought that the sentences were at least unnatural or odd, but they could not correctly judge them as “no”, because the sentences were not as bad as other obviously ungrammatical sentences to which they gave “no”.

As predicted in Chapter 4, the native-like performance of advanced learners in the various tasks with respect to the feature [u-specificity] suggests that they have acquired the feature, successfully incorporating it into the intrinsic plural lexical item in Korean. On the other hand, the lowest proficiency learners behaved differently from the native control group on all of the tasks, indicating developmental delays in the acquisition of the feature [specificity] until the advanced level.

7.1.2. Acquisition of the [individuation] feature

I have shown that, following Gebhardt (2009) and Cowper and Hall (2009), numeral classifiers are specified as the feature [individuation]. For the elicitation task, there are three test items, which were designed to elicit the use of classifiers. As K. Choi (2011) argues, a numeral usually requires a ClP as its complement in Korean unless a noun has the [numerable] feature. In Chapter 2, we discussed that some human nouns have the [numerable] feature, and thus non-human nouns are not usually allowed to combine with a numeral without a classifier. However, we also discussed that the quantified structures without a classifier are not common, indicating that the use of classifiers is preferred in most cases.
The elicitation task investigates if L2 learners supply classifiers when producing a quantified structure containing numerals. In case of non-human nouns, it is predicted that L2 learners who have acquired the [numerable] feature would supply a classifier, because non-human nouns do not have the [numerable] feature as shown in Section 2.3.5.5. As reported in Chapter 6, for non-human nouns, there was a significant difference among the five groups in the rate of suppliance. It turned out that lower proficiency learners omitted classifiers more than the advanced and native control groups did. To put it differently, lower proficiency learners produced the English-like constructions such as \textit{ney chayk-(tul)} ‘four book-(PL)’. The rate of suppliance of classifiers of the advanced group is around 70%, and their performance was not significantly different from the natives’. In addition, it is also consistent with the corpus data, which found that suppliance of classifiers was around 70% in case of non-human nouns (See Table 2.10 in Chapter 2). This finding could suggest that lower proficiency learners have not acquired the [numerable] feature of nouns.

For human nouns, on the other hand, there was no significant difference among the five groups, indicating that classifiers were overwhelmingly supplied across groups. The non-significant performance differences with human nouns could be accounted for by the Numeral Classifier Accessibility Hierarchy ((2.40) in Chapter 2 is repeated as (7.4) below).

(7.4) Numeral Classifier Accessibility Hierarchy

\begin{itemize}
  \item Animate human > animate nonhuman > shape > function
\end{itemize}

As mentioned in Chapter 2, the hierarchy reflects the order of acquisition, suggesting that the human classifier is acquired earlier than other non-human ones. Moreover, the non-human
classifiers (i.e. *kwen for books, and *tay for vehicles) tested in the elicitation task are classified into function groups, which is the most marked property on the hierarchy shown in (7.4). In brief, the low proficiency learners did not show difficulties producing the correct classifier *myeng with human nouns, and this result is consistent with the order of acquisition suggested by the Numeral Classifier Accessibility Hierarchy.

The advanced group usually supplied classifiers, regardless of whether nouns are human or not, and most of the supplied classifiers supplied were correct. I would suggest that these findings indicate that [individuation] and other associated features such as [numerable] and [abs] are eventually acquired by end-state English-speaking learners.

7.1.3. Acquisiton of the split [q-rel] and [q-abs]

As shown in Chapter 2, in English both numerals and non-numerals can appear with the plural morpheme, and thus only the non-split [q] feature is available without further details on [rel] and [abs] (Gebhardt, 2009). In Korean, however, the sub-divided features [rel] and [abs] must be distinguished. As discussed in Chapter 2, Korean numerals, not non-numerical quantifiers, are required to appear with classifiers, but do not usually allow the occurrence of the plural morpheme. On the other hand, unlike numerals, Korean non-numeric quantifiers can appear with the plural morpheme *-tul. Thus, for quantified structures, English-speaking learners need to distinguish the [q] feature and acquire the use of two subtype features [q-abs] and [q-rel].

The test items in the AJT did not directly test the incorrect use of non-numeral quantifiers with classifiers (e.g. *chayk many-kwen ‘book many-CL’). However, there are four test items involving the split [q] feature. Consider again the two sub-categories in (5.1) in Chapter 5, as repeated here as (7.5).
(7.5)

b. Numeric quantifier with pluralized nouns (N=2; incorrect ones)

*na-nun ecey paykhwacem-eyse sey paci-tul-ul sa-ss-eyo.

I-TOP yesterday department store-LOC three pant-PL-ACC buy-PAST-DECL

‘I bought three pants in the department store yesterday’

f. Weak quantifier with pluralized nouns (N=2; correct ones)

ecey na-wa hamkkey kyosil-ey iss-ten motun salam-tul-i pantayhay-ss-eyo.

yesterday me-and together classroom-in be-PAST.REL all person-PL-NOM oppose-PAST-DECL

‘The people who were in the classroom with me yesterday opposed (something)’

The test items in the (b) category are related to the [q-abs] feature, while the ones in the (f) category are related to the [q-rel] feature. In English, both constructions are equally acceptable (three books vs. many books), because plural morpheme can occur with both numeral and non-numeral quantifiers, not distinguishing the sub-divided [abs] and [rel] features. Thus, if the English-speaking learners have not split up the [q] feature yet, they would incorrectly accept both categories to a similar degree. However, if they have acquired the split [q] feature, they would correctly reject the (b) category while accepting the (f) category.

The mean scores for the (b) and (f) categories are presented in Table 7.1 (Table 6.4 in Chapter 6 where the categories c and d are eliminated is repeated as 7.1 below).
Table 7.1  Mean percentage scores of each category (AJT)

<table>
<thead>
<tr>
<th>Group</th>
<th>Ungrammatical</th>
<th>Grammatical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. N[-h]+tul with CL</td>
<td>b. NQ with N+tul</td>
</tr>
<tr>
<td>LI</td>
<td>11.5/12.5</td>
<td>15.4/12.5</td>
</tr>
<tr>
<td>HI</td>
<td>35.5/36.7</td>
<td>38.3/38.3</td>
</tr>
<tr>
<td>LA</td>
<td>47.4/44.1</td>
<td>50.0/47.1</td>
</tr>
<tr>
<td>A</td>
<td>65.9/69.4</td>
<td>68.2/72.2</td>
</tr>
<tr>
<td>N</td>
<td>88.7</td>
<td>87.1</td>
</tr>
</tbody>
</table>

These results were evaluated both within and between groups in order to see whether the learners were able to judge two categories differently, and their performance was significantly different from the native control group. As for the within-group comparisons, repeated measures ANOVAs were performed. The post hoc comparisons indicate that, as shown in Table 7.2 (Table 6.5 in Chapter 6 is repeated as 7.2 below), the low-intermediate and high-intermediate groups showed a significant difference between the two categories.
Table 7.2  Post-hoc pair-wise comparisons (six categories in AJT)

<table>
<thead>
<tr>
<th>Group</th>
<th>Pairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Intermediate</td>
<td>(a &lt; c^{<strong>}, a &lt; f^{</strong>}, b &lt; e^{<em>}, b &lt; f^{**}, c &lt; e^{</em>}, c &lt; f^{<strong>}, d &lt; e^{</strong>}, d &lt; f^{**})</td>
</tr>
<tr>
<td>High-Intermediate</td>
<td>(a &gt; d^{<strong>}, a &lt; c^{</strong>}, a &lt; f^{<strong>}, b &gt; d^{</strong>}, b &lt; c^{<strong>}, b &lt; f^{</strong>}, c &gt; d^{<strong>}, c &lt; e^{</strong>}, c &lt; f^{<strong>}, d &lt; e^{</strong>}, d &lt; f^{**})</td>
</tr>
<tr>
<td>Low-Advanced</td>
<td>((a &gt; d^{<em>}), b &gt; d^{</em>}, c &lt; e^{*}, c &lt; f^{<strong>}, d &lt; e^{</strong>}, d &lt; f^{**})</td>
</tr>
<tr>
<td>Advanced</td>
<td>(a &gt; d^{<em>}, b &gt; d^{</em>}, c &gt; d^{<strong>}, (d &lt; e^{*}), d &lt; f^{</strong>})</td>
</tr>
<tr>
<td>Natives</td>
<td>(a &gt; d^{<strong>}, b &gt; d^{*}, c &gt; d^{</strong>}, e &gt; d^{<strong>}, f &gt; d^{</strong>})</td>
</tr>
</tbody>
</table>

NOTE: Starred (*) entries indicate statistically significant differences at \(p < 0.05\), and double starred (**) entries indicate at \(p < 0.01\).

In other words, the low-intermediate and high-intermediate groups accepted ungrammatical sentences containing the \([q\text{-abs}]\) feature more or less as strongly as they accepted grammatical ones containing the \([q\text{-rel}]\) feature. However, the low-advanced and advanced groups did not show a significant difference in their performance of the two categories \((p > .05)\), indicating that they performed at a similar level of accuracy. In other words, they were able to differentiate the \([q\text{-abs}]\) and \([q\text{-rel}]\) features in the AJT.

In addition, as for the between-group comparisons, one-way ANOVAs were performed for the two categories. As expected, for the category \((f)\) involving grammatical test items, there was no significant difference among groups \((p > .05)\). However, for the category \((b)\) consisting of ungrammatical test items, there was a significant difference among the five groups, and the post-hoc comparisons revealed that only the advanced group did not differ from the native control group.

These findings suggest to us that the most advanced group of learners have acquired the split \([q]\) feature, correctly further distinguishing two sub-features, and the native-like attainment
of these features is possible. On the other hand, the low proficiency learners appeared to fail to make a clear distinction between the [q-abs] and [q-rel] features. It could be argued that the [q] feature in the representation of low proficiency learners still has the properties of English, and that the acquisition of the distinction between two features is delayed to the advanced level.

7.1.4. Acquisition of the [human] feature in numeral-classifier structures

We have shown in Chapter 2 that the [human] feature restriction is also required in classifier constructions. Regarding this construction, human nouns can be pluralized with the plural morpheme -tul in the presence of a numeral-classifier, allowing two separate projections of NumP and CIP within DP, unlike non-human nouns.

The hierarchical co-occurrence feature restrictions for quantified NPs regarding the [human] feature restriction is provided in (2.64), repeated as (7.6) below.

(7.6) Feature co-occurrence hierarchy for quantified noun phrases in Korean

As shown in (7.6), the [abs] feature has an additional node for the [human] feature, because in numeral-classifier constructions, the presence of -tul depends on whether the classified nouns are human or not. In other words, the additional node indicates that the [abs] feature has an additional co-occurrence restriction with the [human] feature, but the [rel] feature does not. As mentioned in Chapter 2, following McCarthy’s (2008, 2012) model of morphological variation
and development using the feature hierarchy, it can be predicted that the [human] feature of classified nouns, the most deeply embedded of the feature hierarchy on the [q] feature, would be acquired latest (Hwang & Lardiere, 2013).

Among the six sub-categories in the AJT, two categories tested the possibility and impossibility of attaching -tul to a classified noun depending on the feature [+human]. There are two test items for each category as indicated in (7.7).

(7.7)

a. Classifier with pluralized [-human] nouns (N=2; incorrect ones)

*chayk-tul twu kwen-i chayksang wiey iss-eyo.
book-PL two CL-NOM desk on exist-DECL
‘There are two books on the desk’

e. Classifier with pluralized [+human] nouns (N=2; correct ones)

three CL-GEN kid-PL-NOM house front-LOC play-PRES-KES^{89}-ACC see-PAST-DECL
‘(Someone) saw three kids playing in front of the house’

We can assume that learners would judge the two categories differently if they have acquired the distinction, while they would fail to reject the (a) category if they are not aware of the restriction. The obtained results for these categories were evaluated within groups and between groups in order to examine whether the learners were able to perform differently in the two categories, and their performance was distinguishable from the native control group.

As for the within-group comparisons, the low-intermediate and high-intermediate groups

^{89} The ‘kes’ in Korean nominalizes a preceding VP or S. It is indicated ‘KES’ in the glosses.
showed significantly different performance between the two categories, as indicated in post hoc comparisons for repeated measures ANOVAs (Table 7.2 above). In other words, two intermediate groups had difficulty in making a distinction between the two categories, accepting both categories to a similar degree. However, the low-advanced and advanced groups did not exhibit different performance between them, indicating that they performed on both categories at the same level of accuracy. That is, the advanced learners were able to recognize the [human] feature of classified nouns in numerically-classified structures to a certain extent.

For the between-group comparisons, one-way ANOVAs were performed separately for the test items in the category (a) and (e), in order to investigate whether learner groups behaved in a native-like way. Regarding the ungrammatical category (a), it was demonstrated that the advanced group did not show a significant difference from the native control group, while other learner groups behaved differently from the NS group. On the other hand, for the grammatical (e) category, most learner groups did not differ from the natives. As shown in Table 7.1 above, it should be noted that the advanced group’s score is the lowest one among the five groups (75.0 for all learners; 69.4 for non-heritage learners), and thus unexpectedly the non-heritage advanced group showed a significant difference from the native control group. However, it does not necessarily mean that the [human] feature restriction is not acquirable, because we found one advanced learner who scored 100% in the AJT.

This finding could suggest that some advanced learners have acknowledged the restriction, but others have not completely acquired it yet. From this result, we could surmise that some advanced learners might use the avoidance strategy, disallowing the addition of -tüü regardless of whether nouns are human or not. That is, they have acquired the [abs] and [rel] distinction, which requires that numerals appear with classifiers, but not the most highly-
specified feature of the feature co-occurrence hierarchy yet. We may assume that these learners lack the dependent feature [human] in their representation, and thus rely on the distinction between [abs] and [rel] feature. It can be said that the delayed acquisition of the highly-specified feature demonstrates that the developmental patterns suggested in Chapter 4 based on the hierarchical feature co-occurrence restrictions are on the right track.

These findings lead us to conclude that some high proficiency learners have acquired the [human] feature of classified nouns, although this [human] feature restriction was still problematic for other advanced learners. From these findings, we can suggest that the specification for the [human] co-occurrence feature appears to be a difficult task even for some advanced learners.

7.1.5. Pre-nominal numeral-CL vs. Post-nominal numeral-CL

As shown in Chapter 2, there are two constructions containing classifiers that are equally acceptable. It can be expected that English-speaking learners prefer the pre-nominal numeral CL construction, because the word order is similar to the English counterpart construction.

(7.8) a. sey kwen-uy chayk three CL-GEN book

b. three bottles of water

However, as shown in Section 6.3.2, what we observed in the elicitation task was reversed: every L2 group including the lowest proficiency group (i.e. low-intermediate) preferred the post-nominal numeral-CL constructions. This finding suggests that there is no sustained L1 transfer from English in terms of the word order with classifiers. This could be interpreted as evidence
that L2 learners in this study, even the lowest proficiency learner group, have successfully restructured the CL constructions in response to properties of the L2 input. Regarding the input, it was indicated that the post-nominal numeral-CL construction is more frequently used in both written and spoken corpus data (See Table 2.7 and 2.8 in Chapter 2).

A possible explanation for this finding would be that L2 learners may easily notice the difference between Korean and English classifier constructions, and thus the L1 structure should be short-lived, because word order facts such as head direction are considered to be salient and prominent (Clahsen, 1988; Hu & Liu, 2007 for the salience of head direction). Following FT/FA, it is predicted that the L2 learners at the initial stage of acquisition immediately assume the pre-nominal numeral-CL constructions, but restructure it to the post-nominal numeral-CL based on the L2 input and eventually recognize that there are two possible constructions.

In the pre-nominal numeral-CL construction, the genitive case marker -uy is required. As observed in Section 6.3.2, the advanced learners correctly supplied it whenever they produced the pre-nominal numeral-CL constructions (9 out of 9), unlike other low proficiency learners (1 out of 7 for LI; 1 out of 12 for HI; 1 out of 3 for LA).

To summarize, the prevalent use of the post-nominal numeral-CL construction by the learners suggests that they have successfully restructured word order. For the advanced learners, the results showed that they could produce both word orders along with the correct genitive marker, indicating that native-like attainment is possible with respect to numeral-classifier constructions.

7.2. Korean extrinsic plural marking

We turn now to the second research question of whether English-speaking learners are aware of
the use of extrinsic plural marking, and interpret it correctly. In order to examine this question, a preference task, truth value judgment task, and translation task were administered. As discussed in Chapter 3, Korean extrinsic plural marking is associated with the [u-pl] and [distributive] features. These features are also available in English, but different types of lexical items are associated with these features. This section considers whether English-speaking learners have acquired these features.

7.2.1. Various non-nominal elements attached to extrinsic plural marking

The preference task tested whether L2 learners are aware that extrinsic plural marking can be attached to various non-nominal elements that cannot be pluralized in the L1. As reported in Chapter 6, overall results indicate that all learner groups differed from the native control group on this task, even though the advanced group performed significantly better than other learner groups.

As shown in Chapter 5, this task is comprised of four categories: adverbs, oblique nominals, wh-words, and verbal nouns. For the within-group comparisons, repeated-measures ANOVAs were performed and it was found that while the two intermediate and low advanced groups showed a significant difference on the categories, the most advanced proficiency group did not, suggesting that the advanced learners performed equally well on them.

In addition, for each category, between-group comparisons were performed. In the adverb category, every learner group showed the highest score among the four categories, and the advanced group did not significantly differ from the native control group. Likewise, regarding the wh-word category, the advanced learners did not differ from the native speakers. However, for the other non-nominal categories, all learner groups were different from the natives.
Given these findings, it can be assumed that different performance on the four categories might stem from different frequency. As presented in Section 3.4.2 on corpus data in Chapter 3, it is observed that adverb and wh-words are some of the most frequently used categories for extrinsic t-ul constructions, accounting for around 40% and 10% of the data, respectively. Thus, it seems that the findings are in accordance with the corpus data, suggesting a correlation between the input frequency and acquisition. However, for the verbal noun category (which accounted for around 13% of the corpus data), it should be noted that learners including the advanced group did not perform well.

These findings suggest that lower proficiency learners have not yet extended the use of Korean plural morpheme t-ul to various non-nominal categories, or they have not even recognized non-nominal plural marker at all. On the other hand, some advanced learners showed native-like performance in more than one category (though not all of them). We found that 13 learners scored 100% in the preference task, and this finding suggests that native-like attainment is possible at least for some learners.

7.2.2. Acquisition of the [u-pl] feature

The [u-pl] feature involved in extrinsic plural marking requires a plural antecedent, which is responsible for valuing/deleting the uninterpretable feature. Turning to the acquisition of this feature, L2 learners are required to learn that extrinsic t-ul can be used only when sentences have a plural subject. Unfortunately, the data to directly test this feature are not sufficient, but I present them here nonetheless as evidence that the learners have acquired the [u-pl] feature, although it is not abundant.

In the preference task, learners were required to judge sentences with and without t-ul
based on the context. If learners correctly mark ‘yes’ on the sentence containing -tul, the context should involve plural subjects. If they have not acquired the [u-pl] feature involved in extrinsic -tul, they would incorrectly mark ‘yes’ on sentences with -tul where a singular subject is presupposed. Thus, it would be necessary to investigate whether the learners correctly reject the use of -tul in a sentence where the plural subject is not involved. Given this issue, the preference task has only one test item involving infelicitous use of extrinsic -tul where a singular subject is involved.

The results of the item should be considered with caution, because there is the possibility that learners would correctly mark ‘no’ on a sentence with -tul, because they are just not aware of the non-nominal use of extrinsic plural marking, not because of the acquired [u-pl] feature. Thus, I decided to exclude learners who did not seem to recognize the use of extrinsic plural marking. Recall that there are three categories to classify individual learners’ response pattern, and based on these the learners who fell into the incorrect and optional categories were excluded. Assuming that learners falling into the correct category are aware of the use of extrinsic plural marking, let us consider whether they have acquired the [u-pl] feature based on their performance on the test item involving infelicitous use.
Table 7.3  Number of rejecting the infelicitous use of *-tul*

<table>
<thead>
<tr>
<th>Group</th>
<th>N of learners classified into the Correct category</th>
<th>N of correctly rejecting the infelicitous use of <em>-tul</em> with a singular subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>LI</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>HI</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>LA</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>A</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>24</td>
</tr>
</tbody>
</table>

As shown in Table 7.3, most learners correctly reject the infelicitous use of *-tul* with a singular subject. This finding could suggest that the learners who have acquired the use of extrinsic *-tul* have successfully assembled the [u-pl] feature required for it.

However, since there was only one test item directly testing knowledge of the [u-pl] feature, one might claim that the data are not sufficient to conclude their successful acquisition. In addition to the data presented above, we also rely on the function of *each (of the)* in English, which distributes a predicate over individual members of a set, and thus presupposes a plural subject. Accordingly, we assume that the acquisition of the [u-pl] feature should follow once the acquisition of the distributive meaning is completed (Hwang & Lardiere, 2013). This assumption is contrary to the Bottleneck Hypothesis, which suggests that semantic knowledge automatically follows the acquisition of inflectional morphology, and does not pose considerable learning difficulty. However, it is plausible to assume that the distributive meaning is acquired late, because distributivity may not be an evident property easily detectable in the input. This consideration suggests that the acquisition of the [distr] feature entails the acquisition of [u-pl], but not vice versa.
7.2.3. Acquisition of the [distributive] feature

This section discusses the acquisition of the [distr] feature, showing how L2 learners performed the tasks testing this feature. In order to investigate whether L2 learners have acquired the [distr] feature assembled in extrinsic plural marking, two tasks were administered: a TVJT and a translation task.

The TVJT tested whether English-speaking learners have knowledge of distributivity, asking them to judge sentences with extrinsic -tul based on context. The results of this study show that two advanced groups did not show significant differences from the native control group, implying that L2 learners at an advanced level of proficiency are sensitive to the distributive reading of extrinsic plural marking. The feature [distr] is also available in English, even though it is morphologically realized in another type of lexical item, each (of the). It seems that the advanced proficiency group has correctly assembled the extrinsic plural lexical item with the feature [distr] recruited from the lexical item in their L1. On the other hand, the low proficiency learners did not differentiate between distributive and collective readings, indicating that they have not learned that extrinsic -tul triggers only the distributive meaning. Given the results of the TVJT, as with intrinsic plural marking, it should be noted that even the native control group’s responses are lower than one would expect. I will return to this issue in detail in Section 7.4.

The translation task also examined whether L2 learners can correctly interpret extrinsic -tul. In this task, learners were asked to read sentences in Korean, and choose the most appropriate response from four interpretations in English. As mentioned above, distributivity in English is situated on the quantifier each (of the). If learners select the correct translation containing each, it can be argued that L2 learners have acquired the distributive meaning of
extrinsic -tul. As presented in Chapter 6, there was no significant difference between the advanced and native control groups, while other relatively low proficiency groups showed significant differences.

Based on the findings from the TVJT and translation task, we found that the high proficiency learners were able to recruit the [distr] feature from the lexical item each in English. As mentioned above, we assume that if L2 learners have acquired the [distr] feature, this implies that they have syntactic knowledge of the [u-pl] feature. Thus, it can be suggested that the advanced learners in the present study have successfully acquired the relevant features required for extrinsic plural marking, as predicted in Chapter 4.

Since extrinsic plural marking is not usually taught in classroom and occurs rarely in the input, it can be predicted that learners who have lived in the target language environment for a considerable length of time should perform better on extrinsic plural marking than learners who have not. In Section 6.6 in Chapter 6, correlation analyses between learners’ length of stay and their performance were conducted, but no significant correlations between the two variables were found in any tasks. Based on these results, it can be suggested that being exposed to naturalistic input could be a minimum requirement in order to acquire extrinsic -tul, but a considerable length of stay does not always assure its successful acquisition.

7.3. Intrinsic plural marking vs. extrinsic plural marking

In Section 4.1.2.5 in Chapter 4, it was predicted that L2 learners have more difficulties with extrinsic plural marking than intrinsic plural marking because the former corresponds to a completely different morpholexical item in English and rarely occurs in the input. Since both types of -tul were not tested on the same task, the direct comparison between the two plural
markers is not possible. Thus, in order to make an indirect comparison, this section considers individual learners’ data. Table 7.4 presents individual learners who were classified into the correct response pattern in all three tasks for either intrinsic -tul or extrinsic -tul.

Table 7.4  Individual learners classified into the correct response pattern

<table>
<thead>
<tr>
<th>ID/Group</th>
<th>Length of stay</th>
<th>AJT</th>
<th>Elicitation</th>
<th>TVJT</th>
<th>Preference</th>
<th>Translation</th>
<th>TVJT</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/3</td>
<td>0.75(H*)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>null</td>
<td>null</td>
<td></td>
</tr>
<tr>
<td>32/2</td>
<td>24</td>
<td>✓</td>
<td>null</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>48/3</td>
<td>24</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>67/4</td>
<td>48(H*)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>71/4</td>
<td>36</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>79/4</td>
<td>18</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>81/4</td>
<td>66</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

*Note: The ‘H’ indicates heritage learners.

As shown in Table 7.4, six learners fell into the correct response pattern in all three tasks testing extrinsic plural marking, while only three learners fell into the correct response pattern in all three tasks testing intrinsic plural marking. It should be noted that there are some learners who showed unbalanced performance between the two types of plural marking. One learner (ID Number: 3) showed native-like performance in intrinsic plural marking despite unsuccessful performance in extrinsic plural marking. On the other hand, four learners (ID Number: 32, 48, 67,
79) showed the correct response pattern in all of the tasks testing extrinsic plural marking, but failed to show native-like performance in some or all of the tasks testing intrinsic -tul. Since more learners showed native-like performance in extrinsic -tul, this result does not seem to support the prediction that it would be more difficult to acquire extrinsic -tul than intrinsic -tul. However, it would be difficult to conclude that intrinsic -tul is more difficult to acquire, because two learners (ID Number: 48, 67) among the four also fell into the correct response pattern in two tasks for intrinsic plural marking.

We also need to consider individual learners who fell into the incorrect response pattern, because the prediction is about the difficulty of extrinsic plural marking. The following table presents individual learners who scored below 30 percent in at least two tasks testing either intrinsic plural marking or extrinsic plural marking.
Table 7.5  Individual learners classified into the incorrect response pattern

<table>
<thead>
<tr>
<th>ID/Group</th>
<th>Length of stay</th>
<th>Intrinsic</th>
<th></th>
<th></th>
<th>Extrinsic</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AJT</td>
<td>Elicitation</td>
<td>TVJT</td>
<td>Preference</td>
<td>Translation</td>
<td>TVJT</td>
</tr>
<tr>
<td>3/3</td>
<td>0.75(H*)</td>
<td></td>
<td>√</td>
<td></td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>7/2</td>
<td>6</td>
<td>√</td>
<td>√</td>
<td></td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14/2</td>
<td>27</td>
<td>√</td>
<td></td>
<td></td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20/3</td>
<td>24</td>
<td></td>
<td>√</td>
<td></td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38/1</td>
<td>24</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45/2</td>
<td>48</td>
<td></td>
<td></td>
<td></td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50/2</td>
<td>20</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>56/2</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>77/3</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>89/2</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As shown in Table 7.5, all of the learners showed unbalanced performance between the two types of plural marking. Six learners (ID Number: 3, 20, 45, 56, 77, 89) showed incorrect response patterns in more than one task for extrinsic plural marking, but did not fall into the incorrect response pattern in any of the tasks testing intrinsic plural marking. Among them, one learner (ID Number: 56) had difficulties with all of the tasks testing extrinsic -tul, but did not fall into the incorrect response pattern in any of the tasks testing intrinsic -tul. On the other hand, there are two learners (ID Number: 7, 38) who showed incorrect response pattern in two tasks for intrinsic plural marking, but they fell into the incorrect response pattern in only one task for extrinsic -tul.
To summarize, there are more learners who had much difficulties with extrinsic plural marking than the learners with intrinsic plural marking.

These results indicate that six more learners showed much more difficulty with extrinsic plural marking than with intrinsic plural marking (eight learners vs. two learners). On the other hand, three more learners were able to show correct response patterns in all of the tasks testing extrinsic plural marking than in the ones for intrinsic plural marking, showing better performance on extrinsic -tul (four learners vs. one learner). These results can be interpreted in the following way: L2 learners can recognize the use of intrinsic plural marking easily due to the functional similarities to the English counterpart. However, there are various properties including classifiers that interact with its use, and thus it takes more time to acquire all of the relevant features (e.g. [indiv], [human], [rel] vs. [abs], [specif], etc.). On the other hand, for extrinsic plural marking, it should take more time to associate -tul with the morpholexical counterpart in English than intrinsic plural marking; however, as long as learners have recognized its function in the input, they can acquire its use within a reasonable period of time due to the relatively small number of features (i.e. [u-pl] and [distr]). These results should be interpreted with caution due to the small sample size.

7.4. Possible explanations for NS control group’s low performance in TVJT

One might wonder why the native control group did not perform as high as expected in the truth-value judgment task as reported in Chapter 6 (Table 6.21 & 6.23 for intrinsic plural; Table 6.24 & 6.26 for extrinsic plural). There are some conjectures as to why they did not reach the typical performance level of NS group.

First, there could be a methodological issue. Since their unanticipated performance
occurs only in the TVJT for both intrinsic and extrinsic plurals, it is reasonable to check whether the task itself was problematic. We should admit that the task was not easy even for native speakers. Many participants (including native speakers) mentioned that they spent much more time on working on the TVJT than other tasks, and there were some items whose answers they were unsure of. For this task, they were required to extract information from a written context, and then associate the extracted information with the meaning of the target sentence. Unlike other tasks, since the context involves some peripheral (background) information, extracting the necessary information would have imposed a cognitive burden even on native speakers. Accordingly, it is possible to assume that working on 32 items may cause mental exhaustion, and thus sometimes lead them to be distracted.

Regarding the methodological issue, we need to determine the test items with which NS control group had difficulties. There were three ‘yes’ items and four ‘no’ items for each type of plural marking. For most participants, the ‘yes’ items were not problematic. It was the ‘no’ items on which they did not perform as high as expected. In other words, many native speakers incorrectly answered ‘yes’ to the ‘no’ items. According to Schmitt and Miller (2010), the TVJT has some disadvantages of ‘yes’ bias, because participants “may say yes to a ‘good enough’ description of some portion of the story (p.49)”. Given this, we can conjecture that the participants, including native speakers, may have focused on the propositional kernel figuring out “who did what” from the written text. While what we expected from this task was to investigate whether they are aware of the meaning of -tul, they could have thought that this was peripheral. In other words, unless the subject understood our intention, they may have judged the sentence based on its core meaning, regardless of a presence or absence of -tul, assuming that it had a good enough description of the written text. Montrul and Slabakova (2003) also indicate
the relatively lower performance of NS control group on test items targeted semantic subtle interpretation in the TVJT.

Another possibility is that there could be individual variations in interpreting the meaning of -tul. When piloting the test items in TVJT before the actual data collection, we found that the native speaker participants showed high level of performance. While not all NSs received a perfect score, no NS scored below 6 out of 7 for each type of plural marking. However, at that time only test items without distracters were tested, so it seems that they could more concentrate on the test items. More importantly, the participants in the piloting were graduate students studying linguistics, who may have been keen to the subtle semantic difference, and linguistically trained. The most participants of the NS group in the actual data collection were not trained in linguistics, even though they are well-educated. Thus, it is undeniable that there should be some individual variations in perceiving the meaning of two types of plural marking, suggesting that the semantic properties of -tul suggested in this study might be weak for some native speakers.

Lastly, one might suggest that it would not make sense to expect L2 learners to provide accurate judgments on these tasks, in which even native speakers did not perform as expected. However, this kind of unexpected performance of native speakers has been reported in many L2 studies. Nevertheless, it could be suggested that L2 learners should at least not be different from native speakers in order to conclude that they have acquired the specific linguistic forms investigated in the study (Tremblay, 2006).

7.5. Pedagogical implications

As Slabakova (2009) notes, it has been said that the generative approach to L2 acquisition has
not generally contributed to classroom instructions, because useful information for language teachers is not usually discussed in generative studies of L2 acquisition. However, it is clear that the ultimate goal of L2 acquisition regardless of the framework in which the studies are based can and should be to provide useful information to facilitate language learning. Given this, Flynn and Martohardjono (1995) argue that a systematic investigation about how L2 research and L2 pedagogy interact is necessary to establish a comprehensive account for L2 learning. White (2007) also acknowledges the necessity of instruction, suggesting that instruction might be effective in providing L2 input necessary to acquire the parameter values of the L2.

Generative L2 approaches have mainly paid attention to subtle grammatical phenomena, of which even language teachers are not aware or do not have explicit knowledge (Slabakova, 2009). By working on these UG-based phenomena, many generative SLA studies have offered a precise description of what needs to be learned by L2 learners (Flynn & Martohardjono, 1995). Regarding the L2 learning task, feature-reassembly approach adopted in this study suggests that “grammatical acquisition requires redistributing abstract features among the relevant morphemes in the target language and learning the precise conditions under which these can or must (or must not) be expressed” (Lardiere, 2012). Given this, in this section, I will suggest that the feature-based analysis can provide formally articulated information that L2 learners have to acquire for Korean plural marking, and present how the information can contribute to classroom instruction.

Most participants in this study (except two heritage learners) reported that they had formal instruction, and 75 out of 85 were enrolled to a Korean language program at the time of testing. Since classroom instruction is an important source of information for L2 learners, I will consider first what is taught and is not taught in an instructional setting with respect to two types of Korean plural marking by providing information from some textbooks, and suggest that some
explicit information from which L2 learners can benefit from should be provided for effective learning.

7.5.1. Intrinsic plural marking

With respect to Korean plural marking, I found that the textbooks I consulted do not pay attention to the various properties of -tul, such as specificity. It seems that plural marker -tul is simply treated as a new vocabulary word, rather than an important grammatical construction. When -tul appears in the text, it may be simply said that it is a plural particle or plural marker without further explanations about its use as shown in Figure 7.1.

<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>p.84</td>
</tr>
<tr>
<td>New words</td>
</tr>
<tr>
<td>PARTICLE</td>
</tr>
<tr>
<td>tul</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>p.43</td>
</tr>
<tr>
<td>*--tul</td>
</tr>
<tr>
<td>Ex. Haksayng (student) → haksayng-tul (students) / ai (child) → ai-tul (children)</td>
</tr>
</tbody>
</table>

Figure 7.1 Information about -tul

Rather than focus on the use of plural marking, the textbooks instead treat classifiers as one of the main grammatical structures. It should be noted that classifiers are usually introduced at the early stage of acquisition (e.g. Beginning 1), because counting is basic grammar that is necessary for basic communication skills. The textbooks focus on various kinds of classifiers, and have
learners memorize and practice them as illustrated in Figure 7.2.


p.101
“When you count, you must use different counters. Nouns are classified into many groups depending on shape or kind”

<table>
<thead>
<tr>
<th>Counter</th>
<th>Kinds of things counted</th>
<th>Counting</th>
</tr>
</thead>
<tbody>
<tr>
<td>myeng</td>
<td>people</td>
<td>han myeng, twu myeng,…</td>
</tr>
<tr>
<td>mali</td>
<td>animals</td>
<td>han mali, twu mali,…</td>
</tr>
<tr>
<td>kay</td>
<td>items</td>
<td>han kay, twu kay,…</td>
</tr>
<tr>
<td>etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 7.2 Information about classifiers

Thus, it appears that classifiers are treated more like vocabulary learning than grammar learning. Moreover, as Figure 7.3 illustrates, the textbooks do not provide any other information about classifier constructions such as the [human] feature or two possible word orders (only the post-nominal numeral-classifier of two constructions is presented).
It can be inferred from these observations that L2 learners might be taught to use a simple strategy, “just do not produce -tul”, regardless of whether nouns are human or non-human in numeral-classifier structures, rather than being explicitly taught about the exact conditions of its use. Since the pluralization of human nouns is not obligatory in numeral-classifier structures, many teachers may not teach the distinction. Or, they may simply tell not to pluralize the nouns in the presence of classifiers, in order to keep their students from producing ungrammatical sentences such as *chayk-tul sey kwen ‘book-PL three CL’. Even if students are informed about the distinction, they might use the ‘avoidance’ strategy. Thus, classroom input may not be helpful with respect to Korean plural marking, as these issues are not discussed in L2 Korean textbooks or taught in L2 classrooms.

The feature-reassembly approach can offer formally articulated information about the
differences in their L1 and L2 that needs to be taught. If an English-speaking student finds the morpheme -\textit{tul} from the input, and asks what -\textit{tul} is, most teachers would answer “it is a plural-marking like -\textit{s} in your language”, because they also look for the closest lexical item at first glance to enhance the learners’ understanding within a short period of time. Or, teachers might possibly be unaware of the subtle crosslinguistic differences between the two lexical items. Even if they are aware that they are used differently, they would not know where the differences lie, or how to articulate the differences. Accordingly, this insufficient information could mislead learners to a mistaken assumption, even though there are many properties to master with respect to the plural lexical item. The feature-reassembly approach should be able to aid language teachers, because it provides more specific information about these crosslinguistic differences.

Thus, the information about Korean plural marking should be incorporated in classroom instruction. For the obligatory use involving the [specificity] feature, for example, it might not be easy to notice the difference between sentences with and without intrinsic -\textit{tul}, because the feature [specificity] is not a prominent property, and cannot be easily detected from the input. In order to help learners enhance the ability to notice the feature, well-structured examples need to be presented, and practicing the target structure should take place “in meaningful, plausible sentences where the syntactic effects and semantic import of the morphology is absolutely transparent and non-ambiguous” (Slabakova, 2009, p.292). Hence, classroom instruction where clear presentation and subsequent practice are implemented can help L2 learners notice the features that might be difficult to detect solely from input.

7.5.2. Extrinsic plural marking

In Chapter 4, it has been predicted that English-speaking learners would have persistent
difficulty with extrinsic plural marking due to infrequent input and the [distr] feature associated with a completely different lexical item in English. Instruction on extrinsic plural marking explicitly provided in classroom would be helpful for successful acquisition, but my own Korean-language-teaching informants tell me that extrinsic plural marking is not usually taught in instructional setting. Accordingly, L2 learners are required to detect the morpheme solely from the naturalistic input. However, I found a textbook having some information about extrinsic plural marking. The following textbook includes a short note on extrinsic -tul, as follows.


p.20

Notes

1. When attached to a noun, -tul indicates the plural.
2. Tul can also be used to indicate that the subject, whether expressed or understood, is plural. In this usage, -tul can be attached to any expression other than the verb. In example (1), either of the following is possible:

   (1) ce ttaymuney **swuko-tul** manhi hasi-ess-ciyo?
     me because of trouble-EPL a lot do-HON-PAST-INT
     ce ttaymun-ey **manbi-tul** hasi-ess-ciyo?
     me because of trouble a lot-EPL do-HON-PAST-INT
     ‘You all must have gone to so much trouble because of me, didn’t you?’

-tul can even be attached to the whole sentences, as in ‘ce ttaymun-ey swuko manhi hasi-ess-ciy o, **tul**’. It is not attached to the verb, although it follows it, because the intonation changes. In this case, there is a rising intonation before -tul.

Figure 7.4 Information about extrinsic plural marking

As shown in Figure 7.4, the distributive function is not presented at all, except mentioning that a plural subject is required and that -tul can be attached to various non-nominal elements. Thus, neither textbooks nor classroom input seems very helpful for the acquisition of extrinsic plural
marking.

On top of this observation, the properties of extrinsic -tul itself may cause difficulties. DeKeyser (2005) suggests that three factors should be considered in determining grammatical difficulty of linguistic forms: complexity of form, complexity of meaning, and complexity of the form-meaning relationship. Based on his suggestion, extrinsic plural marking seems to be related to the difficulty of form-meaning mapping, which may be caused by the lack of transparency. As discussed in previous chapters, its use is optional in terms of grammaticality, but there is a subtle semantic difference between sentences with and without extrinsic -tul; the sentences with extrinsic -tul triggers only distributive meaning, while sentences without it involve both collective and distributive meaning. Thus, it seems that it has the difficulty of form-meaning mapping due to the optionality and opacity. Moreover, since the morpheme -tul has two different functions, the relationship between form and meaning might be difficult to detect. Given this, C.-E. Kim (2012) notes that learners initially assume the one-to-one mapping between a morpheme and function, dispreferring the combination of more than two functions such as distributivity and plurality on a single morpheme.

While extrinsic -tul may be classified as difficult to acquire, L2 learners would benefit from explicit instruction in meaningful context. As with intrinsic plural marking, classroom instruction might also be able to help learners acquire the difficult form-meaning mapping of extrinsic plural marking. Slabakova (2012) suggests that when a single morpheme has two different meanings, a clear presentation in disambiguating context and subsequent practice are necessary, especially for the one that is rarer in the input. Thus, the formally articulated information about extrinsic plural marking should be incorporated in the form of structured input to highlight the [distr] feature in order for learners to easily detect the cues.
7.6 Summary

As predicted in Chapter 4, English-speaking learners showed a development as their proficiency improves. The most proficiency advanced group performed with a high level of accuracy on most of the tasks, while the relatively low proficiency learners failed to show native-like performance. The findings are in accordance with the feature-reassembly approach, suggesting, following the FT/FA hypothesis that L2 learners look for the closest morpholexical equivalent in their L1 and start reconfiguring the new lexical items with the features that are not situated in the L1 equivalents in response to properties of the L2 input. The feature-reassembly approach predicts that because the plural lexical items in the L1 and L2 are markedly different from each other in the selection and assembly of features, the distinctions between them would be difficult for English-speaking learners to acquire, but the required relexicalization of features is nonetheless ultimately acquirable.

With respect to intrinsic plural marking, the closest equivalent should be English -s, and English-speaking learners will establish Korean plural marking with the features unassociated with -s such as [specificity] and [individuation], split [q], and [human]. The advanced learners have incorporated most of the features required for intrinsic plural marking into their representation of -tul. The individual results indicate that at least some learners attained native-like performance on the tasks testing these features. However, for the distinction between the [±human] features, some advanced learners did not show complete incorporation. We have shown that this finding could be accounted for by the fact that the deepest embedded feature of a feature hierarchy is acquired last. The overall results would lead us to conclude that some advanced English-speaking learners have eventually reconfigured intrinsic plural lexical item
with the relevant features, even though complete acquisition is delayed until advanced stages of L2 development.

Extrinsic plural marking, on the other hand, was predicted to be more difficult to acquire than intrinsic plural marking, because it rarely occurs in the input and its grammatical function is situated on a completely different lexical item in the L1, unlike intrinsic - tul which has the same grammatical function as English -s. As shown in Section 7.3, individual learners’ data showed that more learners had difficulty with extrinsic - tul than with intrinsic - tul.

Nonetheless, the most advanced proficiency group showed a non-significant difference from the native control group in performing the tasks testing distributivity, providing evidence that they have successfully recruited the relevant features from the morpholexical item in the L1.

To summarize, the experimental evidence for the L2 learners’ successful incorporation of the features into their representation of Korean plural marking is compelling. As discussed in this chapter, English-speaking learners eventually acquire the features associated with two types of Korean plural marking, indicating that native-like proficiency is attainable. These findings would suggest that L2 learners do not stick with the L1 properties, and that the role of L1 influence is not necessarily permanent. It seems reasonable to conclude that the advanced learners have both relevant abstract representation and appropriate surface realization, despite the fact that neither classroom instruction nor textbooks discuss the various aspects of the two types of plural marking.
Chapter 8

Conclusion

This dissertation examined whether English-speaking learners can acquire the various properties of two types of Korean plural marking (intrinsic and extrinsic) in terms of the feature-reassembly of lexical items. The two main objectives of this study were: (i) to characterize L2 learners’ learning task based on the cross-linguistic variation in number marking between the L1 and L2; and (ii) to investigate the extent to which the language-specific assembly of features in the Korean plural marking is acquirable by the learners (i.e. whether native-like attainment is possible).

Regarding intrinsic plural marking, this dissertation described the idiosyncratic properties of Korean quantified structures, adopting Gebhardt’s (2009) feature-driven analysis. On the assumption that -tul is a plural marker, I suggested the features required for the use of plural marker -tul and other conditioning factors such as classification, numerical vs. non-numerical quantification, etc. are [group], [specificity], [rel] vs. [abs], and [human]. Some of the features overlap with those of English plural marking, but other features are not common. With respect to extrinsic plural marking, as shown in Chapter 3, its presence not only requires a plural subject, but also indicates the distributive reading of a sentence. The features required for its use were identified as [u-pl] and [distr].

Regarding the task confronting L2 learners, it was argued that the feature-reassembly approach can usefully frame the acquisition of plural marking with respect to the formally articulated differences in number marking between English and Korean. Following the feature-
reassembly approach building on the FT/FA hypothesis, this dissertation assumed that L2 learners look for the closest morpholexical equivalent in their L1, and start reconfiguring the new lexical items with features that are not situated as in L1 equivalents in response to properties of the L2 input. The feature-reassembly approach would predict that because the plural lexical items in the L1 and L2 are markedly different from each other in the selection and assembly of features, the distinctions between them would cause considerable difficulty for English-speaking learners, at least in early stages of development. The developmental predictions made based on the feature-reassembly approach were presented, indicating that acquisition would be completed at very advanced proficiency level. In order to evaluate the hypothesized predictions, empirical data from English-speaking learners collected from various types of tasks were provided and analyzed.

For both types of plural marking, the overall results lead us to conclude that advanced English-speaking learners are able to eventually reconfigure the Korean plural lexical item with the relevant features, even though complete acquisition is delayed until advanced stages of L2 development. While the group results on some tasks indicated significant difference from the NS control group, the individual results indicate that at least some learners showed native-like performance on the tasks. On most of the tasks, the most advanced group performed with a high level of accuracy while the relatively low proficiency learners failed to show native-like performance. This finding suggested that there is gradual development as learners’ proficiency level improves, supporting the feature-reassembly approach. Extrinsic plural marking was predicted to be particularly more difficult to acquire than the intrinsic plural, because it occurs rarely in the input and its grammatical function is situated on a completely different lexical item in the L1, unlike intrinsic -tul which has a similar grammatical function as English -s.
Nonetheless, the most advanced group showed a non-significant difference from the native control group in the tasks testing distributivity.

There are a few methodological limitations that need to be considered for designing future studies. As noted in Chapter 7, there was an issue in the TVJT, as even native speakers did not perform as well as expected. Given this, it was recognized that the level of difficulty of the tasks was not equal across the tasks in this study. For future studies where the various types of tasks will be performed, it will be important to try to make the tasks equal in terms of the level of difficulty. In addition, in this dissertation, only paper-and-pencil tasks were administered. Some (or all) of the tasks could be redesigned as computer-based tasks, and so we could obtain other performance measures (e.g., reading time), which cannot be revealed in the paper-based tasks.

This dissertation sheds light on the nature of the L2 learning problem in the domain of number marking, suggesting that L2 learners face a difficult task that has been disregarded in L2 acquisition presumably due to the simplicity of its form. This study investigated languages in which the language-specific configuration of features involved in number marking substantially differs from each other (i.e. Korean and English), but in order to generalize the findings of this current thesis more studies including L2 learners with different L1 backgrounds, even typologically close languages (e.g. Japanese), are necessary. For example, Japanese has a plural marker -tachi, which shows some restrictions in its use (e.g. definiteness (Kurafuji, 2004); associative property (Nakanishi & Tomioka, 2004)), but the restrictions are not the same as Korean plural marking. It would be interesting to see whether Japanese learners have less difficulty with Korean plural marking than English-speaking learners or whether the different L1 groups show the same degree of difficulty. Such comparisons may reveal more crucial characteristics of L2 acquisition in relation to feature reassembly in lexical items.
Appendix A – Elicitation Task

Instruction: A woman has been traveling around. She found some interesting scenes while she was traveling. If you were the woman, which questions would you ask your sightseeing guide about each scene? Please use the words given below each picture in your response.

**Test items for obligatory context for - tul:**

1. 사람 (person), 타다 (to ride)
2. 집 (house), 하얗다 (be white)
3. 학생 (student), 손에 들다 (to hold)

**Test items for classifier context:**

4. 책 (book), 셋(세) (three), 제목 (title)
5. 자동차 (car), 둘(두) (two), 왜 (why)
6. 경찰 (policeman), 셋(세) (three), 어디 (where)
Appendix B – Preference Task

Instruction: Read the situations described below in which people are doing something. Four Korean sentences are given below each situation. Mark each sentence with either “yes” or “no” based on the context. There could be more than one correct answer, so you can have more than one “yes”.

1. The family is about to have dinner. The woman who made dinner is bringing it to them. As she puts it on the table, what would she say?
   a. 어서들 드세요.
   b. 어서 먹으세요.
   c. 어서 드세요.
   d. 어서 먹으셨어요?

2. There are some students in a classroom. Before the class begins, the teacher is asking the students if they each did their homework. What would the teacher say?
   a. 숙제들은 다 했어요?
   b. 숙제가 다 했어요?
   c. 숙제는 다 했어요?
   d. 숙제가 어제 했어요?

3. David was walking on the street. A couple of tourists who were traveling there asked him for directions. David told them the directions and then he asked them a question. What would he ask?
   a. 어디에 오셨어요?
   b. 어디에 오세요?
   c. 어디서 오셨어요?
   d. 어디서들 오셨어요?
4. Rebecca has three daughters, who are teenagers. Her first and second daughters are attending a high school, and her youngest one is a middle school student. Today, they returned home together. What would Rebecca say to them?
   a. 학교가 갔다 왔어?
   b. 학교에 갔다 왔어?
   c. 학교에들 갔다 왔어?
   d. 학교가 다녀 왔어?

5. Steve is an office worker. When he came back from lunch, his colleagues started laughing at him. Steve was curious why they were laughing. What would he say to them?
   a. 왜들 그렇게 웃어?
   b. 왜 저렇게 웃고 있어?
   c. 왜 저렇게 웃고 싶어?
   d. 왜 그렇게 웃어?
Appendix C – Acceptability Judgment Task

Instruction: Read the sentences below carefully, and judge each one with ‘yes’ or ‘no’ as to whether it is grammatically correct. After each sentence, write ‘yes’ if the sentence is correct based on your grammar knowledge, or ‘no’ if it isn’t. If you write ‘no’, please correct the sentence.

1. 나는 다섯 안경들이 있어요. __________

2. 도서관에 있던 많은 책들 중에 하나를 골랐어요. __________

3. 세 명의 아이들이 집 앞에서 노는 걸 봤어요. __________

4. 책들 두 권이 책상 위에 있어요. __________

5. 나는 어제 백화점에서 세 바지들을 샀어요. __________

6. 어제 학생 네 명들을 만났어요. __________

7. 나는 시계들 세 개를 친구한테 줬어요. __________

8. David이 다섯 명들의 아이에게 선물을 줬어요. __________

9. 고등학교 때 친했던 친구들 세 명이 이메일을 보냈어요. __________

10. 어제 나와 함께 교실에 있던 모든 사람들이 반대했어요. __________

11. 고래들은 포유동물이에요. __________

12. 아무 학생들이나 그 일을 할 수 있어요. __________

13. 여성 수사관들은 드물어요. __________
Appendix D – Truth Value Judgment Task

**Instructions**
Read the following situations. After each one, write ‘yes’ if the Korean sentence is an accurate statement based on the context, or ‘no’ if it isn’t.

**Intrinsic plural marking**
1. Emily and Kevin are in kindergarten. Emily brought three toys from home, and Kevin brought only one toy. Kevin played with his own toy, and Emily also played with her own toys.

Emily는 자기 장난감들을 가지고 놀았다

2. Steve is a professor at a college. He had a class today. Before the class, a female student dropped by his office, and said that she had an emergency, so she would not be able to attend the class. After that, he also got emails from three students, saying that they would be unable to attend the class today, because they were ill.

학생이 이메일을 보냈다

3. Julie’s dog just had six puppies. Julie loves them all, but she can’t take care of all the six puppies. So, she decided to raise only one puppy, and gave five of them to her mother. However, the puppies that her mother is taking care of got sick.

Julie의 어머니는 아픈 강아지들을 키우고 있다

4. There was a big baseball game yesterday. Throughout most of the game, there were no home runs for our team, even though some players had hits. But, a famous hitter hit a home run in the bottom half of the ninth inning, so our team ended up beating the other.

선수들이 친 것은 홈런이다

5. Today is Kate’s birthday. Today at work, Kate received a bunch of flowers from her close friend from high school, Jessica. Her other close friends Cara and Stacy also sent her some cosmetics as a birthday gift. Kate was very surprised by the gifts.

친한 친구가 화장품을 보냈다
6. Steve was working at home yesterday. His 10-year old son asked him so many questions, so he couldn’t concentrate on his work. Moreover, there was too much noise outside, distracting him from his work. When he came out, six kids were playing soccer in front of his house.

아이가 시끄럽게 놀아서 일을 할 수 없었다

7. Julie is a college student. On her campus, there are three new dormitory buildings and one dining hall under construction. She wants to move into one of the new dorms after they open.

학교는 기숙사 건물들을 짓고 있다

**Extrinsic plural marking**

8. Janet has two kids, Chris and Emily. They like to read, so Janet gave a book to Chris and another book to Emily. Emily enjoyed reading her book, and Chris also enjoyed reading his book.

아이들이 책을 재미있게 읽었다

9. Kim has two kids, Emily and Kevin. Emily played at a park with her friends today. Kevin also played with his friends at another park. They both came back home in the evening.

Emily와 Kevin은 공원에서 놀았다

10. Emily and Justin are classmates, and they had a mid-term last Monday. On Sunday, Emily studied hard in the school library, while Justin studied hard at the public library for 6 hours.

Emily와 Justin은 도서관에서 열심히 공부했다

11. Stacy’s birthday was yesterday. She invited her friends to her place for a party. Three friends were invited to the party, and they all chipped in to buy her a new suitcase. They gave it to her together, and returned home.

친구들은 선물을 주고 돌아갔다

12. Cara and Jane were invited to their friend David’s birthday party. Unfortunately, something urgent came up, so they were not able to go to the party. Jane asked Cara to call David before the party to say that they would not be there, and Cara did.
Cara와 Jane은 미리들 전화를 했다

13. Kelly, Emily and Jodie are classmates. They were working together on a group project. Their teacher asked them to submit their project yesterday. The three girls worked hard, and handed in their assignment on time together.

학생들은 제 시간에 맞춰서 다들 숙제를 냈다

14. Cara and Sam went to a shopping mall together to buy some clothes. Cara bought only a skirt, while Sam bought a jacket, a T-shirt, a dress shirt and a pair of jeans. After shopping, they had dinner at a restaurant.

Cara와 Sam은 옷을 많이들 샀다
Appendix E – Translation Task

Instructions
Given below are 18 sentences in Korean with 4 English interpretations for each sentence. For each sentence, read the Korean and the English equivalents carefully and place a check mark next to the most appropriate equivalent.

1. 일요일마다 Kevin과 Steven은 집에서들 숙제를 했어요.
   a. Kevin and Steven did their homework at home last Sunday. _________
   b. Kevin and Steven did homework together at one of their homes on Sundays. _________
   c. Kevin and Steven each did their homework at home every Sunday. _________
   d. Kevin and Steven did homework every other Sunday. _________

2. 아이들은 시험 때문에 주말에도 열심히들 공부했어요.
   a. The children studied hard over the weekend because of the homework. _________
   b. Every child studied hard even over the weekend because of the exam. _________
   c. The children studied hard together even over the weekend because of the exam. _________
   d. The children studied hard before their exam this weekend. _________

3. 수업 후에 학생들은 집으로들 돌아갔어요.
   a. The students returned home before class ended. _________
   d. The students returned home together after class. _________
   a. Each student returned home after class. _________
   b. The students came back from home after class. _________

4. 생일파티에서 Stacy의 친구들은 Stacy에게들 선물을 썼어요.
   a. Stacy’s friends gave a gift together to Stacy at her birthday party. _________
   b. Stacy’s friends each gave a gift to Stacy at her birthday party. _________
   c. Stacy received many gifts from her friends at her birthday party. _________
   d. Stacy’s friends gave a gift to her before her birthday party. _________

5. David의 아이들은 아침 일찍 학교에들 갔어요.
   a. David’s kids went to school together early in the morning. _________
   b. David’s kids went to school in the early afternoon. _________
   c. Each of David’s kids went to school early in the morning. _________
   d. David’s kids walked to school early in the morning. _________
Appendix F – Background Questionnaire

Random ID number: ___________________________  Date: ____________________

Sex: __________
Age: __________

1. What is your native language?

2. What is your level of education?
   - High school
   - Some college
   - Bachelor’s degree
   - Master’s degree
   - Ph.D.
   - Other ________________

3. Have you lived in/visited Korea? If yes, fill in the blank and circle the appropriate time period(s).
   - Yes, for ________ day(s)/week(s)/month(s)/year(s).
   - No, never

4. How long have you been studying Korean?  Fill in the blanks.
   e.g.) ________ 2 __________ year(s) ________ 6 __________ month(s)

   __________ year(s) __________ month(s)

5. Please indicate below the place and age at which you started learning Korean, and if applicable, whether you learned Korean by formal lessons (e.g., at school or in a course), or by informal learning (e.g., at home, at work, or from friends).

<table>
<thead>
<tr>
<th>Formal lessons (yes/no)</th>
<th>Place</th>
<th>Age</th>
<th>How long?</th>
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<th>Informal learning (yes/no)</th>
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6. Do you have family members or friends who can speak Korean?

6-1. If yes, do you usually communicate with them in Korean?

7. Please list any languages in which you have some proficiency (be sure to include Korean, but do not include English), and indicate how good your proficiency is in the language(s):

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<tr>
<th>Language</th>
<th>Listening</th>
<th>Speaking</th>
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